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ACCOUNTING SYSTEM DESIGN
REPORT AND RECOMMENDATIONS

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MANAGEMENT SUMMARY

Several recommendations for adjustments to the UCC bookkeeping process and financial statement preparation evolved from the study of the UCC accounting system: These recommendations specifically include suggestions for:

1. A bookkeeping format which would interface with the University Business Office format and which would make preparation of internal financial reports a simpler process;
2. A NET CASH POSITION STATEMENT which would directly identify cash funds available to UCC and that portion of funds earned in any one month period;
3. A STATEMENT OF NET INCOME which would summarize cash and other income of UCC to provide a better demonstration of the financial contribution made by UCC to the university community than is possible through the NET CASH POSITION STATEMENT;
4. Procedures for budget preparation and the possible uses of a reliable budget plan; and
5. Preparation of income statements relative to each project at UCC which would determine the profitability of each service component of UCC operations.

Each suggestion includes detailed specific procedures for gathering the requisite information from the present UCC books and records.

This paper is concerned only with identifying and gathering financial data input for the decision-making process. The authors caution that such data should be only one aspect of the decision process relative to UCC services. As a service organization, UCC does well to consider important non-financial factors which affect its operation.

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1. INTRODUCTION

The University Computer Center recognizes that certain difficulties exist with financial information currently received from the Business Office and financial reports generated internally. Complaints concerning these financial reports suggest that information desired by the Director and Associate Directors of UCC is not presented in a useful manner and that present reports are not relied on for financial information. Specific lags in information processing occur in the preparation of reports, rendering these reports meaningless for the decision-making process. Furthermore, the accounting process is not adequately defined for UCC personnel to correct these difficulties.

This study undertakes to identify possible solutions UCC could implement to the problems identified in the current accounting system. Several types of reporting styles were developed to fulfill UCC information requirements. These reports are mutually exclusive. Thus, UCC may choose to implement some suggested reports without accepting recommendations relative to other reports. The decision as to which reports are implemented depends to a large extent on the desired refinement in financial reporting.

Definition of UCC's present accounting system is essential to subsequent understanding of adjustments which are proposed in this paper. Accordingly, a rather thorough discussion of the bookkeeping procedures of the University Business Office, the TRANSACTION SUMMARY, and the information flow between the Business Office and UCC are presented in Appendices A.1, A.2, and A.3.

1.1 ORGANIZATIONAL SETTING

The University Computer Center provides computing and computer maintenance services to University departments, students, and researchers as well as to individuals and organizations not within the university budget system. It is funded through direct university grants and through charges for computer time and supplies, maintenance, and leasing services.

UCC consists of five major divisions: System Administration, System Engineering, System Operation, System Services, and the Hybrid Lab. The organizational structure relates to functional purposes rather than projects. The projects are Cyber 74, Cyber 72, the Hybrid Lab, and Maintenance and Engineering.

At the beginning of each fiscal year, UCC projects estimated salaries for key personnel. After negotiation with the University Computer Services Director, UCC receives an allotment from the State of Minnesota legislature for this amount. As the year progresses, UCC may negotiate other transfers of funds from the University Computer Services fund. The majority of funds to cover other expenses are derived from income relating to UCC services.

2. BOOKKEEPING PROCEDURES SUMMARY

The accounting system at UCC interfaces with the accounting system for the entire university. Therefore, standard university accounting procedures are used by UCC which include utilization of university fund numbers and account classifications.

The University Business Office assigns departmental fund numbers for each of UCC's operating departments. Each fund number is further broken down into various income and expense sub-accounts. UCC uses these sub-accounts to record transaction information into their books.

At the end of each month the Business Office generates a TRANSACTION SUMMARY report (which is labeled "BUDGET STATEMENT") which shows how the transactions affect each of the five basic types of T-accounts. These T-accounts are the AMOUNT T-account, the INCOME T-account, the ALLOTMENT T-account, the ENCUMBRANCE T-account, and the EXPENDITURE T-account. The report also shows the totals within each sub-account at the end of the month. The transactions are handled by standard accounting procedures, described in Appendix A.1. This appendix also presents an overview of the information contained in the TRANSACTION SUMMARY report.

2.1 SUMMARY OF MONTH-END TRANSACTION SUMMARY REPORT

At the end of each month the Business Office sends UCC a TRANSACTION SUMMARY for each UCC departmental fund. These are summaries of all the transactions in each sub-account during the month.

The TRANSACTION SUMMARY is a computer printout which has the following format:

FUND NUMBER AMOUNT ENCUMBRANCE EXPENDITURE INCOME ALLOTMENT

--	--	--	--	--	--	--	--	--	--	--	--	--	--

The first entry in each sub-account is always a balance carried forward from the previous month. Each subsequent line records a transaction made during the month. Each of these transactions relates to a sub-account on the left and affects two of the five T-accounts on the right. The last entry in each sub-account is a total showing the balance at the end of the month.

There are eight major types of transactions which affect the AMOUNT, ENCUMBRANCE, EXPENDITURE, INCOME and ALLOTMENT T-accounts. Appendix A.2 shows how each of these transaction types affects the five T-accounts.

