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AVIATION DEPOT LEVEL REPAIRABLE CARCASS TRACKING AND BILLING: THE EFFECT OF THE TWO PRICE SYSTEM ON BUDGETING AND FLYING HOUR COST REPORTING

by

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by

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ABSTRACT

The purpose of this thesis is to examine problems with the Navy's two price aviation depot level repairable (AVDLR) billing and tracking system. These problems include fluctuations in post fiscal year obligation levels and the distortion of flying hour cost reporting due to AVDLR carcass charges and credits received during the expenditure availability periods of the Operations and Maintenance, Navy appropriations used to fund AVDLR purchases. Fluctuations in post fiscal year obligation levels can potentially result in the unintentional over obligation of funds. Distortions in flying hour costs result in inaccurate flying hour program budget requests. This thesis also explores the feasibility of a two price/one bill system of charging for AVDLRs which has often been proposed as a solution to the problems mentioned above. The conclusion reached is that the problems with the two price system have diminished significantly over time. The two price billing system remains the best means of maintaining system visibility of AVDLR carcasses and holding down overall AVDLR costs.

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I. INTRODUCTION

A. DESCRIPTION OF THE PROBLEMS ASSOCIATED WITH THE TWO PRICE BILLING SYSTEM

Aviation Depot Level Repairables (AVDLR) are aircraft components or aviation related components which can be repaired to make unserviceable aircraft or aviation related equipment function properly. AVDLRs are typically high cost and/or long procurement lead time items. Because of these characteristics, significant economies can be achieved by repairing these items rather than discarding them when they become unserviceable. [Ref. 1:p. 1-1]

AVDLRs are managed centrally by the Aviation Supply Office (ASO) in Philadelphia, Pennsylvania as part of the Navy Stock Fund (NSF) or as "end use" inventories held by aviation support activities. ASO uses a two price billing system to charge user activities for AVDLRs issued from the NSF. The price an activity is charged for each AVDLR it uses is dependent on whether or not the activity returns an unserviceable component (carcass) in exchange for each NSF AVDLR issue. Net price is charged for an AVDLR when a carcass turn in is made. Standard price, usually significantly higher

than net price, is the cost to an activity if no carcass turn in is made.

ASO's use of the two price AVDLR billing system has created several problems, or potential problems, at both the aviation support activity and aviation type commander levels. These problems include the distortion of costs associated with flying hour programs, possible post fiscal year budget management problems, and at the very least an increased workload due to the carcass tracking and budget management requirements imposed by the system.

B. ORIGIN OF NAVY STOCK FUNDING OF AVDLRS

Prior to 1 April 1981, all Depot Level Repairable (DLR) items, both aviation and non-aviation, were procured for the Navy Supply System with procurement appropriation funding and held in the Appropriation Purchases Account (APA) inventory. The appropriations used to procure AVDLRs included the Aircraft Procurement, Navy (APN), Weapons Procurement, Navy (WPN), and Other Procurement, Navy (OPN) appropriations. These are fully funded investment type appropriations with a three year obligational availability period. "Fully funded", within this context, means that dollars are specifically appropriated to construct a specific number of units. [Ref. 2:p. A-17]

Repair of DLRs was financed with funds from the Operations and Maintenance, Navy (O&M,N) appropriation, an annual, expense type appropriation. Issues of DLRs were made at no cost to the customer. Procurement and repair management were done centrally by ASO and the Ships Parts Control Center (SPCC) in Mechanicsburg, Pennsylvania, the Inventory Control Points (ICP) for AVDLRs and non-aviation DLRs respectively.

Management and procurement of DLRs was difficult for the ICPs in terms of material availability and responsiveness to fleet requirements. This was due to the use of various appropriations for financing procurement and repair of DLRs as well as the long budget lead times required for the procurement appropriations. The difficulties associated with these separate and inflexible funding mechanisms caused the Chief of Naval Operations (CNO) to direct a study to consider and evaluate alternative methods of financing DLRs. The study concluded that the Navy Stock Fund (NSF) was a practical and improved method of financing the procurement and repair of DLRs. [Ref. 3:p. 1]

The Navy began to test stock funding of non-aviation DLRs, i.e., selected SPCC managed DLRs, on 1 April 1981. The test period was to have concluded on 30 September 1983. Because of significant improvements in supply availability of non-aviation DLRs, the CNO authorized the Chief of Naval Material

to develop a plan of action and milestones for a 1 April 1985 extension of NSF financing to AVDLRs managed by ASO. The main objectives to be accomplished by NSF financing were [Ref. 4:p. I-2-1]:

1. Improved supply system discipline resulting from the buyer-seller relationship inherent in a stock funded environment vice the APA free issue system.

2. Increased financial flexibility due to the ability to trade off NSF procurement and repair during budget execution.

3. More accurate budget forecasting due to shorter stock fund lead times.

4. Improved material support responsiveness due to the stock fund's ability to respond to emergent requirements without reprogramming requirements/funds.

The NSF is a revolving fund with two primary assets - cash and material. The cash is used to build up or maintain material inventory through payment for repair of material at repair depots and purchases of new items from vendors. When material is issued to a customer, the NSF is reimbursed from the customer's operating funds. The cash is then used to replenish the NSF material inventory and the cycle is repeated. In addition to cash generated by sales, the NSF has two other basic sources of cash: transfers from other Department of Defense (DOD) stock funds, and appropriated transfers into the fund for specific purposes. Figure I-1

[Ref. 5:p. 101-6] is an illustration of the flow of funds and material into and out of the NSF.

The Naval Supply Systems Command (NAVSUP) is responsible for overall management of the NSF. The fund is split into various categories of material, or budget projects, which are assigned to Navy ICPs and retail offices for management. ASO is the budget project manager for aviation consumables and AVDLRs.

NSF material inventories are not stocked at the controlling ICP. They are instead positioned at various stock points as wholesale stocks owned by the ICP. Customer demands are satisfied from these stocks and replenishments are usually "pushed", or determined, by the ICP. Stock points carrying wholesale AVDLRs include Naval Supply Centers and Naval Air Stations. Ships not yet converted to end use management of AVDLRs carry NSF owned retail AVDLR stocks. The main difference between retail and wholesale is that retail inventories are designated specifically to support the activity carrying them while wholesale inventories are issued to various activities as directed by ASO.

The conversion to NSF financing of AVDLRs helped to solve several of the problems with AVDLR funding. Under the old APA system, the use of investment type appropriations with three year lead times for procurement caused problems with

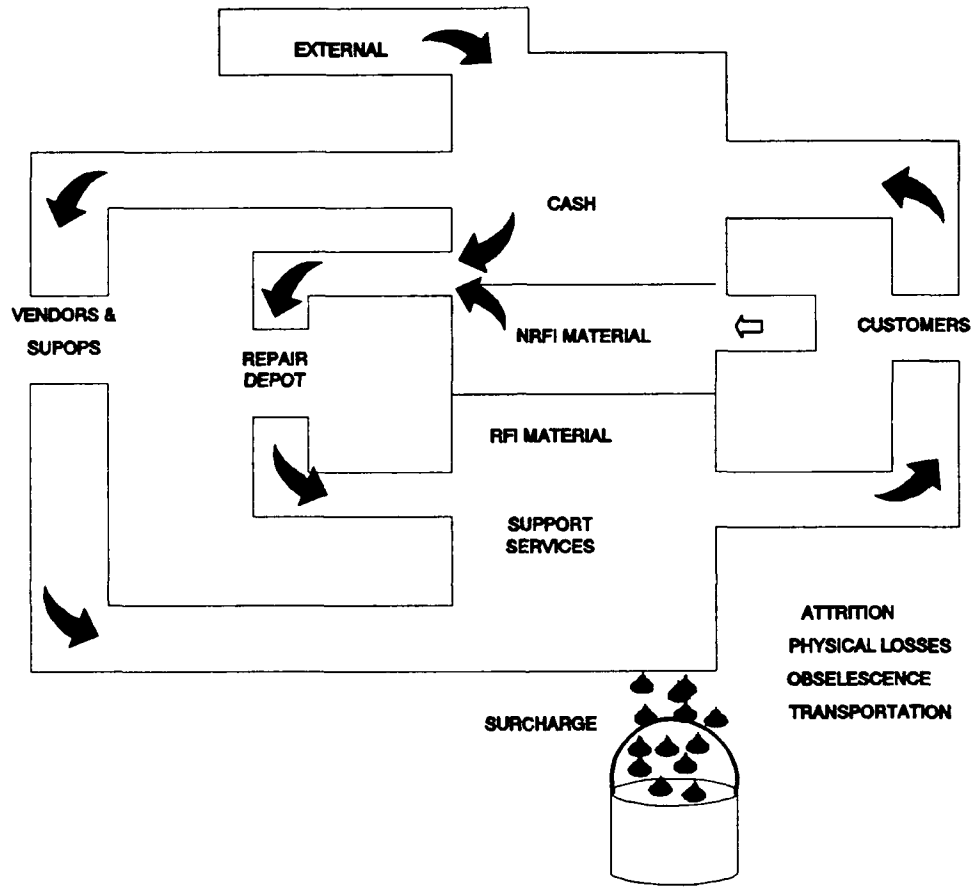


Figure I-1 NSF Revolving Fund Operations

forecasting supply system requirements. In addition, O&M,N funds, an expense type appropriation, were used for transportation and repair of AVDLRs. With the conversion to NSF financing, purchases and repairs of AVDLRs are all made with NSF funds as required. Financial inflexibility and the need for rigid long run forecasting have been eliminated.

C. EXPLANATION OF THE TWO PRICE AVDLR BILLING SYSTEM

Under the APA "free issue" system of AVDLR management, problems developed with aircraft squadrons stockpiling AVDLRs. There were no financial incentives to ensure every AVDLR issue to a squadron was matched with a turn-in of an inoperable AVDLR (carcass). In addition, there was no effective carcass tracking system to keep track of not ready for issue (NRFI) carcasses returned or not returned to the supply system.

Although individual squadrons were attempting to maximize their own readiness by hoarding spare AVDLRs, both ready for issue (RFI) and NRFI, this behavior was extremely dysfunctional in that it led to decreased readiness Navy wide. By holding scarce RFI AVDLRs as spares outside of the supply system, squadrons were keeping material from units that needed it. The NRFI equipment not being returned to the supply system was not getting repaired, therefore depleting the system inventory. This not only resulted in decreased

readiness, but greater expense for inventory replenishment as well.

Upon conversion to NSF financing of AVDLRs on 1 April 1985, two primary mechanisms were implemented to enhance the system wide availability of all assets and to ensure the timely return of NRFI carcasses. The first, an upgraded carcass tracking system, will be discussed in Chapter III. The second was the use of a two price billing system for AVDLRs.

Under NSF financing, users reimburse the stock fund for AVDLRs with their operating funds, usually the user's share of the annual O&M,N appropriation. At the point of sale from the NSF, buyers normally provide the NSF with cash through obligation of their O&M,N funds and a NRFI carcass to be repaired at a designated depot repair facility (military or civilian contractor). When a sale is accompanied by a NRFI turn-in, the buyer is billed by ASO for the sale at net price. Net price is basically the cost of repair of the NRFI AVDLR.

When a buyer does not provide a turn-in, in exchange for an RFI AVDLR, it will be charged standard price for the sale. Standard price is basically the price of purchasing a new item for the NSF. There are factors other than just the cost of repair or the vendor's price for a new item which figure into

the determination of net and standard prices for individual AVDLRs.

