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REPORT TO THE CONGRESS

Economies Available By Reducing Preventive Maintenance Requirements For Certain Mechanized Mail-Handling Equipment

B-114874

Post Office Department

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D C 20548

B-114874

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

This is our report on economies available by reducing preventive maintenance requirements for certain mechanized mail-handling equipment.

Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U S.C. 53), and the act of September 2, 1960 (39 U.S C. 2206).

Copies of this report are being sent to the Director, Office of Management and Budget, and to the Postmaster General.

Elmer B. Staats

Comptroller General
of the United States

Contents

ABBREVIATIONS

GAO	General Accounting Office
RPM	routine preventive maintenance

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

ECONOMIES AVAILABLE BY REDUCING PREVENTIVE MAINTENANCE REQUIREMENTS FOR CERTAIN MECHANIZED MAIL-HANDLING EQUIPMENT Post Office Department B-114874

D I G E S T

WHY THE REVIEW WAS MADE

Because of the Post Office Department's large and increasing investment in mechanized mail-handling equipment and the corresponding increasing costs to maintain such equipment, the General Accounting Office (GAO) examined into the Department's standards for performing preventive maintenance on two of its larger mechanized systems.

In January 1966 the Department established a program for accelerating mechanization and modernization. The initial stage involved the installation of mechanized mail-handling equipment in facilities that handle about 60 percent of the Nation's mail.

GAO estimated that, as of March 1970, the Department's investment in mechanized mail-handling equipment totaled about $191 million and that it would increase to about $567 million by 1975.

FINDINGS AND CONCLUSIONS

GAO believes that the Department can reduce its maintenance costs on the bulk belt and tray transport systems, without adversely affecting the operation of the equipment, by reducing the frequency of certain routine preventive maintenance and by reducing the time prescribed by the Department for performing such maintenance.

Certain post offices performed little or no routine preventive maintenance on the bulk belt and tray transport systems while others substantially complied with the frequency and time requirements. Generally there was no more repair and breakdown of the systems at the post offices which did little or no routine preventive maintenance than there was at the post offices that substantially complied with requirements.

To obtain an estimate of the economies that could be available by reducing preventive maintenance to certain levels for the two systems, GAO compared estimated costs of performing maintenance at reduced levels with the costs of performing it in accordance with prescribed requirements. The comparison indicated that the annual cost of preventive maintenance at the five post offices included in the GAO review would have been a about $318,000 less if the maintenance were performed at the reduced levels. (See pp. 21 and 23.)

For those post offices included in our review that were not complying with the prescribed maintenance requirements, their staffing summaries indicated that they planned to fully implement such requirements. Therefore, the reduction of prescribed maintenance by the Department should result in the avoidance of costs at such post offices.

Because 51 other post offices had bulk belt and/or tray transport systems at the time of the review and considering that large purchases of mail-handling equipment are planned, substantial annual savings nationwide could be achieved.

GAO believes that the excessive preventive maintenance requirements existed principally because the Department had not made evaluations of such requirements which were established several years earlier.

RECOMMENDATIONS OR SUGGESTIONS

GAO recommends that the Department.

--Evaluate its maintenance requirements for routine preventive maintenance on the bulk belt and tray transport conveyor systems and other mechanized mail-handling equipment to eliminate unnecessary maintenance routines and reduce time requirements for performing maintenance work.

--Establish procedures requiring periodic evaluations of maintenance routines. (See p. 24.)

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Post Office Department concurred with GAO's recommendations concerning the need for reviewing and periodically appraising maintenance requirements for mechanized mail-handling equipment and stated that projects were under way or were planned to accomplish them.

The Department recognized a need to improve the maintenance management system and stated that a comprehensive review of the system would begin early in fiscal year 1971. (See p. 24)

MATTERS FOR CONSIDERATION BY THE CONGRESS

This report is furnished to the Congress in view of the substantial economies that could result from revisions in the Department's requirements for maintaining mechanized mail-handling equipment.

CHAPTER 1

INTRODUCTION

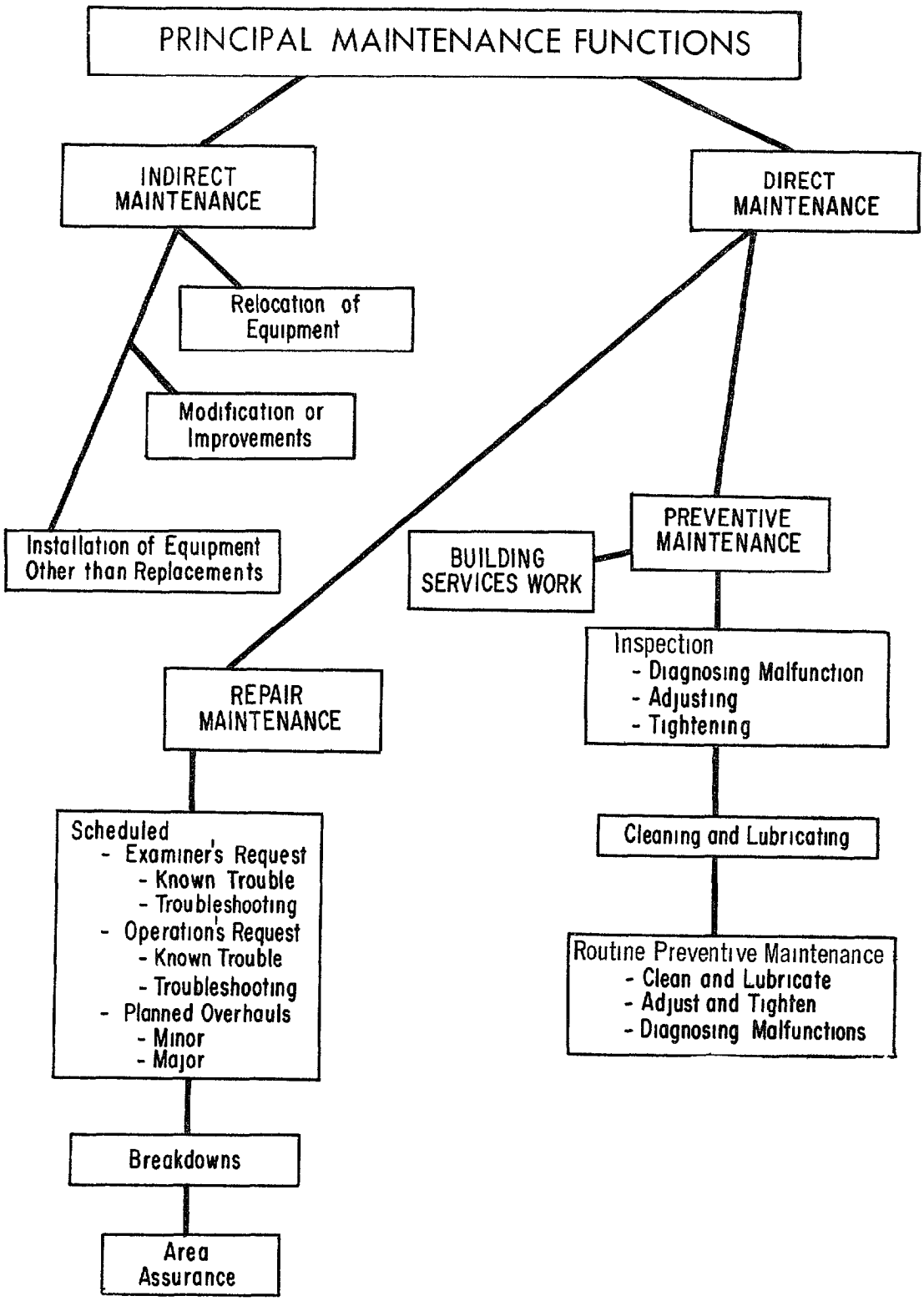
The General Accounting Office (GAO) reviewed the type and frequency of maintenance performed on bulk belt and tray transport mail-handling equipment at six post offices. The scope of our review is set forth on page 25.

