BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Amtrak's Inventory And Property Controls Need Strengthening

Amtrak's inventory and property controls need strengthening to obtain maximum efficiency from Government funds invested in its assets.

Amtrak does not have adequate assurances that it receives what it orders and pays for, or that its assets are protected and used only for authorized purposes. In addition, Amtrak's inventory records and property registers are inaccurate. In many cases, Amtrak has corrective action underway.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

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This is our fourth annual report on Amtrak activities as required by the Rail Passenger Service Act (45 U.S.C. 644). The report discusses weaknesses in Amtrak's inventory and property controls. Amtrak is planning to implement many of the improvements recommended in the report, but continuing attention to strengthening controls is needed.

We are sending copies of this report to the Secretary of Transportation; the Chairman, Interstate Commerce Commission; the president of Amtrak; and the chairmen of various congressional committees concerned with railroad passenger service matters.

Comptroller General
of the United States

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COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

AMTRAK'S INVENTORY AND PROPERTY CONTROLS NEED STRENGTHENING

D I G E S T

Amtrak has a substantial investment in inventory and property, both vital for providing the public with safe and reliable passenger train service at the lowest cost.

The inventory--valued at $92 million--consists primarily of spare parts needed to service and repair passenger cars and locomotives; to maintain and rehabilitate tracks, buildings, and bridges; and to maintain and repair work equipment.

Amtrak's property--valued at $1.2 billion--includes its rolling stock, tracks, land, stations, maintenance facilities, office buildings, and other items--ranging from shop machinery to office furniture and equipment.

The Federal Government has substantial interest in how Amtrak controls and manages inventory and property. It indirectly gives Amtrak a large portion of the funds for inventory and property through annual subsidies. In addition, Amtrak, as the major contractor, is responsible for controlling most of the inventory and property used for the almost $2 billion Northeast Corridor right-of-way improvement project, financed with Federal funds. (See p. 1.)

INVENTORY CONTROL AND MANAGEMENT

Amtrak's inventory records are largely inaccurate. For example, Amtrak's 1978 annual physical inventory revealed substantial differences between the items counted and the inventory records. Twenty-seven of 64 inventory stores had net shortages of about $5.7 million.

The stores' net shortages are the results of adding their shortages and overages on individual items. Item-by-item shortages actually were larger. For example, one store with a

net shortage of less than $1,000 had shortages for about one-third of its items amounting to about $108,000. Thirty-seven stores had net overages, which totaled about $7.5 million. (See p. 13.)

GAO's physical counts at two stores showed that both the computerized and manual records were inaccurate about half the time. (See p. 18.)

These inaccuracies are largely caused by several inventory control problems. For example, Amtrak's accounting records suggest that in fiscal year 1978, Amtrak paid about $15 million for items that did not show up in the inventory records. GAO's audit and internal Amtrak studies have shown that at least some of the items were received, but Amtrak cannot be sure how many because receipt documents are not always prepared and/or processed. (See pp. 16 to 18.)

Amtrak often makes payments to vendors without first being sure the items have been received. An Amtrak internal audit revealed that 115 of 736 transactions had been paid without receipts for the items. Amtrak representatives told GAO that based on their tests they believe the items were received whether or not receipt documents were prepared and processed. (See pp. 32 and 33.)

Another problem is that Amtrak's inventory is not protected adequately. As a result, many items are taken from storage without documents showing who took them or why. Amtrak cannot be certain if the items were used, misplaced, or stolen. Even if the items were used, histories of their usage, an important factor in deciding how much of an item should be kept on hand, would be inaccurate. (See pp. 33 to 37.)

Amtrak needs to improve its methods to (1) determine how much of each item to stock and when and how much to order and (2) identify and get rid of items it does not need. GAO's review of 100 items showed that Amtrak had not established stocking criteria for 53 items mainly because the items had

not been used often enough to establish a pattern of use. Of the other 47 items, 13 were overstocked, 9 were understocked, and 1 was obsolete. (See pp. 51 to 53.)

Recommendations

GAO makes a number of recommendations to the president of Amtrak, directed toward:

--Improving payment controls to assure that items billed for were ordered and received. (See p. 40.)

--Improving receiving controls and the preparing and processing of receipt documents. (See p. 39.)

--Improving physical security. (See p. 40.)

--Establishing and monitoring record accuracy standards. (See p. 24.)

--Developing and implementing (1) adequate methods for determining stocking levels and (2) an effective system to identify and get rid of items not needed. (See p. 58.)

On July 25, 1979, Amtrak's Board of Directors authorized $2.2 million for a new inventory management system which Amtrak estimates will be in use by August 1981.

Amtrak's new system, when properly implemented, could resolve many of GAO's concerns. However, other improvements are also needed. For example, physical security will still need to be improved. (See pp. 24, 41, and 58.)

PROPERTY CONTROLS

Amtrak was not following its own procedures for controlling property. Property registers often were not maintained or were not accurate and up to date. (See p. 60.) At one Amtrak facility in the Northeast Corridor, property registers had not been updated since Amtrak took over the corridor in 1976. (See p. 61.)

Many property items were not tagged or otherwise identified. At one facility, only 6 of 33 items GAO checked had been tagged and 1 tag had been painted over. (See p. 61.)

Physical inventories and internal audits of property have been limited. The last time Amtrak inventoried all its property was in 1974, and Amtrak's only audit of local property records showed that records were not accurate or properly maintained. (See pp. 62 and 64.)

Recommendations

The president of Amtrak can improve property controls by:

--Requiring each department to properly tag property items and develop and maintain accurate property registers.

--Establishing a regular cycle of physical inventories of property.

--Making sure that everyone responsible for Amtrak property understands the correct control procedures.

--Increasing internal audit coverage of property. (See p. 67.)

AMTRAK AND DEPARTMENT OF TRANSPORTATION COMMENTS

Amtrak generally agreed with GAO's conclusions and recommendations. Amtrak stated that many of the actions recommended for improving inventory controls are now underway or planned and the others will be considered for implementation as additional improvements are made. Amtrak believes it has made substantial improvements within the past year and that many of GAO's concerns and recommendations would be addressed by its new inventory management system.

Amtrak said that it will make a concerted effort to establish procedures to see that accurate and official property registers are maintained and periodically reconciled to the financial

records. When the procedures are established, its internal audit department will make sure that the procedures are followed. (See app. II.)

Department of Transportation officials agreed with the findings, conclusions, and recommendations in this report. (See p. 67.)

Contents

ABBREVIATIONS

Amtrak	National Railroad Passenger Corporation
FRA	Federal Railroad Administration
GAO	General Accounting Office
GSA	General Services Administration
NECIP	Northeast Corridor Improvement Project

CHAPTER 1

INTRODUCTION

The Rail Passenger Service Act (45 U.S.C. 644) requires us to annually audit the performance of the National Railroad Passenger Corporation (Amtrak) and report to the Congress. This report, highlighting Amtrak inventory and property control problems, is our fourth under the requirement. (Our three previous reports are listed in app. I.)

Amtrak has a substantial investment in inventory and property, both of which are vital to meeting its principal objective of giving the public safe and reliable passenger train service at the lowest cost. The inventory consists primarily of (1) maintenance-of-equipment items, such as spare parts and materials needed to service and repair passenger cars and locomotives and (2) maintenance-of-way items required to maintain and rehabilitate tracks, buildings, bridges, etc., and to maintain and repair maintenance-of-way work equipment. Amtrak valued the inventory at about $92 million as of September 1978. Amtrak's property includes its rolling stock, tracks, land, stations, maintenance facilities, office buildings, and other items--ranging from shop machinery to office furniture and equipment. Amtrak defines "property" as items with values exceeding $1,500 and useful lives of more than 1 year. All property leased for 1 year or more is also included as Amtrak property. According to Amtrak's records, it had about $1.2 billion of property at the end of February 1979.

The Federal Government has a substantial interest in how Amtrak controls and manages inventory and property. It indirectly gives Amtrak a large portion of the funds for inventory and property through annual subsidies. In addition, Amtrak, as the major contractor, is responsible for controlling most of the inventory and property used for the almost $2 billion federally funded Northeast Corridor right-of-way improvement project.

Good inventory and property control is important to an organization's efforts to obtain maximum efficiency from the dollars invested in its assets. It

--minimizes the possibility of delays in operations by insuring that inventory and property items are available when and where needed;

--permits an organization to exercise purchasing economies, eliminate duplicate ordering, and

encourage better use of available assets; and

--acts as a deterrent to theft, misuse, abuse, loss, and careless handling of assets and fraud.

Also, good inventory and property control is essential to give management accurate, reliable budgeting and financial data needed for making decisions.

INVENTORY CONTROL

Amtrak's inventory is made up of tens of thousands of line items and plays a vital role in supporting Amtrak's maintenance operations. For instance, Amtrak's maintenance-of-equipment inventory must be stocked with items needed to keep its passenger cars and locomotives operating safely and comfortably. These items include the spare parts needed to replace worn, broken, and malfunctioning components, such as air-conditioner motors, brakeshoes, and windows. Many other items also are needed, such as bolts; screws; paper drinking cups; cleaning chemicals; and workmen's accessories, such as gloves and safety goggles.

It is equally important for Amtrak to maintain its tracks and related fixtures at acceptable standards of service. Amtrak's maintenance-of-way inventory supports its requirements to maintain and rehabilitate tracks and related buildings, bridges, etc. Maintenance-of-way inventory items include such items as rail, crossties, track spikes, work gang supplies, and spare parts for work machinery. Nearly all the maintenance-of-way inventory is located in the Northeast Corridor where Amtrak owns the right-of-way. A large part of the inventory is for the Northeast Corridor Improvement Project (NECIP) and is actually owned by the Federal Government. These materials, however, by agreement with the Government are commingled with Amtrak's, and Amtrak has control responsibilities.

Inventory has grown rapidly

Amtrak's inventory has increased rapidly. When Amtrak was formed in 1971 to take over rail passenger service, it acquired a $5 million inventory of passenger car spare parts from nine different operating railroads. Since then, the size and diversity of the inventory have changed significantly. Amtrak's inventory had grown to a level of about $92 million by September 1978. The following chart compares the inventories during Amtrak's first full year of operations and the last fiscal year, as reported by Amtrak.

	March 1972	September 1978
Inventory value	a/$5,000,000	$92,188,000
Individual line items in inventory	10,700	96,500
Inventory transactions per month	3,500	88,900
Number of inventory store locations	37	78

a/Passenger car spare parts only.

The mix of the September 1978 inventory is shown below.

1978 inventory	Amount (000 omitted)	
Maintenance-of-equipment:		
Amtrak-controlled	$39,605	
Railroad-controlled	6,511	
Pool stock (note a)	8,452	
New Jersey Department of Transportation (note b)	1,290	
Total		$55,858
Maintenance-of-way:		
Amtrak	10,272	
Federal Railroad Administration (note c)	$26,058	
Total		36,330
Total		$92,188

a/Pool stock is certain major spare parts excluded from Amtrak's perpetual inventory system and controlled by its mechanical department.

b/Amtrak acts as custodian for a separate inventory of spare parts belonging to the State of New Jersey.

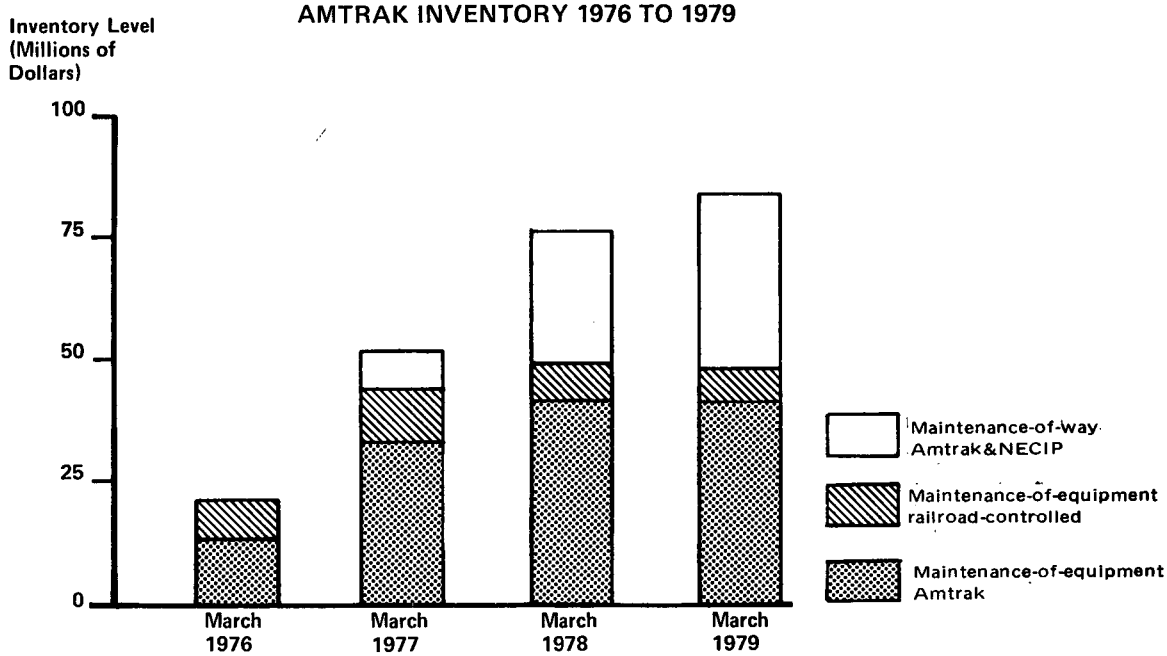
c/Amtrak is responsible for controlling the maintenance-of-way inventory items provided by the Federal Railroad Administration (FRA) for NECIP.

Amtrak's inventory has changed considerably from the beginning when it was made up of passenger car spare parts handled by the other railroads' employees and was located at railroad facilities. Today maintenance-of-way items make

up a large part of the inventory, and only a small part of the total inventory is handled by the other railroads.

The following chart shows how the inventory has grown over the past 3 years.

AMTRAK INVENTORY 1976 TO 1979



Note: The above statistics, developed by Amtrak, do not include pool stock, the New Jersey Department of Transportation inventory controlled by Amtrak, and some secondhand maintenance-of-way inventory items. These items were included in the September 1978 inventory statistics presented earlier in this chapter.

The chart shows an increase in the total perpetual inventory from $21.3 million in 1976 to $89 million in March 1979--about 318 percent. This increase occurred largely because the maintenance-of-way inventory grew from nothing to about $42 million. The maintenance-of-equipment inventory was growing, but appears to have leveled off. If pool stock, which amounts to about $11 million, was included in the 1979 data, the maintenance-of-equipment inventory would actually show an increase. 1/ The maintenance-of-way inventory will probably remain large until the completion of NECIP, as over half of that inventory is devoted to NECIP construction. After NECIP is completed, Amtrak will be responsible for maintaining the improved Northeast Corridor right-of-way.

1/About one-half was removed from the perpetual inventory in August 1977 and the remainder was removed in August 1978.

Amtrak also has acquired spare parts to support new equipment purchases. Amtrak put its Amfleet cars--a new fleet of passenger cars--into operation along certain routes, beginning in 1975. To ensure that repairs to the new equipment could be made, an initial spare parts inventory was purchased before the equipment's introduction. Amtrak is stocking an initial inventory to support its fleet of bilevel passenger cars that is being introduced. Locomotive spare parts were added to the perpetual inventory in late 1976.

Inventory control has improved significantly

Shortly after its formation, Amtrak had considerable problems in finding and supplying the spare parts needed to keep passenger cars operating. Many spare parts supplies were almost exhausted, as the railroads had chosen not to replenish low-stock levels. As a result, many cars were held out of service while awaiting parts--some for long periods. Amtrak's early spare parts inventory was kept at the other railroads' facilities, and early inventory control was the responsibility of the railroads' employees, who also provided information on spare parts transactions to update Amtrak's inventory records. Spare parts were often hard to find because each railroad had its own system for identifying and describing parts. Amtrak, recognizing it would need its own people in the field, established a material control group in 1972.

Material Control then started to take over inventory control functions from the railroads and had assumed the operation of all but a few railroad-controlled maintenance-of-equipment store inventories by May 1977. Amtrak placed material representatives at some others which remained under railroad control, to oversee the inventory.

