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REPORT TO THE

Audit Of Payments From
Special Bank Account
To Lockheed Aircraft Co.
For The C-5A Aircraft
During The Quarter End
December 31, 1971 B-1625

Department of Defense

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BY THE COMPTROLLER GENERAL
OF THE UNITED STATES



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

B-162578

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

This is our third report on the audit of payments from the special bank account to the Lockheed Aircraft Corporation for the C-5A aircraft program. This report covers the quarter ended December 31, 1971.

This audit was made pursuant to section 504 of Public Laws 91-441 and 92-156, the Armed Forces appropriation authorities for fiscal years 1971 and 1972, respectively. Public Law 91-441 authorized \$200 million interim funding for the C-5A aircraft program, and Public Law 92-156 authorized \$325.1 million for the program.

Both laws provide that (1) payments be made through a special bank account (2) the funds be expended only for the reasonable and allocable direct and indirect costs incurred by Lockheed on the C-5A aircraft program, and (3) the funds not be used to reimburse Lockheed for intercompany profits, bid and proposal costs, independent research and development costs, similar unsponsored technical effort costs, and depreciation and amortization costs. These laws require the General Accounting Office to audit payments from the special bank account and to submit a report to the Congress not more than 30 days after the close of each quarter.

Since June 16, 1971, the Air Force has paid Lockheed \$224,273,394 from the special bank account. (See appendix for the cumulative expenditures through December 31, 1971.) The amounts deposited in and withdrawn from the special bank account during the quarter ended December 31, 1971, were as follows:

	Special bank account	Funds authorized by Public Laws	
		91-441	92-156
Beginning balance	\$ 885,116	\$73,948,673	\$325,100,000
Deposits	98,857,803		
Withdrawals		72,778,975	26,078,800
Labor	\$15,437,620		
Overhead	20,999,967		
Material and other charges	58,245,517		
Intercompany transactions:			
Charges	\$6,888,295		
Credits	2,464,216	4,424,079	99,107,183
Balance as of December 31, 1971	\$ 635,736	\$ 1,169,698	\$299,021,100

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OPPORTUNITY TO REDUCE COSTS
THROUGH MORE EFFICIENT USE OF MANPOWER

2 During the quarter ended December 31, 1971, the Air Force paid Lockheed 35 \$15,437,620 for labor costs charged to the C-5A aircraft contract. We examined into the reasonableness of these costs by performing a work-sampling study of Lockheed's direct labor force assigned to the assembly operations.

We selected for this examination the production assembly area because (1) it was a significant, concentrated segment of Lockheed's 7,000-man C-5A aircraft work force, (2) assembly activities were well suited to the application of industrial-engineering techniques, and (3) the Defense Contract Audit Agency had reported observing idle time in that area. Other major plant areas, such as the fabrication and flight-line operations areas, were not included in our review.

Using random- and statistical-sampling techniques, we selected about 200 of 1,400 hourly direct labor employees involved in assembly operations. During a 2-week period, we made over 17,000 observations of these employees to determine whether they were engaged in productive and job-related work or were engaged in nonproductive activity.

Our objective was to get a picture of worker activity under plant conditions as they existed at the time of the study. We did not measure worker efficiency, and we assumed that the employees being observed were working at a normal pace throughout the study period.

The study showed that 43.5 percent of the employees observed were involved in craft work; that is, they were physically working on assembly of the aircraft or its components. The study showed also that 30.9 percent of the workers were engaged in supporting activities necessary for the performance of the craft work. These activities include the functions of job preparation, planning and analysis, walking, and talking. The percentage of time involved in other activities, such as personal, housekeeping, and unavoidable delays, fell within a range generally considered to be acceptable within industry.

Our analysis showed, however, that about 8.6 percent of the production assembly employees were idle. By comparison, industry work standards do not provide for any idle time, and Lockheed officials told us that an allowance for idle time was not included in their procedures for establishing work standards. Lockheed officials told us also that they were unaware of any industry criteria for setting acceptable levels for idle time. Our analysis showed also that about 6.2 percent of the employees were absent from their work stations at the time of our observations, and we were unable to determine their whereabouts through discussions with supervisors or coworkers.

We attempted to obtain comparable data for worker activity from the aerospace industry and found that their statistical information was not compiled

in a similar manner. Therefore we were unable to compare the data we obtained with those of other aerospace contractors.

The table below summarizes the results of our study.