In January 1966 the Postmaster General established a program for accelerating mechanization and modernization of the Nation's postal system. The initial phase of this program involved the installation of mechanized mail-handling equipment in facilities which handle about 60 percent of the Nation's mail. After completion of this program, most major facilities will contain conveyors and letter, sack, and parcel sorting machines to reduce the physical handling of mail and to speed the sorting process.

As of March 1970, the investment in mechanized mail-handling equipment totaled about $191 million, and we estimate that such investment will total about $567 million by 1975. We estimate that 82 of the mechanized post offices spent about $18 million in fiscal year 1968 to maintain their mechanized mail-handling equipment.

A general description and pictures of the major types of mechanized mail-handling equipment in use are contained in appendix I. The principal maintenance functions have been designated by the Department as indirect or direct as shown in the following pictorial presentation.

Indirect maintenance includes all actions that do not directly contribute to maintaining the equipment in running order; for example, installing, relocating, modifying, or any other physical changes to the equipment. Direct maintenance, which is the subject matter discussed in this report, involves keeping the equipment in working order and is either called preventive or repair maintenance.


PRINCIPAL MAINTENANCE FUNCTIONS
INDIRECT MAINTENANCE
DIRECT MAINTENANCE
Relocation of Equipment
Modification or Improvements
Installation of Equipment Other than Replacements
BUILDING SERVICES WORK
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Inspection
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Scheduled
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- Operation's Request
- Known Trouble
- Troubleshooting
- Planned Overhauls
- Minor
- Major
Cleaning and Lubricating
Routine Preventive Maintenance
- Clean and Lubricate
- Adjust and Tighten
- Diagnosing Malfunctions
Breakdowns
Area Assurance

Preventive maintenance

Preventive maintenance consists of inspection, cleaning and lubrication, and routine preventive maintenance (RPM). The Post Office Department maintenance manuals provide detail descriptions of the operations to be performed, time for performance, and the frequency of performance.

The following summary shows, for the three categories of preventive maintenance, the operations to be performed and the frequency of performance.

	Category and frequency of preventive maintenance		
Operation	Inspection	Cleaning and lubricating	Routine preventive maintenance
Examine	Monthly, quarterly, semiannually, or annually.		Shift, daily, weekly, biweekly, or less often
Adjust	Monthly, quarterly, semiannually, or annually.		Shift, daily, weekly, biweekly, or less often.
Tighten	Monthly, quarterly, semianually, or annually.		Shift, daily, weekly, biweekly, or less often.
Clean		Monthly, quarterly, semiannually, or annually.	Shift, daily, weekly, biweekly, or less often.
Lubricate		Monthly, quarterly, semiannually, or annually.	Shift, daily, weekly, biweekly, or less often.

1 Inspection consists primarily of examining equipment and making adjustments to components of the equipment. Tightening and cleaning components may be included when delicate or complex equipment is involved. Qualified mechanics or supervisors with the highest level of skill and experience are required to perform inspections.

2. Cleaning and lubrication may also include some tightening activities. It is very routine work which requires specific instructions and only a limited degree of training, and mechanics' helpers are required to do this work.

3. RPM consists of examining equipment and adjusting, tightening, cleaning, and lubricating equipment components. The level of skill required for performing RPM is between that required for inspection and that required for cleaning and lubrication. Mechanics are to perform RPM.

It is apparent that there is a similarity between the operations included in RPM and those included in cleaning and lubricating and inspection. For example, examine, adjust, and tighten are included in RPM as well as in inspection. In addition, clean and lubricate are included in RPM as well as cleaning and lubricating.

Repair maintenance

Repair maintenance is primarily concerned with correcting malfunctions or failures which develop in the equipment and consists of making scheduled repairs, correcting breakdowns caused by normal wear and tear, correcting breakdowns caused by improper operation of equipment, and providing area assurance (standby maintenance).

1 Scheduled repairs--work that arises as a result of observations made during the performance of preventive maintenance, reports of problems from other postal personnel, and planned overhauls.

2. Correcting breakdowns--work that has to be performed to correct an interruption of mail-processing operations or to repair damaged equipment.

3. Repair maintenance work resulting from improper operations is concerned with correcting malfunctions resulting from either the improper loading or use of equipment by operating personnel.

4. Area assurance or standby maintenance is concerned with observing the operating equipment to minimize the possibility of damage to mail or equipment. It also includes jam breaking which results from loading equipment with mail volumes that exceed the rated capacity of the equipment.

ORGANIZATION AND RESPONSIBILITIES

The Headquarters, regional, and post office responsibilities for the repair and maintenance activities covered by our review are as follows:

Headquarters

1. The Bureau of Operations is responsible for (a) developing policies, programs, methods, and standards for preventive and repair maintenance of postal operating equipment, and (b) appraising the effectiveness of the regional offices in carrying out the maintenance program.

2. The Bureau of Research and Engineering participates in the program of mechanization of postal facilities by (a) assisting the Bureau of Operations in the development and analysis of basic planning data, (b) designing mechanization, and (c) performing audits to evaluate plant and equipment design and arrangement after installation.

Regional offices

The regional offices' Engineering and Facilities Divisions are responsible for (1) directing the maintenance program in post offices, (2) implementing and administering policies, programs, methods, and standards for inspection, preventive, and repair maintenance, and (3) conducting periodic surveys to determine the effectiveness of the maintenance program.

Post offices

Postmasters are responsible for the administration of the operation and maintenance of postal equipment at their post offices. They are assisted by their Installations Services and Operations Divisions.

1. The Installations Services Division is responsible for planning, estimating, scheduling, and assigning priorities for all maintenance and repair work. It also issues work orders; maintains work schedules and equipment records; and evaluates the effectiveness of methods, tools, and equipment.

2. The Operations Division coordinates with the Installations Services Division on maintenance matters affecting the routing or dispatching of mail.

A list of the principal management officials of the Post Office Department responsible for the administration of the activities discussed in this report is presented as appendix III.

CHAPTER 2

NEED TO REVISE PREVENTIVE MAINTENANCE REQUIREMENTS

The Department has an opportunity to reduce its direct maintenance costs on the bulk belt and the tray transport systems without, in our opinion, any adverse effect on the operation of the equipment by reducing the frequency of certain routine preventive maintenance (RPM) and reducing the time allowances specified by the Department for performing such maintenance.

We believe that the conditions discussed in this report exist principally because the Department had not made evaluations of its prescribed maintenance standards which were established several years earlier.

Certain post offices performed little or no RPM while other post offices substantially complied with the Department's prescribed maintenance standards. For example, the Chicago Post Office performed practically no RPM, the Detroit Post Office performed only about 9 percent of the RPM prescribed for the bulk belt conveyor system, and three other post offices we visited performed from 60 percent to 90 percent of the RPM prescribed for the components of the two systems covered by our review. We found that generally there was no greater degree of repairs and breakdowns at the post offices which did little or no RPM than at the post offices which substantially complied with the Department's RPM requirements.

Also, a contractor responsible for maintaining these two systems, as well as other mechanized systems, at one of the major mechanized post offices, was not performing RPM as prescribed by the Department. However, we identified some contractor maintenance routines which were similar to the Department's RPM routines but were performed less frequently than prescribed by the Department. Nevertheless, these systems experienced no greater degree of repairs and breakdowns than those experienced by the same systems at the other post offices covered by our review.