One of Material Control's first tasks was to develop and implement a single system for identifying all Amtrak inventory items. Material Control also set up a manual recordkeeping system at each location to maintain perpetual inventory records and to control stock reordering based on actual usage and maintenance requirements. A limited computerized system was developed and implemented, and terminals were set up at many regional and field locations so that inventory transactions data could be entered into the computer. Initially transactions were entered into the computer weekly with monthly status reporting. By June 1976 Amtrak began recording transactions daily and has continued to refine and improve its computer system.

After Amtrak acquired the Northeast Corridor in April 1976, it established two distribution centers for maintenance-of-way materials, one in Wilmington, Delaware, and one in New Haven, Connecticut, and a spare parts distribution center for its maintenance-of-way work equipment at Cornwells Heights, Pennsylvania. Similar to its maintenance-of-equipment inventory, Amtrak automated its record-keeping system for maintenance-of-way materials. To account for the Federal Government's share of materials and supplies in NECIP, Amtrak also developed a separate computer subsystem which records NECIP-only transactions and reports their status.

Further improvements are planned

On July 25, 1979, Amtrak's Board of Directors authorized $2.2 million to acquire and implement a new inventory management system from the Burlington Northern Railroad. Amtrak officials told us the Burlington Northern system had been chosen because it is compatible with Amtrak's current system and contains many of the enhancements needed. The new system is expected to be fully operational in August 1981. The decision to implement the new system was made after we had completed our field work, and thus we did not fully evaluate it. However, Amtrak officials believe that the new system will improve its record accuracy, inventory control, and management. More information on the new system and how the system, when properly implemented, should relate to our conclusions and recommendations are contained in other sections of this report.

Inventory control responsibilities are divided

Amtrak's inventory control responsibilities and activities are divided among several operating groups. The material control group maintains and manages Amtrak's inventory at all its maintenance-of-equipment stores, its two maintenance-of-way materials distribution centers, and its maintenance-of-way spare parts distribution center. Amtrak's Chief Engineer controls the maintenance-of-way inventory. The Office of Maintenance of Way Materials sets material requirements, orders the material, and schedules shipments to worksites. Inventory records are generally maintained at field locations by designated employees called material inspectors, who report to the division engineers. The material inspectors are responsible for controlling inventory within certain milepost locations along the right-of-way. A small contingent of division employees enter the maintenance-of-way transactions into Amtrak's computer. Maintenance-of-way work gangs are supposed to report

SUNNYSIDE, N.Y., MAINTENANCE-OF-EQUIPMENT INVENTORY STORE

CORNWELLS HEIGHTS, PA., INVENTORY STORE FOR MAINTENANCE-OF-WAY WORK EQUIPMENT SPARE PARTS

information on receipt and use of maintenance-of-way inventory items and generally handle the material.

How Amtrak's inventory is controlled

Amtrak's inventory is maintained and distributed at locations across the Nation. As of September 1978, Amtrak had 78 inventory stores or locations divided into the following categories, according to their functional responsibility:

--Sixteen Amtrak maintenance-of-equipment stores.
--Nineteen railroad maintenance-of-equipment stores.
--Forty-three maintenance-of-way stores.

The term "store" does not always mean a storehouse where material is stored and distributed. It can also be an inventory reporting location. For example, one Amtrak store had storage areas at two locations within a city. In addition, a store at a facility may mean storage areas in several parts of the facility. For maintenance-of-way materials, a designated store can mean material that is all along the right-of-way, as long as it is within certain milepost limits.

PROPERTY CONTROL

The Amtrak departments that property is assigned to are responsible for its day-to-day control, protection, and use. The managers are to ensure that items are tagged for identification and report any changes in the property's status, including transfers, returns, theft, and nonuse.

Amtrak's Property Accounting is generally responsible for maintaining accounting records on all property transactions, checking commitments to ensure that funds are authorized, and monitoring expenditures against funding commitments. The office also issues identification tags to the departments who are to affix them to designated property. Amtrak's Office of NECIP Property Accounting in Philadelphia, Pennsylvania, performs a function similar to that performed by Property Accounting for Government-furnished equipment used in NECIP.

SCOPE OF REVIEW

We evaluated (1) controls over the reordering, receipt, storage, and distribution of and payment for inventory items, (2) management of stocking levels to meet reasonable needs with minimal investment, and (3) the effectiveness of property controls.

We held discussions with officials of Amtrak, the Federal Railroad Administration, the Defense Contract Audit Services, and the Interstate Commerce Commission. We reviewed Amtrak and FRA records, instructions, studies, and other documents and observed the carrying out of inventory and property control functions. We also reviewed other documents, reports, and correspondence relating to inventory and property control matters, including those of other railroad companies.

Most of our review was performed at:

--Amtrak's Washington, D.C., and Philadelphia, Pennsylvania, offices;

--Amtrak maintenance-of-equipment facilities at Sunnyside, New York; Chicago, Illinois; and the Washington Terminal Company, Washington, D.C.;

--Amtrak's Beech Grove, Indiana, heavy overhaul facility; and

--Two Amtrak maintenance-of-way store locations in Baltimore, Maryland.

We also visited Amtrak's maintenance-of-equipment inventory store, maintenance-of-way materials distribution center, and a maintenance-of-way store location in Wilmington, Delaware; its Brighton Park Turboliner Facility in Chicago, Illinois; and its maintenance-of-way spare parts distribution center in Cornwells Heights, Pennsylvania.

During the period of this review, we were also conducting a review of NECIP, which included certain aspects of NECIP inventory and property control activities. Also Arthur Andersen and Company, at the request of Amtrak, reviewed the NECIP maintenance-of-way inventory. Our review was coordinated with Arthur Andersen's review. We also discussed our work with Amtrak's internal auditors and considered the results of their internal audit reports.

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The results of our review of inventory control and management are discussed in chapters 2, 3, and 4. Property control is discussed in chapter 5. Although we found numerous areas needing improvement, Amtrak management has been receptive to our findings and is willing to devise corrective action. Amtrak told us that many of the actions we are recommending in the following chapters are now underway or planned.

CHAPTER 2

THE ACCURACY AND RELIABILITY OF AMTRAK'S INVENTORY RECORDS NEED TO BE IMPROVED

Accurate inventory records are essential to efficient and effective control and management of inventories. However, the accuracy of Amtrak's inventory records needs to be improved. Record balances were frequently different from the quantities actually on hand and, in some cases, the variances were substantial. We believe record inaccuracies limit Amtrak's ability to control the inventory; identify and prevent any theft or fraud; and, as discussed in chapter 4, make it difficult to determine proper stocking levels and make other management decisions. In addition, Amtrak employees constantly need to verify record balances by actually counting the items.

This chapter discusses Amtrak's inventory record inaccuracy as shown in the results of its physical inventories or actual counts; our own review of the records, and other indications, such as negative record balances and internal audit reports. It also discusses causes and efforts needed to improve record accuracy and reliability. The need for improved inventory controls, which contribute significantly to record inaccuracy, is discussed in more detail in chapter 3. Chapter 3 also contains recommendations for strengthening controls that should also improve record accuracy.

WHY ACCURATE AND CURRENT INVENTORY RECORDS ARE IMPORTANT

A major purpose of inventory control is to provide materials at the time they are needed and at a minimum cost. Inventory records are a major tool for carrying out this responsibility. The records generally should show how much of an item is on hand at a given time, how much is on order, and how much has been used. (Records which are continuously updated to reflect the current situation are referred to as perpetual records.) This data serves as the basis for making sound decisions on the amounts and timing of reorders.

Accurate, reliable records also are a deterrent to theft and fraud by employees and others. Employees are less likely to pilfer when they know that the missing items will quickly be discovered. Suppliers are less likely to attempt fraud when past dealings with the organization indicate that controls are good and records are accurate.

INVENTORY RECORDS REQUIRE A DUPLICATION OF EFFORT

Amtrak uses parallel computerized and manual inventory records. The computerized system, referred to as the material control system, (1) provides an overview of the inventory on a corporate, an individual store, and a line item basis, (2) assists in "cross-leveling" the inventory by transferring items among stores depending on need, (3) generates accounting and budgeting data, and (4) serves as the major source of receipt, usage, and "on-hand" data for Government-furnished materials under NECIP. The system relies on daily recording of inventory transactions (e.g., receipts, issues, or transfers) from inventory control documents.

The manual system consists of a series of cards or sheets containing on-order, receipt, usage, and availability data for each line item in the inventory. The manual records are used by inventory store personnel for control and management of individual items. For the maintenance-of-way inventory, manual records are used to provide overall data on availability and usage.

Amtrak officials said that the manual records were needed because on-order data was not yet completely available on the computer system. The on-order information is needed so that reorders will not be placed when the material has been ordered but not delivered. The Managing Director, Material Control stated that the manual records for the stores under his control would be eliminated when sufficient on-order data was available in the material control system. Some maintenance-of-way inventory control personnel, however, told us they lacked faith in the accuracy of the material control system and were reluctant to discontinue the manual records.

Maintaining two sets of records, which contain much of the same data, instead of providing increased control, is actually counterproductive. Some of the effort that could be used for increased accuracy, control, and management is needed to maintain both sets of records. A computerized system has a distinct advantage over the slower and cumbersome manual records in terms of visibility, accountability, and developing overall data.

INVENTORY RECORD ACCURACY STANDARDS ARE NEEDED

Although record inaccuracy is certainly a problem, measuring its seriousness is difficult. Amtrak had not established specific record accuracy objectives for inventory

control. For an inventory the size of Amtrak's, complete accuracy would be extremely difficult, if not impossible. It may not even be desirable because of its costs. However, we consider the present level of inventory record accuracy, as shown below, to be inadequate.

PHYSICAL INVENTORY RESULTS ILLUSTRATE ACCURACY PROBLEMS

Periodically inventory record balances must be verified by a physical inventory. In addition to correcting the records, the physical inventory counts can be compared with the record balances, giving an indication of record accuracy and the adequacy of controls. This process is management's most important tool for ensuring that inventory records are correct and that the inventory is being properly safeguarded and controlled. However, this process is difficult because of the way Amtrak reports overall physical inventory results. Nevertheless, our detailed review of Amtrak's 1978 annual physical inventory (Amtrak's first complete physical inventory since 1972) data clearly demonstrated that inaccurate inventory records are indeed a problem.

Net variances are not good indicators of inventory record accuracy

The June 1978 annual physical inventory showed a total net overage of about $1.8 million. That is, the stock actually on hand exceeded computer record balances by $1.8 million. The percentage of total net variance, or the percent difference between record balances and the actual on hand, was about 2 percent. Of the $1.8 million net dollar variance, about $300,000 was attributable to the maintenance-of-equipment inventory and about $1.5 million to the maintenance-of-way inventory.

This small net variance seems to confirm that inventory records are accurate. However, net variances do not provide a complete and meaningful assessment of record accuracy. For example, the physical inventory may show shortages of $100 and $200, respectively, for two items and a $300 overage for a third item. Amtrak's reporting system cancels out these differences, resulting in a net variance of zero, although the stock record balances were incorrect for all three items. If all three variances were totaled (irrespective of whether they were positive or negative), the gross variance figure would be $600. We consider the gross physical inventory variance to be a better indication of record accuracy and inventory control performance.

A closer examination of the 1978 physical inventory results shows that the physical count at 37 stores resulted in total net overages of $7.5 million. At 27 stores there were net shortages totaling $5.7 million. Subtracting the total net shortages from total net overages results in a $1.8 million overall net variance. However, summing the net store by store variances, irrespective of whether they are positive or negative, results in an accumulated net variance of about $13.2 million, and Amtrak had to adjust the material control system by that amount. The $13.2 million figure represents a variance of about 17 percent from the $76.6 million in inventory reported by the material control system at the time of the physical inventory.

The $13.2 million accumulated net variance, however, still is not the best indicator of the accuracy problem. The net variance at each store was computed by first totaling all the positive and the negative individual line item variances (which may have numbered in the hundreds at some stores) and then subtracting one from the other. Had all the variances been totaled without regard to whether they were negative or positive, the resulting gross variance would appear to have (1) greatly exceeded the net amounts reported and (2) provided a far more meaningful measurement of record accuracy.

We examined closely the physical inventory results 1/ for two small stores to determine the extent of variances and to calculate the total gross dollar variances. The Boston, Massachusetts, store had a negative net variance of less than $1000, or less than 1 percent, suggesting a high degree of record accuracy. However, our analysis showed that the physical counts and the record balances actually disagreed for 1,082 of the 1,532 items in the inventory. For 590 of the 1,082 items the physical inventory showed a total shortage of about $108,000, while for 492 items, there was an overage of about $107,000. Summing these variances, without regard to sign, results in an overall gross variance of about $215,000, or about 45 percent. In comparison, the Department of Defense has

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1/Mounted wheels were not included in our analysis because they were not subject to the same controls and recordkeeping requirements as other items. The record balances were not perpetual balances. We also updated the record balances to reflect transactions that took place before the physical inventory but had not been entered into the material control system.

established a 3 percent gross physical inventory dollar variance as the major record accuracy standard for its inventories.

The Buffalo, New York, store record balances disagreed with the physical counts for over half the items. Although the store had a net negative variance of 34 percent, the gross variance was about twice as high.

Numerous special inventories are taken but the results are not reported

Amtrak inventory control personnel conduct numerous special physical inventories. These counts, which in our opinion, reflect a reluctance to rely on the inventory control system, are made for such reasons as verifying on-hand amounts, correcting inventory record balances, and reconciling discrepancies before the annual physical inventory.

For example, in April and May 1978, the Material Control headquarters sent written instructions to maintenance-of-equipment inventory stores on three separate occasions requiring store personnel to verify record balances with amounts actually on hand before the June inventory. Stores were instructed to reconcile, at a minimum, those items that accounted for 80 percent of the dollar value of the inventory. Some stores were able to comply with the requirement and some were not. One store manager told us his store's annual physical inventory results showed improved inventory record accuracy because store personnel made a concerted effort to make physical counts and correct the records before the annual physical inventory. Another store manager told us his staff had begun counting items and correcting record balances in January 1978 in anticipation of the June annual physical inventory. Records were generally adjusted by preparing and processing the appropriate documentation. For example, if the physical count was below the record balance and the staff believed that items were issued without documentation, the staff prepared an issue document and adjusted the record balance. Maintenance-of-way inventory control personnel also took special physical inventories.

Spot counts of a certain number of line items are often made daily. When spot counts are made and a discrepancy with the material control system balances is found, documentation is prepared to adjust the system. If the proper correcting document cannot be identified, an inventory adjustment form is prepared and processed to adjust the computer system. According to Amtrak, about $2.5 million of such adjustments were reported during fiscal year 1978.

Amtrak needs to ensure that its inventory records are accurate and reliable. However, extensively counting and recounting the inventory is clearly not the best way to do this. The time and resources needed to make the various special counts could be used to improve inventory control and recordkeeping efforts, thereby eliminating some causes of stock record inaccuracy.

Investigation and evaluation of physical inventory variances have been limited

Sound management practice dictates that variances between the physical inventory counts and the record balances, at least a representative number of them, be investigated to determine how and why they occurred and what corrective action has to be taken. Investigating and analyzing variances can

--provide an indication of the failures in the control system and where improvements can be made;

--reduce similar discrepancies in the future;

--insure that proper adjustments have been made; and

--evaluate for corrective action, indicators of trends or system problems.

Once the causes of the discrepancies are determined, they should be classified, analyzed, and evaluated. The results, along with recommended corrective action, should be summarized and reported to top management.

For the 1978 annual physical inventory, Amtrak's investigation of inventory variances was limited. Material Control headquarters asked store officials to explain a small number of the larger variances at Amtrak-operated maintenance-of-equipment inventory stores and maintenance-of-way distribution centers. In addition, a few other variances were investigated at some of the maintenance-of-equipment inventory stores. The maintenance-of-way inventory and maintenance-of-equipment inventory stores operated by other railroads were not included.

Variances were investigated during the special inventories in order to prepare adjusting documents. However, the identified causes of the variances were not reported, classified, or evaluated. Furthermore, we believe, as previously discussed, that the special inventories should be eliminated or greatly reduced. In addition, adjustments in inventory records by store personnel should be reported and controlled.