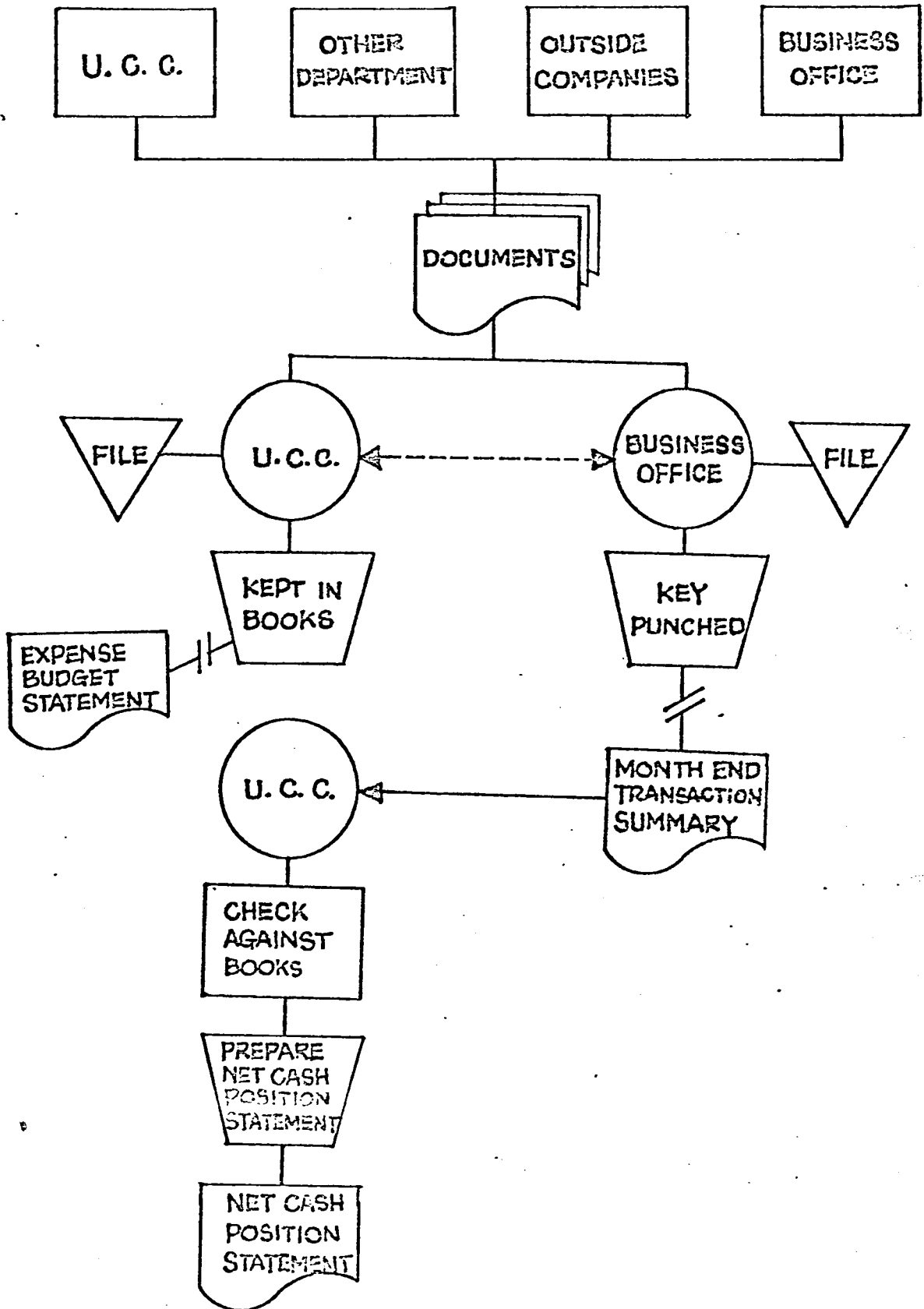
2.2 SUMMARY OF INFORMATION FLOW

The accompanying diagram graphically shows the flow of information between UCC, university departments, outside companies, and the Business Office. Appendix A.3 describes in greater detail the information flow for six forms of financial transactions encompassing:

- 1) UCC income
- 2) UCC expenses
- 3) UCC allotments
- 4) Corrections of income and expense
- 5) TRANSACTION SUMMARY preparation
- 6) NET CASH POSITION STATEMENT preparation

Financial documentation of transactions affecting the University Computer Center originates from within UCC or from other university departments, outside companies, or the University Business Office. These

INFORMATION FLOW



documents include invoices prepared by UCC for income produced from its services, expense documents initiated by another university department, and outside company, or the Business Office, encumbrance requisitions prepared by UCC, and allotment requests prepared by UCS.

These original documents are then sent to UCC or the Business Office depending on the transaction type and the originating entity.

Upon receiving or preparing various documents, UCC generally records the transaction in their books. The original documents are then sent to the Business Office and copies are filed at UCC. After month-end bookkeeping processes, UCC prepares expense budget statements based on information contained in their books.

The Business Office records all documentation it receives from UCC and other sources by bookkeeping entries as described previously. These documents are filed and, depending on the transaction type, copies may be sent back to UCC. Each transaction is keypunched by the Business Office. Then, at the end of each month a computerized month-end TRANSACTION SUMMARY is produced and sent to UCC. This month-end TRANSACTION SUMMARY is then used by UCC to verify its own bookkeeping procedures and to prepare a NET CASH POSITION STATEMENT.

3. REQUIREMENTS OF UCC ACCOUNTING SYSTEM

An accounting system for UCC must meet certain requirements. These can be indentified as methods for:

- 1) Verifying the bookkeeping actions of the University Business Office;
- 2) Identifying the cash income from UCC operations;
- 3) Identifying the earnings generated by UCC operations (both cash and subsidized);
- 4) Predicting future expenses; and
- 5) Measuring the financial results of various projects operated by UCC.

The remainder of this paper approaches each of these needs specifically and suggests adjustments to the present system which can yield the required information. Suggestions are separated by each of these information requirements so that UCC may choose to implement some suggestions, without accepting the totality of the proposed system. The decision as to which suggestions to accept should be based in a large part on the usefulness of the proposed information to the management of UCC.

4. VERIFICATION OF BUSINESS OFFICE BOOKKEEPING

The present system of UCC bookkeeping permits verification of Business Office procedures in a very tedious manner. UCC's books are organized differently from those of the Business Office and thus, the account clerks expend considerable time verifying transactions, even though both sets of books are prepared from identical records.

Clearly, the University Business Office is not likely to alter its bookkeeping procedures to accommodate those of UCC. Accordingly, UCC can consider implementing a facsimile of the Business Office procedure on their books.

4.1 RECOMMENDED BOOKKEEPING PROCEDURES

It is suggested that the books of UCC contain the following data for each departmental fund sub-account:

AMOUNT
ENCUMBRANCES
EXPENDITURES
INCOME
ALLOTMENTS

In the same manner as described in Appendix A.1 UCC account clerks would make two entries for every transaction as soon as documentation was available. Thus, at the beginning of the fiscal year, the account clerk would record the allotment from the legislature for salaries in the 0100-1601-01 sub-account by making the following entries:

REFERENCE	AMOUNT	ENCUMBRANCE	EXPENDITURE	INCOME	ALLOTMENT
Voucher #	+60,000				+60,000

As requisitions were prepared and purchase orders returned to UCC, account clerks would make the following entries, perhaps in the 0950-1378-08 sub-account:

REFERENCE	AMOUNT	ENCUMBRANCE	EXPENDITURE	INCOME	ALLOTMENT
Requisition #	-40,000	+40,000			

When the invoice for this item is received, the account clerk would eliminate the encumbrance and record an expenditure in the same 0950-1378-08 sub-account by making the following entries:

REFERENCE	AMOUNT	ENCUMBRANCE	EXPENDITURE	INCOME	ALLOTMENT
Requisition #		-40,000	+40,000		

When computerized invoices for Cyber 74 usage are prepared at the end of the month, account clerks would recognize supply income in the 0950-1378-05 sub-account as follows:

REFERENCE	AMOUNT	ENCUMBRANCE	EXPENDITURE	INCOME	ALLOTMENT
Invoice #	+72,000			+72,000	

Charges for Cyber 74 computer time would be shown in the 0950-1378-05 sub-account through entries into the same columns.

A balance could be calculated whenever desired by totaling the entries in the AMOUNT column. This balance could then be verified against the balance of funds shown in the TRANSACTION SUMMARY prepared by the Business Office in the same manner as checkbook verification is accomplished.

Presently, the account clerks use additional columns in UCC's books to segregate expenses by functional divisions for the purpose of preparing "Expense Budgets" for each Associate Director. There is nothing in the present proposal which would affect that procedure.

4.2 ADVANTAGES AND DISADVANTAGES OF ADJUSTMENT

The advantages of this adjustment are that:

- 1) UCC would have available on its own books current information from which to prepare desired financial reports on a more timely basis than is presently possible.
- 2) Verification of Business Office transactions would be readily possible.
- 3) Income from university departmental funds (negative expenses to the Business Office system) could be clearly shown as income to UCC.