The Pittsburgh Post Office had, on its own initiative, reduced the time allowance for performing RPM on the bulk belt conveyor system about 19 percent below that prescribed by the Department. In addition, we observed that the time actually taken in performing RPM at the Pittsburgh Post Office was 10 percent less than the reduced time allowances. At another post office we noted that the time of actual performance was 26 percent less than the Department's established time allowances. During our field review, this post office undertook a study of time allowances for the bulk belt conveyor system and, as a result, in July 1969 it reduced the RPM time allowance by 25 percent.

In our opinion, the Department's experience at six post offices demonstrates that the RPM prescribed requirements could be reduced without having an adverse effect on the operation of the systems. In addition to the six post offices covered by our review, 51 other post offices have the bulk belt and/or tray transport conveyor systems. If the post offices perform RPM on the two systems at the same frequency as the private contractor and reduce their RPM time allowances on the bulk belt conveyor system by 25 percent, we believe that savings in maintenance costs could be significant nationwide at those post offices that are substantially complying with the Department requirements. For those post offices included in our review that were not complying with the prescribed maintenance requirements, it should be noted, as indicated by their staffing summaries, that they planned to fully implement such requirements. Therefore, the reduction of prescribed maintenance by the Department should result in the avoidance of costs at such post offices.

FREQUENCY OF PERFORMANCE OF RPM

General guidelines published by the Department provide for the development of a uniform maintenance program at mechanized post offices with the primary objective of maintaining mechanized mail-processing equipment in such a manner as to minimize total operating costs and mail-processing interruptions, damages, and delays. More specific published guidelines provide the means for making objective performance evaluations and planning for the best utilization of manpower. The guidelines also provide Master Performance Criteria Work Sheets (checklists) for the three categories of preventive maintenance consisting of inspection, cleaning and lubrication, and RPM. These checklists show the maintenance operation to be performed and the frequency and time allowances to perform a particular maintenance operation.

Upon comparing the operations on the checklists to be performed as RPM with inspection and also RPM with cleaning and lubrication there appears to be some duplication. Some examples of this apparent duplication follow.

RPM	Inspection
1. With conveyor operating at normal speed, observe tracking of belt over head pulley, tail pulley, and take-up pulley. Look for belt runout along carrying and return runs of conveyor.	1. With equipment operating, observe tracking of belt over head pulley, tail pulley, and take-up pulley. Look for belt runout along carrying and return runs of conveyor.
2. With conveyor operating at normal speed, observe belt to determine if tension is properly adjusted. Look and listen for evidence of belt slippage on head pulley. Look for excessive belt sag between rollers.	2. With equipment operating, observe belt (under load, if possible) to determine if tension is properly adjusted. Look and listen for evidence of belt slippage on head pulley. Look for excessive belt sag between idler rolls.

RPM	Cleaning and lubrication
With disconnect locked out, wipe lenses of photocell unit to remove dust. Feel each unit to be sure it is securely mounted.	With disconnect locked out, remove dust and foreign material from housings and lenses of photocell emitter and receiver units by brushing and wiping. Wrench-test all mounting bolts for tightness.

RPM is the main category of preventive maintenance and we estimate that it represents about 56 percent of anticipated total preventive maintenance hours. On the bulk belt and tray transport conveyor systems, RPM is either performed weekly or biweekly depending on the hours of use of the equipment which is considerably more frequent than the performance of inspection and cleaning and lubrication that is performed either monthly, quarterly, semiannually, or annually.

The dates prescribed by the Department for implementing the requirements for RPM on the bulk belt and tray transport conveyor systems were July 1, 1965, and June 1, 1966, respectively. The following summary shows at June 1969 the degree of compliance with the frequency of RPM required by the Department.

	Bulk belt conveyor system		Tray transport conveyor system	
Post office	Substantial compliance	Little or no compliance	Substantial compliance	Little or no compliance
Philadelphia	x		x	
Pittsburgh	x		x	
Houston	x		x	
Chicago		x		x
Detroit		x		x
New York		x		x

We found that, at the three post offices which were substantially complying with the Department's requirements, they were generally performing about 60 to 90 percent of the required RPM on the items we examined. At the three

post offices where there was little or no compliance with the Department's requirements, they were performing RPM at various frequencies.

At Chicago no RPM was performed on the bulk belt conveyor and RPM was only partially performed on the tray transport conveyor system. At Detroit only about 9 percent of the Department's prescribed RPM on the bulk belt conveyor system was performed and the Department's prescribed RPM on the tray transport system was not implemented. At New York about 48 and 30 percent of the Department's required RPM on the bulk belt and tray transport system was performed, respectively.

To determine the correlation of repairs and breakdowns to performance of RPM, we analyzed the repair history for 11 percent of about 4,600 components of the bulk belt and tray transport systems in use at these six post offices. Our analysis covered the most recent data available at the time of our fieldwork--the data was for the postal fiscal year ended June 28, 1968, except for New York which was limited to the first seven accounting periods of postal fiscal year 1969. At New York we were told that the postal fiscal year 1968 records had been destroyed.

We categorized repairs and breakdowns as to the post offices where there has been substantial compliance with the Department's requirements, and as to the post offices where there has been little or no compliance with the Department's requirements to ascertain whether repairs and breakdowns were significantly different between the two groups. The results of our analysis follow.

Repairs

Repair maintenance is basically concerned with correcting malfunctions or failures which develop in equipment. One category of repair maintenance is scheduled repairs. They are generated by work orders which arise from (1) problems noted during performance of RPM, (2) problems noted during performance of other preventive maintenance, (3) problems reported by operating personnel, and (4) planned overhauls. The following summary shows pertinent statistics on similar components and repairs categorized between the two groups of post offices.

	Postal fiscal year 1968 (note a)			
	Components		Number of repairs	Average number of repairs per component reviewed
	Total	Reviewed		
Post offices with substantial compliance:				
Philadelphia	1,411	239	472	1.9
Pittsburgh	522	35	189	5.4
Houston	404	39	134	3.4
Total	2,337	313	795	2.5
Post offices with little or no compliance:				
New York	1,017	40	65	1.6
Chicago	987	98	426	4.3
Detroit	234	56	166	2.9
Total	2,238	194	657	3.4
Total	4,575	507	1,452	2.9

[a]New York--first 7 months of 1969 postal fiscal year.

It appears that the performance of RPM as prescribed by the Department does not necessarily lead to a decrease in the average number of repairs made to equipment. In the three post offices where there was substantial compliance with the Department criteria, only about 19 percent of the 795 needed repairs were detected during the performance of RPM. Consequently, the remaining 81 percent of the repairs probably resulted from other means available for detecting needed repairs. In addition, maintenance officials at the Chicago and New York Post Offices informed us that the frequency of repairs was not increased by not performing RPM. (See pp. 16 and 19.)

Breakdowns

The Department's procedures require that an equipment breakdown investigation report is to be prepared when a breakdown occurs that appears to cause damage to equipment in excess of $50. The following summary shows pertinent statistics on similar components and breakdowns categorized between the two groups of post offices.

	Postal fiscal year 1968 (note a)		
	Components		Number of
	Total	Reviewed	breakdowns
Post offices with substantial compliance:			
Philadelphia	1,411	239	6
Pittsburgh	522	35	-
Houston	404	39	-
Total	2,337	313	6
Post offices with little or no compliance:			
New York	1,017	40	-
Chicago	987	98	1
Detroit	234	56	7
Total	2,238	194	8
Total	4,575	507	14

[a]New York--first 7 months of 1969 postal fiscal year

The above summary shows that breakdowns occurred infrequently and that there was little correlation between the number of breakdowns in the post offices where there was substantial compliance and in the post offices where there was little or no compliance with the Department's requirements for RPM.