We believe Amtrak needs to investigate a representative number of its physical inventory variances that would provide adequate coverage of the total number and type of variances so that controls can be properly assessed. Procedures specifying which variances are to be researched and to what depth and requiring that the results be analyzed, evaluated, and reported to top management with recommendations for corrective action are needed.

An inventory control official of the Chicago and North Western Transportation Company, a freight railroad company, told us that it takes systemwide physical inventories once a year and count "critical" items monthly. Each inventory store is given lists of items on which the inventory variances are over a specific amount (from $1,000 to $1,500, depending on the item) for the annual and the monthly physical inventories. The lists also include from 10 to 20 other selected variances for each store. Store officials must explain the causes of the differences.

CLEARING ACCOUNT IMBALANCES

Another indication of inaccuracies in the material control system is the $22 million in adjustments that have been made in the inventory clearing accounts over the past 2 years. For fiscal year 1978, the adjustment was about $15 million, of which about $12.2 million was for the maintenance-of-way inventory, including $8.3 million for NECIP. The other $2.8 million was for the maintenance-of-equipment inventory. For fiscal year 1977, the clearing account adjustments totaled about $6.9 million.

The clearing accounts are a series of financial accounts designed to show Amtrak's liability to its suppliers for purchased inventory items by recording receipts and payments for the items. When an item is ordered and arrives from the supplier, a receiving report is prepared as the official record of receipt. The receiving report data is processed into the material control system and recorded on the manual records to update the stock data for the item. The data is also processed through the material control system into the inventory accounting system for entry to the appropriate clearing account. When the supplier is paid, the payment is posted to the clearing account.

The clearing account adjustments have been needed because payments for items have exceeded their value, as recorded in the accounts. The adjustments are made by changing the amount of liability shown in the accounts and increasing the amount of expenses for the fiscal year. To avoid large adjustments of its yearend financial

results, Amtrak officials established a reserve account of $12 million as a contingency for the adjustments. Funds were set aside monthly and accumulated to a total of $12 million. An Amtrak official told us that $14 million had been accumulated in the reserve account as of July 1979 for fiscal year 1979 inventory adjustments, including adjustments to the clearing accounts.

The clearing account imbalances indicate material control system inaccuracies when the imbalances occur because items are received and paid for but receiving reports are not prepared and/or processed. In such cases, the items are on hand but the material control system balances are not updated to reflect the receipts. Of course, the imbalances also raise the question of whether the corporation is paying for items it has not received.

According to an Amtrak investigation of the clearing account discrepancies for the maintenance-of-way inventory, receiving reports were prepared but not processed into the system. However, the work of Amtrak's Internal Audit Department and our work has shown that some receiving reports are not prepared at all. Amtrak officials believe that, in these cases, the material is received but receiving personnel do not prepare the receipt documents. But, without the receiving reports, Amtrak may have to delay payment to the vendors or pay for items it is not certain it has received. The need for improved receiving and payment controls is discussed in chapter 3.

If the system were designed to identify any mismatches between payment data and receipt data, the clearing accounts could serve as a means of inventory control and contribute to increased accuracy of the stock records. Mismatches could be investigated and corrections made in the payment data or receipt data, as appropriate. The material control system could also be corrected to reflect any receipts that had not been processed or had been processed incorrectly. Pricing discrepancies, control weaknesses, and employees who did not adequately perform their responsibilities could also be identified. We believe the capability to match payments with receipts is an integral part of an effective accounting system and a major control mechanism.

An Amtrak representative told us that, as a result of the large fiscal year 1978 clearing account adjustments, inventory control personnel had become more aware of the receipt problem and appeared to have improved processing of receipts into the material control system. He said this apparent improvement was shown by comparing the inventory

clearing account balances of fiscal year 1978 and 1979 for the same year-to-date periods. However, how much receipt processing has actually improved will not be known until the accounts are examined at fiscal year end when receipts and payments are compared. In any event, we believe receiving and payment controls still need to be improved. (See ch. 3.)

OTHER INDICATIONS OF INVENTORY RECORD INACCURACY

The results of our physical counts of randomly selected items at Amtrak stores and the findings reported by Amtrak internal auditors also show that inventory record balances are often incorrect. The existence of negative inventory record balances further attests to record inaccuracy.

Our physical counts

We randomly selected 50 line items for each of two maintenance-of-equipment inventory stores, counted the items, and compared our counts with the manual records and the computer balances. Assisted by store personnel, we also tried to determine why our counts and the record balances differed.

At one store, our counts agreed with both the manual record and computer balances for only 18 of the 50 items. Our counts agreed with the computer for 19 items and with the manual records for 19 items. The manual records and computer agreed with one another for 36 items. In many cases, the differences between our counts and the record balances were small, involving only a few items. However, substantial quantity differences in some cases existed.

The estimated on-hand value of the 50 items, based on our count was $50,041. The gross dollar variances between our count and the manual records and our count and the computer were $29,760 and $43,979, respectively.

The store personnel's investigation indicated that the differences were caused mainly by (1) issuance of items without proper documentation, (2) errors in the annual physical inventory, and (3) incorrect posting to the computer and the manual records.

At the other store, our count, the manual records, and the computer agreed for 26 of the 50 items. Our count and the manual records and our count and the computer agreed for 29 and 28 items, respectively. The manual records and the computer were in agreement for 39 of the 50 items.

Errors related to the 1978 physical inventory, incorrect posting or failure to post to the records, and issuance of items without adequate documentation were given as the causes of the record inaccuracies and the resulting variances with our counts. Although the quantity differences between our counts and the record balances were often small, in many cases the variances were substantial.

We also tested the accuracy of the maintenance-of-way inventory manual records maintained by two material inspectors and found some significant discrepancies. Arthur Andersen and Company, in its review of NECIP maintenance-of-way inventory, concluded that both the computer and manual records were inaccurate.

Amtrak internal audits

Amtrak's Internal Audit Department has audited either the accuracy of the material control system or manual records at individual stores nine times since the beginning of fiscal year 1976 and frequently commented on the need for more accurate records. For example, the auditors concluded from a review of the procedures for the material control system in January 1978 that

> "In our opinion, the existing controls are not adequate to insure the proper accountability of inventory transactions. Inventory transactions are not being properly recorded on material control source documents, thereby creating inaccurate and unreliable balances in the material control system and the general ledger* * *."

Negative inventory record balances

Although it is, of course, physically impossible for a negative number of items to be on hand, Amtrak inventory records, in many cases, show negative balances. As of February 23, 1979, the total amount of negative balances was about $4.5 million, of which $0.6 million was for the maintenance-of-equipment inventory stores and $3.9 million was for the maintenance-of-way inventory stores. This occurred despite all negative balances being erased by the June 1978 physical inventory and efforts by inventory control personnel to correct negative balances.

Negative record balances can occur for several reasons. Examples are (1) failing to prepare or record receiving reports and later issuing the items, (2) using incorrect units of measure or item condition codes in preparing transaction documents, (3) issuing a spare part that was removed from a car or locomotive and repaired but not recording the removal in the records, and (4) incorrectly recording inventory transactions in the records.

Our examination of negative balances showed that the major causes were (1) incorrect posting or failure to post transactions, (2) using the wrong condition code, and (3) late processing of receipt documents.

Amtrak officials told us that they are placing more emphasis on preventing and reconciling negative balances.

Untimely processing of inventory transactions

In addition to being recorded accurately, inventory transactions must be recorded promptly to ensure that the records show the most current on-hand balances. Amtrak procedures require that transactions be recorded daily, but this is not always done. Delays do occur, and in some cases processing was quite slow, with delays of a week or more. As a result, the records were not always current and not completely accurate. Delayed processing of receipt documents is a major cause of negative balances.

CAUSES OF RECORD INACCURACIES

Record inaccuracy has four basic causes: (1) inadequate controls over the inventory, (2) inadequate controls over preparing or recording inventory transaction documents, (3) clerical errors, and (4) keypunch (entering data to the computer) errors. To determine why Amtrak's records were inaccurate, we examined fifty 1978 annual physical inventory variances at the Chicago 21st Street store. Store personnel gave us the reasons for the variances, as summarized on page 21.

Reasons for variances	Frequency of occurrence (note a)
No issue document prepared	24
No receiving report prepared	17
Incorrect condition code identification	7
Outside storage, items issued or received without documentation	6
Repair and return tag not prepared	5
Documentation of issue in process at physical inventory time	2
Possible wrong Amtrak item identification number	2
Free issue item--no documentation needed	1
Receipt not entered in computer	1
Receipt entered incorrectly in computer	1
Transfer in not entered in records	1

a/For some items more than one reason was given.

The store manager cited high employee turnover and the lack of security over most of the stock (allowing material to be taken without proper documentation) as the two primary causes of the variances.

The staff at the Sunnyside store researched 43 physical inventory variances. The results are shown below.

Reasons for variances	Frequency of occurrence
Items issued without proper documentation	17
Transfer of items not recorded (computer malfunction)	8
Error in physical inventory count	5
Receipt not recorded	4
Error in recording data in the computer	4
Items returned after issuance without the proper adjustment	2
Unit of measure used was incorrect	1
Item was stolen	1
Unexplained	1

Too many clerical and keypunch errors

A large number of clerical and keypunch errors is one reason for inaccuracies in the material control system. To reduce these inaccuracies, errors could be identified at the time they are entered in the material control system so

that they can be corrected. This process is referred to as front-end editing.

The material control system's front-end edit capability is quite limited. That is, even if an obvious error is made, the system will not immediately detect the mistake and reject it. Edit reports listing keypunch errors are prepared and sent to the stores; however, the reports have limited value because they do not detect such important errors as incorrect quantities even if the amount entered is highly unusual. For example, at one store, a car number (1718) was keypunched instead of the actual quantity issued (two) and remained in the system for some time. With the capability to identify errors when entered, the system, for example, could notify store personnel immediately that a certain transaction being processed is causing a negative balance. Amtrak officials told us that the Burlington Northern system that Amtrak is planning to implement has greater front-end capability than its existing system.

Large staff turnover

Amtrak officials frequently cited the large number of employees that move in and out of inventory control jobs during a given period as a major cause of record inaccuracies. The turnover is caused mainly by union rules which allow a union employee whose job has been eliminated to bump or replace another union employee with less seniority. For example, at one inventory store, 107 union bumps occurred during 1978. Material Control personnel told us that, during this period, the store's staff consisted of about 20 union and 6 nonunion positions. Maintaining a well-trained staff under such circumstances is difficult.

Amtrak officials have been negotiating with union officials for changes to reduce bumping of key inventory control staff, and the union has agreed in a few cases to such changes.

EXAMPLES OF ADVERSE EFFECTS

As previously discussed, accurate inventory records are a major tool for controlling and managing inventories. We noted several examples of adverse effects that can occur as a result of inaccurate records. For example, over 4,000 crossties were apparently stolen from along the right-of-way in the Baltimore area. Police investigation revealed that Amtrak could not determine if the ties had been delivered or how many ties were missing. Since delivery could not be

proven, Amtrak could not be certain if or how many ties had been stolen.

In addition, Amtrak and a Federal Railroad Administration contractor have spent several months trying to determine the amount of maintenance-of-way materials ordered, received, used, and on hand for NECIP. The information was needed so that additional material could be ordered. However, an FRA official said the effort was unsuccessful and the orders for the 1979 construction year did not take into account material left over from the 1977 and 1978 work programs. As a result, Amtrak should have materials that exceed present needs. An FRA official told us that the amount of materials on hand should be determined in time for the 1980 construction year orders and as a result the materials would not be in excess at the end of the project.

CONCLUSIONS

The accuracy and reliability of Amtrak's inventory records need to be improved. Record balances are frequently different from the quantities actually on hand and, in some cases, the variances are substantial. Inaccuracies exist because (1) some controls need strengthening, (2) some transactions are recorded late, and (3) people make errors. Improved record accuracy is essential to Amtrak's inventory control and management.

The inventory control system does not give management sufficient information to (1) adequately evaluate inventory record accuracy, (2) identify inaccuracy causes, including control weaknesses, and (3) determine corrective action needed. The physical inventory has not been effectively used as a management tool because net physical inventory results do not accurately indicate inventory record accuracy or control adequacy and not all physical inventories are reported. Furthermore, physical inventory variances are not sufficiently investigated or analyzed nor the causes made known to top management.

A large turnover of inventory control staff has been a major cause of record inaccuracy. Amtrak has been negotiating with the union for changes to reduce the turnover rate, and the union has agreed in a few cases to such changes. We believe Amtrak needs to continue its efforts to reduce turnover and maintain a well-trained staff.

Amtrak needs to establish and monitor specific accuracy objectives against which management can assess record accuracy and how well the inventory is being controlled. In developing such standards, Amtrak must weigh the benefits

against the costs of obtaining increased record accuracy. Complete record accuracy would be extremely difficult, if not impossible. It may not even be desirable because of the cost. On the other hand, existing record inaccuracies limit Amtrak's ability to control and manage the inventory, and greater record accuracy and reliability are needed.

RECOMMENDATIONS

We recommend that the president of Amtrak:

--Establish and monitor reasonable inventory record accuracy standards, preferably based on the percentage of gross physical inventory variance and including all physical inventories conducted during the reporting period.

--Give priority to completing the material control system and eliminating the manual records, to the extent practicable.

--Establish controls to ensure timely processing and recording of transactions.

--Establish a program of physical inventory variance investigation and analysis covering a representative number of inventory items at each store.

--Develop a system to monitor and match inventory payments and receipts.

Amtrak officials believe that the new inventory management system that the Board of Directors recently authorized for implementation will improve inventory record accuracy. Also, we understand the system provides for matching of inventory payments and receipts.

AMTRAK COMMENTS

Amtrak agreed with our conclusions and recommendations and is already implementing some of them. For example, Amtrak stated it has begun a cycle count inventory program at certain stores. Program plans are to include an inventory count at all the maintenance-of-equipment stores and the three maintenance-of-way distribution centers. As part of the program, a record accuracy objective of 5 percent gross physical inventory variance has been established and differences between the day's cycle counts are investigated and reported. Amtrak further stated that enhancements made to the computerized system during fiscal year 1979 and other planned enhancements will improve the inventory

managers' confidence in the reliability and usefulness of the computerized system and lessen dependency on the manual inventory records. Amtrak said our other recommendations will be fully considered for implementation.

Amtrak told us that a comparison of the preliminary 1979 physical inventory results with the 1978 results shows major improvements. We did not evaluate the 1979 results because the physical inventory was taken after we completed our field work and the physical inventory results have not been finalized. However, we do not believe, for the reasons discussed in this chapter, that Amtrak's net physical inventory results are a good indicator of inventory record accuracy or controls. Much of our review was based on data covered by the 1979 physical inventory.

CHAPTER 3

INVENTORY CONTROLS NEED TO BE STRENGTHENED

Amtrak's controls over the receipt, storage, transfer, and issuance of inventory items and over payment for them need strengthening in certain areas, and the documents recording the inventory transactions need to be better controlled. Amtrak's need for improved controls is evidenced, to a large extent, by the inaccuracies in the inventory records, as discussed in chapter 2.

ADEQUATE INVENTORY CONTROLS ARE IMPORTANT

An organization needs controls to insure that it receives what it orders and what it pays for and that assets once obtained are protected and used only for authorized purposes. These controls basically involve (1) accepting deliveries from vendors only when a valid purchase order exists and has not already been filled, (2) inspecting and counting items when they are received to verify what has been received and how much, (3) preparing a document to officially acknowledge and report the receipt and forwarding it to the appropriate personnel, such as the accounts payable department, for action, (4) promptly moving items to the proper storage locations, (5) protecting the inventory against damage, theft, or pilferage, and (6) issuing items only under proper authorization. In addition, transfers from one storage location to another should be verified and documented, and payments for inventory should be made after determining that the items were officially ordered and their receipt was documented. Proper control is twofold: control over the assets and control over the documents recording the transactions.

RECEIVING

Amtrak's internal analyses and accounting data, other studies, and our audit have shown that Amtrak needs better receiving controls. Possibly the best indication of the extent of the receiving problem is the fiscal year 1978 adjustments made to the inventory clearing accounts and reported to Amtrak's president and Board of Directors. As stated in chapter 2, the adjustments were needed because payments for the fiscal year had exceeded receipts recorded in the inventory accounts. The adjustments for the maintenance-of-equipment and maintenance-of-way inventories were about $2.8 million and $12.2 million, respectively.