<u>Category of worker activity</u>	<u>Percent of distribution (note a)</u>
Craft work	43.5
Activities necessary to support craft work:	
Walking	12.5
Job preparation	7.9
Talking	6.3
Planning and analysis	<u>4.2</u>
	30.9
Other activities:	
Personal	6.8
Housekeeping	1.6
Unavoidable delays	2.0
Miscellaneous	<u>.4</u>
	10.8
Idle time	8.6
Unobserved time	<u>6.2</u>
Total	<u>100.0</u>

^aThis percentage relates to activity only and not to efficiency of the employees being observed.

We presented the results of our study to Lockheed and Air Force officials and pointed out that management attention should be directed toward reducing the amount of time spent in the supporting activities necessary for the performance of craft work. We pointed out also that idle and unobserved time should be reduced to an absolute minimum. By reducing the time spent in these categories, we believe that Lockheed could increase its labor productivity.

Lockheed officials stated that they found the results of our study to be both informative and, as a whole, largely representative of performance conditions in the C-5A aircraft assembly area. They also expressed concern over the incidence of idle and unobserved time and indicated that they would increase management emphasis in this problem area. Air Force officials generally agreed with the results of the study. Both Air Force and Lockheed officials pointed out, however, that, at the time the observations were made, the assembly operations had not recovered fully from the disruptive effects of a previous strike at a subcontractor's plant which manufactured C-5A aircraft wing components.

SCOPE OF AUDIT

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Our review was made at the Lockheed-Georgia Company, Marietta, Georgia; Lockheed Aircraft Corporation and Lockheed-California Company, Burbank, California; Lockheed Aircraft Service Company, Ontario, California; and Lockheed Electronics Company, Plainfield, New Jersey.

Our audit of labor costs included tests to determine whether those costs appeared reasonable and applicable to the C-5A aircraft program. During our review of overhead costs, we examined into the reasonableness of provision of overhead rates and the costs eliminated to comply with Public Laws 91-441 and 92-156.

We reviewed selected material and other costs shown on reimbursement vouchers and traced the amounts to such documents as purchase orders, receiving reports, vendors' invoices, and work orders, to determine the accuracy and propriety of the amounts paid. Our review of costs incurred on the C-5A aircraft program by other Lockheed companies was directed toward testing the accuracy and allowability of labor, material, and overhead costs charged in intercompany billings and the exclusion of intercompany profit. We reviewed also the Defense Contract Audit Agency's audit of payments from the special bank account for labor, overhead, material, and other costs and tested the work performed.

CONCLUSION

Our review revealed no payments to Lockheed Aircraft Corporation from the special bank account during the quarter ended December 31, 1971, with the possible exception of certain labor costs, that were contrary to Public Laws 91-441 and 92-156. As outlined earlier in the report, our tests indicated that certain labor costs for the C-5A aircraft production assembly operation could be reduced through more efficient use of manpower. Lockheed has agreed to increase management emphasis in this area.

RECOMMENDATION

We are recommending that the Air Force evaluate the actions of the contractor to reduce the time spent on the supporting activities necessary for contract work and the idle and unobserved time charged to the contract. We are recommending also that the Air Force give consideration to whether the Government is in a position to seek recovery from the contractor for such charges.

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Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary of Defense; and the Secretary of the Air Force.



Comptroller General
of the United States

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TOTAL AMOUNTS DEPOSITED IN AND WITHDRAWN
FROM THE SPECIAL BANK ACCOUNT
DURING THE PERIOD
JUNE 16, 1971, TO DECEMBER 31, 1971

	<u>Special bank account</u>	<u>Funds authorized by Public Laws</u>	
		<u>91-441</u>	<u>92-16</u>
BEGINNING BALANCE		\$200,000,000	\$325,100
DEPOSITS	\$224,909,130		
WITHDRAWALS		198,830,302 ^a	26,078
Labor	\$ 39,298,279		
Overhead	59,755,488		
Material and other charges	125,838,922		
Intercompany transactions:			
Charges	\$14,341,537		
Credits	<u>-14,960,832</u>	<u>-619,295</u>	<u>224,273,394</u>
BALANCE AS OF DECEMBER 31, 1971		<u>\$ 635,736</u>	<u>\$ 1,169,698</u> <u>\$299,021</u>

^aInitial payment from this fund was on June 16, 1971.

^bInitial payment from this fund was on December 1, 1971.

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