The main disadvantage of switching to the Business Office system would pertain to the time and effort involved in forcing account clerks to learn a new system of bookkeeping when, in fact, the present bookkeeping system is not inadequate, but merely needs improvement.

5. IDENTIFICATION OF CASH INCOME

Each month, account clerks at UCC prepare a Net Cash Position Statement based on information contained in the Transaction Summary prepared by the Business Office for the 9050-1378 departmental fund. The present Net Cash Position Statement is the summation of two accounts: the amount from the AMOUNT column of the Transaction Summary, and the amount from the ENCUMBRANCE column of the Transaction Summary.

The AMOUNT column includes the effect of income that UCC has generated through providing services, expense that UCC has incurred for the purchase of goods and services, allotments which UCC has received from UCS or other sources, and encumbrances of future income which represent funds which UCC intends to spend in the future.

ENCUMBRANCES reflect items which UCC has requisitioned, although no funds have been expended. More simply, the amount of encumbrances is money set aside to buy some goods in the future but which has, as yet, not been spent. Thus, the balance of encumbrances represents part of the cash that UCC still possesses. Therefore, the amount should be included in the Net Cash Position Statement. To the extent that UCC intends to honor the commitments to requisition goods, the amount of encumbrances is an important element of a cash position statement and should, therefore, be separately indicated.

When added together, these amounts represent the unspent cash available to UCC, although the amount of Encumbrances represents commitments of funds which UCC has made.

5.1 EVALUATION OF THE PRESENT NET CASH POSITION STATEMENT

Theoretically, there is nothing wrong with the present method of calculating the net cash position. However, because of certain problems with the bookkeeping procedures of the Business Office, there are errors in the actual numbers which appear on these monthly statements.

5.1.1 Time Lag of Income Information

The Net Cash Position Statement is currently prepared at the end of each month based on information contained in the Transaction

Summary which is prepared by the Business Office at the end of each month. All information in this Transaction Summary is current except for income from Cyber 74.

The current month's income from Cyber 74 is not transmitted to the Business Office in time to be included on the Transaction Summary for the current period. This means that Cyber 74 income earned is not matched with expense incurred in the appropriate month.

5.1.2 Loss or Gain Carry Forward from Previous Periods

The Net Cash Position Statement relies on information carried in the Transaction Summary prepared by the Business Office. To the extent that the accounting process of the Business Office includes data from prior periods' operations, the Statement is inadequate.

A key distinction made in accounting theory is in relation to the time period factor reflected by various reports. A balance sheet is ordinarily prepared to reflect the business entity's financial status at a fixed point in time. An income statement is generally prepared to reflect the results of operations for a given accounting period.

The Transaction Summary prepared by the University Business Office combines both of these types of reports by carrying forward gains or losses in each period. Thus, had a Net Cash Position Statement been prepared for the University Computer Center on July 1, 1975 (before any transactions or allotments in this fiscal year), it would have shown a gain carried forward of \$30,377.50. Clearly, then, the results of the first month's operations were camouflaged to the extent that this amount was included in that period's cash position statement.

A similar problem would result were UCC to start out the year with a negative net cash position. The Net Cash Position Statement would show a cash position significantly worse than actually resulted from that month's operations.

5.1.3 Limited Scope of Statement

Currently, the Net Cash Position Statement is prepared relative to only the 0950-1378 departmental fund. Thus, it does not reflect the aggregate of UCC's operations. This fund does not show income and expenses pertinent to Timesharing and Hybrid Lab operations.

5.2 RECOMMENDATIONS

There are several alternatives to solve the above problems. The following represent three suggestions for these problems.

5.2.1 SUGGESTIONS FOR SOLVING THE TIME LAG PROBLEM

Alternative 1 -Adjusted Cut-off Date

The cut-off date for periodic income accounting on Cyber 74 could be adjusted so that income would be reflected on the Business Office records. A cut-off date five days prior to the end of the month would be adequate for this purpose, or some date up to two days before the end of the month.

The NET CASH POSITION STATEMENT is prepared in the same manner as is presently used. The procedures are as follows:

- a) Sum the balance of the ENCUMBRANCE column of the TRANSACTION SUMMARY. This represents the funds that have been set aside but not yet expended.
- b) Sum the balance of the AMOUNT column of the TRANSACTION SUMMARY.
- c) Add (a) and (b) together. This represents the cumulative Net Cash Position.

If this alternative is chosen, UCC should be aware that the last month of the fiscal year, June, will show a slightly larger amount of income as a billing for that month should be made on the 30th day of June and will be reflected in the year-end accounting done by the Business Office. Thus, 32 to 35 days of income will be matched against 30 days of expenses in June.

Alternative 2 -Reliance on Production Usage Summary

The account clerk of UCC may prepare a current NET CASH POSITION STATEMENT based on income information contained on the SUMMARY OF PRODUCTION USAGE report. Current income included in the NET CASH POSITION STATEMENT would then match with the current expenses.

The accounting clerk of UCC could obtain income information from both the Cyber 74 Production Usage Report and the Transaction Summary generated by the Business Office.

- a) Sum the computer time income, supply income, MedSpeed connect time income and keypunch income. The Cyber 74 Production Usage Report contains these amounts.
- b) Sum the ending balances listed in the AMOUNT column of the Transaction Summary for the following sub-accounts:

0950-1378-01	Salaries Expense
0950-1378-02	Fringe Benefits Expense
0950-1378-04	Maintenance, Equipment & Insurance Expense
0950-1378-06	Equipment Rental Expense
0950-1378-08	Equipment Purchases Expense
0950-1378-10	Supplies & Miscellaneous Expense
0950-1378-12	Health Computer Sciences Rebate
0950-1378-14	Equipment Depreciation Expense
0950-1378-16	Management & Operation Expense
0950-1378-18	General & Administrative Expense
0950-1378-07	Maintenance & Engineering Service Income
0950-1378-09	Miscellaneous Services Income
0950-1378-11	Computer Grants
0950-1378-24	PASCAL Income and Expense
0950-1378-30	MECC Income and Expense

This total represents part of the net income of the current period.

All these data are in the Transaction Summary generated by the Business Office.

c) Sum the amount of the items having a reference number below 500,000 listed in the INCOME and EXPENDITURE columns of the following sub-accounts:

0950-1378-03 CPU and PPU Income
0950-1378-05 Supplies Income

This represents income adjustments and expenses relative to these sub-accounts.

d) Add (a), (b) and (c) together. This represents the amount of funds which have not been committed for future expenditures.

e) Add the amount in (d) to the amount in the ENCUMBRANCE column of the Transaction Summary. The total represents the cumulative Net Cash Position.

Alternative 3 -Preparation from UCC Books

The account clerk could prepare the Net Cash Position Statement from information contained in UCC's books if the bookkeeping procedure explained in Appendix A.1 were adopted. Preparation would be otherwise identical to the present method.

5.2.2 Suggestion for Solving the Carry Forward Problem

To identify clearly the results of the current period's operations, it is suggested that UCC subtract the beginning cash balance from the Net Cash Position. The resulting figure shows the result of the current period's operations. The unadjusted figure shows the cumulative cash position of UCC.