The receiving report is the official record of receipt. It tells the procurement department that an order has been filled or partially filled. It lets store personnel know that items have arrived and are available for issue and that the inventory records must be updated to reflect the additional items. The receiving report also should tell the accounts payable department that certain items have been delivered and the vendor can be paid and allow receiving personnel to close out the purchase order and avoid accepting duplicate deliveries.

Amtrak must prepare and process receiving reports to assure that items it is billed for are actually received. If the items were received, a missing receipt document could delay payment to the vendor, discounts may be lost, or the vendor may discontinue its relationship with Amtrak. Also the inventory records and financial accounts may be inaccurate.

Receiving reports should also be prepared and processed correctly and in a timely manner. If not, the same type of problems as noted above can occur. In addition, costly special investigations may be necessary to determine and correct the errors or locate the documents.

One means of monitoring receipt document preparation and processing is a computerized system which integrates procurement, inventory control, and accounts payable data. Orders for materials outstanding beyond the expected delivery dates and invoices submitted for payment for which the accounts payable department has no receipt could indicate that materials have been received but receiving reports have not been prepared and/or processed. These cases could be identified and investigated. However, Amtrak does not have an integrated system, and Amtrak believes that the lack of such a system has contributed to the receiving and accounts payable problems discussed in this chapter.

Maintenance-of-equipment inventory

Amtrak's Internal Audit Department has identified receiving control problems for the maintenance-of-equipment inventory. For example, the auditors attempted to trace 75 randomly selected payment vouchers involving 146 inventory receipt transactions to the material control system. The auditors used information on the invoices and the supporting payment data, but could trace only 71 (49 percent) of the 146 receipt transactions. Twenty-five invoices did not have receiving reports, and 15 receiving reports were incomplete.

The other 35 invoices had complete receiving reports but still could not be traced to the material control system.

A list of the 75 receipt transactions that could not be traced was given to Material Control for further research. Material Control investigated 19 of the transactions by reviewing purchase order and receipt data at the inventory stores. Through the additional research, 14 of the 19 transactions (74 percent) were found in the material control system. There were no receipts for three transactions (16 percent) and the other two transactions (10 percent) were noninventory items miscoded as inventory.

Internal audit conducted a similar review in the Northeast Corridor. Twenty-five, 1/ or 27 percent, of 94 receipt transactions could not be traced to the material control system. Further research showed that only 4 of the 25 transactions had been processed correctly and on time into the system.

The Internal Audit Department concluded from the above tests that the controls over the processing of material transactions were not adequate to ensure the timely and efficient processing of inventory receipts.

Our review also indicated the need for improved receiving controls. For example, at one store, we selected 23 of numerous items for which the 1978 annual physical inventory counts exceeded the material control system balances. Store personnel investigated the causes of the overages and found that a receiving report had not been prepared for 15 of the items. For two items removed from equipment to be repaired, documents were not prepared to bring the items into the inventory. The discrepancy for two other items occurred because some repaired units were mistaken for new units. Store personnel thought that one item had been issued to a mechanical department employee who later put the item back into the inventory without letting the store personnel know. As a result, the issue document was never canceled. A transfer in was not recorded for one item, and a receiving report was not processed for another. The discrepancy for the last item occurred because of delayed processing of a receiving report.

1/One of the 25 was a maintenance-of-way inventory transaction.

Purchase orders are not always on hand when inventory items are delivered

Amtrak officials believe that a major reason for the untimely preparation of receiving reports is that copies of purchase orders are not always on hand when materials are delivered. This has been a continuing problem. According to Amtrak procedures, receiving personnel are to accept and report materials receipts after they have checked the deliveries against copies of the purchase orders signed by an authorized official. The purchase orders are needed to verify that Amtrak officially ordered the material delivered.

The likelihood that purchase orders would not be on hand when materials were delivered varied from store to store. At one store personnel told us purchase orders were not on hand for about 20 percent of the deliveries. At a second store, the unavailability of purchase orders was not a problem, and at a third store, purchase orders were on hand for only 47 percent of the incoming shipments we tested. However, the buyer's worksheets, but not formal purchase orders, were available for another 49 percent of the shipments. No documentation was on hand for 4 percent of the shipments. Also at the third store a backlog of 69 shipments had not been reported as received because the receiving department did not have copies of the purchase orders.

The organization and accuracy of receiving files need to be improved

We reviewed the purchase order files maintained by the receiving personnel at two stores. When deliveries are made and accepted, the receiving reports should be filed with the purchase order and the file closed. If the files are not properly maintained, duplicate shipments may be accepted or open purchase orders needed to receive materials may be misplaced. The procurement department's purchase order files should also be well maintained to avoid accepting and placing new orders for items already ordered and for monitoring and following up on purchase orders that are open beyond the vendor's promised delivery date.

At one store the receiving department's open purchase order file contained 757 outstanding purchase orders dating back to 1976. We compared the 27 outstanding purchase orders for 1976 and 25 of the 1977 and 1978 outstanding purchase orders with procurement office files. The office had 26 of the orders closed and 17 orders open; the status for 9 orders was not readily available.

At the other store, 110 purchase orders for 1976, 1977, and 1978 were shown as open in the receiving department's files. We compared the status of 25 of the purchase orders with the procurement department's files, which showed 10 of the orders open, 6 closed, 1 canceled, and no record of 2 orders. Procurement personnel did not know the status of six orders because they had been placed by another location.

We believe the above demonstrates the need to better maintain the files to properly indicate the status of purchase orders and avoid possible duplicate orders and receipts and receipting delays.

Open purchase orders should be monitored

According to the vendors, 5 of the 27 purchase orders shown as open in both the receiving and procurement files were actually closed or completed. One of the closed orders had been delivered directly to the user rather than the receiving department, and a receiving report had never been prepared. Another closed order was shown as partially received in the receiving and procurement files. Some orders remained open because the items requested were obsolete, unrepairable, or specially manufactured, and Amtrak was not notified. One vendor was not filling an open order until it received full payment for a previous order it had filled in April 1977.

We believe that outstanding purchase orders need to be monitored. If not, the materials may not be available when needed or they may be received when the need no longer exists. For example, we checked with the vendor on the status of a purchase order for repair of a microwave oven. A vendor representative told us that the oven had been repaired and had been available for pickup by Amtrak in October 1978 but had not been picked up until February 1979.

Maintenance-of-way inventory

Receiving controls for this inventory also need to be improved. Although receiving reports may eventually be prepared, material inspectors, who are responsible for preparing the reports, generally do not have assurances that deliveries are made to their territories and that the material is correctly inspected and counted. In addition, no one at the divisions had been specifically assigned the responsibility to receive and sign for material. The material inspectors we talked to were not sure if they received accurate and complete information so that they could maintain reliable and up-to-date records of receipts. They further

said that they seldom saw the material they were receipting and did not have the time to visit the storage areas and work gangs often enough because much of their time was used for preparing and processing paperwork.

Material inspectors told us they prepared receiving reports when they were informed the materials were received through delivery tickets sent them, telephone calls from work gangs, or notification of movement of freight cars with material to their territories. In some cases, they are notified by the Office of Maintenance of Way Materials that an amount of material was supposed to have been delivered to their territories under a particular purchase order and that a receiving report should be prepared and processed. The inspectors often receive late word of deliveries. On the other hand, one inspector told us that, in some cases, receiving reports might be prepared before the material was actually delivered to his territory.

The lack of adequate central receiving areas where deliveries can be promptly accepted, inspected, and reported is a major problem for the maintenance-of-way inventory. An Amtrak official told us that Amtrak planned to establish nine maintenance-of-way materials-staging bases in the Northeast Corridor under NECIP. The bases would consist of inside and outside storage areas primarily for track materials but also for some building materials. The latest projection is that the bases will be substantially completed in mid-1980.

Receipt document processing

Maintenance-of-way personnel believe that inventory clearing account discrepancies of $12.2 million, as discussed earlier in this chapter, existed mainly because receiving reports were not processed into the material control and inventory accounting systems. Amtrak formed an inventory clearing account discrepancy committee to determine why the clearing account discrepancies had occurred. By comparing crosstie (a major track item) purchase and payment data and receipt data as shown on material inspectors' receiving reports with the receipts processed into the material control system, the committee concluded: "* * * one problem lies in the fact that documents prepared in the field are not getting processed into the Material Control and Material Accounting systems * * *."

An earlier Amtrak analysis of rail purchased for NECIP (from project inception through Oct. 31, 1977) identified a $1.8 million discrepancy in the receipt of rail. Some receiving reports had not been recorded in the material control

system, some had been incorrectly prepared or processed, and some had not been prepared at all.

Delays in unloading delivered materials have resulted in substantial demurrage costs

An important receiving function is to promptly move delivered material to storage areas where it is available for use. Amtrak, however, has had difficulty in promptly unloading the considerable amount of material that is delivered in freight cars for NECIP each year. Since Amtrak does not own enough cars to handle deliveries, it contracts with other railroads for cars. As a result, a large number of foreign cars (cars owned by other railroads) are located in the Northeast Corridor during peak delivery periods. When the foreign cars are not unloaded and released on time, a demurrage charge is assessed. Because of delays in unloading and releasing foreign cars, Amtrak has been billed for a considerable amount of demurrage. For example, an Amtrak official reported that outstanding demurrage billings by Conrail to Amtrak as of January 1979 amounted to about $3 million.

CONTROLS OVER PAYMENTS FOR INVENTORY ITEMS

The accounts payable department, according to department representatives, is responsible for timely paying vendors to maintain good relationships and to obtain discounts offered for prompt payment. The department also should have an important control function by insuring that Amtrak pays only for items it has ordered and received.

The accounts payable department is to match vendors' invoices with purchase orders and receiving reports before payment is made. To make timely payments, Amtrak procedures allow payment to designated vendors which do high volume business with Amtrak before the department receives receipt documents. Vendors are also often paid before receiving reports are received in order to obtain discounts. Amtrak representatives told us that their tests had shown that virtually all material was received whether or not a receiving report was prepared.

The failure to prepare or correctly and promptly process receiving reports has resulted in delays in paying vendors. At one facility, the procurement department had prepared a list of 42 invoices (some of which were for noninventory items) dated from June 1978 through January 1979 for which it had no receiving report in February 1979. Procurement personnel followed up with the receiving

department, and 24 receiving reports were prepared or located. However, the receiving department had no record of receipt for 15 of the invoices and no purchase order on file for 3 invoices. Our review of the invoices showed that some purchase discounts had been lost and 27 invoices were past due with possible penalty fees. We also noted numerous other overdue invoices from as far back as 1976. For instance, two firms were owed $3,871.53 and $8,479.70, respectively, for invoices from 1976-78.

In April 1978, the facility's procurement office sent a list of 52 purchase orders for which procurement had received invoices but had no record of receipt. The store personnel's investigation revealed that 36 receiving reports had been prepared and sent to procurement but had not been found. Sixteen receiving reports had not been prepared, 9 of which were for deliveries accepted directly by facility personnel rather than the receiving department.

The accounts payable department, in many cases, pays for items it cannot be certain Amtrak has received. For example, in the previously mentioned Internal Audit Department reviews of receipt processing into the material control system, the auditors found that, in many cases, invoices had been paid without receiving reports. During one review, the auditors found that for 25 of 146 receipt transactions, the accounts payable department had made the payment without receiving reports. According to another review, 115 of 736 receipt transactions were paid without receiving reports. Some payments were made to vendors that under Amtrak procedures can be paid before the accounts payable department receives a receipt document, but some were not approved for prior payment. For example, 14 of the 25 invoices without receipt documents in one audit test was required to have a receipt. In addition, we believe that for those vendors approved for prior payment, the receiving reports should have later been matched with the invoices.

The accounts payable department's efforts to speed up the matching and payment process has also weakened controls. Procurement personnel at store locations, in many cases, are matching invoices, receiving reports and purchase orders, and forwarding the set of documents to the accounts payable department for payment. Controls are weakened in that the purchasing, receiving, and paying functions are not properly segregated to prevent document manipulations.

INVENTORY STORAGE AND ISSUING

Amtrak needs to improve its storage and issuance controls. Many items are leaving storage areas without

documentation, primarily because access to the inventory is not limited to authorized personnel.

Items generally should be issued from inventory only when store personnel are presented with a written requisition or an issue document signed by an appropriate official. However, as discussed in chapter 4, it may be beneficial not to require a written requistion for some low-value items.

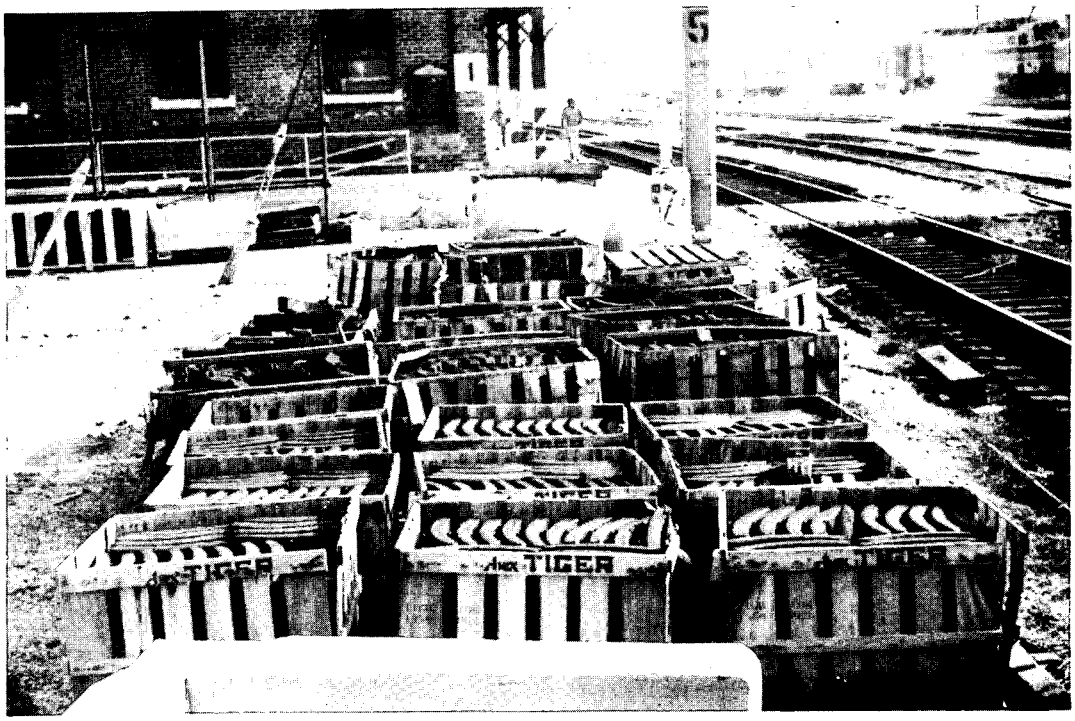
If an issue document is not prepared or not correctly prepared, it may not be possible to determine whether missing items were stolen, misplaced, or used for authorized purposes. Poor control over issuing may lead inventory control personnel to believe that items are being used for authorized purposes but simply not recorded. As a result, theft may go undetected or the items may not actually enter the inventory. Employees may be more careless or pilfer if they know that controls are weak and many items leave the store undetected and undocumented.

Even if items are removed for authorized purposes, the failure to prepare or correctly prepare and process issue documents results in inaccurate records of on-hand balances and usage. Since reorder points and inventory stocking levels are based largely on past use, failure to record issues can adversely affect reordering and stocking level calculations. Budget and cost data would also be inaccurate, and inventory personnel may be discouraged from trying to maintain accurate records.

The 1978 annual physical inventory showed that 27 stores had net inventory shortages between counts and records totaling $5.7 million. But the gross shortage could have been significantly larger than the $5.7 million. For example, one store had a negative net physical inventory variance of less than $1000. However, an item-by-item analysis revealed that total shortages of about $108,000 for 590 of the 1,532 items in inventory existed.