The base AVDLR procurement and repair prices for standard and net pricing, respectively, are determined annually by ASO for each AVDLR. Surcharges to the AVDLR costs are calculated annually by NAVSUP based on information provided by ASO. These surcharges, one each for standard and net price, are provided to ASO by NAVSUP as percentages to be applied across the board to the procurement and repair costs of each AVDLR.

Surcharges include factors for inflation, inventory obsolescence, transportation, physical inventory losses, price stabilization, and the cost of supply operations at Naval Supply Centers and Inventory Control Points. The price stabilization factor is figured in to maintain the NSF at its approved level. It compensates for the difference between pricing assumptions made in the previous year's budget and the actual costs incurred during the year [Ref. 2:p. G-6]. Net price also includes factors for depot washout (irrepairable carcasses) and carcass losses. The determination of carcass losses will be discussed in Chapter III.

The use of a two price system has two major effects. First, it allows for NSF financial stability and AVDLR inventory maintenance at prescribed levels by compensating the NSF for any system losses of material caused by using

activities. Secondly, the use of the two price system provides powerful financial incentives for buyers to make timely one-for-one exchanges of NRFI AVDLRs for RFI material.

Net price is typically around 40 percent of standard price for an AVDLR [Ref. 6:p. 35]. The difference between the two prices is known as a carcass charge and can be in the hundreds of thousands of dollars for some individual items. With continually shrinking budgets, user activities can ill afford to incur carcass charges by not making timely NRFI turn ins when buying AVDLRs.

D. SUMMARY

The implementation of NSF, and subsequently end use, financing of AVDLRs has been a success in terms of achieving the CNO's objectives - improved supply system discipline, increased financial flexibility, more accurate budget forecasting, and improved material support responsiveness. The two price billing system for AVDLRs used since the implementation of NSF financing has however, led to problems, or potential problems, of its own. As mentioned previously, these problems include the distortion of flying hour cost reporting, post fiscal year budget management difficulties, and an increased workload imposed on aviation activities by the two price system.

The primary cause of potential problems associated with the two price billing system is the difference in timing between ASO's carcass tracking and billing cycle for AVDLRs and both the length of the appropriation from which AVDLR operating funds are provided and the dates on which annual flying hour cost reports are prepared. Chapters II and III will provide background information which explains how these timing differences arise. Chapter IV will discuss how such timing differences can lead to problems at the aviation support activity and type commander levels.

A possible solution to the difficulties associated with the two price system of billing for AVDLRs is the use of a single bill system. This solution has been proposed at several levels in the aviation supply community during the past few years. Chapter V will examine the theoretical benefits and drawbacks of a type of single bill system, a two price/one bill system, based on carcass tracking and billing data gathered for the time period 1986 - 1990. Chapter VI will develop a conclusion based on data and information presented in Chapters IV and V.

The focus of this thesis will be on the effects of the two price system of billing for AVDLRs at one major aviation type commander, Commander U.S. Naval Air Forces, Pacific Fleet (COMNAVAIRPAC). This is due primarily to the readily

available data at COMNAVAIRPAC and the need to restrict the scope of the thesis. Explanations and examples will be restricted mainly to routine stock replenishment requisitions for the sake of simplicity.

II. AVDLR OPERATIONAL FUNDING

A. INTRODUCTION

Since the implementation of NSF financing of AVDLRs on 1 April 1985, customers have had to pay for the consumption of AVDLRs with their operating funds. Consumption includes carcass charges, whether anticipated or not, levied against customers for failing to turn in NRFI AVDLR carcasses as required. Sections B and C of this chapter will detail the type and source of operating funds used by aviation support activities to pay for AVDLRs as well as limitations on these funds. Sections D through G of the chapter will examine the differences between NSF and end use ownership of AVDLR inventories at the aviation support activity level and how they affect operational funding.

B. THE FLOW OF FUNDS

AVDLR funds are part of the larger pot of funds provided to the Navy through the annual Operations and Maintenance, Navy (O&M,N) appropriation. Congress sets the level of O&M,N funds via annual defense authorization and appropriation bills. After the final defense appropriation act is signed by the president, it is implemented through the issuance of an

Appropriation Warrant by the Treasury Department which is countersigned by the head of the General Accounting Office. The Appropriation Warrant is basically an interpretation of appropriations legislation. The purpose of this process is to ensure agreement between the executive and legislative branches as to how the appropriation is to be executed. [Ref. 2:p. D-4]

After the Appropriation Warrant has been issued and countersigned, the Office of Management and Budget (OMB) apportions funds to the Department of Defense (DoD) which in turn apportions funds to the services. Apportionment is the time phased release of funds to subordinate activities for budget execution. Annual appropriations such as the O&M,N appropriation are apportioned on a quarterly basis.

Funds apportioned to the Department of the Navy are allocated by the Secretary of the Navy to the Chief of Naval Operations (CNO) and suballocated by the CNO to the major claimants. The major claimant for COMNAVAIRPAC is the Commander in Chief, U. S. Pacific Fleet (CINCPACFLT). Allocation is the internal distribution of funds apportioned to the Navy.

Major claimants provide O&M,N funds to type commanders in the form of expense limitations. Type commanders then pass funds to aviation support activities in the form of operating

budgets or operating targets. Operating budgets are legal limitations on the amount of money that can be spent while operating targets are administrative limitations. Typically, Naval Air Stations receive operating budgets and operating forces such as ships receive operating targets. Figure II-1 is an illustration of the flow of O&M,N funds from Congress to the end users of the funds operating under COMNAVAIRPAC. [Ref. 2:p. D-7]

C. LIMITATIONS ON OPERATING FUNDS

The O&M,N appropriation has a one year obligational availability period. As part of the O&M,N appropriation, AVDLR funds may only be obligated for new purchases during the fiscal year for which they are appropriated. Once the obligational availability period for the appropriation ends, or expires, the expenditure availability period of two years begins.

During the expenditure availability period, additional funds beyond the obligation level achieved during the obligational authority period may be disbursed only for price increases and unpreceded disbursements. Price increases apply only to requisitions originally obligated during the obligational authority period. Unpreceded disbursements are commitments made during the obligational authority period for

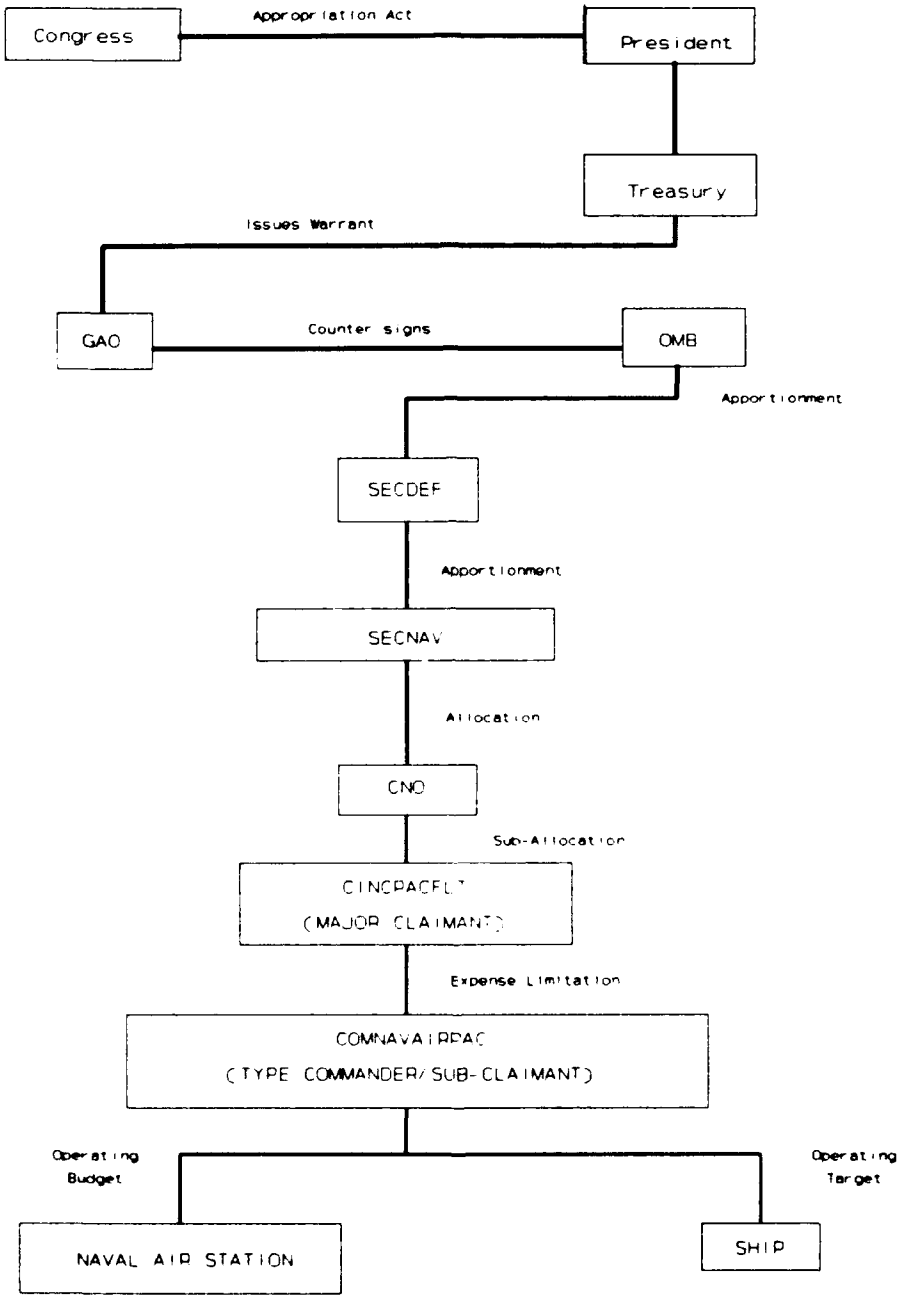


Figure II-1 O&M,N Flow of Funds

which an obligation was never recorded. During the expenditure availability period, detailed accounting records must be maintained. As a result, activities must maintain three years of accounting records at any one time - the current year and two prior fiscal years.

At the end of the expenditure availability period, the unexpended balance of the appropriation lapses to either the successor "M" account or successor merged surplus account. The "M" account contains money obligated by activities, but never expended because a bill from a supplier was never processed against the obligation. The merged surplus account contains excess funds never obligated or expended. Both accounts are managed by the Treasury Department.

Recent legislation has begun the phasing out of the successor accounts and requires that DoD maintain detailed accounting records of expired appropriations for five years. This legislation doubles the amount of O&M,N accounting records to be maintained by type commanders and their subordinate activities from three to six years. The increase in accounting records may cause problems of its own by straining the capacity of existing automated accounting systems.

In any event, the elimination of the successor accounts will not cure the specific problems caused by the two price

AVDLR billing system which are addressed in this thesis - distortion of flying hour cost reporting and post fiscal year budget management difficulties. If anything, post fiscal year budget management will become more difficult as the maintenance of accounting records for expired appropriations is extended from two to five years. Because the research for this thesis is concentrated primarily on the time period 1986 - 1990, the remainder of this thesis will be based on the assumption of a two year expenditure availability period and the existence of the successor accounts. The life cycle of an O&M,N appropriation is outlined in Figure II-2 [Ref. 2:p. A-20].