If the beginning cash balance is excluded, then the statement should take the following form:

Account Balances
+ Encumbrances
Cash Position
- Beginning Cash Balance (= Cash Position from previous month's report)
Net Cash Flow

Notice the difference between the Cash Position and Net Cash Flow. The Cash Position represents the cumulative amount of cash

available to UCC up to the current period. The Net Cash Flow excludes the cash balance from the previous months, and thus reflects only the cash income from the current month.

Had these first two suggestions been implemented, the Cash Position Statement of UCC would have been quite different. The reader is invited to scan Appendix A.4 through Appendix A.6 to see the differences in results had the previous suggestions been adopted in 1975-1976. Similarly, Appendix A.7 through Appendix A.9 show the effect of these suggestions on the reported results of fiscal 1974-1975.

5.2.3 Suggestion for Enlarging the Scope of the Net Cash Position Statement

To indicate the cash effect of all UCC services and operations, the NET CASH POSITION STATEMENT should be prepared using information in all of UCC's operating departments. Thus, it should include information from the following departmental funds:

0100-1601	UCC Support
0950-1358	Timesharing Income and Expense
0950-1378	UCC Income and Expense
0950-7424	Hybrid Lab Income and Expense

5.3 APPROPRIATE USE OF THE NET CASH POSITION STATEMENT

A statement of net cash position is not a true reflection of current operations, primarily because there is no recognition of the effects of some operations and transactions that have no cash involved. Such transactions are described in the next section along with a possible solution. Therefore, the NET CASH POSITION STATEMENT should not be used exclusively as a measurement of performance. It is only a reflection of the effects of cash transactions.

6. IDENTIFICATION OF EARNINGS FROM OPERATIONS

The Net Cash Position Statement reflects only that part of income and expenses which have a defined cash value. UCC does, however, enter into certain "non-cash" transactions, which value can only be estimated. For example, UCC generates certain "income" when it negotiates beneficial exchanges for equipment. While such earnings generate no hard money income for the University, they do augment its financial position by increasing its total assets. Currently, financial reports do not include such transactions in any fashion.

Furthermore, the dollar value of computer services to approved University researchers is not shown in the Net Cash Position Statement as such "income" is subsidized by UCC.

To assist UCC in evaluating its total contribution to the University, an income statement should be prepared which would provide recognition of both these amounts in order to give an accurate rendition of the profit or loss made by UCC in any one period.

Thus, a Statement of Net Income would take the following form:

CASH INCOME
+ "NON-CASH" INCOME
- EXPENSES
- <u>ENCUMBRANCES</u>
NET INCOME

6.1 DERIVATION OF THE STATEMENT OF NET INCOME

The Cash Income amount can be derived in the same fashion as was discussed in the previous section.

To derive "Non-Cash" Income requires that certain estimates be made of the actual value of equipment or materials received by UCC. Such an estimate could be based on either the retail selling price or

book value of the item received. From this amount could be deducted the estimated retail value of the item (or cash) given up. The difference of these two amounts should be classified as "Non-Cash" Income. The amount of subsidized research funded by UCC is accumulated on the Cyber 74 Production Usage Report.

The total of Expenses can be achieved through a straight total of positive entries in the EXPENDITURES column of the TRANSACTION SUMMARY.

Net Income represents the addition of "Non-Cash" Income and Income less Expenses and Encumbrances.

6.2 SUGGESTED USE OF THE STATEMENT OF NET INCOME

The Net Income figure is an accurate reflection of the profitability of the entity in the current period. By comparing this amount to the cash income described in the previous section, UCC will be able to more honestly appraise the financial impact of its services on the University.

Once again, for the complete picture of UCC's income, this report should be prepared relative to UCC's four operational departmental funds:

0100-1601	UCC Support
0950-1358	Timesharing Income and Expense
0950-1378	UCC Income and Expense
0950-7424	Hybrid Lab Income and Expense

7. PREDICTIONS FOR FUTURE EXPENSES

As a means of exercising divisional control over expenses, UCC Associate Directors prepare an "expense budget" prior to the beginning of each fiscal year. Because the essential raw data was not easily obtainable, these expense budgets were primarily based on estimates in the past. Certain information such as salary expense and contract maintenance expense were predictable, but other figures were estimated and some were forgotten entirely. Such efforts were necessary for UCC to begin to collect information in a form which would assist this process.

As many of these "expense budgets" were based on broad estimates rather than detailed information, these expense budgets are not suitable for a system of internal expense control.

Often, a budget can serve as an important element of expense control. When actual expenses exceed budgeted expenses, a manager is alerted to the variance and can explore possible causes or corrections of the problem. If no correction is feasible, expense cuts may be possible from other portions of the budget. It was for these reasons that the Associate Directors at UCC began to implement a system for preparing expense budgets.

This paper records certain observations relative to the procedural problems experienced by UCC in designing and implementing a budget system.

7.1 BUDGET CATEGORIES

Presently, expense budgets are prepared for functional divisions managed by Associate Directors. Since the organization of UCC is

functional, rather than by project, this division results in some overlap where expenses are not clearly identifiable with one division. This problem may also be the reason why categories of expenses have not been planned for.

To solve all these conceptual difficulties, UCC may consider preparing expense budgets for each project: Cyber 74, Cyber 72, Hybrid Lab, and Maintenance and Engineering. A General Administrative expense budget could separately account for common expenses, such as salaries.

7.2 BUDGET CONSTRAINTS

Expense budgets are presently reviewed by the Director, although no suggestions are made for revision. It is possible that a review of the prepared expense budgets would indicate an excess of planned expenses over expected income. In this event, expense budgets should be revised so as not to exceed estimated income and allotments received.

The effect of this suggestion is to make the budgets meaningful to their users, the Associate Directors. If expenditures relative to Cyber 74 are forecast at the beginning of the year, managers could plan to incur these expenses if the budget forecast was approved and income matched expectations. The use of meaningful budgets provides managers with a long-range format within which to plan.

7.3 BUDGET ESTIMATES

Presently, estimates of anticipated expenses are made haphazardly. To establish credibility for the budgets, it may be considered advisable to prepare documentation for each amount included in the budget. Then, should the budgets need to be revised, it would be possible to separate

out the expenses necessary to maintain the existing level of operations from those expenditures made to improve UCC service capacities.

At a minimum, documentation of budgeted expenses should include:

- a) the nature of the expense
- b) the actual amount spent last year
- c) the projected amount of the expenditure
- d) explanation of any discrepancy between (b) and (c) above,
- and e) analysis of the estimated expenditure as to the minimum amount required and the maximum amount desired.

7.4 BUDGET REPORTS

Presently, expense-budget statements compare the actual year-to-date expense with the estimated annual expense on a monthly basis. This format does not allow managers to gain an overview of the position of UCC relative to budgeted amounts. To remedy this situation, a summary report could be prepared with information for each budget category (project) on one sheet, together with a calculation of the variance. Such a report might take the following form:

	THIS MONTH ACTUAL	YEAR-TO-DATE ACTUAL	YEAR-TO-DATE % OF BUDGET	BUDGET
CYBER 74				
CYBER 72				
HYBRID LAB				
MAINTENANCE & ENGINEERING				
TOTAL EXPENSE				
TOTAL INCOME				

Regardless of whether the above suggestions are adopted, UCC may find worthwhile a report summary which would accumulate expense budget information in one place. Appendices A.11 and A.12 indicate this summary information for fiscal 1975-1976 and fiscal 1974-1975 respectively. Note that information for the Hybrid Lab is not presently available. Appendices A.11 and A.12 compare budgeted amounts against actual monthly expenditures. A running total of monthly expenses is calculated for purposes of showing the year-to-date position apart from monthly fluctuations.