Maintenance-of-equipment inventory

Inventory items leave maintenance-of-equipment stores without documentation for several reasons. The stores generally do not have adequate physical security to limit access to the inventory by unauthorized personnel or others. Inventory is often stored in several different areas at facilities, and the lack of storage space at many facilities requires that some items be stored outside in unprotected areas. In addition, inventory control personnel may not be on duty for every shift that the mechanics work.



OUTSIDE STORAGE AT AMTRAK'S SUNNYSIDE, N.Y., MAINTENANCE FACILITY

Amtrak officials told us they did not believe that theft of inventory items was a problem because they did not consider spare parts for locomotives and cars to be that appealing a target. They stated that items were missing from inventory because mechanics removed them without documentation to make legitimate repairs. While it appears that many inventory items would be less desirable for theft, we noted that some inventory items such as flashlights, batteries, work gloves, and shampoo for cleaning cars were also missing and the extent of theft is difficult to determine without accurate records.

Amtrak told us that a new maintenance facility was being constructed in Chicago, and that physical security for its inventory store would be better than security at its Chicago 21st Street store. At this time, several other new or improved facilities are also planned in the Northeast Corridor.

Maintenance-of-way inventory

Physical security and control over issuance for this inventory pose a difficult problem. Many items, such as ties and rail, are delivered to worksites and much of the inventory is in storage areas scattered along the right-of-way. Many storage areas are unsecured and do not have full-time supervisors. Access to the materials is often available to any Amtrak personnel and possibly to others.

Amtrak calculates requirements for much of the inventory based on the work planned for the next construction year and often has part of the material delivered each month. Thus, if the work schedule is delayed, the materials along the right-of-way can build up and may not be used for a considerable period. Worksites can also change from one area to another so that material must be moved from place to place. Control is more difficult under these circumstances.

Material inspectors are responsible for issue documents. However, they are often not present when material is issued. Issue information can be generated directly from informal notes and telephone calls by the work gangs, from production reports prepared by the gang foremen or in some cases by the material inspector if he happens to be at the worksite. Material inspectors generally have no assurances that issue reports from work gangs are accurate or that all usage is reported. Maintenance-of-way personnel have developed preliminary data on issue documents for three major items during the period covered by the 1978 annual physical inventory and compared the data with issue data for the same period as recorded in the material control system.

As shown, the comparison of the two sets of data revealed significant differences.

	New rail (linear feet)	Crossties (each)	Ballast (net ton)
Field issues	1,063,158	471,480	332,294
Computer issues	792,911	424,796	20,629
Field overage	270,247	46,684	311,665

Maintenance-of-way personnel also compared production reports and issues processed for NECIP through June 1978. The comparison showed substantial differences.

NECIP Production Versus NECIP Issues
Inception Through June 1978

	Production report	Issues processed	Production report excess	Value
Rail, linear feet	972,576	860,350	112,226	$850,207
Crossties, each	330,982	336,545	(5,563)	(84,998)
Switch timbers, each	4,391	7,852	(3,461)	(80,163)
Spikes, pound	3,137,440	3,899,092	(761,652)	(193,527)
Tie plates, each	661,844	524,923	136,921	530,060
Rail anchors, each	1,323,688	1,138,559	185,129	153,750
Insulated joints, set	422	750	(328)	(43,980)
Turnouts, each	33	25	8	104,561
Ballast, net ton	170,233	57,422	112,811	313,865

At the end of our field work, Amtrak was reprocessing fiscal year 1978 issue documents to ensure that all were recorded in the material control system.

The extent of theft is not known and would be difficult to determine because of record inaccuracies and present control procedures. Several material inspectors indicated they believed some theft occurred.

CONTROLS OVER TRANSFERS OF INVENTORY ITEMS

Transfers from one store location to another should also be controlled and recorded accurately. The sending store's on-hand balance should be reduced and the receiving store's increased. Under the current system, the sending organization is supposed to enter the transfer transaction

information into the material control system. The computer processes the data as a transfer out for the sender and automatically as a transfer in for the receiving location. Thus the on-hand balances for both stores are updated by the sending store. A copy of the transfer document is then sent with the material to the receiving store and the manual records are updated. An additional copy is mailed to the receiving store as an advance shipping notice.

The above procedures, however, do not provide adequate controls to ensure that the materials are received and that the transaction is recorded in the material control system. We noted several examples of stock record discrepancies that occurred because a transfer was not recorded in the material control system.

Another transfer problem exists with regard to individual accountability for maintenance-of-way inventory items. Some store locations are made up of several storage areas. More than one material inspector may have responsibility within a material control system store location. Transfers from one material inspector's area of responsibility to another's may not be recorded in the inventory records. As a result, transfer documents might not be prepared because the transfer is not being made from one reporting store to another.

COMPRESSED GAS CYLINDERS--EXAMPLE OF THE NEED FOR IMPROVED CONTROLS

Because Amtrak did not have adequate controls and records, it incurred demurrage costs for retaining compressed gas cylinders beyond the free loan period. Amtrak buys nitrogen, oxygen, propane, and other compressed gases in the vendors' permanent cylinders and demurrage charges of about $3.10 to $3.30 for each per month are incurred after the initial 30-day free loan period. A lost cylinder would require Amtrak to reimburse the vendor from $85 to $130.

We could not readily determine demurrage charges currently outstanding or paid. However, Amtrak officials made a survey of known demurrage charges for 13 vendors for 1 month (either Nov. 1977, Dec. 1977, or Jan. 1978). The total was $1,807.89. In addition, Amtrak owed one vendor $973.11 for six cylinders that were lost.

Although we could not readily identify total demurrage charges, Amtrak data did show that in September 1978, one vendor had outstanding invoices amounting to $2,521.64 for demurrage charges. A representative of another firm told us that as of November 30, 1978, Amtrak owed the firm about

$28,400 in demurrage charges accrued from July 1977 to November 30, 1978.

At the request of the procurement office, a physical inventory was taken in the Northeast Corridor on November 30, 1978, in order to locate and determine the number of gas cylinders Amtrak had in its possession. The resources required to conduct such special inventories are also a cost of inadequate controls.

CONCLUSIONS

Amtrak's controls over the receipt, storage, transfer, and issuance of inventory items and over payment for them need strengthening in certain areas, and the documents recording the inventory transactions need to be better controlled. Strengthened controls are needed so that Amtrak can be reasonably assured that it is receiving what it pays for and what it orders, its assets are protected against waste and mishandling, and are used only for authorized purposes. Weaknesses in the controls also have contributed significantly to the high inaccuracy of the inventory records and to inaccurate budget and accounting data.

RECOMMENDATIONS

We recommend that to strengthen inventory controls, the president of Amtrak take the following actions on the matters discussed in this chapter. With regard to receiving, Amtrak should:

--Give priority to full implementation of an integrated inventory control/procurement/accounts payable computerized system to monitor receiving report preparation and processing.

--Require all deliveries to Amtrak facilities to be made to the facilities' central receiving areas to the extent practicable.

--Ensure that purchase orders are on hand when inventory deliveries are made.

--Require open purchase orders to be monitored and the need for purchase orders that are outstanding for a considerable period beyond the requested delivery dates be reassessed.

--Revise current procedures to provide reasonable assurances that maintenance-of-way inventory deliveries are properly inspected, amounts verified,

and moved to designated storage areas in a timely manner.

--Develop adequate receipt document processing and input control to insure that receiving reports are promptly and accurately processed and recorded.

With regard to inventory storage and issuance, Amtrak should:

--Assess physical security (or access to the inventory storage area) at the individual stores and make improvements if needed, and where economically feasible, limit inventory access to authorized personnel.

--Give priority, in constructing facilities, to the extent practicable, to providing adequate inventory security.

--Improve scheduling of maintenance-of-way inventory deliveries so that materials will not be left along the right-of-way for any longer than necessary.

--Make the divisions accountable for reporting accurate usage data.

--Improve issue document processing controls to insure that all issues are recorded promptly and accurately.

With regard to inventory payments, Amtrak should:

--Insure that the accounts payable department follows the existing requirements that invoices be matched with purchase orders and receiving reports before payments. For those vendors exempted from this requirement, require the matching when receiving reports are available.

--Instruct vendors to send invoices to the accounts payable department and remove procurement personnel from the matching of invoices and receipts.

With regard to control over transfers from one store location to another, Amtrak should:

--Revise current procedures to require that (1) both the sending and receiving stores report transfers and (2) any discrepancies be noted and investigated.

--Align the material control system's reporting locations for maintenance-of-way materials along the

material inspectors' geographic areas of responsibility to provide better accountability and more useful information.

On July 25, 1979, Amtrak's Board of Directors authorized $2.2 million to acquire and implement a new inventory management system that would integrate the inventory control, inventory accounting, accounts payable, and procurement functions.

Amtrak estimates that the new system will be fully operational in August 1981. The Managing Director, Material Control, told us Amtrak was selecting a project manager and planning the system's implementation.

We could not evaluate the new system because the decision to implement it was made after we had finished our field work and final decisions on how the system would be implemented had not been made. However, the system, when properly implemented, apparently will address many of our recommendations. For example, the system by integrating procurement, receiving, and accounts payable data could improve payment controls and monitoring of receiving report preparation/processing and open purchase orders. The system could also provide better controls over transfers and inventory documents. Amtrak officials anticipate that the new system, in addition to improving controls, could

--provide an estimated $340,000 in annual savings,
--reduce the amount of inventory by $1 million,
--reduce personnel requirements,
--increase record accuracy, and
--improve Amtrak's productivity by providing the right parts at the right time.

We believe Amtrak's plan to implement the new system is a major step toward improving inventory controls. However, other improvements are needed. For example, inadequate security is a major control problem.

AMTRAK COMMENTS

Amtrak generally concurred with our conclusions and recommendations, and stated that several recommended actions to improve controls are underway. Amtrak believes the new inventory management system it plans to implement will address many of our concerns and recommendations. For instance, Amtrak stated the new system will improve receiving, accounts payable, and transfer controls. In addition,

Amtrak anticipates that a recent reorganization will resolve most of the maintenance-of-way receipt reporting failures.

Amtrak said that the cycle count program that is being implemented for the Amtrak-operated maintenance-of-equipment stores and maintenance-of-way distribution centers is expected to develop statistics which will guide cost-effective corrective action for improved documenting of issues--whether it be of greater physical security, more staff, or more effective operation of the stores and recordkeeping activities. Amtrak said that problems which exist in the outside storage of maintenance-of-way materials are expected to be resolved by organizational and procedural changes which are currently being implemented. We, however, have not evaluated the new organization and procedures and how they will impact on the physical security problem.

CHAPTER 4

IMPROVEMENTS ARE NEEDED IN INVENTORY MANAGEMENT

We evaluated Amtrak's decisions about what and how much should be ordered and stocked and how the inventory should be controlled. We believe some improvements could be made.

Inventory management should be distinguished from inventory control. Inventory management pertains to developing and administering inventory policies as well as the systems and procedures by which the policies are implemented. Inventory control, as discussed in chapter 3, pertains to implementing and carrying out management's policies.

Decisions made by inventory managers greatly affect the level of service provided the users and the investment needed to provide the service. These decisions may be made or influenced by officials other than those directly responsible for day-to-day inventory control and management activities.

AMTRAK SHOULD REEXAMINE CERTAIN INVENTORY POLICIES

The number of line items in Amtrak's perpetual inventory has increased substantially during the past few years. In 1973 there were about 15,000 items in the material control system; there are presently about 100,000. The dollar value of the perpetual inventory also has increased during the period, from about $5 million to about $100 million.

We believe Amtrak should reexamine its inventory policies in terms of what should be stocked and how and to what degree the items should be controlled. The results of this reexamination should be incorporated in a formal corporate inventory policy. During this process Amtrak should consider whether to:

--Divide the inventory into classes based on usage and establish different degrees of control for each item class.

--Evaluate the contents of the inventory to eliminate any obsolete, slow-moving, or other items that should not be in the perpetual inventory.

Inventory contents should be reevaluated

The contents of the individual store inventories should be reevaluated to determine what items should be stocked to satisfy reasonable user demands with the least inventory investment. The inventory appears to contain a substantial number of little used items. Furthermore, there are numerous items in the material control system which account for only small dollar amounts. If these items are needed, it may be more economical to concentrate their storage at centrally located stores or purchase them locally when needed.

We examined Amtrak lists of items at two maintenance-of-equipment inventory stores by (1) dollar amount of annual usage for the period ending September 26, 1978, and (2) dollar value of on-hand quantities as of September 26, 1978, the last reporting date of fiscal year 1978. Although we believe the data indicates the inventory contents should be reevaluated, Amtrak management should be careful in reaching conclusions or evaluating individual items. Some items may show little or no usage because they were recently placed in inventory. On the other hand, some items may recently have been taken out of inventory. More importantly, as discussed in chapters 2 and 3, inventory records are often inaccurate and many items leave the stores (and are probably used) without being recorded in the inventory records.

Usage is concentrated in a small percentage of the items at both stores. Eleven items at one store and 14 items at the other (in both cases less than 1 percent of the items in the store) accounted for one-third of the dollar amount of annual usage. Eighty percent of annual usage at one store was accounted for by only 127 items (3 percent) and at the other store, 139 items (6 percent) made up 80 percent of usage. On the other hand, at one store, 77 percent of the items accounted for just 1 percent of usage and at the other store, 64 percent of the items accounted for 1 percent of of usage. At one store, 46 percent (1,801) of the items on hand at September 26, 1978, and 22 percent (540 items) at the other showed no usage. Sixty-five percent and 44 percent of the items, respectively, accounted for usage of $25 or less. Seventy-eight percent and 61 percent of the items, respectively, accounted for annual usage of $100 or less.

Analysis of Usage
Fiscal Year 1978 (note a)

Number of items accounting for:	Store 1	Percent	Store 2	Percent
33 percent of usage	11	0.3	14	0.6
50 percent of usage	29	1	31	1
80 percent of usage	127	3	139	6
90 percent of usage	251	6	265	11
99 percent of usage	911	23	893	36
Number of on-hand items:				
No reported usage	1,801	46	540	22
Usage of $5 or less	2,050	53	710	28
Usage of $25 or less	2,550	65	1,096	44
Usage of $50 or less	2,802	72	1,316	52
Usage of $100 or less	3,024	78	1,538	61

a/ Dollar amount of usage.

The above data for the two inventory stores shows that annual usage and on-hand value are concentrated in a few items. Many items had no or very little usage. The inventory consists of a large number of items for which both manual and computerized records are kept, but for which the on-hand dollar amounts are minimal.

Amtrak representatives told us that some of these slow-moving items are "protect" items which are kept in inventory to protect against service interruptions. They told us these items generally take a long time to procure, are difficult to obtain, or are no longer produced.

Controls should be established according to the importance of items

Amtrak should establish formal control procedures according to the importance of items. One common method of determining importance is the ABC inventory analysis technique, which Amtrak used to a limited extent at the time of our field work. The ABC analysis technique formally classifies inventory items so that the important ones can be given the most attention. Importance is generally measured in terms of annual usage value, but the value of of the quantities that are kept on hand and how critical the items are to operations can also complement the usage analysis.

Annual usage is determined for each item by multiplying the unit cost by the quantity used or projected to be used. The inventory is divided into three classes of items, A, B, and C, depending on their annual usage. Generally only a few items--class A--account for the major portion of annual usage, typically 80 percent. Class C usually contains the largest number of items but only a small percentage of total annual usage, usually about 10 percent. Class B contains a small number of items, but more than class A, and accounts for the other 10 percent of the total annual usage.

The on-hand value analysis is calculated similarly to annual usage. For example, class A items are those for which the cumulative dollar values on hand equal 80 percent of the total cumulative dollar value of the inventory on hand.

Class A items should include pool stock

Sound inventory management dictates that more stringent controls and greater attention be given to class A items. They involve the greatest need and usage, the most investment, and in many cases are the more critical items. Often the items cost several thousand dollars each. Many of Amtrak's potential class A items are presently pool items and receive less control than other items.

In January 1979 Amtrak's Executive Vice President and Chief Operating Officer established as an objective the control of all material used for equipment maintenance and maintenance-of-way by June 1, 1979. Inventory type items, such as those ordered under capital projects and repeat items ordered and charged to expense, which previously were not in the perpetual inventory were to be included. Material Control, which has been delegated this responsibility, has identified refurbishment material and items repeatedly purchased as expense items for inclusion in the perpetual inventory. Pool stock, however, was not included in the program.