In addition to the time limits of an annual appropriation, O&M,N funds have two other primary limitations - purpose and dollar amount. Title 31, U.S. Code, Section 1301(a) prohibits the use of funds for purposes other than those for which they were intended. This is not usually a problem with AVDLR funds.

Title 31, U.S. Code, Section 1517 prohibits the obligation of funds in excess of the amount available in an appropriation or any subdivision thereof. The limitation applies to the obligational and expenditure availability periods of an appropriation. Over obligation of AVDLR funds is a potentially more serious problem at the type commander and

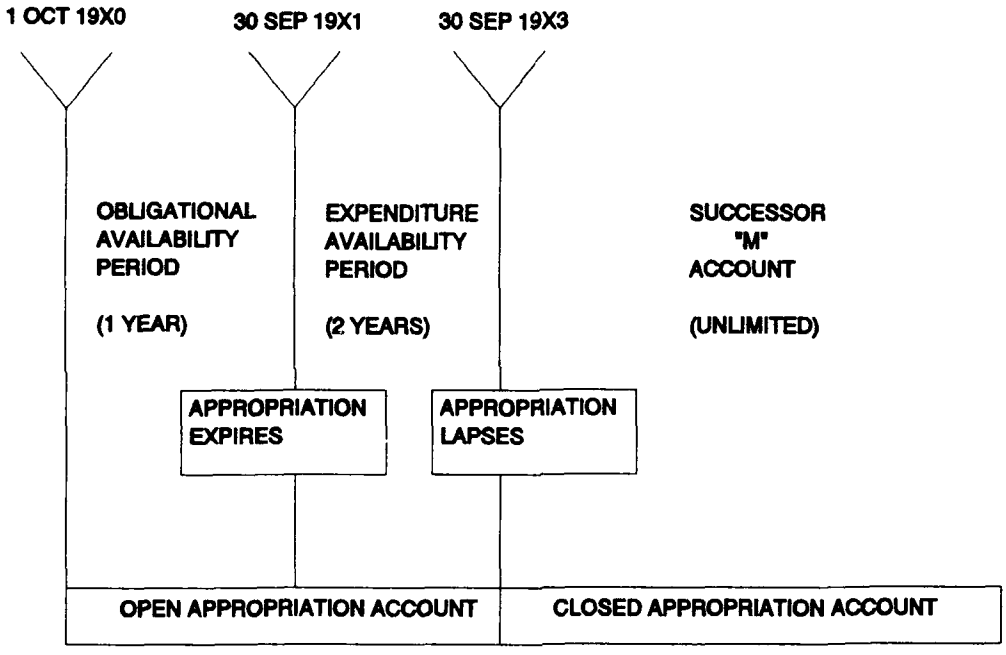


Figure II-2 Life of an O&M,N Appropriation Account

aviation support activity levels than is the misuse of AVDLR funds.

Naval Air Stations with operating budgets have legal responsibility for over obligation of funds under Section 1517. Type commanders such as COMNAVAIRPAC also have Section 1517 responsibility for their total expense limitation. Activities which receive funds in the form of operating targets do not have legal responsibility for the over obligation of funds (responsibility is retained at the type commander level); however the administrative limits of their operating targets are considered binding.

As mentioned in Chapter I, the issue of timing is the basis for the problems to be examined in this thesis. The obligation and expenditure of AVDLR funds are limited by the life of the O&M,N appropriation to which they belong. ASO's carcass tracking and billing system has no time limitation, as will be seen in Chapter III.

Carcass charges, also called carcass value bills, are charged to the appropriation of the original transaction requiring a carcass turn in regardless of whether the appropriation's obligational availability period has expired or not. Carcass charges may also be reversed after the expiration of an appropriation's obligational availability

period. The difficulties caused by these post-fiscal year actions will be detailed in Chapter IV.

D. THE TRANSITION FROM NAVY STOCK FUND TO END USE MANAGEMENT OF AVDLRS

On 1 April 1986, Naval Air Station retail AVDLR inventories were converted from NSF ownership to end use ownership. Ships were scheduled for transition to end use ownership on an activity phased basis commencing 1 August 1986. This transaction is largely complete, although there are still a few ships such as the aircraft carrier USS Carl Vinson (CVN 70) still operating under NSF ownership of AVDLRs.

The primary effect of the transition to end use AVDLR ownership is to change the point of sale of AVDLRs leaving the NSF. The specific differences in the points of sale under end use and NSF AVDLR ownership are discussed later in this chapter. There are also secondary effects/problems caused by end use AVDLR ownership which have sparked a debate as to whether to remain with end use or move back to NSF financed retail AVDLR inventories. Although a thorough examination of these problems is beyond the scope of this thesis, several will be mentioned later in this chapter as they can affect carcass tracking and budget management.

E. AVIATION SUPPORT ACTIVITY STRUCTURE

In order to explain how both NSF and end use ownership of AVDLRs affect AVDLR billing and carcass tracking, the basic structure of an aviation support activity must be understood. A typical aviation support activity, whether afloat or ashore, has among its departments, two which are dedicated primarily to the support of aircraft squadrons - the Supply Department and the Aircraft Intermediate Maintenance Department (AIMD). These departments can support a wide or narrow range of aircraft depending on the mission of a ship or station. Most supporting activities support multiple squadrons which can be either permanently or temporarily based at the activity.

The Supply Department maintains the local inventory of AVDLRs based on a predetermined allowance list provided by ASO. Although allowances are determined by ASO, local activities usually negotiate individual AVDLR allowances with ASO prior to the list being finalized. Each AVDLR issue to a squadron is made in exchange for a not ready for issue (NRFI) AVDLR which is inducted from Supply into AIMD for local repair.

Supply (in conjunction with the comptroller at a shore activity) is also responsible for the management of AVDLR funds received from the activity's type commander. Squadrons do not receive AVDLR funds, hence AVDLR issues are free to the

squadrons with the exception of providing a carcass turn in to supply. At the point of sale of an AVDLR from the NSF, Supply obligates a portion of its AVDLR funds to ASO to pay for the item.

AIMD is an intermediate maintenance activity (IMA) which performs local, or "I" level repair of AVDLRs. When a NRFI AVDLR carcass is inducted for repair, AIMD either repairs the item or determines that it is beyond the capability of maintenance (BCM). If the item is repaired, it is returned to Supply as ready for issue (RFI) and placed back into inventory until requisitioned by a squadron. If the item is BCM'd, Supply will ship the NRFI carcass to a central hub activity which routes carcasses to the appropriate depot level repair facilities. Supply will also requisition an inventory replacement.

Squadron maintenance departments perform organizational, or "O" level maintenance. Squadrons do not repair AVDLRs. They are responsible for determining if an AVDLR is inoperable, removing it from the aircraft, and replacing it with an RFI part obtained from Supply. NRFI AVDLRs are turned in to Supply when the RFI parts are requisitioned. In the event a squadron does not have a NRFI AVDLR to turn in, a survey or other documentation, such as for initial outfitting, must accompany the requisition to supply. Th entire local

issue, repair, and replenishment cycle is illustrated in Figure II-3.

F. THE POINT OF SALE

Activities operating under NSF financing of local AVDLR inventories do not actually own the retail AVDLRs held as part of their allowance to support aircraft squadrons. This material is owned by the NSF. The point of sale of an AVDLR from the NSF occurs when a NRFI item is BCM'd by AIMD and not returned to the local retail inventory (Figure II-3:point 4b).

The point of sale is also the point at which ASO initiates carcass tracking. Because local inventories are owned by the NSF, stock replenishment is free to the activity. Stock replenishment is simply a transfer of goods within the NSF.

The conversion to end use ownership of local AVDLR inventories brought about several changes in both AVDLR billing and carcass tracking. The biggest change is the change in the point of sale of an AVDLR from the NSF. Because end use aviation support activities now own their retail AVDLR inventories, they now obligate AVDLR funds when they requisition AVDLRs from ASO for stock replenishment (Figure II-3:point 5). End users are billed for AVDLRs when ASO directs shipment of an item for stock replenishment. Carcass

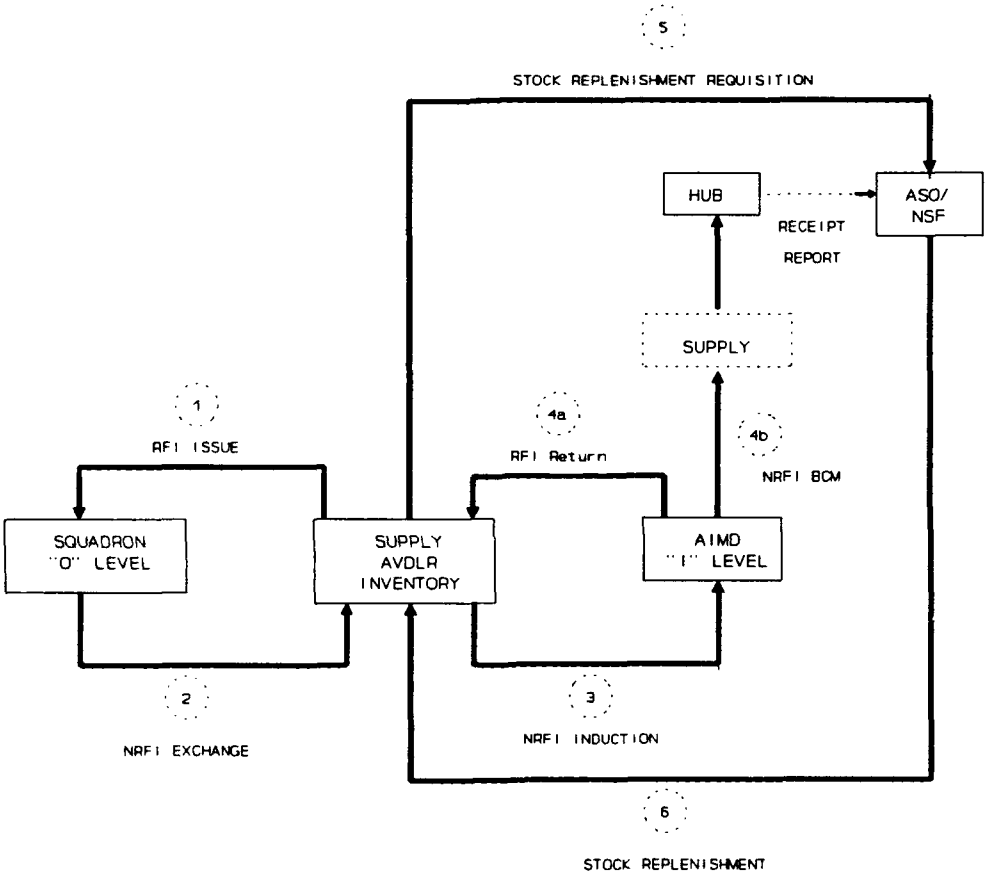


Figure II-3 Local Issue, Repair and Replenishment Cycle

tracking is also initiated at the point of the stock replenishment requisition.

G. SECONDARY EFFECTS OF END USE OWNERSHIP

End use ownership of AVDLRs has disassociated the NSF from the AIMD repair process. No AVDLR billing or carcass tracking transactions take place until stock replenishment is initiated. The customer must take into account its inventory position and availability of operating funds before placing a stock replenishment requisition.