8. MEASUREMENT OF PROGRAM PROFITABILITY

Previous sections of this essay have explained how a determination of cash income or all income could be made relative to either the 0950-1358 departmental fund or for UCC as a whole. See sections on suggestion for enlarging the scope of the NET CASH POSITION STATEMENT and suggested use of the STATEMENT OF NET INCOME.

The Director and Associate Directors of UCC also expressed an interest in determining the profitability of each main project which UCC operates. Thus, there is interest in matching income earned with expense incurred for: Cyber 74, Cyber 72, the Hybrid Lab, and Maintenance and Engineering Services.

This procedure would be made simpler were UCC to implement the preparation of expense budgets by project and adjust its book-keeping system to match that of the Business Office. However, the necessary information can be gathered from the present data collection system. Detailed description of the sources of income and expense information necessary for the preparation of a project income statement is shown in Appendix A.10 and would take the following form:

	Cyber 74	Cyber 72	Hybrid Lab	Maintenance & Engineering
REVENUE - EXPENSE				
NET INCOME YEAR-TO-DATE INCOME				

8.1 APPLICATIONS OF PROJECT INCOME STATEMENT

Ideally, a project income statement could also be used in conjunction with revision of expense budgets. Thus, UCC would be alerted to decrease expenditures when income dropped markedly in any one quarter.

A superficial exploration of UCC's income trends, however, reveals that this is perhaps not a wise application of information in this report.

Exhibits 1 and 2 show the income accumulated from various sources for fiscal 1975-1976 and fiscal 1974-1975 respectively.

Exhibits 3 and 4 are graphs of the two major Cyber 74 income sources, that is, income from supplies and computer time income. The income fluctuates during the year partly because of the nature of the user types. Many of the users are from within the University system and therefore, fluctuations may correspond to quarter beginnings and endings and University administrative work loads.

The graph in Exhibit 5 is a comparison of income from all sources for 1974-1975 and 1975-1976. Again, there are monthly fluctuations but Exhibit 6 shows an overall increase in income from the last fiscal year.

Because of the unpredictable fluctuations in income, UCC cannot project annual income with great accuracy. While this limits the usefulness of the proposed report, other meaningful uses are clearly indicated.

One long-range application of this statement is that it provides a basic incentive for accounting for transfer costs between UCC operating divisions. Thus, for accurate representation of the profitability of each project, UCC may decide to implement a system in which the Maintenance and Engineering Division would bill Cyber 74 for services performed on that machine.

Furthermore, this statement would clearly portray in one location the financial results of each program operated by UCC. Information

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Cyber 74 Income	CPU Time	60,645	50,353	48,807	48,110	51,857	55,125	61,457	48,616	65,737	62,248	64,421	
	Supplies	39,538	38,415	39,012	43,739	39,610	50,389	42,573	45,130	55,645	48,345	52,368	
	Interactive	2,798	2,711	2,987	3,305	2,658	2,876	3,058	3,204	3,931	3,080	3,465	
	Keypunch	11	0	21	-	-	23	-	-	-	16	95	
Cyber 72 Income	Internal	-	-	-	-	-	18,269	1,567	765	-	882	-	
	External	-	-	-	-	3,000	1,639	53,664	1,506	-	332	1,153	
Hybrid Lab Income	Internal	6,571	5,737	6,818	2,671	2,293	3,231	2,177	1,981	2,787	1,530	1,529	
	External	2,586	3,959	678	529	153	378	448	72	-	-	-	
Maintenance & Engineering Income	Internal	5,390	2,850	1,943	13,148	350	1,478	4,787	1,482	3,848	590	-	
	External	7,175	35	35	-	35	-	35	-	-	145	-	
TOTAL		124,714	104,060	100,301	111,502	99,956	134,408	169,766	102,756	131,948	117,168	123,031	

PROJECT INCOME 1975-1976

Exhibit 1

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Cyber 74 Income	CPU Time	46,956	49,805	29,449	33,249	34,371	30,003	41,279	42,615	41,099	47,515	47,095	48
	Supplies	29,341	28,895	22,573	26,463	32,328	31,424	37,199	35,099	44,926	42,233	41,032	49
	Interactive	1,163	1,078	732	1,113	1,565	1,398	1,738	1,715	2,044	2,066	2,110	2
	Keypunch	149	174	122	40	91	51	60	53	31	39	41	
Cyber 72 Income	Internal	12,550	874	13	-	-	821	-	-	203	-	411	
	External	-	-	-	-	-	-	-	-	-	-	-	
Hybrid Lab Income	Internal	3,072	3,206	3,396	1,924	1,127	1,676	2,436	1,729	2,414	2,937	1,543	2
	External	141	2,386	4,407	1,425	49	751	1,044	619	1,710	1,448	684	2
Maintenance & Engineering Income	Internal	4,125	180	320	1,400	60	70	-	-	1,700	-	975	
	External	-	-	-	-	7,725	-	-	-	-	850	-	
		97,497	86,598	61,012	65,614	77,316	66,194	83,756	81,830	94,127	97,088	93,891	105