Pool stock items are generally high cost major spare parts, such as diesel engines, traction motors, mounted wheel assemblies, and turbochargers. They often are in limited supply and have long leadtimes when sent out for repair. The prices of the items when new range from about $300 to $180,000 each. As of February 23, 1979, Amtrak records showed the pool stock to be worth about $10.6 million.

On August 26, 1978, about 70 different spare parts were designated as pool stock under the control of the mechanical department and other railroad companies rather than Material Control and were removed from the perpetual inventory. 1/ The quantity and value of the items were established as of August 25, 1978; and the quantity is changed only by additions or deletions, such as the purchase of a new item or sale or retirement of an existing item. In the material control system, the pooled items at all locations are shown under a "dummy" store code, and transactions such as transfers from one facility to another, removals from rolling stock, and shipments to and from vendors for repair are not recorded in the system.

Although pool stock is physically inventoried periodically, perpetual records are not maintained and control over the items is limited. Personnel at one facility may not be aware of the items available at other facilities.

Less control over class C items

Amtrak's inventory also contains a large number of low-value noncritical but needed items. For example, there are over 3,300 different types of bolts, screws, nuts, washers, pins, etc., in the material control system, although not all are stocked at every store. Many items, such as nuts and bolts, are worth only a few cents or less. As previously stated, over 60 percent of the items at two stores accounted for only 1 percent of usage.

Under the present system, issues of these items, with some exceptions, are handled the same as high-cost high-usage items, even though the cost of controlling and issuing the items may substantially exceed their cost. Amtrak does not know how much it costs to fill and process an individual requisition from its inventory. In an earlier review 2/ of inventory management at the General Services Administration, we found that it incurred warehouse processing costs of $1,689,000 to make $1,130,000 worth of issues of $2 or less. We concluded that the large volume of low-value issues could be substantially reduced and significant savings in

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1/Mounted wheels which make up a large part of pool stock, were removed from the perpetual inventory on August 26, 1977.

2/"Economies Available Through Improved Inventory Management" (LCD-78-212, Jan. 18, 1978).

warehouse handling costs realized by establishing more economical issue quantities for low-cost items.

Amtrak inventory stores use bulk or free issues for a few items, at the discretion of the individual store manager. One store manager had decontrolled all his class C items. Stock outages were avoided by periodic, local inventories or by using the two-bin concept, in which an amount of stock equal to expected usage during the time required to order additional items is held in reserve. The quantity of items available for use is issued to the user or retained in the storeroom to be issued without documentation. When the quantity is used, the reserve batch becomes available and an order for more items is placed.

Inventory store personnel generally favored using bulk or free issues more often. Material Control headquarters representatives told us they are encouraging greater use of bulk or free issues.

MANAGING INVENTORY LEVELS: MEETING NEEDS WITH THE LEAST INVESTMENT

Effective inventory management must meet two primary and somewhat conflicting objectives: (1) insuring that a sufficiently large and diversified inventory is on hand to efficiently meet users' needs and (2) keeping the inventory investment at a minimum. To meet these objectives, management must decide what and how much to stock.

To examine how well Amtrak manages its inventory levels, we examined data on cars held out of service because the needed spare parts were not available in order to determine what parts were not on hand and why. We also tested the system used at the local stores to determine stocking levels and discussed inventory availability with users.

Cars held out of service for lack of spare parts

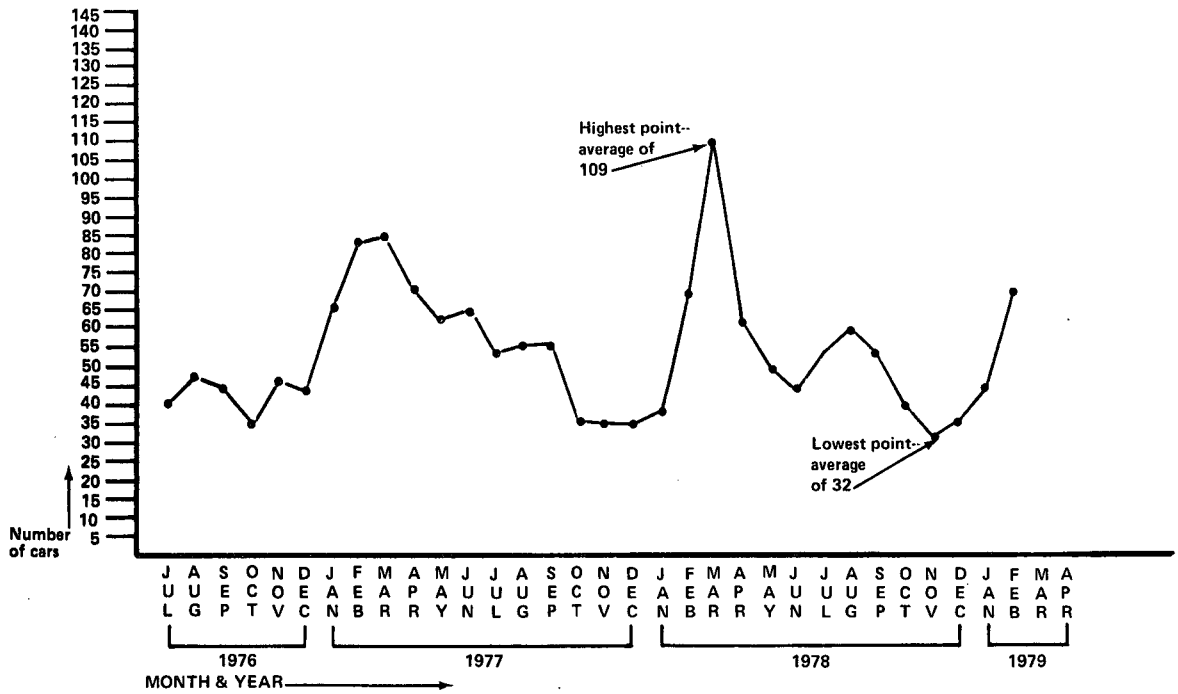
The number of cars held out of service for spare parts has remained fairly constant for the past few years, an average of about 54 cars per day. However, Amtrak has reduced the number significantly from its early days. For example, in June 1974, about 200 cars were held out of service for parts.

Fewer cars held out of service for spare parts means that Amtrak needs fewer cars and a smaller investment in its total fleet. If 2,000 cars are needed daily for carrying

passengers, then 2,100 rather than 2,000 cars must be maintained in the fleet. Fewer cars out of service can also mean increased revenue at times when demand is higher than normal. According to Amtrak, increased ridership has created a shortage of Amtrak cars. Having equipment available when it is needed encourages customer good will and favorable publicity.

Material Control daily develops and monitors statistics on cars held out of service for spare parts as a measure of its effectiveness. Amtrak began tracking the status of the cars held for parts in late May 1974. Amtrak reported about 200 cars a day, or about 10 percent of Amtrak's total operating fleet, were held for parts in June 1974. By January 1975 the number had dropped to about 60 per day, largely because Amtrak's Material Control staff began to manually search and locate spare parts systemwide and transferred the parts where needed. Since that time, the number of cars held out of service for parts has remained fairly constant. The following graph shows the number of cars held out of service for spare parts from July 1976 through February 1979.

AMTRAK PASSENGER CARS HELD OUT OF SERVICE
FOR SPARE PARTS
JULY 1976 - FEBRUARY 1979



Note: Each month's figure is the average of its Friday's totals.

The monthly averages are based on an average of each Friday's total. An average of about 54 Amtrak cars a day were held out of service for parts over the period, with a high of about 109 cars during March 1978 and a low of 32 cars in November 1978. Further analysis shows that while the number of cars held for parts was reduced slightly over the period, the number as a percentage of the operating fleet has remained about the same.

Time covered	Yearly average number of cars held for parts	Approximate number of cars in operating fleet	Percent of cars out of service to operating fleet
July 1976-June 1977	57	1,800	3.2
July 1977-June 1978	54	1,700	3.2
July 1978-June 1979 (estimated)	a/55	1,700	3.2

a/We used the first 8 months of this period's actual statistics and projected the final 4 months by using the prior year's statistics on the same base level.

At three Amtrak maintenance facilities, we selected cars from Material Control's listings of cars held out of service for parts and examined available data to determine what parts were not available and why the parts were not on hand. We found that cars were more likely to be held out of service for parts because major or critical spare parts were not available rather than for any day-to-day management and control inefficiencies. Cars make the list only when the needed part is major enough that the car is inoperable; the passengers' safety is adversely affected; or, in some cases, passenger comfort is adversely affected. A car also does not make the list if the part can be taken or "robbed" from another out of service car. Minor inconveniences, such as burned-out reading lamps, broken coffeemakers, or an inoperable restroom when others are available, generally do not force cars out of service. Some cars may also be held for parts because they are assigned for repair at facilities where they are not normally assigned and the necessary parts are not usually stocked.

Many cars are held out of service for parts that are in limited supply and cannot readily be purchased. Frequently no on-hand replacement stock exists, and the parts must be repaired at Amtrak facilities or by contractors before they

can be used again. To increase available supply, Amtrak must have the parts specially made at increased cost and/or increase its capability to repair the items. The individual store also must expand its inventory to include some items which are not presently kept on hand because they are seldom used.

Amtrak officials believe that the new inventory management system it plans to implement will provide a more accurate inventory and thus stores will run out of spare parts less often. This system, according to Amtrak, could reduce the time and number of cars out of service, resulting in an estimated savings of $200,000 per year.

While we agree that greater inventory efficiency should reduce the number of cars held for parts, an additional investment in certain spare parts would be required to substantially reduce the number of cars held out of service for parts. The Managing Director, Material Control, told us a substantial increase in inventory would be required to considerably reduce the number of cars held for parts.

Guidelines should be developed on "cannibalizing" cars

One way to reduce the number of cars held for parts is to cannibalize a needed part from another out of service car. However, Amtrak has not developed or implemented adequate guidelines to prevent the practice from becoming excessive or from happening when not necessary. At one maintenance facility, we noted that two cars had been held out of service at least 6 months for spare parts. The cars were originally taken out of service because they needed parts. We were told that mechanical employees subsequently began cannibalizing the cars, and a substantial number of parts, about $40,000 worth, will be needed to return the cars to service.

A Material Control official told us that examinations had shown that in many cases parts were cannibalized from cars when the same parts are in the inventory. In addition, the parts are used but the usage is not reported to inventory control personnel. As a result, parts usage history which is used to calculate the stores' stocking levels is not complete.

Methods for determining stocking levels need to be improved

At each of two maintenance-of-equipment inventory stores, we reviewed 50 randomly selected items to identify

the criteria used for determining reorder amounts and stocking levels and to find out whether the stores were adhering to the criteria. At both stores the criteria were established largely by the store managers.

At one store the maximum order quantity was calculated at twice the minimum amount to be kept on hand. This process is arbitrary because the economic order quantity for each item varies based on such factors as storage requirements, transportation costs, availability, and quantity discounts. The stocking level is an amount on hand between the minimum and the maximum order quantity plus the minimum.

At the other store, the inventory was divided into three classes (A, B, and C) based on an ABC analysis of the dollar value of the on-hand inventory. The quantities for class A items were considered in excess of needs only if the amounts on hand exceeded an 18-month supply, class B items were in excess if the amounts exceeded 24 months, and class C items were in excess if the amounts exceeded a 36-month supply. Items were considered surplus only if the amount of excess equaled $200 or more in value.

The stocking level criterion was not in use for 53 of the 100 items we tested. Store officials told us that usage for many of the items had not been sufficient to establish criterion. When the criterion was in effect, it often was not followed. Of the 47 items, 13 were overstocked, 9 were understocked, and 1 item was obsolete. The nine understocked were all at one store.

One store manager told us that his criterion was not strictly adhered to because the balances per the records were not always the actual amounts on hand. He also cited difficulty in establishing usage figures as a barrier to using the criterion because mechanical employees often removed spare parts from one car to repair another rather than going through the inventory system.

Other methods were also used for managing inventory levels. Daily spot counts noted any stock outages or apparent shortages. Storeroom personnel, in filling requests for items, also noted any shortages. Both store managers also periodically reviewed the inventory for surplus items. For example, one manager reviews the inventory every 6 months. In October and November 1978, the manager identified about $390,000 of surplus. In addition, store personnel were supposed to check with other stores before placing new inventory orders to determine if the other stores had any excess. This procedure, which is known as cross-leveling, reduced some excesses at stores.

The Material Control headquarters periodically lists suspected obsolete and slow-moving items at maintenance-of-equipment inventory stores and sends the lists to the stores to be researched. The stores recommend which items should be classified as surplus. For example, a list of suspected overstocked items valued at about $5.7 million was sent to the stores in April 1978. A similar list amounting to $5 million was sent to the stores in January 1978. Both efforts were part of an overall Amtrak objective to reduce the inventory.

Thus the system used by headquarters to identify obsolete and slow-moving items has been somewhat successful. However, we believe, for several reasons, the system could be more effective in monitoring inventory levels at the individual stores. All items that did not have any usage during the past 18 to 24 months are listed as suspected obsolete and slow-moving items, and usage is tracked and reported on a national level and not on a store level. An item may have substantial usage nationally but little or no usage at an individual store. In addition, removing surplus items from the inventory can also take a long time. According to a study of the material control system by Amtrak's Computer Services Department, it can take 3 to 4 months from the time an item is reported as being suspected obsolete or slow-moving to the time the item is actually removed from Amtrak records or transferred to an area that can use it. Manually checking items which are suspected of being obsolete or slow-moving is time consuming.

The system needs to be improved by developing suspected obsolete and slow-moving items listings on a store basis in addition to a national basis. However, we believe an effective stocking level criterion is the most cost-effective means of controlling inventory levels. Excess items should be avoided rather than identified at a later date. A part of the criterion should address reordering in economic order quantities.

NECIP maintenance-of-way work equipment spare parts--a history of shortages and excesses

Amtrak has had problems providing the spare parts needed to maintain and repair NECIP maintenance-of-way work equipment. On the other hand, Amtrak purchased spare parts that it has not needed. At the end of our review, Amtrak was implementing new policies and procedures to satisfy Federal requirements for increased controls and accountability over the NECIP spare parts inventory, and Federal officials

believed these procedures would improve Amtrak's planning and management for these parts. Amtrak was also trying to eliminate surplus items from the spare parts inventory. This effort has identified a substantial amount of excess or obsolete items which Amtrak is trying to return to the suppliers for credit.

Spare parts shortages

Amtrak has had difficulty in maintaining an adequate parts inventory for its NECIP maintenance-of-way work equipment. Work equipment breakdowns have been frequent and some machinery have been forced to sit idle while awaiting parts for repairs. These problems have contributed to unplanned delays in meeting NECIP construction schedules.

In June 1977 Amtrak identified several weaknesses in its central distribution of work equipment spare parts, including (1) inaccurate inventory records, (2) inadequate material flow documentation, (3) lack of uniform procedures for handling and expediting material, (4) poor physical security, and (5) general lack of organization. To improve the situation, Amtrak's material control group assumed responsibility for distributing the maintenance-of-way spare parts inventory on July 1, 1977, and undertook a program to:

--Establish a manual record system for each inventory item.

--Facilitate proper storage.

--Install a computer terminal.

--Train and educate material control and user personnel.

--Initiate proper material documentation and handling procedures.

--Perform physical inventories periodically.

Despite the planned improvements, Amtrak still experienced difficulties in providing spare parts to meet the needs of its winter 1977-78 machinery repair program. Resulting spare parts shortages delayed the program's completion. Amtrak officials agreed that its procedures for controlling spare parts were not effective enough to check the availability of parts in inventory as rapidly as required for the repair program. An Amtrak official in January 1978 stated that spare parts were not being received fast enough to insure continuity of repairs. In February 1978, another Amtrak official pointed to the failure to

submit spare parts requirements for the winter program on time as a factor causing the shortages. He cited as an example of poor planning the submission of a winter repair parts list on November 28, 1977, for a program expected to commence on December 15, 1977--when the average leadtime for items was 90 days from the suppliers.