On the surface, the difference between NSF and end use financing of AVDLRs appears to be simply a matter of timing as to the point of sale of an AVDLR from the NSF. However, there are other effects. These have prompted CINCPACFLT and CINCLANTFLT, the major claimants for COMNAVAIRPAC and COMNAVAIRLANT, respectively, to recommend a return to NSF financing of AVDLR inventories afloat [Refs. 7 and 8]. An AVDLR working group consisting of representatives from the CNO's office, NAVSUP, both major claimants and type commanders, and others was convened on 19 December 1990. The purpose of the working group was to evaluate the major claimants' recommendation, consider alternatives, and make a recommendation to an AVDLR flag steering group based on a cost/benefit analysis [Ref. 6].

Some of the major concerns behind the call for a return to NSF financing of AVDLR inventories afloat include readiness, flexibility in transferring AVDLR assets between units, difficulties associated with end use accounting, and reduced operating funds due to fleet financing of inventory and shipment losses. In terms of readiness, advocates of NSF financing point out that NSF funding allows spares to be positioned where and when needed without regard to fluctuations in operating budgets. On the other hand, annual operating budget shortfalls can result in unfilled shortages in end use AVDLR inventories, adversely affecting the level of future material support an activity is able to provide. NSF financing promotes readiness by allowing more efficient use of scarce resources in that operating (O&M,N) dollars are used only to finance consumption of AVDLRs while NSF dollars finance lead times and inventories. [Ref. 7]

Difficulties with end use accounting and inflexibility in transferring assets between units are related problems under end use funding of AVDLR inventories. AVDLR assets are routinely transferred between aviation activities as needed. Transfers between NSF funded inventories are simply transfers within the NSF itself and are easily handled by fleet inventory and financial management systems. These systems are unable to accommodate simple AVDLR movements between end use

units without extremely complex financial transactions. On the whole, NSF funding of AVDLRs lends itself to simpler financial management requirements.

At end use activities, AVDLR inventory losses and losses of material in shipment are borne by the activities' operating budgets. Inventory and shipment losses are absorbed by the NSF at NSF activities. The argument against end use is that these losses are too much money for an individual activity's budget to bear. A counter argument is that losses incurred by the NSF will result in higher AVDLR prices in the future, resulting in reduced buying power for all activities as budgets continue to decline. If the end use inventory losses are primarily erroneous, administrative losses due to the greater complexity of the accounting procedures required for end use as opposed to NSF inventory management, then the argument for a return to NSF financing is strong.

While a thorough examination of the cost/benefit tradeoff between end use and NSF funding of local AVDLR inventories is beyond the scope of this thesis, it has been mentioned because it does affect carcass tracking as well as budget planning and execution. It should be noted that inventory and financial management of AVDLRs is highly complex regardless of the inventory financing mechanism used. Other factors affecting inventory errors and the level of carcass charges incurred

include an activity's operating tempo and constant personnel turnover which add to the difficulty of AVDLR management.

III. THE RELATIONSHIP BETWEEN ASO'S AVDLR CARCASS TRACKING AND BILLING SYSTEM AND THE NAVY'S FLYING HOUR PROGRAM

A. THE AVIATION SUPPLY OFFICE'S CARCASS TRACKING PROGRAM

Because AVDLRs are expensive and normally require a long procurement lead time, the repair of defective units is the primary source of system replenishment. Strict carcass turn in discipline is vital in order to reduce the investment required for AVDLR inventories. Since the implementation of NSF, and subsequently end use financing of AVDLRs, accurate and complete carcass tracking has become even more significant due to the impact of carcass charges on customers' operating funds. [Ref. 4:p. I-3-1]

ASO's carcass tracking system is automated via the B35 program, a module of the Uniform Inventory Control Point (UICP) data processing system used by ASO for inventory and financial management. Customers, the various aviation support activities, use one of several different data processing systems. Despite the variety of systems involved, customers can be grouped into two general categories - transaction item reporting (TIR) activities and non-transaction item reporting (non-TIR) activities.

TIR activities are linked directly to ASO via computer. Transactions affecting ASO managed material are transmitted to ASO on a daily basis. Naval supply centers, including those which function as hubs for NRFI AVDLRs, and most naval air stations are TIR activities. Non-TIR activities, primarily ships, transmit reports of transactions via message and monthly computer tapes. All transactions are assigned a document identifier, a three digit code identifying the type of transaction taking place, e.g., receipt, issue, etc.

The B35 program builds a data base called the carcass tracking file (CTF) by keying on certain document identifiers of transactions transmitted to ASO. AVDLR issues, requisitions, transfers, and receipts, depending on the type of activity involved, will all establish carcass tracking records within the CTF by individual customer document number. Before the implementation of NSF financing of AVDLRs, when AVDLRs were free to customers, the B35 program would generate follow up inquiries to customers if a carcass had not been turned in within a specified period of time after an AVDLR issue or requisition had taken place. In addition, the system tracked carcasses only through the first reported receipt by a transshipper while they were en route to a depot level repair facility.

The total system carcass tracking concept was introduced simultaneously with NSF AVDLR financing. Total system carcass tracking involved numerous enhancements to the B35 program which greatly expanded the capabilities of the program. The program in its current form now tracks carcass returns all the way from the end use customer to the appropriate depot level repair facility.

Among the expanded capabilities of the B35 program is the ability to assess carcass value bills to customers for failure to make required carcass turn ins. When a customer reports an AVDLR transaction for which a carcass turn in is required, a carcass tracking record is established in the CTF, "turning on" carcass tracking for the individual item. If either a notification of carcass shipment by the customer or a notification of carcass receipt by a transshipper or depot repair facility is not recorded in the individual carcass tracking record, the customer will be assessed a carcass value bill. In this respect, the B35 program serves as a "policeman" for the NSF. [Ref. 9:p. 6]

The B35 program can also provide carcass value credits, or bill reversals, to customers. These credits are issued when a customer notification of carcass shipment or a system receipt (transshipper or depot repair facility) is recorded against a CTF carcass tracking record for which a carcass

value bill had previously been assessed. It is important to note that, as mentioned previously in Chapter II, carcass value bills and credits are assessed to the fiscal year appropriation cited on the customer's original transaction document, despite the actual date of the bill or credit. The potential problems caused by carcass value bills and credits received by customers after the end of the obligational availability period of an appropriation are the focus of the research for this thesis.

The B35 program also records system and transshipment losses of AVDLR carcasses. A system loss occurs when a carcass reported as shipped by a customer is never recorded as received by the initial receiving activity, normally one of the centralized hub activities. A transshipment loss is similar, except that the hub has reported receipt and shipment of a carcass which is never received by the depot repair facility. The recording of these losses is important in that they figure prominently in the annual pricing of AVDLRs. [Ref. 9:p. 6]

Serving as a data base, the B35 program consolidates data on retrograde carcass tracking, carcass value bills, and losses. These data are provided to type commanders and activities under their cognizance in the form of periodic management reports. The management reports include listings

of individual carcass bills by activity to facilitate the focus of research by activities trying to reverse carcass charges. The program also provides data in the form of statistical reports to NAVSUP. [Ref. 9:p. 6]

The entire carcass tracking and billing cycle is easily illustrated with a simple example, an AVDLR stock replenishment requisition from an end use naval air station. When the customer submits its requisition, a carcass tracking record is established in the B35 CTF under the station's replenishment document number and carcass tracking is "turned on". The B35 program will track the customer through a series of inquiries until the customer provides notification of carcass shipment. Once carcass shipment notification is provide by the customer, the program will track the designated receiving activity.

Ideally, the station should transmit carcass turn in data to ASO at the same time it submits its replenishment requisition. The turn in should be made under the same document number as the requisition and the item turned in should match the part which was ordered. Once the station provides notification of correct carcass shipment to ASO, carcass tracking to the station is "turned off". The station will not be billed for any more than the net price it originally obligated for the requisition.

If the air station does not transmit carcass shipment data to ASO when it submits the replenishment requisition, it will continue to be tracked for the carcass until it does so or until a receiving activity, normally the hub, reports receipt of the carcass to ASO. Once the air station transmits carcass turn in data to ASO, the B35 program will track the hub and other transshippers until receipt of the carcass is recorded at the depot level repair facility. Unlike the air station which can be assessed a carcass value bill for failure to turn in the carcass or failure to transmit carcass turn in data to ASO, receiving activities are not billed for carcass losses. These losses are instead recorded as system or transshipment losses as described earlier. Table III-1 provides a synopsis of the carcass tracking system [Ref. 9:p. 7].

ASO inquiries and bill notifications, as well as all customer/receiver responses, are formatted in the same manner as standard supply transactions, i.e., requisitions, receipts, issues, etc. Each type of inquiry, notification, or response is assigned a unique document identifier. Once the carcass tracking record is established in the CTF, the starting date for the inquiry, response, and bill notification cycle is the date on the document number of the transaction triggering carcass tracking, not the date the transaction is received by ASO.

CARCASS TRACKING SYNOPSIS

	Customer	NSF
Carcass is recorded to ultimate destination	Match	
Carcass is recorded to hub, but not ultimate destination	Match	Transshipment Loss
Activity provides notification of shipment and/or valid BK2 response, no receipt in system	Match	System Loss
Carcass is not recorded in system and no response or notification of shipment provided by activity	Carcass Value Bill	

Table III-1

Returning to the air station example, if the station does not provide carcass shipment data to ASO within 45 days of the date of its requisition, the B35 program will generate a follow up inquiry to the station with document identifier BK1 (assuming no carcass receipt has been recorded by a receiving activity). For afloat activities, BK1's are generated 60 days after the date of transactions requiring carcass turn ins. BK1's can also be sent to the station if its response to a previous BK1 is rejected.

Upon receipt of a BK1, the air station has 21 days to answer the inquiry with a document identifier BK2 response. This BK2 response can be coded to provide a variety of explanations as to the disposition of the carcass. The

simplest response is that the carcass was indeed turned in under the correct document number. The fact that the turn in was made under a different document number or that the turn in will be delayed are among other responses which can be cited on a BK2. A satisfactory BK2 will "turn off" carcass tracking to the air station and avert a carcass bill if turn in of the carcass is indicated in the response.

If the air station fails to provide a satisfactory response within 21 days of a BK1 follow up inquiry, a notification of billing, document identifier BK3, will be generated by the B35 program (again, assuming no system receipt has been recorded). The BK3 is not a notice that a carcass value bill has been assessed to the air station, but a notice that a bill will be forthcoming in 50 days. The air station can still avoid a carcass charge if it sends a BK2 response before the bill is triggered. If the charge is avoided, ASO will send a document identifier BK4 notifying the station that it will not be billed for the carcass.

If the air station has received a carcass value bill, it may still provide a BK2 response which, if satisfactory, will reverse the bill. A carcass receipt reported by a receiving activity can also reverse a carcass value bill. The air station will be notified of the reversal by ASO with a BK4.

The entire carcass tracking cycle, from initial carcass exchange transaction to carcass value billing is 116 days for shore activities, 131 days afloat. The follow up and billing parameters of the carcass tracking system are illustrated in Figure III-1 [Ref. 9:p. 11]. This cycle, which can be extended through bill reversals, operates without regard to the fiscal year of the appropriation cited on the original carcass exchange transaction.

ASO's B35 carcass tracking and billing program as outlined above directly affects the Navy's flying resources which are funded through the flying hour program. AVDLR carcass value bills generated by the B35 program are properly chargeable to flying hour program funds. Historical flying hour costs are used as the basis for determining future flying hour program resource needs. The flying hour program is described below as are the effects of the B35 program on flying hour cost reporting accuracy under the two price AVDLR billing system.