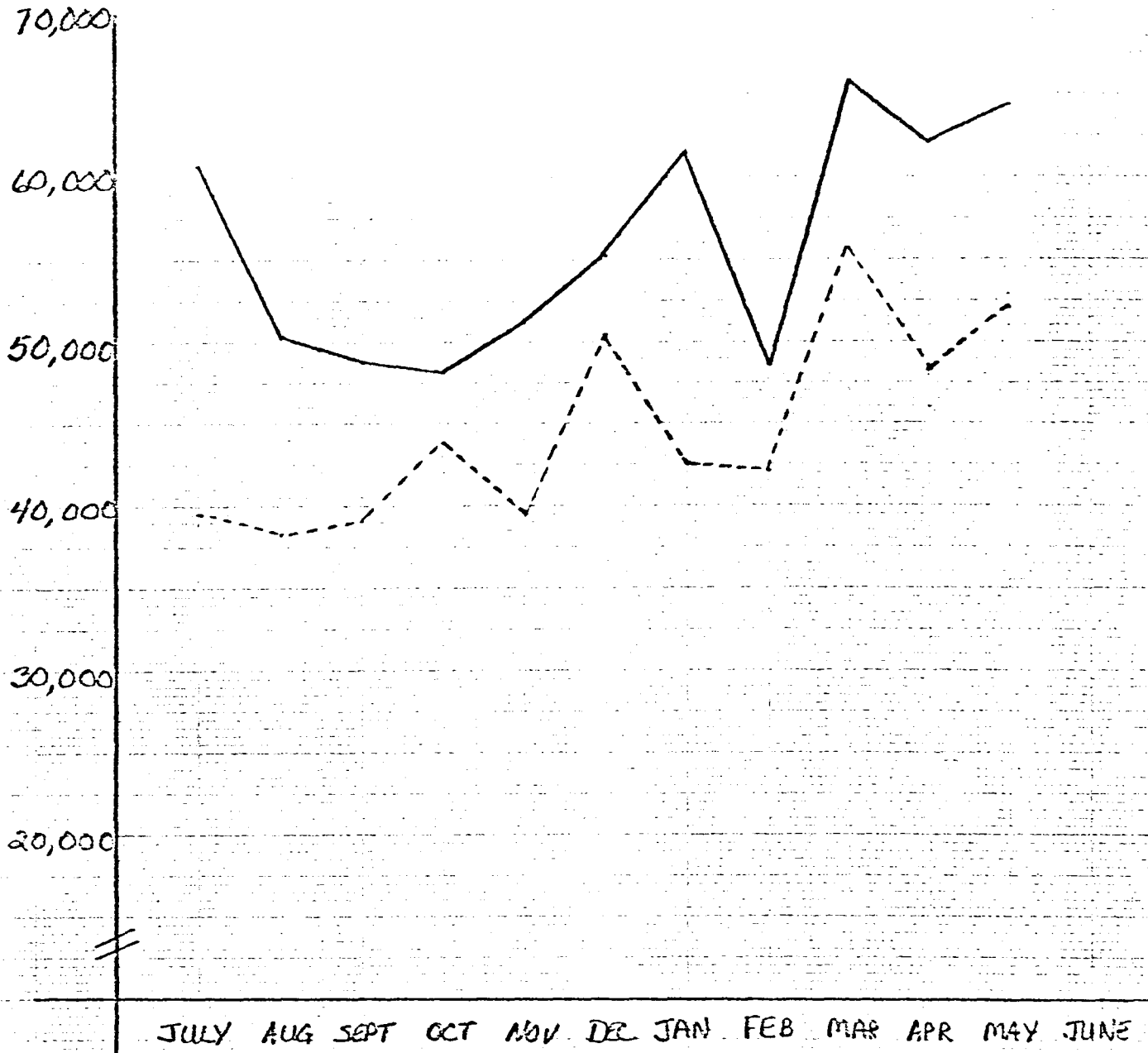
PROJECT INCOME 1974-1975

Exhibit 2

contained therein could be used to determine rates charged by UCC for computer or service time, or to identify projects which cannot compete financially, but which may very well be important to the services provided by UCC. Perhaps this information will indicate a service should be expanded.

Regardless of how it is used, the profitability of each project is an important piece of information to the decision-making process at UCC.