Frequent emergency spare parts purchase requisitions processed

An indication of Amtrak's problems in providing spare parts to the maintenance-of-way gangs was the frequent number of emergency purchase requisitions submitted to obtain the parts. An Amtrak official responsible for NECIP procurement activities, reported in November 1978 that a total of 3,322 emergency purchase orders had been placed between September 30, 1977 and September 30, 1978. Further, he reported that from May to mid-October 1978, while under a Federal Railroad Administration restriction limiting spare parts acquisitions to emergency situations, NECIP procurement processed 867 "emergency" requisitions. Of this number, 436 requisitions (about $234,000) over a 3-month period involved repeat purchases with the same suppliers. Additionally 50 percent of all parts ordered during the period were for items not being carried in the Amtrak inventory. This official was concerned because increased procurement activity would be needed to support the winter repair program for 1978-79, while at the same time, emergency purchase requisitions still averaged 72 per week. The official had blamed a "good percentage" of the procurement workload on the "gross inadequacy" of the spare parts inventory--specifically, that inventory items initially ordered and the quantities initially established were not sufficient to support the equipment. He recommended that Amtrak review its inventory and establish its needs, including the identification of many items common to various machines, but now separately ordered under the suppliers' original equipment parts numbers.

Obsolete and excess spare parts purchased

Amtrak purchased many items for its spare parts inventory that it did not need to support its maintenance-of-way work equipment repair and maintenance. A study which Arthur Andersen and Company completed in November 1978 reported that Amtrak management had estimated that about half its spare parts inventory (about $1 million) was in excess or obsolete.

During our review, Amtrak officials were identifying and removing many unneeded items from inventory. An Amtrak

offical told us that about $290,000 worth of excess and obsolete items had been identified, of which about $230,000 had been accepted for return by the vendors, less handling and restocking charges of about $14,000. The official said $60,000 worth of spare parts had not been accepted for return because the supplier considered them obsolete.

Amtrak officials explained that excess purchases of spare parts were, in part, due to acquisition procedures at the start of NECIP. Spare parts were ordered to support a piece of machinery based on complete catalog listings, rather than on forecasted parts needs and usage. As a result, some parts (major components) were purchased for inventory that generally would not be used until major overhauls were done, probably several years after use, if at all. The components could be repaired more expeditiously by replacing individual parts of the components rather than replacing the whole units.

Corrective actions are being taken

FRA became concerned that Amtrak's system for controlling and documenting NECIP spare parts use was inadequate. After Amtrak overexpended its authorization for NECIP spare parts replenishment, FRA withheld funding for additional spare part purchases after May 31, 1978, until Amtrak had corrected deficiencies uncovered by a Federal Highway Administration 1/ audit of Amtrak's cost accounting system for identifying, accumulating, and billing FRA for costs to maintain NECIP equipment. The Federal Highway audit report, released in June 1978, concluded that (1) Amtrak's accounting system was not adequate to identify, allocate, and accumulate NECIP allowable direct labor and spare parts costs, (2) Amtrak could provide no assurances that purchased or issued spare parts were being used on the equipment for which they were intended, (3) the automated inventory system appeared inadequate, and (4) a significant number of charges had been misclassified.

In an effort to resolve the foregoing problems, FRA hired Bechtel, Inc., in July 1978 to help Amtrak develop and implement (1) a system and procedures for acquiring, controlling, and disbursing spare parts for NECIP equipment and (2) a maintenance system for planning, making and recording repairs to NECIP equipment. The FRA also authorized and

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1/ The Federal Highway Administration audits NECIP Federal expenditures for FRA.

funded additional staff to help implement and maintain the procedures. The procedures were to be implemented in two phases --(1) a set of interim field and shop procedures and (2) a set of final procedures to be implemented starting April 1, 1979. While the interim procedures were being developed, FRA granted Amtrak limited authority to purchase emergency spare parts to the extent it could document usage to NECIP equipment.

FRA approved the interim procedures in October 1978 and granted Amtrak funding authority to purchase parts for the 1978-79 winter machinery repair program, until March 31, 1979. A schedule was developed to support machinery rebuild requirements.

Amtrak was implementing the Bechtel procedures at the end of our review. We discussed the procedures with FRA and DCAS officials and they generally agreed that the new procedures should provide better control over the spare parts inventory.

CONCLUSIONS

Amtrak's inventory management could be improved. Amtrak's inventory has grown tremendously in size and diversity. At this point, Amtrak needs to reexamine the inventory in terms of what to stock. Many items appear to have had little or no usage during fiscal year 1978. The need for these items should be determined. If they are needed, it could be more economical to store the items at centrally located stores or purchase them locally when needed.

Amtrak's methods for determining stocking levels and identifying obsolete and slow-moving items need improving. The criteria store managers have established are not always followed for many items. The method for identifying obsolete and slow-moving items is slow and cumbersome; a major cause is that potentially obsolete and slow-moving items are identified on a national rather than a store basis.

An important function of inventory control is to provide the spare parts needed to keep Amtrak's passenger cars in service. After some large reductions in Amtrak's early years, the number of cars held out of service for parts has remained fairly constant for the past few years. While greater inventory efficiency should reduce the number of cars held for parts, it appears that an additional investment in certain parts would be required to substantially reduce the number.

One means used to keep cars in service is to take or rob a part from another out of service car. Adequate guidelines are needed to prevent excessive or unnecessary cannibalizing which has occurred in some cases. In addition, parts that are robbed from cars should be reported to inventory store personnel for input to the stores' parts usage history and included in calculating the stores' stocking levels.

Amtrak needs to establish formal inventory controls based on the importance of the items so that control and management can be concentrated on more important items. The ABC analysis is a common way to assign importance. Class A items constitute the largest investment and the greatest usage. However, some of Amtrak's most expensive items are not in its perpetual inventory and receive less control. On the other hand, less control, through greater use of free or bulk issues, of class C items would reduce paperwork and allow more attention to be given to more important items.

RECOMMENDATIONS

We recommend that the president of Amtrak:

--Analyze and reevaluate its inventory and develop formal inventory policies.

--Establish formal inventory controls based on the importance of items to include (1) greater control of class A items, including those that are presently pool stock, and (2) less control over class C items and greater use of bulk or free issues.

--Establish adequate guidelines to prevent excessive cannibalizing of cars.

--Require mechanical employees to report cannibalized parts to the inventory stores and the store personnel to use the data in determining stocking levels.

--Develop and implement adequate criteria for determining stocking levels, including use of economic order quantities. A more effective system for identifying obsolete, slow-moving, and excess items should also be implemented.

Amtrak officials told us the new inventory management system it plans to implement contains more effective methods

for (1) determining stocking levels, including use of economic order quantities, and (2) identifying obsolete and slow moving items. Amtrak officials believe the new system should

--reduce the inventory by an estimated $1 million without impairing service,

--reduce obsolescence for an estimated savings of $75,000 per year, and

--increase productivity by providing the right parts at the right time.

AMTRAK COMMENTS

In agreeing with our conclusions and recommendations, Amtrak noted that methods for determining stocking levels are being developed, particularly with respect to an economic procurement quantity, and computer-assisted reorder points will be established. Amtrak also stated that it intends to classify inventory with respect to value and importance, to concentrate control on upper range items, and to accelerate the free issue concept. Amtrak also stated that portions of the pool stock are being considered for return to the inventory.

Amtrak stated that it also (1) plans to improve the information flow from the Mechanical and Engineering Departments to facilitate spare parts requirements planning and (2) intends to further emphasize cross-leveling efforts to maximize existing inventories and remove slow-moving items when they are no longer needed.

According to Amtrak, better control of NECIP maintenance-of-way work equipment spare parts will be possible as history of usage is gained and as maintenance personnel are better able to predict spare parts requirements.

CHAPTER 5

AMTRAK'S PROPERTY CONTROLS NEED SUBSTANTIAL IMPROVEMENT

Amtrak's property controls need to be substantially improved. Property registers often are not maintained at all or are not accurate and current. Many property items are not tagged for proper identification, and officials responsible for controlling property are not always aware of control requirements. Amtrak is also responsible for controlling Government-furnished property for NECIP. NECIP property control problems as identified in our earlier report, "Problems in the Northeast Corridor Railway Improvement Project," CED-79-38, Mar. 29, 1979, are also discussed and updated in this chapter.

PROPERTY REGISTERS ARE OFTEN NOT MAINTAINED OR ARE INACCURATE

A register listing each item of property, its condition, where it is, who has it, and who is responsible for its use and protection is a basic tool for controlling property. Each department needs an accurate and up-to-date register for the items it is supposed to control.

Amtrak issued property control procedures in July 1976 that required each department manager to:

--Tag new pieces of property within the department's control unless they had been previously tagged and transferred from another department.

--Maintain an ongoing register which lists the property by tag or identification number.

--Record the disposition of property, whether it is transferred, stolen, or retired.

The register was to be audited periodically.

We reviewed property control at three Amtrak facilities, each consisting of several departments. One facility was located in the Northeast Corridor, and the other two were outside the corridor. Property registers were maintained by the departments in the Northeast Corridor, but were not accurate or up to date. For example, we selected 10 tagged items to trace to the property registers to insure

that they had been properly recorded. We found eight of the items recorded and two not recorded. As discussed later in this chapter, many items were not tagged. The property control officers told us that the property registers were not current and little had been done with the registers since the last physical inventory of property in 1976 when the Northeast Corridor was taken over by Amtrak.

At the facilities outside the Northeast Corridor, property registers were not maintained or they were incomplete. Responsible officials told us that they were unaware of the July 1976 property control procedures and any requirements that registers be maintained.

MANY PROPERTY ITEMS WERE NOT TAGGED

As a means of control, property items should bear a tag with an identification number corresponding to the number on the property registers. The tag should also have the organization's name or symbol.

At one facility we reviewed the departments' property registers and selected 17 items from the registers to verify their locations and proper tagging. Of the 17 items, 6 were not tagged and 6 were tagged. We could not locate three items, and in the case of one item (a crane) the tag, if it existed, was inaccessible. The last item, a typewriter, had been stolen in January 1977, but the register had not been updated to reflect the theft. In addition, a number of property items in various areas of the facility were not tagged. A facility official said the items should have been tagged.

At the second facility, only 6 of the 33 items we checked were tagged, and 1 of the 6 had been painted over. Twelve were not tagged because procurement documents showing their source were unavailable. The property custodian had documents on an additional eight items but had not affixed the tags. Also some items were tagged but should not have been tagged. Officials at a third facility admitted that property registers were incomplete and some items had not been tagged.

A PHYSICAL INVENTORY PROGRAM FOR PROPERTY IS NEEDED

Periodic physical inventories are needed to verify the existence, locations, and condition of all property listed in the accounts and to disclose the existence of any unrecorded units. Physical inventories are means to discover and discourage theft, poor treatment, and nonuse and

to provide accountability for those responsible for record-keeping and property control. Physical inventories can identify excess property in one department that could be used in another to preclude a purchase. A complete annual physical inventory of all property may not be required, but at least, periodic spot inventories should be taken, especially of items such as typewriters, calculators, and dictating machines.

The last Amtrak-wide physical inventory of all property was conducted in 1974. An inventory was taken in 1976 in the Northeast Corridor when Amtrak took over the corridor. Physical inventories have also been taken when facilities were taken over from other railroads. However, Amtrak has not established a physical inventory program for property. Much of the property has not been inventoried since 1974.

AMTRAK IS NOT REQUIRED TO RETURN EXCESS GOVERNMENT PROPERTY OBTAINED THROUGH GSA

Amtrak has been obtaining excess Federal Government property through the General Services Administration (GSA). Although data was not readily available, an Amtrak representative estimated that Amtrak had obtained about $20 million of such property over the past 5 years.

During our review, we noted that Amtrak was making an effort to separately control the excess property obtained through GSA and return it when it was no longer needed. Amtrak representatives told us they believed that under Federal property management regulations the excess property remains the Government's and thus must be returned when it becomes excess to Amtrak's needs. GSA officials, however, told us that once the excess property is transferred, it becomes Amtrak's, and Amtrak does not have to follow Federal property management procedures in disposing of it. We agree with GSA.

Section 202(a)(1) of the Federal Property and Administrative Services Act [40 U.S.C. §483(a)(1)] directs the Administrator of GSA to provide for the transfer of excess property among Federal agencies and organizations specified in the act, including mixed-ownership Government corporations. As a mixed-ownership Government corporation (see Section 201 of the Government Corporation Control Act, 31 U.S.C. §856), Amtrak qualifies to receive the excess property.

Because property under the control of a mixed-ownership Government corporation is not subject to Federal control,

once excess property is transferred to Amtrak it loses its Federal identity. Amtrak may use and dispose of it as it sees fit. The property controls, which are prescribed by various provisions of the Federal Property Act, apply to executive agencies and Federal agencies. Specifically, section 202(b) of the act [40 U.S.C. §483(b)], which prescribes requirements for property control, applies to each executive agency. Mixed-ownership corporations are not included within the definition of either executive agency or Federal agency. (See Sec. 3 of the Federal Property Act, 40 U.S.C. §472 and 41 C.F.R. 101-43.001.) While the definition of executive agency does specifically include wholly owned Government corporations, it does not include mixed-ownership corporations.

Further evidence that the Congress intended that excess property transferred to mixed-ownership corporations not be subject to Federal controls is that the Federal Property Act requires that they pay fair value for the property, whereas executive agencies do not have to pay for it. (See 40 U.S. C. §483(a)(1) and, also, 41 C.F.R. 101-43.315-3.)

The fact that the Government loses control over excess property tranferred to Amtrak is further illustrated by 41 C.F.R. 101-43.304 which provides that GSA may direct the holding agency, with its consent, to retain or transfer excess property. Holding agency is defined by 41 C.F.R. 101-43.001-9 to include only executive agencies.

Thus, when Amtrak no longer wants the excess property transferred to it (i.e., it becomes excess to Amtrak's needs), it does not have to follow Federal property procedures in disposing of it. Since "excess property" is defined to include only property under the control of a Federal agency, Federal procedures for disposing of excess property do not apply to Amtrak. (See 40 U.S.C. §472(e) and 41 C.F.R. 10143.001-5.)

Although not required to follow Federal procedures in disposing of excess property, Amtrak's full participation in the excess property program may benefit both Amtrak and the Federal Government. We believe that Amtrak should resolve with GSA the question of whether it will follow Federal property control procedures for GSA excess property.

INTERNAL AUDITS OF PROPERTY CONTROL HAVE BEEN LIMITED

Internal audit coverage of the property control area has been limited. Only one review of local property records at Amtrak facilities has been made. The internal auditors concluded from the review at the Los Angeles commissary in October 1976 that the property records were not accurate and were not being maintained in a manner to facilitate location and control over property.

GOVERNMENT-FURNISHED EQUIPMENT--PROBLEMS AND STATUS

Our report on NECIP 1/ said, because of organizational and planning problems, Amtrak had had considerable difficulty controlling and managing Government-furnished property for NECIP, especially leased equipment during 1977. Some leased equipment was not being fully used, equipment had been accepted without proper inspection for damage, some leases had been extended without authorization, and other leases had been continued even after purchased equipment had arrived or the need for the leased equipment had expired.

Amtrak's records were not adequate to determine the amount of leased equipment that was needed and used in 1977. However, we obtained informal estimates from FRA and others ranging from $1 million to $2 million for equipment that was not needed or used by Amtrak during 1977. An FRA official estimated that over $500,000 had been wasted because Amtrak had not returned equipment on time.

FRA and Amtrak are trying to reconstruct and justify the amount of equipment leased during 1977. FRA noted some problems in reviewing Amtrak's reports, including:

--Equipment leased for gangs during periods when the gangs were not working.

--House trailers rented for gangs that were not housed in trailers.

--Equipment leased for nonexistent gangs.

--Equipment leased for gangs doing non-NECIP work.

1/"Problems in the Northeast Corridor Railway Improvement Project," CED-79-38, Mar. 29, 1979.

We examined some leasing records and found examples of equipment being leased for about $3,000, but used only 3 hours in 5 or 6 months. Other equipment, also costing about $3,000, was used for only 36 hours in 5 months.

Also Amtrak, in its rush to start work, failed to prepare lease versus purchase analyses. Amtrak's internal system did not assign responsibility for determining whether equipment should be leased or purchased. At the start of the 1977 program, Amtrak sometimes paid more in lease payments than it would have cost to purchase the equipment. For example Amtrak leased several pickup trucks at over $6,400 each, when they could have been purchased for about $5,500 each.