B. THE FLYING HOUR PROGRAM

Navy and Marine Corps aviators must be well trained and highly skilled in order to accomplish their aviation missions. An aviator's primary means of gaining this skill and maintaining proficiency is through the hands-on training funded by the Navy's flying hour program. The flying hour

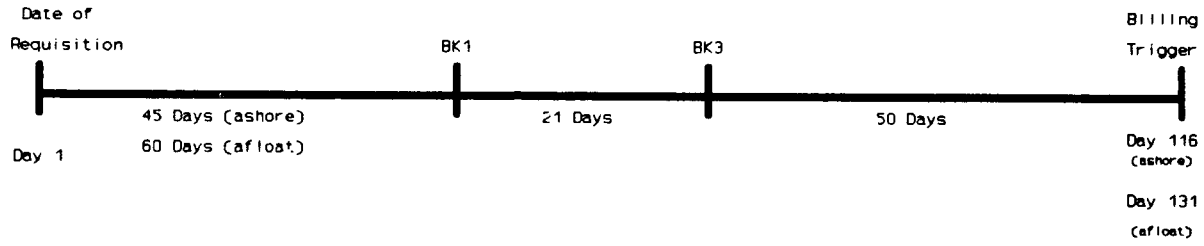


Figure III-1 Carcass Tracking Follow Up and Billing Parameters

program encompasses all flying activity from initial training of new personnel to the day to day operations of fleet aviation squadrons. [Ref. 10:p. 1]

The Navy's flying hour program, which includes the Marine Corps, is funded by the O&M,N appropriation. The program accounts for part of the operating costs for most Navy and Marine Corps aircraft. These costs include the costs for fuel, other petroleum products, and repairs to aircraft components as well as costs associated with administrative supplies and services. Costs not covered by the flying hour program include procurement, overhaul, and repair of aircraft (vice components) and engines. The payroll for aircrew and maintenance personnel, maintenance training, and the costs of aviation facilities are also paid for by other programs. [Ref. 11:p. 8]

Aviation elements of the flying hour program include [Ref. 10:p. 17]:

- Tactical air/antisubmarine warfare, consisting of front line fleet squadrons operating Navy and Marine Corps combat and patrol aircraft.
- Fleet air training, consisting of the fleet training squadrons which train replacement aviators to fly specific types of aircraft before assignment to fleet squadrons.
- Fleet air support, consisting of ship and shore-based air logistics support squadrons as well as special operational test and evaluation support squadrons.

- Undergraduate pilot and flight officer training, consisting of squadrons which provide basic flight training to new naval aviators.

The Special Assistant to the Deputy Chief of Naval Operations for Air Warfare is designated as the flying hour program manager. The program manager is responsible for program budgeting, coordination, and monitoring. During program execution, the Navy Comptroller allocates funds on a quarterly basis to the fleet commanders in chief and monitors program spending. The fleet commanders are responsible for providing combat ready aircrews and for ensuring that hours flown and funds spent do not exceed those allocated.

Budget requests are prepared at the type commander and program manager levels based on cost information provided by the flying hour cost reporting system (FHCRS). Budget requests are prepared by type, model, series (TMS) of aircraft using a historical cost per flying hour adjusted for inflation (or deflation) multiplied by anticipated flying hours for each TMS. The historical cost used is a three year moving average based on flying hour cost reports prepared by the type commanders. Anticipated flying hours are projected from various formulas for each of the elements of the flying hour program, i.e., tactical air/ antisubmarine warfare, fleet air training, etc.

Under the FHCRS, type commanders submit monthly flying hour cost reports to the program manager. These reports list financial obligations directly associated with operating and maintaining aircraft as well as the number of hours flown and the number of operational aircraft. AVDLRs account for approximately one third of the flying hour costs incurred by COMNAVAIRPAC.

Flying hour cost reports include only current fiscal year financial obligations. Post fiscal year transactions such as carcass charges and credits generated by the B35 program, are not included in the FHCRS under the current two price AVDLR billing system. Because these post fiscal year carcass charges and credits, which are legitimate flying hour costs, are not recorded, the costs to be used in the determination of future flying hour program resource needs are inaccurate.

IV. PROBLEMS WITH POST FISCAL YEAR BUDGET MANAGEMENT AND FLYING HOUR COST REPORTING DUE THE TWO PRICE SYSTEM OF BILLING FOR AVDLRS

A. SIZE OF THE AVDLR BUDGET

AVDLRs comprise a large portion of an aviation type commander's total O&M,N budget. COMNAVAIRPAC's annual O&M,N expense limitation has been approximately two billion dollars for the past five fiscal years (1986-1987). Of this total annual expense limitation, one quarter, or approximately $500 million, has historically been designated for AVDLR purchases. In addition, AVDLRs typically account for one third of all flying hour costs incurred by COMNAVAIRPAC. [Ref. 12]

The actual amount of money spent on AVDLRs by COMNAVAIRPAC since 1986 is shown in Table IV-1. Table IV-1 also shows that when adjusted to constant 1986 NSF prices and constant 1986 flight hours, AVDLR expenditures for COMNAVAIRPAC have remained fairly constant relative to flight hours over time. The actual AVDLR expenditures listed in Table IV-1 are as of the end of each fiscal year and do not reflect any carcass charges or credits received after fiscal year end. These figures are provided here to illustrate the magnitude of AVDLR expenditures at COMNAVAIRPAC. [Ref. 13]

COMNAVAIRPAC AVDLR EXPENDITURES

FY	AVDLR ACTUAL* $$$	NSF PRICE CHANGE	AVDLR CONSTANT FY 86 $$$	OPTEMPO PERCENT CHANGE**	AVDLR ADJUSTED $$$
86	553,216	0.0%	553,216	0.0%	553,216
87	581,367	(0.5%)	584,288	3.7%	563,853
88	536,659	(6.5%)	576,851	(3.0%)	593,214
89	447,063	(13.3%)	554,262	1.4%	546,494
90	427,720	(2.0%)	541,103	(4.0%)	563,196
91	483,543	14.9%	532,397	(2.5%)	546,405

*All AVDLR data is actual cost in thousands as of fiscal year end except for FY 91. Budgeted figures were used for FY 91.

**OPTEMPO percent change computed as fiscal year to date flight hours divided by FY 86 flight hours.

Source: COMNAVAIRPAC, Code 01911

Table IV-1

B. POST FISCAL YEAR EFFECTS ON TYPE COMMANDER BUDGETS

The two price AVDLR billing system can and does affect post fiscal year budget management at both the aviation support activity and type commander levels. The budget management effects at the type commander are parallelled at the aviation support activity, though on a smaller scale. For the purposes of this thesis, the impact of the two price AVDLR billing system on post fiscal year budget management will be examined primarily at the type commander level.

As explained in previous chapters, the primary source of post fiscal year budget management difficulties created by the two price AVDLR billing system is the timing difference between the length of the O&M,N appropriation used to pay for AVDLR consumption and the length of ASO's carcass tracking and billing cycle. AVDLR carcass charges and credits generated by ASO's B35 program are not limited by fiscal year as is the one year obligational authority period of an O&M,N appropriation. AVDLR transactions occurring late in a fiscal year can result in carcass value bills being charged to that fiscal year's O&M,N appropriation after the end of the fiscal year. Similarly, credits may also be obtained through carcass bill reversals after the end of a fiscal year. During the two year expenditure availability period of an O&M,N appropriation, the type commander and its subordinate activities are still responsible for any over obligation of funds.

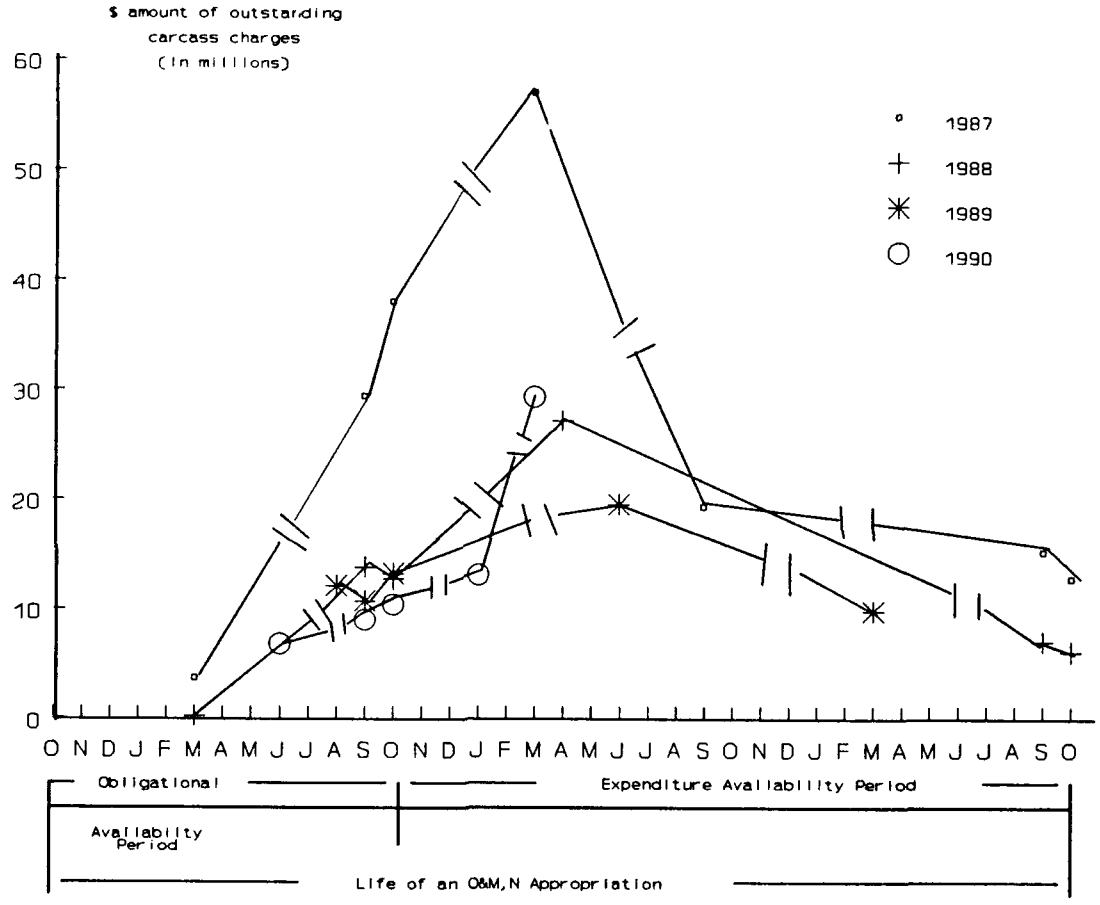
Figure IV-1 is a graphic illustration of outstanding post fiscal year carcass charges for COMNAVAIRPAC throughout the O&M,N expenditure availability periods of fiscal years 1987 through 1990 as of 6 March 1991. Fiscal years 1989 and 1990 are only partially complete because the expenditure availability period for each had not ended at the time the data for the graph was compiled. Also included in the graph

are the outstanding carcass charges during the second quarter of the obligational availability period of each year.

The data for the graph was compiled from management reports generated by ASO's B35 program. Fiscal year 1986 was not included because fiscal year 1987 was the first full year of end use management of AVDLRs. The use of fiscal years 1987 through 1990 provides a basis for analysis of trends under a constant method of AVDLR management and financing. It should be noted that the B35 management reports do not list all carcass charges incurred by a type commander's subordinate activities.