EXHIBIT 3
INCOME
1975-1976



CPU (user) ———
SUPPLIES - - - - -

EXHIBIT 4
INCOME
1974-1975

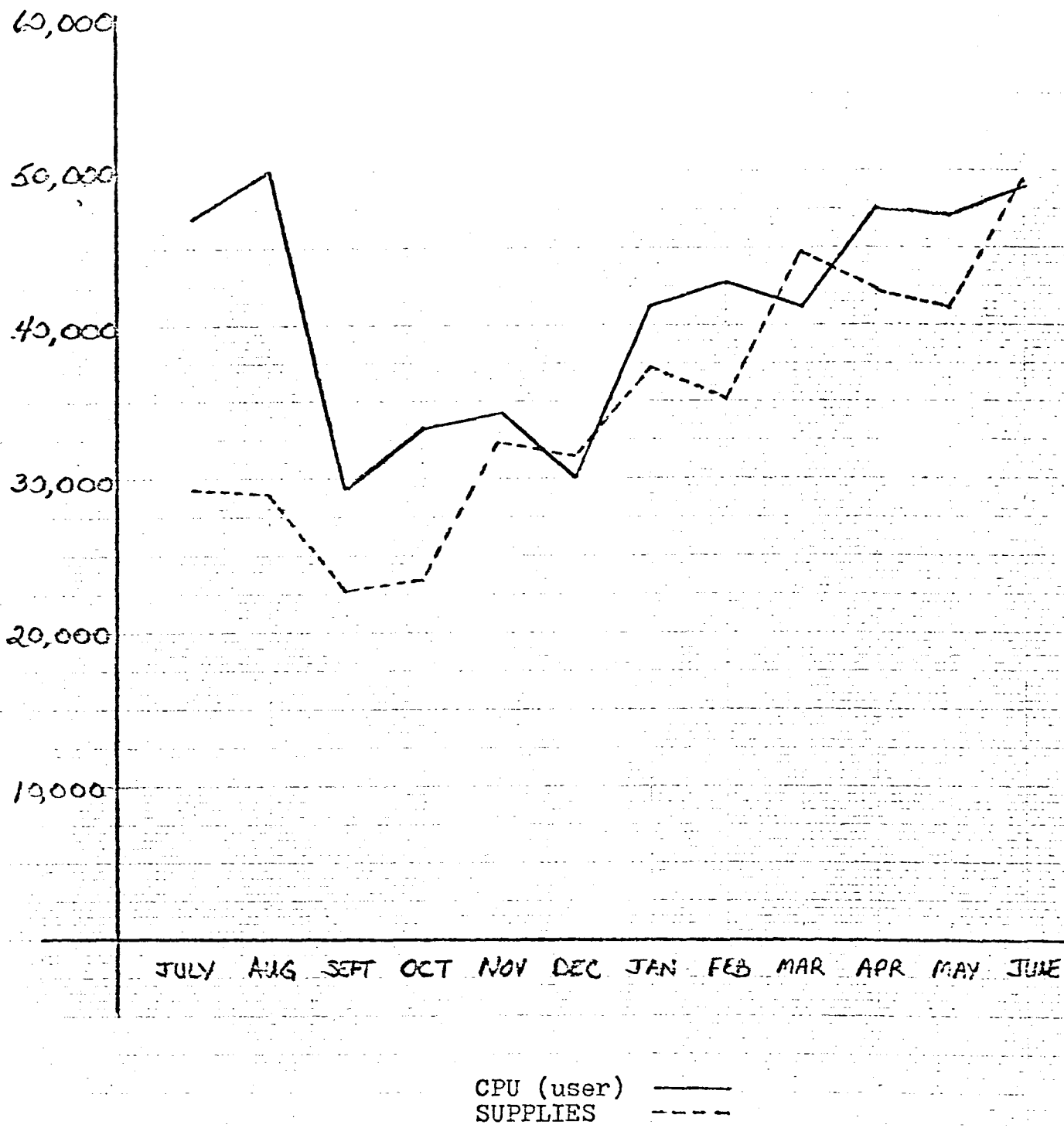


EXHIBIT 5
TOTAL INCOME COMPARISON
1974-75 and 1975-76

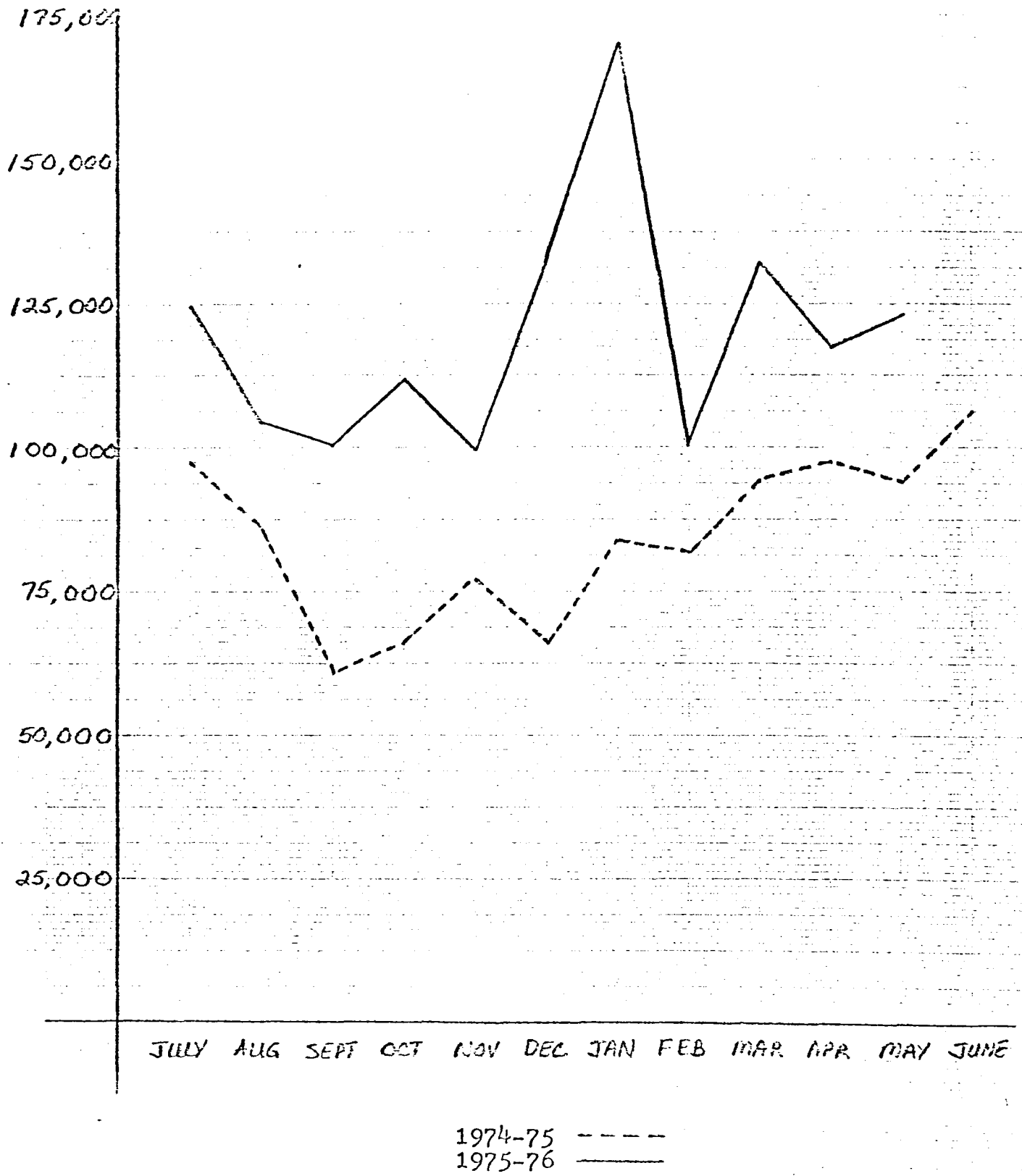
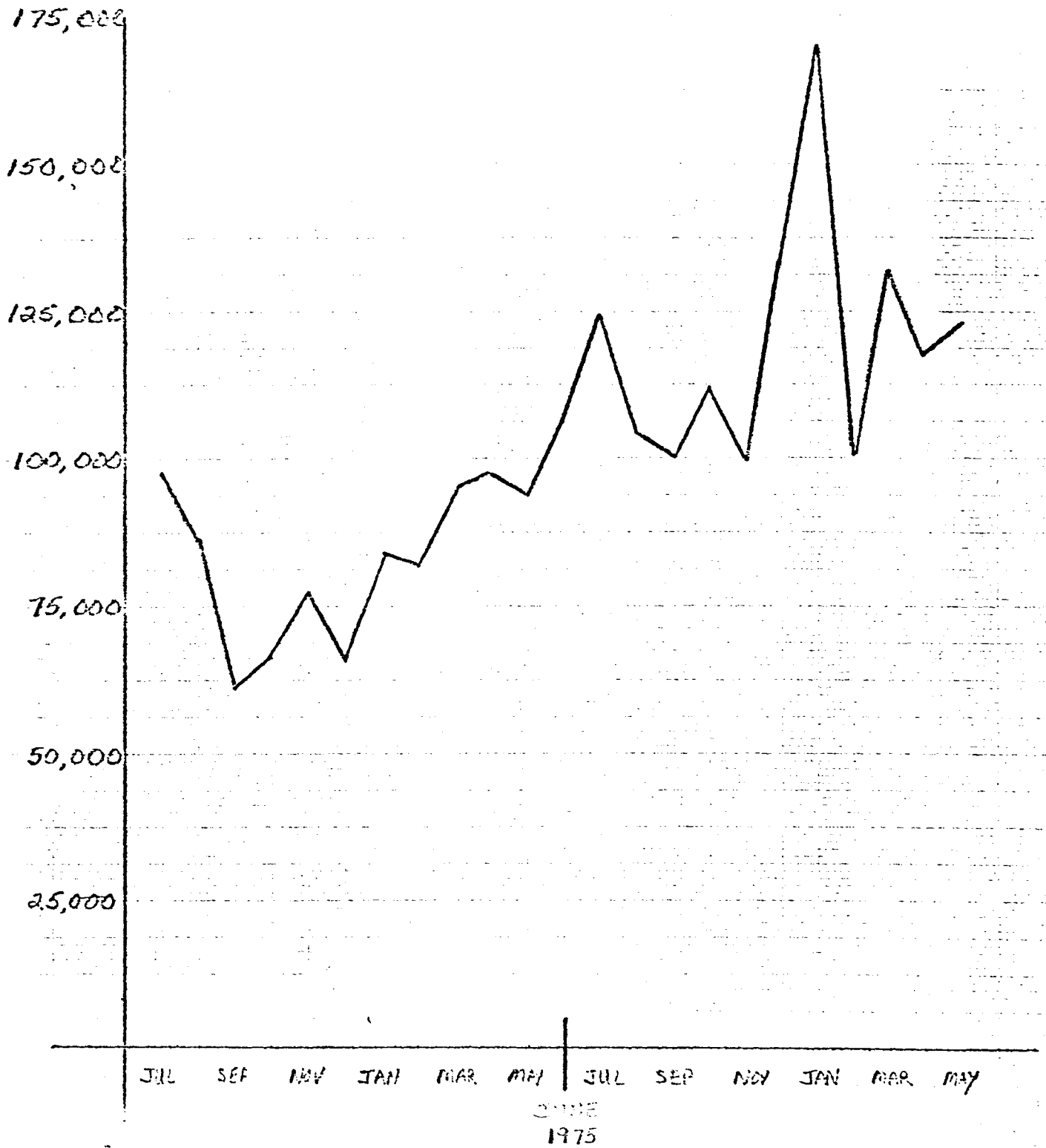


EXHIBIT 6
TOTAL INCOME
1974-1976



A.1 BOOKKEEPING PROCEDURES OF UNIVERSITY BUSINESS OFFICE

Being part of the University of Minnesota, UCC must meet certain requirements in processing financial documents. Uniformity is required throughout the University to enable accurate reporting of the financial position of the University.