Our analysis of the breakdowns showed that performance of RPM may not necessarily have prevented breakdowns. For

example in our analysis of the six breakdowns in Philadelphia, we found that in three cases RPM was performed as scheduled immediately prior to the breakdowns. Several examples of breakdowns at the Philadelphia Post Office follow.

1. A breakdown was caused by a broken motor output shaft. The breakdown report stated that the cause of the broken shaft was probably metal fatigue. RPM had been performed on the day the breakdown occurred. The mail-processing equipment maintenance foreman informed us that this problem would not be one that would be identified when performing RPM.

2. A breakdown was caused by a shifted head pulley. The breakdown report stated that the cause of this breakdown was loose or worn set screws. RPM was performed 5 days before the breakdown occurred. The mail-processing equipment maintenance foreman informed us that this problem would be one that could possibly be identified when performing RPM.

3. A breakdown was caused by a tear in the center of the belt at the lacing. The breakdown report stated that it appeared that a sack cord caught and tore the belt. RPM scheduled 11 days prior to the breakdown was not performed. The mail-processing equipment maintenance foreman informed us that this problem was not necessarily one that would be identified when performing RPM.

Since our review at the Chicago, Detroit, and New York Post Offices showed little or no compliance with RPM frequency requirements of the Department, our findings at these post offices are discussed below.

Chicago

This office partially complied with RPM requirements for the tray transport conveyor system but had not implemented the Department's requirements for the bulk belt conveyor system.

On the tray transport conveyor system, RPM was being performed on only four components. No RPM routes were

established for other conveyor components such as rollers, belts, and motors.

The Superintendent of Mail Equipment Maintenance informed us that RPM was unnecessary. He informed us further that repairs had not increased through elimination of RPM. He asserted also that the current maintenance level was sufficient to maintain the equipment in good operating condition. We found that breakdowns were insignificant; only one had occurred in fiscal year 1968 and was on a component on which RPM had been performed.

Detroit

There was little compliance with RPM requirements for the bulk belt conveyor system, and the Department's RPM requirements for the tray transport system had not been implemented during the period under review but subsequently has been implemented.

On March 11, 1966, the Detroit Post Office sent to the Chief, Plant Maintenance, Chicago Regional Office, a maintenance staffing summary on the bulk belt conveyor system developed in accordance with the instructions contained in the Department's guidelines. RPM on the maintenance staffing summary was listed as 15,812 hours for fiscal year 1968. However, Detroit spent 1,478 hours in fiscal year 1968 performing RPM or only about 9 percent of the man-hours shown on the maintenance staffing summary.

We were informed by the Maintenance Control Supervisor that RPM had not been performed on the bulk belt conveyor system for about 3 years except during holiday periods. He indicated that the reason for not performing all the required RPM was that maintenance manpower was diverted to work on Department projects. A mail-processing equipment maintenance foreman informed us that RPM would not disclose potential equipment failures, such as the shifting of belts and short circuits. He said such events would occur any time regardless of the time spent on RPM.

An example of the type of breakdown we noted at Detroit is as follows:

> A breakdown investigation report at Detroit for a bulk belt conveyor stated that the breakdown was caused by a huge bolt protruding from a broken parcel which became wedged between the belt and deflector and caused the belt to tear. A mail-processing equipment foreman informed us that this type of breakdown would (1) not be detected through performance of RPM and (2) occur regardless of the amount of time spent performing RPM.

On November 21, 1969, the Director, Engineering and Facilities Division, Chicago Regional Office, wrote to the Chief, Operating Equipment Branch, at Headquarters and recommended that the preventive maintenance requirements for the bulk belt conveyor system be reviewed since it appeared that some of the requirements were overstated and performance would result in over maintenance.

New York

There was partial compliance with the RPM requirements for the bulk belt and tray transport conveyor systems by this office. The following summary shows a comparison of the RPM hours proposed in accordance with the Department's guidelines with the RPM hours utilized.

	Proposed hours	Utilized hours	Percent of proposed hours utilized
Bulk belt	5,240	2,524	48
Tray transport	7,601	2,245	30

A maintenance equipment examiner informed us that the frequency of repairs would not be reduced by performing RPM more often. A maintenance supervisor informed us that RPM was being done as a "fill in" when there was nothing more important to do. Also, several maintenance officials informed us that they believed that, if RPM was performed completely and thoroughly, its frequency could be reduced.

Preventive maintenance performed by a contractor

The contractor, who performed the systems development work from which Department maintenance requirements were formulated, leased to the Department the land, buildings, and equipment constituting the post office in Providence, Rhode Island. He also is responsible for maintaining the mail-processing equipment in the Providence Post Office. The tray transport and bulk belt conveyor systems in the Providence Post Office are comparable to those used by the post offices we visited.

A contractor's official informed us that scheduled preventive maintenance was performed no more frequently than monthly and was constantly being reviewed to eliminate unnecessary maintenance routines. Despite this reduced frequency, these systems experienced no greater degree of repairs and breakdowns than those experienced by the systems at the other post offices included in our review.

We compared the Department's RPM checklists with the contractor's preventive maintenance checklists and identified several similar maintenance routines. The contractor, however, required these maintenance routines to be performed less frequently than the Department. Some examples follow.

Preventive maintenance operation		Frequency	
Contractor	Post office	Contractor	Post office
1. Check all motor and reducer mounting belts for tightness.	With disconnect locked out, wrench-test all motor and reducer mounting bolts for tightness. Tighten as required.	Monthly	(once every 2 weeks)
2 Examine photocell units on conveyors D-2 and D-3. Lock and feel for secure mounting and loose or damaged conduit. Wipe accumulated dust from photocell lenses.	With disconnect locked out, wipe lenses of photocell unit to remove dust. Feel each unit to be sure it is securely mounted	Quarterly	(once every 2 weeks)
3. Lock out disconnect switch. Remove oil level plug from gear motor and check level of oil in gear case after allowing three minutes for oil level to stabilize. Add oil as required to reach proper level.	With disconnect locked out, check sight gauge or remove oil level plug to determine level of lubricant in gear case Look for foaming of gear case lubricant and for evidence of leakage from gear case. Add lubricant as required to reach proper level. Replace oil level plug.	Monthly	(once every 2 weeks)

Measurement of potential economies by reducing the frequency of RPM

We estimated, at five of the post offices visited, the economies that could be achieved by the reduction of RPM by comparing the estimated annual cost to maintain the bulk belt and tray transport conveyor systems at the frequency prescribed by the Department with the estimated annual cost of maintaining the systems at the frequency prescribed by the contractor at the Providence Post Office. This comparison showed that the annual cost of performing RPM at the following five post offices at the frequency performed by the contractor would be about $282,000 less than that if performed as prescribed by the Department.

Post office (note a)	Estimated annual cost reductions
Philadelphia	$ 78,600
New York	66,500
Detroit	59,800
Houston	48,000
Pittsburgh	28,800
Total	$281,700

[a]At the time of our review comparable data was not available for Chicago

It should be noted that, at the post offices performing less maintenance than that prescribed by Department requirements as discussed in this report, such annual cost reductions will not be achieved.

TIME SCHEDULED TO PERFORM RPM

We examined the performance records of scheduled RPM on the bulk belt conveyor system for a 2-week period at the Philadelphia and Pittsburgh Post Offices. The performance records showed that the employees completed the RPM routes at Philadelphia and Pittsburgh on an average of 8 and 2 percent less time, respectively, than the scheduled time allowances.