AVDLR transactions transmitted to ASO citing no carcass turn in (such as initial outfitting requisitions and survey replacements) are billed to the customer at standard price. The carcass tracking files for these transactions are purged from the B35 program's live files in one day and are not reflected in the management reports generated by the program. However, these types of transactions should not affect post fiscal year budget management, as no furthercarcass bills are assessed to the customer on these transactions.

As can be seen in Figure IV-1, carcass charges generated by the B35 program are delayed until well into the obligational availability period of each fiscal year. Even as



Source: ASO 835 Management Reports, FY87 through FY90

Figure IV-1 COMNAVAIRPAC Outstanding Carcass Charge Levels

late as the second quarter of each fiscal year, only minimal carcass charges, if any, had been incurred. The level of outstanding carcass value bills continued to rise after the end of each fiscal year as bills from the final two quarters of the year were assessed. After peaking during the first year of the expenditure availability period, the amount of outstanding bills dropped as the individual customers researched and responded to the bills (or as system receipts of carcasses were recorded).

COMNAVAIRPAC does not manage AVDLR money as a distinct set of funds during the expenditure availability period of an O&M,N appropriation. They are instead managed within COMNAVAIRPAC's total O&M,N expense limitation for that fiscal year on a cash basis. Management on a cash basis simply means that funds designated for specific purposes within an appropriation, such as AVDLRs, are not tracked individually for obligation levels. The goal during expenditure availability periods is to keep the O&M,N expense limitation as a whole in the black. [Ref. 12]

AVDLR carcass charges and credits are not the only sources of post fiscal year budget management difficulties. Additional factors which can affect the O&M,N expense limitation during its expenditure availability period include requisition cancellations, unpreceded disbursements, and price

changes. These types of transactions are not limited to AVDLRs and can include services as well as consumable (non-DLR) materials purchased with O&M,N funds.

When an activity cancels a requisition, it de-obligates the funds which were to have paid for the item ordered. As with carcass bill reversals, cancellations have the effect of returning funds for re-obligation. If a cancellation occurs after the end of a fiscal year in which the funds were originally obligated, the money is no longer available for re-obligation.

Unpreceded disbursements occur when activities are billed for material or services for which they failed to record an obligation. Such unexpected losses of funds can result in the over obligation of funds at both the activity and type commander level. Unpreceded disbursements are similar to carcass charges in that they can occur after the end of the fiscal year to which they are billed.

Price changes for material and services can happen between the time money is obligated for a requisition and the time an activity is billed for the requisition. Price changes can be either upward or downward. Regardless of the direction, price changes directly affect obligation levels.

It is clear that difficulties in the post fiscal year budget management process would exist with or without AVDLR

carcass charges and credits. According to LCDR Krista Selig, the Fleet Budget and Accounting Officer of the COMNAVAIRPAC Force Comptroller's Office, AVDLR carcass charges and credits add to the uncertainty of post fiscal year budget management. These charges and credits are not however, insurmountable problems in and of themselves. [Ref. 12]

The uncertainty in the variability of obligation levels is worse in the first year of an O&M,N appropriation's expenditure availability period than in the second year. In the case of AVDLRs, this is illustrated in Figure IV-1. As mentioned earlier, the amount of outstanding carcass charges continues to grow during the first year of an expenditure availability period until peaking during the second or third quarter of that year. Afterwards, the level of outstanding carcass charges declines continually until the end of the expenditure availability period. It should be noted that the volatility of post fiscal year carcass charges decreased for each fiscal year from 1987 to 1989 as evidenced by lower peaks in the level of outstanding carcass charges for each year.

Fiscal year 1990 is a special case due to the Persian Gulf War. In addition to aircraft carriers and air stations, COMNAVAIRPAC also provides funding to west coast Marine Air Groups (MAG) through its O&M,N expense limitation. COMNAVAIRPAC, while not having operational control of the

MAGs, issues budgets in the form of operating targets to the MAGs. The accounting and budget management system for the MAGs is very similar to that used by aircraft carriers.

COMNAVAIRPAC received approximately $20 million of fiscal year 1990 carcass charges during March and April 1991 as a result of MAG 70 operations in the Persian Gulf during August and September of 1990. Because the MAG was pressed into service before its supply operations were completely set up, it lost control of the carcass tracking process for the AVDLRs used early in the deployment. As of September 1991, MAG 70 had received $19.8 million in 1990 carcass credits after researching the documents involved and providing turn in information to ASO. [Ref. 12]

Aside from the aberration in fiscal year 1990, the post fiscal year pattern of AVDLR carcass charges for COMNAVAIRPAC has become predictable. While amounts are still not completely certain, AVDLR carcass charges are more controllable within the scope of COMNAVAIRPAC's overall expense limitation. The declines in the peak levels of post fiscal year outstanding carcass charges from 1987 to 1989 were significant as the aviation support activities gained experience in AVDLR management and carcass tracking. Although the learning curve for the support activities is no longer

very steep, modest declines in the level of carcass charges can probably be expected in the future.

C. DISTORTION OF FLYING HOUR PROGRAM COSTS

The Navy's flying hour program, discussed in Chapter III, funds part of the costs of daily operations for most Navy and Marine Corps aircraft. Costs covered by the program include the costs for fuel, other petroleum products, and repair to aircraft components as well as costs associated with administrative supplies and services. Flying hour program money is appropriated annually as part of the O&M,N appropriation.

Flying hour funds are provided to type commanders as part of their annual O&M,N expense limitation. As of 23 September 1991, COMNAVAIRPAC's total 1991 O&M,N expense limitation was $2,126,000,000.00. Of this amount, $1,441,377,000.00 was budgeted for the flying hour program. In addition, 39 percent of the flying hour program budget, or $561,811,000.00, was slated to cover the cost of AVDLRs used by COMNAVAIRPAC activities in the course of daily flying operations. [Ref. 12]

Cost information for the flying hour program is recorded in the flying hour cost reporting system (FHCRS). Flying hour cost reports are prepared by the type commanders and sent to the Navy's flying hour program manager on a monthly basis.

These reports provide the per hour operating cost by type, model, series (TMS) of aircraft and form the basis of future flying hour program budget requests.

The FHCRS captures only current year costs (including current year carcass charges). Any costs chargeable to a fiscal year which are incurred after the fiscal year has ended are not included in flying hour costs reports. These post fiscal year costs can include AVDLR carcass charges, unpreceded disbursements, and upward price changes. If these costs drive the eventual level of obligations above the amount reported at the end of a fiscal year, then the costs of the flying hour program for that year would be understated. Similarly, reductions in the amount of obligations reported as of the end of a fiscal year would result in the overstatement of costs for that year.

Because COMNAVAIRPAC manages its post fiscal year expense limitations on a cash basis, the differences in AVDLR obligations as of the end of a fiscal year and at the end of the expenditure availability period for that year cannot be readily compared. In any case, such a comparison would reveal only the total understatement or overstatement of flying costs associated with AVDLRs without identifying that portion caused by the two price system of billing for AVDLRs. One method of identifying these cost distortions is to compare the amount of

carcass charges outstanding at the end of a fiscal year (included as costs in the FHCRS) with the amount of outstanding carcass charges at the end of the expenditure availability period for that year's O&M,N appropriation. The difference represents the amount of overstatement or understatement in reported flying hour costs due to the two price system.

Table IV-2 presents the differences in outstanding carcass charges for COMNAVAIRPAC at fiscal year end and at the end of the O&M,N appropriation expenditure availability period for

COMNAVAIRPAC OUTSTANDING CARCASS CHARGES

FY	OUTS. CARCASS CHARGES END OF FY ($)	OUTS. CARCASS CHARGES END OF EXP. AVAIL. PERIOD ($)	DIFFERENCE ($)	TOTAL AVDLR COSTS REPORTED AS OF FY END ($)	DIFF. AS A % OF TOTAL AVDLR COSTS REPORTED
87	38.0	15.2	(22.8)	581.4	3.9%
88	12.7	6.1	(6.6)	536.7	1.2%
89	10.7	9.8*	(.9)	447.1	.2%

* As of 4 March 1991. Expenditure availability period not complete for FY 89 when data was gathered.

All figures except % in millions.

Source: ASO B35 management reports, FY 1987 through FY 1989

Table IV-2

fiscal years 1987 through 1989. Fiscal year 1990 is not included because it was still in the first year of its expenditure availability period at the time data was collected for the comparison. Fiscal year 1989, though not complete, was in the second year of its expenditure availability period. The data used for the comparison was compiled from ASO B35 management reports. Although the management reports were not generated exactly as of the end of each fiscal year or expenditure availability period, all were dated within one month of the point in time cited.

While not exact, Table IV-2 does show that carcass bill reversals after the end of a fiscal year eventually outweigh post fiscal year carcass charges. As a result, COMNAVAIRPAC flying hour program costs were overstated in each of the years listed. Although the overstatement was large for fiscal year 1987 ($22.8 million), the overstatement as a percentage of AVDLR costs reported has declined each year to only .2 percent for fiscal year 1989.

D. LOST USE OF FUNDS DUE TO CARCASS CHARGES FOR "PAPER LOSSES"

Many of the AVDLR carcass charges incurred by the fleet are as a result of "paper losses" vice actual losses of material. Such losses can occur in a number of ways,

including the failure of customers to transmit carcass turn in data to ASO and the miscoding of turn in documents. Most of these losses are eventually found, though the research involved in investigating BK1 inquiries and carcass charges can be quite complicated and time consuming. The delay involved in researching carcass charges and in the bill reversal process at ASO results in the reversal of many carcass charges after the end of the fiscal year to which they were originally billed.

As noted earlier, carcass bill reversals have resulted in lower actual AVDLR carcass costs than were recorded as fiscal year end obligations for fiscal years 1987 through 1989. These funds returned during the expenditure availability period of an appropriation are no longer available to incur new obligations. Excess funds returned to COMNAVAIRPAC during this period are eventually recouped by CINCPACFLT.

Funds recouped by CINCPACFLT can possibly end up lapsing to the successor accounts discussed in Chapter II. In essence, the funds would be wasted. However, the O&M,N funds recouped by CINCPACFLT can be used to fund within scope growth of work in the Ship's Maintenance Account. The Ship's Maintenance Account is used to fund overhauls of CINCPACFLT ships. Within scope growth refers to increased costs over initial estimates for repair work. If money for a particular

job was initially obligated in a previous fiscal year, O&M,N funds from that year may be used to fund increases in the job.

COMNAVAIRPAC returned excess post fiscal year O&M,N funds to CINCPACFLT for each fiscal year from 1987 to 1989. Because these funds are no longer identifiable as to their specific purpose (AVDLRs, fuel, etc.), it's not possible to single out the AVDLR contributions to the totals. The total amount of funds recouped by CINCPACFLT each year are as follows [Ref. 14]:

FY	Funds Recouped
1987	$86,262,000.00
1988	$ 9,522,000.00
1989	$ 87,150.00

While it is not possible to identify the portion of the funds recouped associated with AVDLRs, there is a correlation between the trends in the recoupment figures and the amount of excess funds returned to COMNAVAIRPAC through carcass bill reversals during the same period. The recoupment figures have declined dramatically since fiscal year 1987 as have the excess funds due to carcass bill reversals as noted in Table IV-2. Improved AVDLR management has undoubtedly played a role in reducing the amount of excess funds returned by COMNAVAIRPAC to CINCPACFLT.

E. SUMMARY

AVDLR carcass charges and credits will continue to affect post fiscal year budget management and flying hour program cost reporting accuracy as long as the two price AVDLR billing system is in place. One of the most prominent solutions proposed to solve the problems discussed in this chapter is the use of a two price/one bill system of charging for AVDLRs. Chapter V will examine how such a system would work and its possible effects on AVDLR management.