Further, we noted instances of Amtrak leasing equipment and later purchasing it at a total price higher than if it had originally purchased the equipment. The excess cost on these purchases ranged from $9,000 to over $125,000. For example, the cost of a new ballast regulator was about $66,000, yet Amtrak paid a total of $89,000 to lease and eventually purchase it. Amtrak said that it believed that it had saved money on some lease negotiations.

Amtrak also has had problems with purchased equipment. For example, Amtrak bought sixty 100-ton hopper cars for almost $2 million. The cars were delivered in May 1978, but an FRA inspection during September 1978 found that the cars were unused, sitting on a siding and rusting. Another NECIP contractor stated that the cars were not required since adequate equipment was already available to perform the operations. As of January 1979, NECIP management was trying to determine what to do with this equipment. One option under consideration was to attempt to lease the cars to someone else until needs could be determined. However, Amtrak wanted to retain the hopper cars and make another review of their usage after several months of the 1979 work season had elapsed.

We reported also that Amtrak had been lax in its equipment acceptance practices and had failed to document contractor performance or enforce contractual performance penalties. For example, a track geometry car, which was delivered in May 1978, has yet to pass its acceptance tests but most of the over $800,000 purchase price has been paid. The car did not contain all of the equipment required in the specifications and some of the on-board equipment needed modification.

In another instance, Amtrak purchased 20 rehabilitated locomotives for almost $6 million for work train service. An inspection in late August 1978 revealed problems

indicating that Amtrak had accepted the locomotives even though they had not been rehabilitated properly. Defects were later corrected.

A contributing factor in the above property control problems was the lack of adequate control procedures and an accurate property register. At the beginning of NECIP, Amtrak wanted to use its existing corporate property control procedures for Government-furnished equipment. These procedures were submitted to FRA and given to Defense Contract Audit Services for review. Defense Contract Audit Services acts as FRA's property administrator for the project. Defense Contract Audit Services reviewed the procedures in January 1977, found them unacceptable, and informed Amtrak of its conclusion. FRA, however, agreed that Amtrak could use the procedures until more acceptable ones could be developed. Amtrak contracted with Arthur Andersen & Company to develop a Government-furnished property system and perform other services with NECIP funding. Arthur Andersen spent 15 months developing a property control system and received over $600,000. However, FRA questioned what Arthur Andersen was doing and its value and cost and stopped the funding under the contract. According to an Arthur Andersen representative, the system was to have started in April 1978, but was never installed because of the funding cutoff.

In January 1978, Bechtel, Inc., undertook for FRA a physical inventory of NECIP equipment. The results were published in May 1978. FRA told Amtrak that based on the major variances reported by Bechtel, its property control and accounting activities were inadequate. Amtrak agreed that a property control system was needed but disagreed with the extent of the problem as reported by Bechtel. Through further investigation, Amtrak was able to resolve a good part of the variances.

FRA further contracted with Bechtel to reconcile the variances it had reported in May 1978, develop a register of Government-furnished equipment, and develop property control procedures. A preliminary register was prepared in December 1978 covering the period since the start of NECIP through September 30, 1978. The property control procedures were developed by Bechtel and were being implemented by Amtrak at the end of our review. A physical inventory of Government-furnished equipment was taken in early March 1979 to update and validate the property register. Amtrak told us that preliminary inventory results indicated that all of the $52 million of NECIP property was found except for 70

items with a tolal value of $275,000. The missing items were still being researched.

CONCLUSIONS

Amtrak's property controls need to be substantially improved. Property registers often are not maintained at all or are not accurate or current. Many property items are not tagged for proper identification. Officials responsible for controlling property are not always aware of control requirements. In addition, Amtrak was unnecessarily controlling and returning excess Government property obtained through GSA.

RECOMMENDATIONS

We recommend that the president of Amtrak:

--Require each department to properly tag property items and accurately develop and maintain property registers.

--Establish a program of periodic physical inventories.

--Inform all officials responsible for property control of the requirements and proper procedures to follow.

--Increase internal audit coverage of property control.

--Resolve with GSA whether Amtrak will follow Federal procedures in disposing of excess Government property obtained through GSA.

AMTRAK COMMENTS

Amtrak agreed with our conclusions and recommendations. Amtrak stated that it will make a concerted effort to establish procedures to ensure that an accurate and official register is maintained for each class of property and that these registers are periodically reconciled to the financial records. Amtrak further stated that when these procedures are established, its Internal Audit Department will ensure the procedures are being followed. Amtrak attributed the lack of an accurate and official register of the locations of property to the rapid expansion of its responsibilities over the past 4 years.

DEPARTMENT OF TRANSPORTATION COMMENTS

Department of Transportation officials agreed with the findings, conclusions, and recommendations in this report.

PRIOR GAO REPORTS ISSUED UNDER THE RAIL PASSENGER SERVICE ACT OF 1970, AS AMENDED

Quality of Amtrak Rail Passenger Service Still Hampered by Inadequate Maintenance of Equipment, RED-76-113, June 8, 1976.

Amtrak's Incentive Contracts With Railroads--Considerable Cost, Few Benefits, CED-77-67, June 8, 1977.

Should Amtrak Develop High-Speed Corridor Service Outside the Northeast?, CED-78-67, April 5, 1978.

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National Railroad Passenger Corporation, 400 North Capitol Street, N.W., Washington, D.C. 20001 Telephone (202) 383-3000

Amtrak

September 20, 1979

Mr. Henry Eschwege
Director
Community and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

I appreciate the opportunity to review the GAO draft report entitled "Amtrak's Inventory and Property Controls Need Strengthening". Representatives of the Material Control, Material Accounting and Internal Audit Departments met with your auditors on September 11, 1979, to discuss the report, and some wording changes were suggested to improve clarity.

We generally agree with the report's conclusions and recommendations for strengthening inventory and property controls. Many of the recommended actions are now underway and the others will be fully considered for implementation as we make additional improvements in the future. Within the past year, we have made substantial improvements. We recently decided to implement a new inventory management system. Many of your concerns and recommendations will be addressed by the new system.

The report notes the rapid expansion of the inventory since 1972. The major expansion occurred after 1975. Amtrak assumed the majority of the maintenance work formerly performed by the contract railroads; we purchased the Northeast Corridor; and started the Northeast Corridor Improvement Program, the largest railroad rebuilding ever undertaken. These factors resulted in the personnel employment level tripling and the inventory level quadrupling over a very short period of time. The necessity of training new personnel, undertaking a major reorganization of responsibilities, and completely revising our systems, while assuming the operational responsibility, was almost overwhelming. That there were problems (and not all the problems have as yet been completely overcome) is not surprising. The comparison of the 1978 physical inventory with the results of the 1979 physical inventory shows major improvement. The unacceptable results

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reported for 1978 and previously identified problems had already focused Amtrak executive attention on the inventory problem. This resulted in a reorganization of responsibilities that brought about the improved 1979 results and led to the decision to install a new inventory control system, purchased from the Burlington Northern.

Amtrak's inventory requirements are further increased by the fact that our original fleet of equipment was old and in frequent need of repair and, as it was built to the standards of the several different railroads, like components are not interchangeable. Replacement components are not readily available and it is necessary to protect with components that have been rebuilt many times and are, therefore, more subject to failure. This forces an apparent overstocking of slow moving items; a problem which will not be resolved until the old equipment is replaced.

Similarly, our inventory contains the track components necessary to rebuild the Northeast Corridor under NECIP as well as the components necessary to maintain the track and roadway during the rebuilding process. The large construction inventory and character of this program makes turnover and usage history meaningless. The lack of uniformity requires expanded inventory. Again, the apparent overstocking of slow moving items cannot be resolved until NECIP is completed and a history of normal maintenance on the new rail structure is collected. /See GAO note 1, p. 75./

The following are our comments relating to each chapter of the report:

Chapter 2 - The accuracy and reliability of Amtrak's inventory records need to be increased.

Two sets of records have existed primarily for two reasons. First, the computer record has not been reliable. Second, it has not been able to signal the need for stock replenishment nor to indicate the quantity presently on order. There has been a history of operational problems which tended to reduce the usefulness of the recorded information.

During FY 1979, some enhancements were made to the system, and it has been operating much more successfully. Also, some of the obsolete data entry equipment is being replaced by direct entry terminals of the type which will be used exclusively with the new system.

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System developments are underway which should improve inventory managers' confidence in the reliability and usefulness of existing computer data as well as to respond to its recommendations for stock replenishment action.

In January 1979, a cycle inventory program was established. The major objective of this program is to "maintain a high level of inventory record accuracy by providing a means for early detection and correction of the causes of inventory discrepancies". As each day's cycle-count differences are analyzed, typical sources of error are identified. Corrective actions to resolve the problems, including those mentioned in the GAO report, include more intensive personnel training and improving control over document processing at the site. The cycle count analysis also quantifies the impact of those problems which result from physical or security weaknesses.

The daily use of the computer in the cycle process will also tend to build field personnel confidence in the accuracy and reliability of computer information - sufficient to lessen dependency on the manual record keeping system.

Compilation of cycle count results will establish accurate measurement statistics at each site and will provide the capability of comparing them against an established goal of 95% accuracy.

Unlike the tabulation of one-time physical inventories, the variances of the cyclical inventory counts are accumulated on an individual item basis. Thus a meaningful measurement of record accuracy is provided.

In May 1979, Amtrak's Internal Audit Department performed a review of the cycle inventory program at four locations which had been reporting cycle counts for approximately three months. Their results indicated a record accuracy of 75% to 94% for these locations. Plans are being formulated to audit all locations during FY 1980. [See GAO note 2, p. 75]

Chapter 3 - Amtrak's inventory controls need to be strengthened.

A reorganization which moved responsibility of receipt input and monitoring from the Engineering Department to the Material Control Department will resolve most of the maintenance of way reporting failures. Also, maintenance of equipment sites indicate improvement in the preparation and processing of receiving reports. However, much of the recommended improvement in the receiving function is still to be attained. When the new material management system is installed the following advantages are gained:

1. The time period from purchase requisition to receipt of the purchase order document at the receipt site is drastically reduced.

2. A turnaround document is supplied to each receipt site for each delivery of each item on an order.

3. The receiving report process is relieved of the need to include the item cost and unit of measure.

This streamlines the receiving function, providing a receiving document in advance of the physical receipt and relieving the receiving function of the bulk of its currently extensive degree of data transfer to the hand-written receiving report.

To the extent that physical distribution and processing of a four-part receiving report leads to lack of record synchronization in the different functions of Procurement, Accounts Payable, Material Control and the perpetual inventory record, the new system will provide the necessary relief. Entry of the receipt transaction to the computer will provide a validated central record for use by each of the above mentioned functions.

The primary control over purchases is the requirement that a valid purchase requisition must be received by Procurement before a purchase order can be placed. This assures that the material ordered is required and that the requisitioner will follow up until the material is actually received. Accounts Payable assures that the invoice matches the purchase order and the accounting system generates listings of items paid to the departments charged for their review. The receipts/payments clearing accounts provide an overview of the payments for inventory material compared to the receipt of material to perpetual inventory.

Matching of the receiving report with the invoice and purchase order does not assure that the receiving report was entered to perpetual inventory, or that the entry was correct as to part number, quantity or price. Modern computer inventory systems, including the system we are in the process of installing, provide the match between the receiving report, the purchase order and the invoice as a part of the perpetual inventory/procurement processing rather than as part of the Accounts Payable function.

Our Internal Audit Department has continuously tested receipts versus payments without finding instances of non-receipt of the material. Also, a massive study undertaken by Accounts Payable, Material

Control and Internal Audit found no instance of exception. We do, however, recognize the possibility of stronger control in this area and that the installation of the new system will improve controls.

Previously, items which left stores without documentation were discovered primarily by subsequent unexpected stock-outs. With the advent of the new procedure for cycle counting, a missing quantity will lead to preparation of either an inventory adjustment or a requisition that validates the issue. In the interest of gaining proper material expense reporting and accumulating accurate usage statistics, the Material Control Department solicits the Mechanical Department assistance in preparation and processing of the necessary documentation. This not only enables proper charges to expense budgets, but records the usage which triggers timely replenishment action, reduces frequency of stock-outs, and also identifies the specific vehicles or special projects to which the items were applied.

The whole inventory storage effort is to rapidly and effectively service the mechanical function so as to facilitate the maintenance effort. In so doing, storage is frequently located close to the usage point. Also, maintenance normally works more shifts than do the material stores operations. Both situations make difficult the enforcement of stringent rules for proper documentation. The cycle count program is expected to develop statistics which will guide corrective action which is cost-effective, whether it be of greater physical security, more staff, or more effective operation of the stores and record keeping activities.

Problems which exist in the outside storage of maintenance of way materials are expected to be resolved by the organizational and procedural changes which are currently being implemented.

The weaknesses of transfer controls which is identified to the present system will be eliminated by adoption of the new system which contains in-transit records and adequate control features.

Many additional store codes were recently added for maintenance of way stores to sub-divide and better localize the transfer and resultant inventory responsibilities to specific individuals.

Chapter 4 - Improvements are needed in inventory management.

Material Control intends to classify inventory with respect to value and importance; to concentrate control on upper range items; and to accelerate the free issue concept. Portions of the mechanical pool stock are presently being considered for return to inventory.

Material Control intends to further emphasize cross-leveling efforts to maximize use of existing inventories. Slow moving items will be removed when their obsolescence is determined. Items must be clearly identified as worthy of retention on an individual basis as long as they are necessary to service a very diversified fleet. There is no plan to physically dispose of inventories which were established as "protection" items and are not readily replaceable.

Material Control also intends to improve the information flow from the Mechanical and Engineering Departments to facilitate parts requirement planning. This effort visualizes additional communication on estimated spare parts needs for new projects and equipment, revision in existing demand due to specification changes and retirements, and development of preventive maintenance programs.

Material Control will continue to track the parts which cause cars to be held from service - and take supply action to further reduce the incidence of shortages.

Methods for determining stocking levels are being developed, particularly with respect to an economic procurement quantity. As soon as better usage history records and current lead times are available within the computer record, a computer-assisted re-order point will also be established.

NECIP maintenance of way work equipment spare parts are currently operating in accordance with established procedures. Better control of stock will be possible as history of usage is gained and as maintenance is better able to predict requirements.

Chapter 5 - Amtrak's property controls need substantial improvement.

As indicated on page one, the rapid expansion of Amtrak's responsibilities over the past four years has resulted in a lack of an accurate and official register of the location of all property. However, proper controls are followed to insure all property has been accurately recorded for financial reporting purposes. Informal registers are maintained by the applicable departments for the control of rolling stock (passenger cars and locomotives), structures, land, computer equipment, central reservation office equipment and ticketing equipment. These registers control approximately 95 percent of our property assets. The area of least control is office furniture and equipment. These are items of large quantity but low item cost. [See GAO note 3, p. 75.]

During the period of March 5-9, 1979, a complete inventory was taken of all equipment ($52 million) purchased for NECIP. Preliminary results indicate all property was located with the exception of 70 items with a total value of $275,000 representing less than 1 percent of the total. These missing items are still being investigated.

A concerted effort will be made to establish procedures to ensure that an accurate and official register is maintained for each class of property and that these registers are periodically reconciled to the financial records. When these procedures are established, Amtrak's Internal Audit Department will perform reviews of the applicable departments to ensure the procedures are being followed.

Summary

Improvements in our control over material inventories is evidenced by the FY 1979 physical inventory preliminary results indicating a substantial improvement in our inventory control and management during FY 1979. Further, the installation of a proven material management system, which was purchased from the Burlington Northern will correct many of the deficiencies noted in your report.

Sincerely,

Alan S. Boyd
President

GAO Notes:

1. The scope of our audit did not include a review of NECIP inventory stocking levels.

2. We do not consider these test results to be a complete indicator of inventory record accuracy because many of the tested items had recently been counted and the records adjusted.

3. The scope of our audit did not include recording of property in the general ledger or the informal registers for rolling stock, land, structures, computer equipment or central reservation and ticketing equipment. We believe office furniture and equipment are more subject to loss and theft.

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