We also accompanied maintenance personnel on 14 selected RPM routes in Philadelphia and five RPM routes in Pittsburgh. In the past the time recorded for performing these RPM routes was about the same as the scheduled time allowances.

We observed in Philadelphia that the average actual performance time was about 26 percent lower than the scheduled time and that in Pittsburgh it was about 10 percent less than the scheduled time allowances which previously had been reduced 19 percent below the Department's prescribed time allowances. Maintenance officials at the Pittsburgh Post Office informed us that their reduction in the Department's time allowance was based on actual experience and their knowledge that mechanics would consume whatever time was scheduled regardless of whether it was needed.

The Director of the Plant Maintenance at Philadelphia informed us that a study would be made of the RPM time allowances. Subsequently the RPM time allowances for the bulk belt conveyor system were reduced by 25 percent. Philadelphia postal officials informed us that they would also study the RPM time allowances for other systems.

As a result of our review and the actions taken by the Philadelphia and Pittsburgh Post Offices, we believe that the Department's time allowance for performing RPM on the bulk belt conveyor system could be reduced by about 25 percent. Following is our estimate of the annual cost reductions that would have resulted if the five post offices had performed RPM in about 25 percent less time than that prescribed by the Department.

Post office	Estimated annual cost reductions (note a)
Philadelphia	$11,300
Houston	9,000
Detroit	9,000
New York	5,200
Pittsburgh	1,500
Total	$36,000

[a]Calculations were based on the reduced frequencies. (See p. 21.)

As in the case of frequency of maintenance (see p. 21), the post offices performing the maintenance in less time than that prescribed by Department's requirements will not achieve such annual cost reductions.

MANAGEMENT REVIEWS

The Department and regional office maintenance officials have the responsibility to review the efficiency and effectiveness of the maintenance programs conducted by post offices. In this connection, we noted that the Department's maintenance standards, established in July 1965, which required weekly performance of RPM on bulk belt conveyors was changed in March 1966 to a frequency of every 2 weeks. Although this revision in the Department's maintenance standards probably resulted in a more economical maintenance program, our examination of records and discussions with personnel did not indicate the extent to which subsequent reviews were made by Department or regional officials to determine whether the revised maintenance standards were contributing to effective and efficient maintenance operations.

Also, the Department has not made any reviews of the maintenance requirements established for other types of mechanized mail-handling equipment. The Chief of the Department's Operating Equipment Branch and regional office officials informed us that they did not have enough employees to make the required reviews.

CONCLUSIONS

On the basis of the incidence of repairs and breakdowns and the information obtained at the Chicago, Detroit, New York, Houston, Providence, Pittsburgh, and Philadelphia Post Offices, we believe that the frequency of performing RPM on the bulk belt and tray transport conveyor systems should be reduced. In addition, we believe that time allowances to perform RPM on the bulk belt conveyor system should also be reduced. Since there appears to be duplication in the work required to be performed under various preventive maintenance routines, we believe that some duplicate maintenance work can be eliminated. Further, we believe that these reductions can be accomplished without adverse effects on the operations of the equipment. We believe also that the conditions discussed above existed principally because the Department did not make timely and systematic evaluations of its prescribed maintenance standards after they were implemented at the post offices.

RECOMMENDATIONS TO THE POSTMASTER GENERAL

We recommend that the Department evaluate its maintenance requirements for RPM on the bulk belt and tray transport conveyor systems and other mechanized mail-handling equipment to eliminate unnecessary maintenance routines and reduce time allowances. We recommend also that the Department establish a procedure whereby maintenance requirements will be periodically evaluated.

AGENCY ACTION

The Postmaster General, in commenting on our draft report (see app. II), said that he concurred with our recommendations and that projects were under way or were planned to accomplish the recommendations. He also recognized that there was a need to improve the existing maintenance management system and stated that a comprehensive review of the system would begin early in fiscal year 1971.

CHAPTER 3

SCOPE OF REVIEW

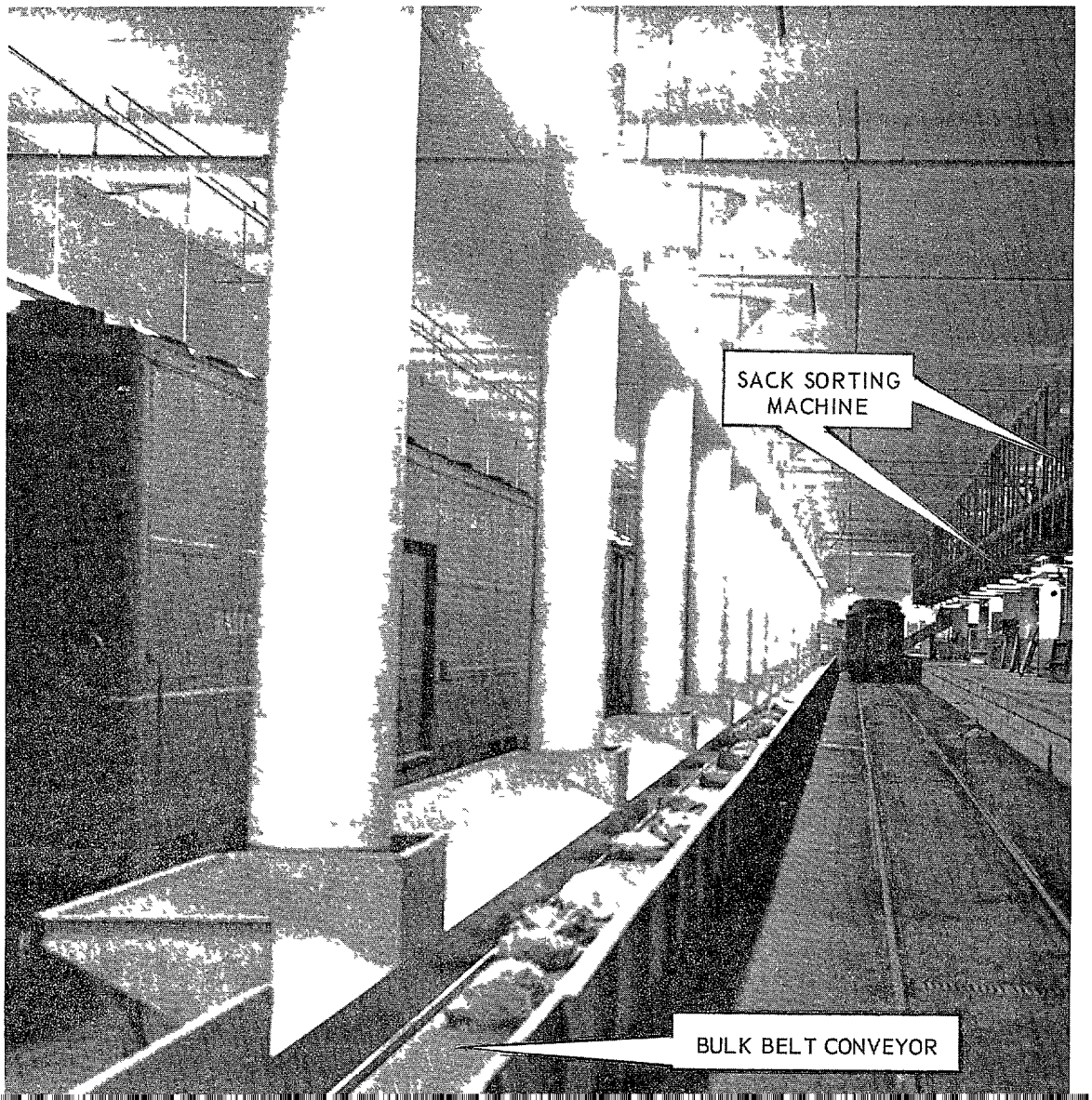
Our review covered selected aspects of maintenance and repair of the bulk belt and tray transport conveyor systems. The review was performed at six post offices located in Chicago, Illinois; Detroit, Michigan; Houston, Texas; New York, New York; Philadelphia, Pennsylvania; and Pittsburgh, Pennsylvania. Work was also performed at the four regional offices located in Chicago, Illinois; Dallas, Texas; New York, New York; and Philadelphia, Pennsylvania; as well as the Post Office Department in Washington, D.C. We also visited the post office maintained by the contractor in Providence, Rhode Island.