V. EXAMINATION OF A TWO PRICE/ONE BILL SYSTEM OF CHARGING FOR AVDLRS

A. THE TWO PRICE/ONE BILL PROPOSAL

On 6 July 1988, COMNAVAIRLANT proposed the elimination of the two tiered system of AVDLR pricing and billing [Ref. 15]. The proposed solution to the problems with the two price system discussed in Chapter IV was to set a single price for each AVDLR. The single price system suggested was later modified to a two price/one bill method of charging for AVDLRs [Ref. 16]. Under such a system, the general mechanics of which will be discussed later, aviation support activities would receive a one time bill for AVDLRs consumed with no threat of future carcass charges.

The justifications for this and other similar proposals are listed below:

- Excessive personnel resources are wasted in fighting off erroneous carcass charges which are fundamentally paper mismatches rather than the loss of material.
- The addition of a financial penalty to the carcass tracking process distorts the true cost of the flying hour program since many of the charges are subsequently reversed.
- Potential future carcass bills have caused some activities to tie up funds administratively, resulting in a loss of annual flying hour program.

- System carcass return rates, if improved at all, are better because of improved information availability, not because of the threat of carcass charge penalties.
- End of fiscal year obligations drive future budgets. The current system is still producing additional costs after the end of a fiscal year, resulting in inaccurate budget requests for future years.

The two price/one bill AVDLR system will be examined as a solution to each of these potential problems later in this chapter.

B. MECHANICS OF THE TWO PRICE/ONE BILL SYSTEM

The two price/one bill AVDLR system would still involve setting two prices for each AVDLR carried in the NSF. AVDLR transactions citing no carcass turn in - such as initial outfitting requisitions or replacements for actual surveyed losses - would be billed to customers at standard price. Any AVDLR transaction requiring a carcass turn in would be billed to the consuming activity at a modified net price. The primary difference between this system and the current two bill system is that carcass value bills would not be charged to customers who fail to make or document required carcass turn ins.

As proposed by COMNAVAIRLANT, a two price/one bill system would be easy to implement. The calculations for determining standard prices would not change. The modified net price for

each AVDLR would be based on net price as currently figured plus an additional surcharge for carcasses lost by customers. Because the customers are currently paying for carcass losses, the additional cost of the surcharge is already in their budget. [Ref. 16]

All current training, procedures, and system software would remain valid. ASO's B35 carcass tracking program could still process BK1 inquiries and BK2 responses while shutting down additional follow ups and carcass bills. This would still allow for tracking of individual customer carcass turn in statistics in order to identify "bad actors" for corrective action. [Ref.16]

C. ELIMINATION OF POST FISCAL YEAR BUDGET MANAGEMENT UNCERTAINTY

As mentioned in Chapter IV, one of the drawbacks of the current two price AVDLR billing system is the uncertainty in AVDLR obligation levels during the expenditure availability period of an appropriation. This uncertainty is due to carcass charges and credits received after the end of a fiscal year. During this period, type commanders and some aviation support activities, primarily naval air stations holding funds in the form of operating budgets, are still held legally responsible for the over obligation of funds under Title 31,

U.S. Code, Section 1517. Large amounts of carcass charges, whether temporary or not, significantly increase the risk of over obligation.

The implementation of a two price/one bill system of charging for AVDLRs would eliminate carcass charges and subsequent reversals altogether. Customers would be billed only once for an AVDLR at either standard price or the modified net price. Individual activities failing to make required carcass turn ins or provide accurate turn in data to ASO would not be penalized financially. Instead, any such losses, whether "paper" or material, would be reflected later in net price surcharges to be borne by all AVDLR customers.

The use of a single bill for AVDLRs would eliminate one of the factors causing volatility in post fiscal year obligation levels, carcass charges. Other elements including unpreceded disbursements, cancellations, and price changes would continue to add a degree of uncertainty to the post fiscal year budget management process. It should be noted that, as mentioned in Chapter IV, the peaks in the levels of outstanding carcass charges for COMNAVAIRPAC during the expenditure availability periods of fiscal years 1987 through 1989 have declined significantly since 1987.

The highest level of outstanding carcass charges after the end of the year for fiscal year 1989 was $19.5 million as

reported in ASO's B35 management reports. When compared with $10.7 million in outstanding carcass charges as of the end of fiscal year 1989, the difference is $8.8 million, or 2 percent of the total amount of COMNAVAIRPAC AVDLR obligations recorded as of year end. This is not an unmanageable problem within the scope of COMNAVAIRPAC's AVDLR budget and overall expense limitation [Ref. 12]. The risk of over obligation at COMNAVAIRPAC due to post fiscal year carcass charges is no longer as high as it was during the early years of the two price billing system and is not in and of itself a strong reason for changing the system.

D. REMOVAL OF DISTORTION IN FLYING HOUR COST REPORTING AND BUDGET PREPARATION ESTIMATES

One of the criticisms leveled at the current two price AVDLR billing system is that it distorts the true cost of the flying hour program. The FHCRS does not capture any flying hour cost increases or decreases caused by carcass charges and credits for a particular fiscal year which are generated by the B35 program after the end of that year. Because these post fiscal year AVDLR carcass costs, which should be included as flying hour program costs, are excluded from the FHCRS, the actual costs of the program are misstated.

Because future budget requests for the flying hour program are based on flying hour cost reports which do not reflect the true historical costs of the program, future budgets may not contain the correct amount of funds necessary to support the program. If the true costs of the program are understated, future funds will be insufficient to carry out the program. On the other hand, over funding the program is a luxury the Navy cannot afford as defense appropriations continue to drop in real terms.

The implementation of a two price/one bill system of charging for AVDLRs would improve the accuracy of the FHCRS. Carcass losses would be reflected in the surcharge to net price and hence included in flying hour cost reports. While a one bill system would not remove all distortion in reported flying hour costs (unpreceded disbursements, etc.), it would remove the distortion associated with AVDLR carcass charges and bill reversals.

As noted in Chapter IV, post fiscal year carcass bill activity has resulted in the distortion of flying hour costs at COMNAVAIRPAC for each fiscal year from 1987 to 1989. Based solely on the level of outstanding carcass value bills as reported in ASO's B35 management reports, flying hour costs associated with AVDLRs were overstated each year. This has had the effect of inflating reported flying hour program costs

used for future budget requests. In addition, the flying hour program was shortchanged during each of these years as the funds recovered after the end of the year are no longer available to the program for obligation.

As shown in Table IV-2, the amount of cost overstatement at COMNAVAIRPAC for the flying hour program has declined tremendously since 1987, to only .2 percent of total year end AVDLR obligations for fiscal year 1989. This analysis, however, does not take into account any distortion of hourly costs within individual TMS, only the distortion associated with the program as a whole. While the overall cost distortion does not appear to be significant, changes in aircraft type or mix at COMNAVAIRPAC could still result in inaccurate budget estimation if the cost variances within individual TMS are large. A one bill system of charging for AVDLRs would eliminate the distortions within each TMS as well as distortions in the overall program

E. REDUCTION OF PERSONNEL RESOURCES REQUIRED TO CORRECT ERRONEOUS CARCASS CHARGES

The daily management of AVDLRs at an aviation support activity is a complex, labor intensive process. Researching computer records and hard copy documentation in order to respond to ASO inquiries or carcass bills is in itself a time

consuming effort on the part of activity personnel. Proponents of a one bill AVDLR system make the point that such a system would free personnel from the responsibilities of investigating erroneous carcass charges - those charges due to "paper losses" caused by mismatched documentation.

It is not the intention of one bill system advocates to reduce the amount of effort currently spent on internal AVDLR management and tracking at the aviation support activity level. Instead, the personnel resources now devoted to responding to external inquiries would be used to enhance local AVDLR management. More effective use of these resources would help to boost aircraft readiness and reduce actual AVDLR losses.

There are several factors which could cause the two price/one bill system to backfire on fleet customers in the form of higher AVDLR prices if customers are not required to respond to ASO inquiries. First among these factors is the possible decreased system visibility of AVDLR carcass turn ins. AVDLR carcasses can go through several transshippers between turn in by the customer and receipt at a depot level repair facility. This is especially true for ships deployed overseas. ASO's B35 program tracks these carcasses all the way from the customer to the depot. Carcass turn in data

provided by the customer allows ASO to track transshippers and pinpoint carcass locations.

A break in the carcass tracking chain can result in "paper losses" becoming actual losses. The two price/one bill system would cause the carcass tracking chain to be broken at the start for carcasses turned in without the correct documentation. Because customers would no longer be required to respond to ASO inquiries, ASO would be unable to locate undocumented or improperly documented turn ins until receipt was reported by a transshipper.

It is possible for carcasses to be misplaced by transshippers or for turn in documentation to become separated from a carcass. ASO inquiries alert transshippers to investigate the disposition of specific carcasses better enabling them to locate misplaced carcasses or undocumented turn ins. If ASO is unable to track transshippers, carcasses which were actually turned in could end up as losses reflected in higher customer prices because transshippers were unaware that they had certain turn ins.

Additionally, it is possible for customers to receive carcass bills for AVDLRs which were never consumed. Under certain circumstances, it is possible for NSF aircraft carriers to report erroneous issues of AVDLRs which were actually repaired by the local AIMD and returned to stock.

Although this is only a small problem at most, if the customer does not respond to ASO inquiries under a one bill system, a carcass loss would be falsely recorded, leading to higher AVDLR prices.

Another consideration in the pricing of AVDLRs under the two price/one bill system is the time frame of the customer carcass losses to be considered when setting net price. Because many of the losses are temporary, carcass losses which are later picked up as system receipts could end up as part of the losses figured into net price. This would result in higher than necessary AVDLR prices to customers. Conversely, the underestimation of carcass losses would result in NSF losses. This could cause shortages of material available to the fleet until these losses were later offset by higher AVDLR prices in the future.

It is impossible to quantify the possible increases in fleet AVDLR costs which could be caused by the implementation of a two price/one bill system of charging for AVDLRs. Indeed, the use of additional personnel resources now tied up responding to ASO inquiries and carcass bills might increase local AVDLR management effectiveness and significantly reduce the amount of "paper losses" currently incurred by customers. One large question mark associated with the use of a one bill system is whether the lack of a financial incentive to ensure

that customers make AVDLR carcass turn ins as required would lead to a reduction in the amount of system turn ins.

F. ELIMINATION OF THE FINANCIAL INCENTIVE TO MAKE AVDLR CARCASS TURN INS

Perhaps the single largest point of contention between proponents and opponents of a one bill system of charging for AVDLRs is the extent to which carcass charges have been responsible for increasing AVDLR carcass turn in rates since the conversion from APA to NSF financing of AVDLRs. Supporters of a one bill system argue that improved carcass turn in rates are due to improved information availability, not the threat of carcass charge penalties. The implementation of total system carcass tracking at ASO and improvements in AVDLR management systems at the local activity level have contributed more to the increase in AVDLR management efficiency experienced in the fleet than the financial incentive provided by carcass charges. Other factors contributing to the increase in system carcass turn in rates are the introduction of the Advanced Traceability and Control System (ATAC) - centralized transshipment hubs - and the increased experience of fleet personnel in AVDLR management.