We reviewed the policies, procedures, and practices used by the post offices in their maintenance activities. We also reviewed the responsibilities and direction furnished the post offices by their regional offices and the Department.

APPENDIXES

MAJOR TYPES OF MECHANIZED MAIL-HANDLING EQUIPMENT

1. Bulk belt conveyor system consists of an endless belt which moves in a predetermined path and either carries sacks or parcels from one point to another. The belts are powered through driving contact with a pulley to which turning force is applied. It is supported along its path either by a series of rollers or by a slider bed.



2. Tray transport system is a conveyor system which moves mail in trays between processing areas. Control devices are used to control and route the trays to specified destinations.

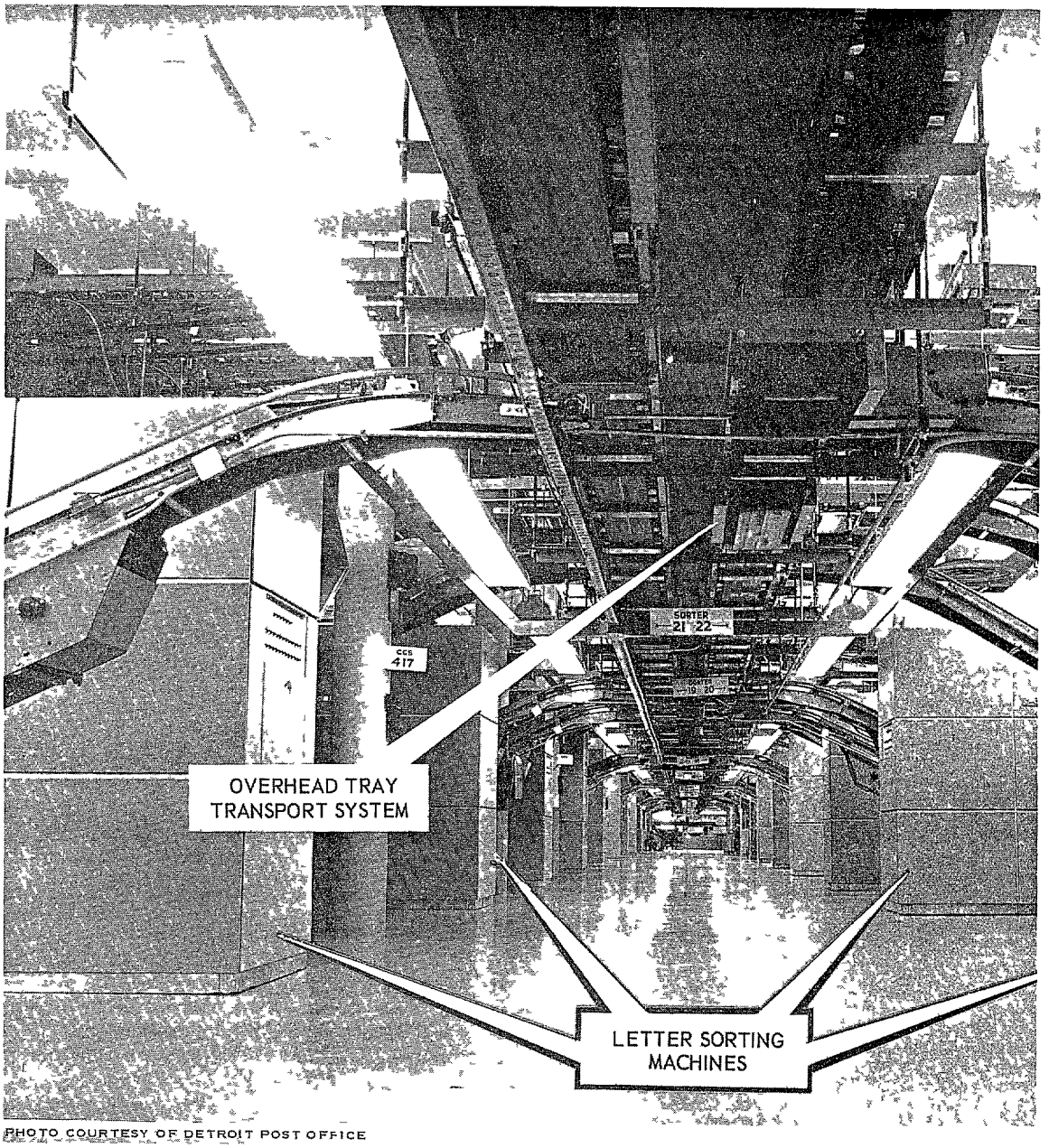
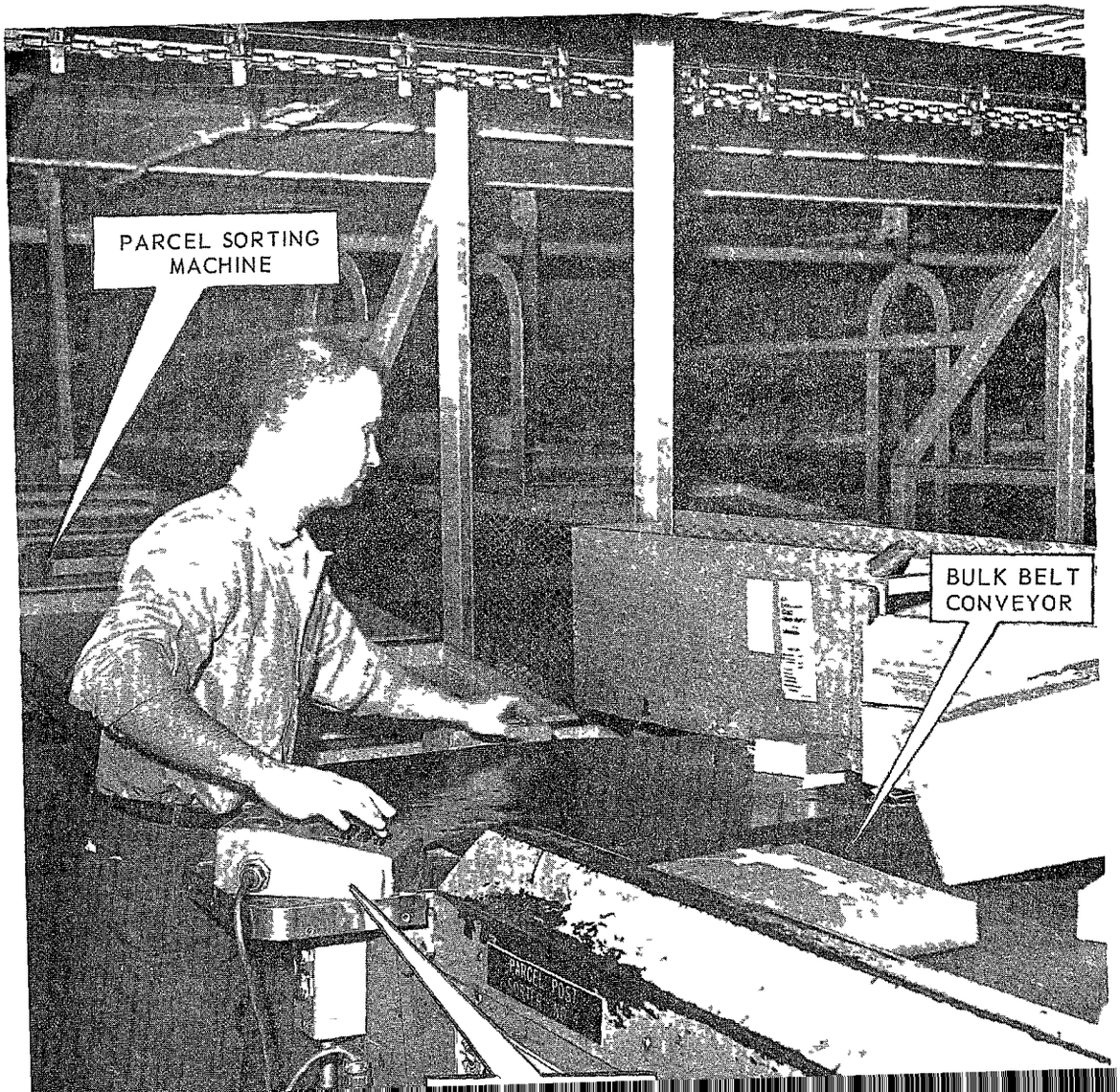


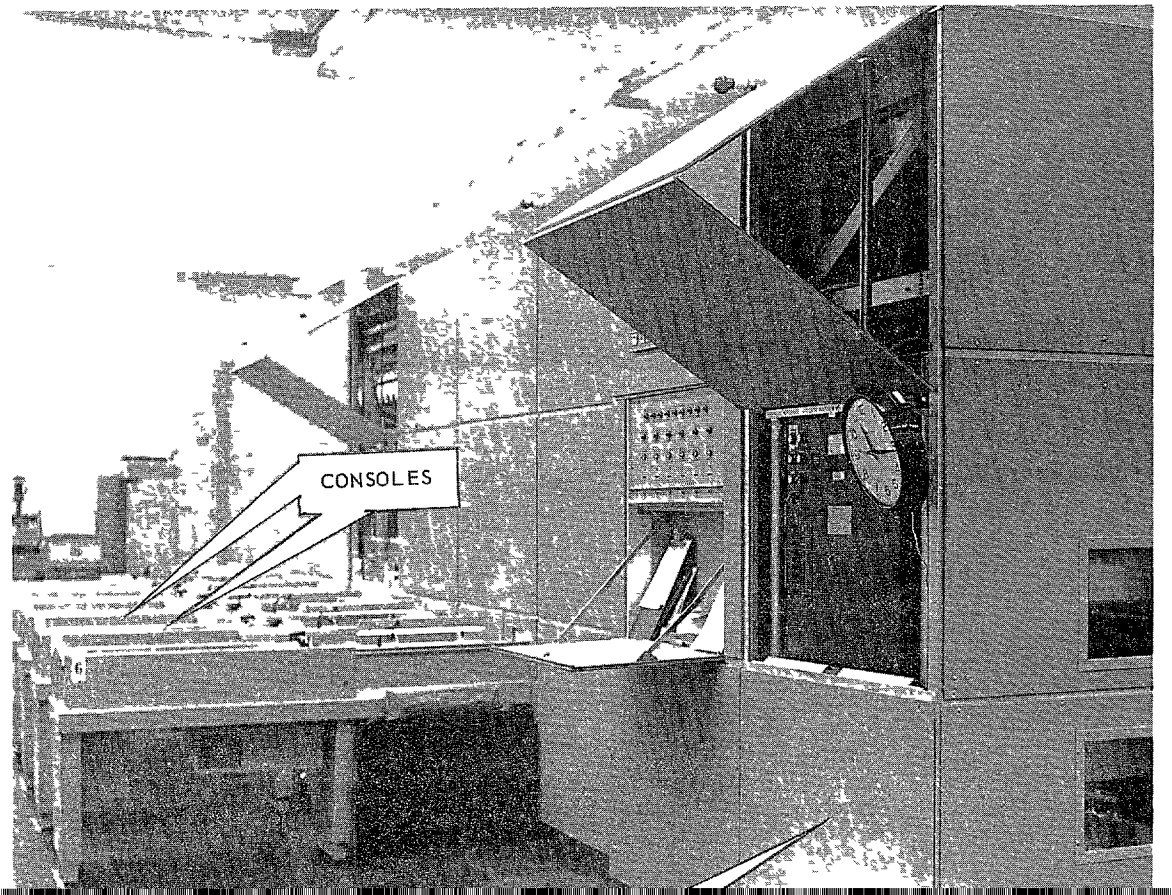
PHOTO COURTESY OF DETROIT POST OFFICE

3. Sack sorting systems have the capability of sorting and conveying sacks directly to work areas within the post office or to railroad- and truck-loading positions with a minimum of manual handling. Control devices are used to discharge the sacks at selected processing stations.

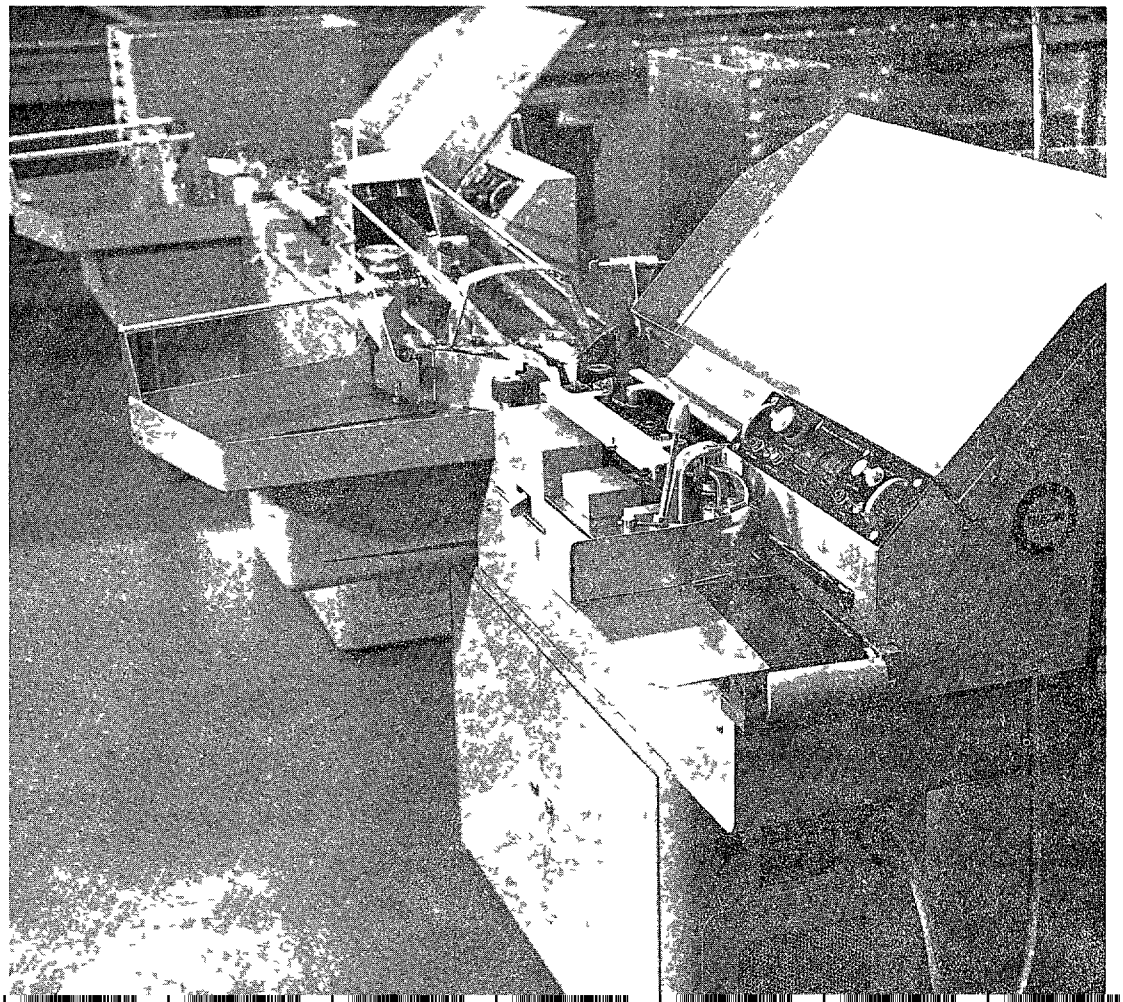
4. Parcel sorting machines carry unsorted parcels from sack-sorting discharge areas to processing stations. These sorters operate on a belt conveyor or track which usually contains trays. Control devices are used to discharge the parcels at selected processing stations.