Opponents of a one bill system feel that the financial incentive provided by the current two bill system has been a primary factor in shaping the attitudes of personnel regarding AVDLR turn ins. Supply and maintenance personnel now understand the financial implications of not adequately managing AVDLRs and carcass turn ins. It has taken a long time and a lot of effort to get to this point and to change the system now could lead to confusion. The loss of the carcass charge penalty as a motivator could lead to a reduction in carcass turn in rates.

Another concern with a shift to a one bill system is that poor performers would contribute to higher AVDLR costs for activities operating efficiently within the system. The carcass charge penalties now levied upon individual customers would be borne by all customers in the form of higher prices, regardless of individual turn in rates. This problem could be alleviated somewhat, however, as ASO's B35 carcass tracking program would still allow "bad actors" to be identified for remedial action.

Regardless of the reason, carcass turn in rates and/or turn in documentation accuracy have increased significantly since 1987. Table V-1 is a listing of the worst positions in carcass charges incurred during a fiscal year for COMNAVAIRPAC from 1987 to 1990 [Ref. 17]. These worst positions are each

taken from a particular point in time and represent peaks in the level of carcass charges assessed to COMNAVAIRPAC for each fiscal year. The worst positions are provided for COMNAVAIRPAC as a whole and for each type of

COMNAVAIRPAC AVDLR CARCASS TRACKING PERFORMANCE

	WORST POSITIONS			
FY	FORCE	CV'S	NAS	MAGS
87	65M	22M	24M	23M
88	32M	13M	9M	12M
89	28M	13M	6M	12M
90	32M	9M	4M	22M
FY 87/FY 90 Comparison (percent improvements):				
	51%	59%	83%	5%

Source: COMNAVAIRPAC, Code 70X

Table V-1

activity funded by COMNAVAIRPAC - aircraft carriers (CVs), naval air stations (NAS), and Marine Air Groups (MAGs). The worst positions for each of the types of activities did not occur at the same time, which is why the sum of activity positions each year does not match the worst position for the force as a whole.

From fiscal year 1987 to fiscal year 1990, the peak level of carcass charges incurred by COMNAVAIRPAC each year has

dropped by 51 percent. The fiscal year 1990 worst position figure for the force as a whole would have undoubtedly been lower if not for the carcass tracking problems experienced by MAG 70 during the Persian Gulf War as mentioned in Chapter IV. At the time the figures for Table V-1 were put together, COMNAVAIRPAC had already absorbed $16 million of the eventual $20 million in carcass charges received as a result of these problems, virtually all of which have since been reversed. Without the $16 million in carcass charges received by MAG 70, COMNAVAIRPAC would have shown a 75 percent improvement in its carcass charge worst position.

The debate over the degree to which the financial incentive provided by carcass charges has been responsible for improving system carcass return rates is highly subjective. The evidence is clear that return rates have improved dramatically at COMNAVAIRPAC, or at least that documentation of carcass returns has improved. Certainly the advances in carcass tracking and AVDLR management systems have played a role in this improvement; however it is hard to ignore the financial incentive provided by the current two price billing system as a relevant factor in improved carcass turn in rates.

G. LOSS OF FLYING HOUR PROGRAM DUE TO ADMINISTRATIVE OBLIGATION OF FUNDS

Supporters of a one bill AVDLR system feel that the current two price/two bill system encourages activities to tie up funds administratively through "dummy" obligations in order to pay for expected post fiscal year carcass charges. These "dummy" obligations are essentially obligations for non-existent products or services which may later be reversed to cover carcass charges. This loss of funds for AVDLRs results in the reduction of the flying hour program.

Such administrative tie ups of AVDLR funds, along with carcass charge reversals, may help to explain the large amount of fiscal year 1987 funds returned by COMNAVAIRPAC to CINCPACFLT during the expenditure availability period of the 1987 O&M,N appropriation as noted in Chapter IV. COMNAVAIRPAC is now quite clear however, on its policy that COMNAVAIRPAC activities will not use "dummy" obligations in attempting to anticipate future carcass charges. COMNAVAIRPAC inspectors specifically look for "dummy" obligations during Supply Management Inspections in order to prevent and discourage administrative tie ups of funds.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

All of the problems associated with the two price system of billing for AVDLRs discussed in previous chapters continue to exist today. Post fiscal year budget management remains subject to uncertainty due to fluctuating O&M,N obligation levels caused by AVDLR carcass charges and bill reversals. Flying hour cost reporting is inaccurate as a result of these same post fiscal year cost changes. Lastly, personnel resources are still tied up in responding to ASO inquiries and carcass bills rather than actively engaging in AVDLR inventory and financial management.

However, the evidence from COMNAVAIRPAC suggests that all of these problems caused by the two price system have diminished significantly over time. The swings in O&M,N obligation levels caused by AVDLR carcass charges and bill reversals have been much less volatile during the post fiscal year periods of 1988 and 1989 as compared to 1987 (1990 is an exception as explained in Chapter IV). In addition, post fiscal year carcass charge levels have developed a predictable pattern.

For these reasons, the post fiscal year budget management difficulties imposed by the two price system are no longer unmanageable. The reduced amounts of outstanding carcass charges for each fiscal year as reported in ASO's B35 management reports would also indicate that improved AVDLR management by individual aviation support activities has reduced the personnel resources required to respond to ASO inquiries and carcass bills.

The effect on flying hour cost reporting remains the most potentially damaging problem with the two price AVDLR billing system. Because budget requests are prepared based on costs reported in the FHCRS, differences between actual and reported costs could result in an unanticipated loss of future flying hour program if actual costs are understated. Conversely, the program could end up over funded if actual costs are less than reported costs.

As noted in previous chapters, the differences in actual and reported costs for COMNAVAIRPAC as a whole due to post fiscal year carcass charges and bill reversals have become minimal. The analysis in this thesis however, based on data from ASO's B35 management reports, does not take into account any cost distortions within individual TMS. Significant inaccuracies in reported costs within individual TMS, if they

exist, could adversely affect budget forecasting if COMNAVAIRPAC's mix of aircraft were to change.

A two price/one bill system of charging for AVDLRs would serve to increase flying hour cost reporting accuracy. Overall system carcass losses would be recouped by ASO through a surcharge to AVDLR net prices. The use of a surcharge would reimburse ASO for carcass losses while eliminating post fiscal year cost fluctuations imposed on customers due to carcass charge activity. All AVDLR costs would be recorded at the point of initial obligation of funds by customers and hence included in the FHCRS. Such a system would not reduce distortions in flying hour cost reporting caused by factors other than the two price billing system (unpreceded disbursements, etc.).

In addition to increasing flying hour cost reporting accuracy and easing the post fiscal year budget management burden, the two price/one bill system is promoted as a means of reducing personnel resources required to research and respond to ASO carcass disposition inquiries and carcass bills. The implementation of such a billing system would not change the basic AVDLR management and carcass tracking systems currently in place. The errors, or "paper losses," inherent in the system would continue to occur. Whether or not the amount of these errors would increase if the financial

incentive provided by the two price system to make accurate, timely carcass turn ins is removed, is a highly subjective matter.

Assuming that there would be no decrease in AVDLR management and carcass tracking effort upon implementation of a one bill system, the number of errors could be expected to remain fairly close to current levels. If customers are not required to respond to ASO carcass tracking inquiries, many of the "paper losses" which are eventually found under the current two price system will go undetected. Because the entire carcass tracking process is initiated by the customer, the loss of system carcass visibility at this point could result in the unnecessary recording of carcass losses leading to higher AVDLR costs fleet wide. This lack of carcass visibility could also impede ASO's ability to expedite AVDLR carcass returns from transshippers to repair depots, possibly resulting in shortages of certain AVDLRs and reduced readiness fleet wide.

B. RECOMMENDATIONS

Carcass tracking and visibility should remain one of the highest priorities of AVDLR management at all levels. System carcass visibility is essential to hold down costs and prevent "paper losses" from becoming actual material losses. The

reduction of personnel resources devoted to researching and correcting errors in the carcass tracking process should not be achieved at the expense of carcass visibility, regardless of the AVDLR billing system used.

As long as the current AVDLR management and carcass tracking systems remain in place, a certain level of errors will continue to be a fact of life. This is due both to the complexity and age of the systems as well as the dynamic environments in which they are operated. The personnel operating the systems are probably close to their maximum level of productivity as evidenced by the diminishing amounts of reduction in outstanding carcass charge levels from fiscal year to fiscal year.

Whether the two price billing system provides an incentive to make initial carcass turn ins or not, it does enforce the correction of errors which occur. Unless a similarly powerful mechanism of enforcement is implemented simultaneously, the two price billing system should not be replaced with a one bill system. Instead, attention should be focused on the improvement of AVDLR management systems at the aviation support activity level. Reducing the number of errors inherent in the AVDLR inventory management and carcass tracking process would reduce each of the problems currently attributed to the two price billing system.

C. RECOMMENDATIONS FOR FURTHER STUDY

Because the conclusions and recommendations in this thesis are based primarily on the limited information available in ASO's B35 management reports, there is ample opportunity for further research in the area of AVDLR management as well as pricing and billing. Despite the limitations of time and availability of information, it is clear that great strides have been made in AVDLR management in the fleet. Whether or not these improvements are sufficient to offset the perceived need for a change in AVDLR billing procedures is still an open question.

Other areas of research in AVDLR management include:

- A study of actual carcass charges assessed by ASO over the life cycle of an O&M,N appropriation. Such a study would provide more insight into problems with the billing system other than the level of outstanding carcass charges used in this thesis. Data could be examined for the Navy as a whole or for selected type commanders. The gathering of such data would require more time than is normally available for thesis students, as ASO's B35 program is continually updated and does not retain information from specific points in time.

- Methods to eliminate, or reduce, all causes of distortion in flying hour cost reporting such as the revision of previous fiscal year cost reports being used for budget forecasting. Such revision could be based on updated cost information obtained during the expenditure availability of an O&M,N appropriation.

- Proposals to improve the AVDLR management systems at the aviation support activity level and the feasibility of such improvements.

- Possible reorganization of the aviation support activity structure such as the creation of a division separate from the aviation support division to manage AVDLRs.

APPENDIX

GLOSSARY OF ACRONYMS

AIMD	Aircraft Intermediate Maintenance Department
APA	Appropriation Purchases Account
APN	Aircraft Procurement, Navy
ASO	Aviation Supply Office
ATAC	Advanced Traceability and Control System
AVDLR	Aviation Depot Level Repairable
BCM	Beyond Capability of Maintenance
CINCLANTFLT	Commander in Chief, U.S. Atlantic Fleet
CINCPACFLT	Commander in Chief, U.S. Pacific Fleet
COMNAVAIRLANT	Commander Naval Air Force, U.S. Atlantic Fleet
COMNAVAIRPAC	Commander Naval Air Forces, U.S. Pacific Fleet
CNO	Chief of Naval Operations
CTF	Carcass Tracking File
DLR	Depot Level Repairable
DOD	Department of Defense
FHCRS	Flying Hour Cost Reporting System
ICP	Inventory Control Point
IMA	Intermediate Maintenance Activity
MAG	Marine Air Group
NAVSUP	Naval Supply Systems Command
NRFI	Not Ready for Issue

NSF	Navy Stock Fund
O&M,N	Operations and Maintenance, Navy
OMB	Office of Management and Budget
OPN	Other Procurement, Navy
RFI	Ready for Issue
SPCC	Ships Parts Control Center
TIR	Transaction Item Reporting
TMS	Type, Model, Series
UICP	Uniform Inventory Control Point
WPN	Weapons Procurement, Navy

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