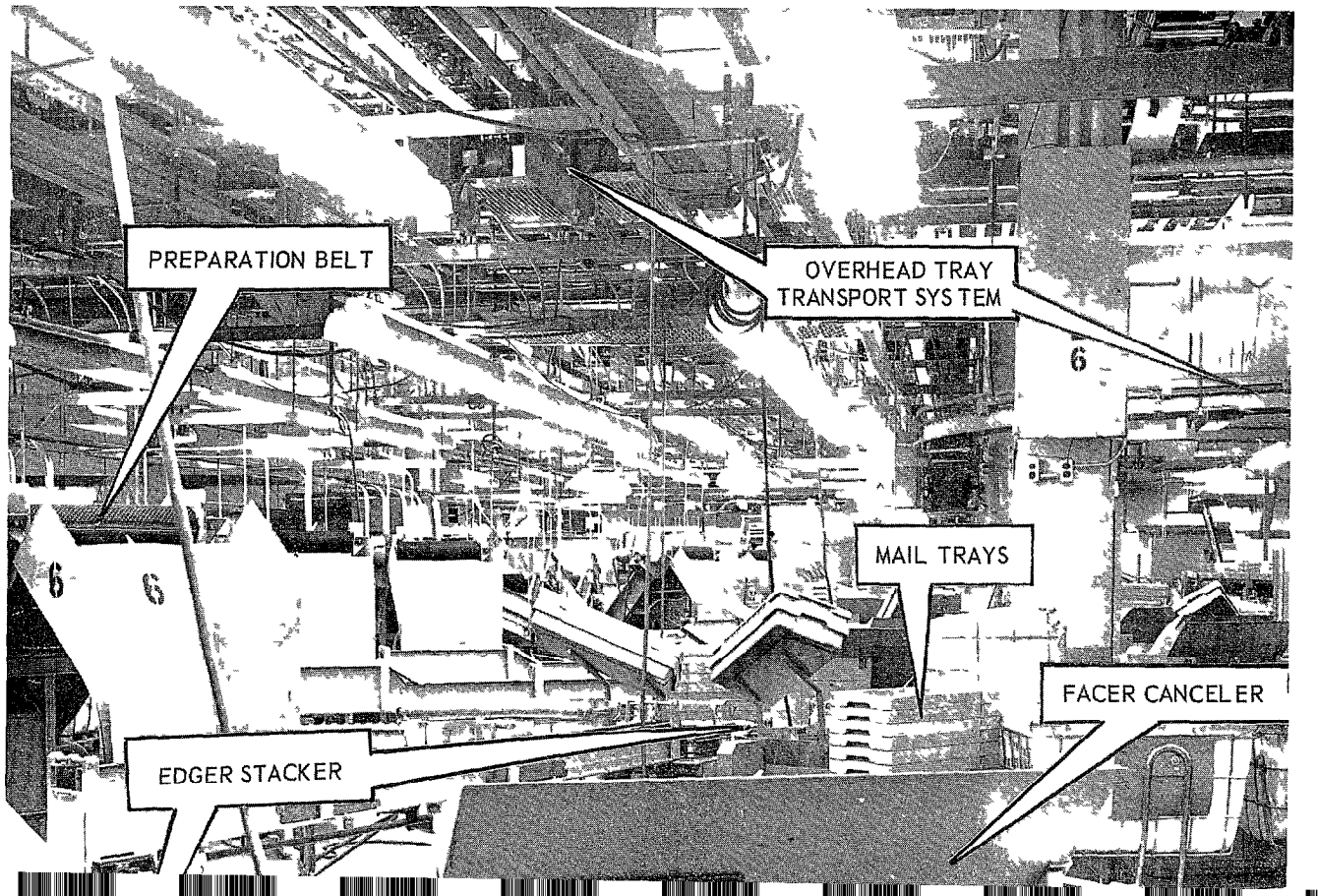
5. Letter sorting machine is a semiautomatic, electromechanical machine that distributes letters to from 160 to 277 separations at speeds up to 43,200 per hour. The machine is operated by clerks who man consoles containing keyboards which activate the sorting processor.



6. Facer cancelers are electronic machines which accept letters in an edged, unoriented condition, without regard to stamp location; face the letters; and cancel the stamps.



7. Edger stackers are machines which edge and batch or stack the mail mechanically for manual feed to the facer canceler for processing.



The Postmaster General
Washington, D. C. 20260

June 5, 1970

Dear Mr. Neuwirth

We appreciate the opportunity to review your proposed report to the Congress entitled "Need for Improved Maintenance Program for Mechanized Mail-Handling Equipment."

We concur in your recommendation that the Department review its maintenance requirements for mechanized mail-handling equipment and establish a procedure for periodically reviewing such requirements. Projects are under way or planned to accomplish this.

(See GAO note.)

We are aware, however, of the need to improve the existing maintenance management system, and a comprehensive review of the system will begin early in fiscal year 1971.

Sincerely,

Winton M. Blount

Mr. Max A. Neuwirth
Associate Director, Civil Division
U. S. General Accounting Office
Washington, D. C 20548

GAO note: The deleted comments relate to matters in the draft report which are not discussed in the final report.

PRINCIPAL MANAGEMENT OFFICIALS OF THE POST OFFICE DEPARTMENT RESPONSIBLE FOR ADMINISTRATION OF ACTIVITIES DUSCUSSED IN THIS REPORT

	Tenure of office	
	From	To
POSTMASTER GENERAL:		
Winton M. Blount	Jan. 1969	Present
W. Marvin Watson	Apr. 1968	Jan. 1969
Lawrence F. O'Brien	Nov. 1965	Apr. 1968
DEPUTY POSTMASTER GENERAL:		
Elmer T. Klassen	Feb. 1969	Present
Frederick C. Belen	Feb. 1964	Jan. 1969
ASSISTANT POSTMASTER GENERAL:		
Bureau of Operations:		
Frank J. Nunlist	Apr. 1969	Present
Bureau of Facilities (note a):		
Henry Lehne	May 1969	Present
John L. O'Marra	Aug. 1967	May 1969

[a]On August 26, 1969, the Maintenance Division was transferred to the Bureau of Operations.

U S GAO Wash , D.C