A.1.1 Fund Identification

The University Business Office assigns departmental fund numbers to each of its operating departments. UCC uses the following departmental fund numbers:

0100-1601	UCC Support
0950-0934	Software Development Project
0950-0799	State Department of Finance - Prepaid Income
0950-1378	UCC Income and Expense
0950-7424	Hybrid Lab Income and Expense

Within each of these funds, a further breakdown is made to separately classify income and expenses by type. The identification of these sub-accounts is not fixed and may be adjusted by the department.

For the primary fund at UCC, 0950-1378, the sub-accounts are classified as follows:

01	salaries
02	fringe benefits
03	CPU and PPU income
04	maintenance, equipment and insurance expense
05	supply income
06	equipment rental expense
07	maintenance and engineering services income
08	equipment purchases

- 09 income from miscellaneous services
- 10 supplies and miscellaneous expenses
- 11 computer grant income
- 12 Health Computer Sciences rebate
- 14 equipment depreciation
- 16 management and operation expense
- 18 general and administration expense
- 24 PASCAL income and expense
- 30 MECC income and expense

A.1.2 Accounts

In each sub-account, the Business Office records transactions using five T-accounts. Each transaction affects two of these T-accounts.

- 1) INCOME
- 2) ALLOTMENT
- 3) EXPENDITURE
- 4) ENCUMBRANCE
- 5) AMOUNT

The INCOME account is affected by any revenue generated by supplies usage, CPU and PPU usage, maintenance and engineering services, computer grants, and other income-producing services.

The ALLOTMENT account is affected by a transfer of funds from one departmental fund to another and any appropriations from the legislature.

The EXPENDITURE account is affected by any cost incurred such as salaries, fringe benefits, maintenance of equipment, insurance, equipment rental, equipment purchases, supplies, etc. The account is also affected by any income that is received from any entity within the University. In order to differentiate this type of income from a normal expense in the EXPENDITURE account, this income received

from other University departments is designated as "negative expense". The reason why this income is not considered income under the INCOME account is because such recognition would cause double counting of income which is basically a transfer of funds between University departments, and has no effect on the income for the University as a whole.

The ENCUMBRANCE account is affected by any income that is encumbered or committed to a specific use in the future. It is first documented by a requisition for goods or services to be received in the future.

The AMOUNT account is basically a clearing account. The ending balance in this account indicates the uncommitted cash balance of UCC. The AMOUNT account is affected by every transaction except where an expenditure equals a previously created encumbrance for that item. The purpose of this account is best understood by a parenthetical review of the fundamental accounting model.

A.1.3 Features Of The Accounting Model

The fundamental feature of every transaction is that the organization gives up something and receives something in return. For example, in the case of a sale of merchandise for cash, the organization gives up resources (the goods sold) and receives in return another resource (cash). Thus, every transaction has a dual economic effect on the organization which is the accounting entity.

The balancing features of the fundamental accounting model are:

- 1) ASSETS = LIABILITIES + EQUITY
- 2) INCOME - EXPENSES = SURPLUS

3) DEBITS = CREDITS

The increase and decrease of the accounts can be shown in T-accounts (so called because they visually resemble the letter "T").

ASSET	=	LIABILITY	+	EQUITY
Debit | Credit		Debit | Credit		Debit | Credit
+ -		- +		- +

Asset accounts normally have a debit balance (shown by the +) while liability and equity accounts normally have a credit balance. Equity is increased by Investments and Income, and decreased by withdrawals and Expenses as shown.

EQUITY	
-	+
EXPENSE	INCOME

In a non-profit organization, the only assets are cash and receivables. At UCC, liabilities are documented as encumbrances. Thus, the expenditure of funds for a previously created liability results in no effect on the left hand side of the accounting equation, but represents merely a reclassification of a liability as an expense.

T-ACCOUNTS are a means of accumulating information needed by management in directing operations, and are frequently used as instructional and bookkeeping conveniences.

In its simplest form, a T-ACCOUNT has only three elements:

- 1) a title, consisting of the name of the particular account;
- 2) a left side, which is called the debit side; and
- 3) a right side, which is called the credit side.

debit	credit

An amount recorded on the left or debit side of an account is called a debit, or a debit entry; an amount entered on the right or credit side is called a credit, or a credit entry. The act of recording a debit in an account is called debiting the account; the recording of a credit is called crediting the account.

The double entry method of bookkeeping, which is in almost universal use, takes its name from the fact that equal debit and credit entries are made for every transaction. Since every transaction results in an equal debit and credit amount, it follows that the total of all debit entries in the records is always equal to the total of all the credit entries.

Each account normally has either a debit or credit balance. The ENCUMBRANCE and EXPENDITURE T-accounts normally have a debit balance.

ENCUMBRANCE	EXPENDITURE
X X	X X

The INCOME and ALLOTMENT T-accounts normally have credit balances.

INCOME	ALLOTMENT
X X	X X

With regard to the EXPENDITURE T-account, one exception should be mentioned. An income amount from within the university is a "negative expense". A "negative expense" is credited in the EXPENDITURE T-account.

This handling of intra-university income is an anomaly because income to UCC from other university departments is not income to the university as a whole, but merely as an internal transfer of funds.

The Business Office bookkeeping for such amounts as "negative expense" makes it difficult to clearly identify UCC income on Business Office documents.

The AMOUNT T-account is a clearing account. Every transaction affects the AMOUNT T-account except when an expenditure arises where an encumbrance was previously made and they are equal to each other. When an expenditure takes place and an encumbrance was not made for that expenditure, and when an expenditure arises which is greater than a related encumbrance, the amount is credited in the AMOUNT T-account.

EXPENDITURE	AMOUNT
X X	X X

When income is generated, an allotment made, or an expenditure is incurred which is less than the related encumbrance, the amount is debited in the AMOUNT T-account.

AMOUNT
X X

If the fund has a surplus of allotted funds over expenses, the AMOUNT T-account will show a debit; if expenses exceed income for a period, the AMOUNT T-account will show a credit balance. The AMOUNT T-account normally has a credit balance, because UCC encumbers much of its forecasted income at the beginning of the fiscal year.

A.2 MONTH-END TRANSACTION SUMMARY

At the end of each month, the Business Office sends UCC several TRANSACTION SUMMARIES. These are summaries of all the transactions in

each sub-account during the month which pertain to each of UCC's departmental funds. (This report is often called a "budget statement".)

A.2.1 Identification Information

The TRANSACTION SUMMARY is a computer printout which has the following format:

FUND	DEPT	B	CLASS	SUB	TYPE	REF	AMOUNT	ENCUM- BRANCES	EXPEND- ITURES	INCOME	ALLOTMENT
							(credit)	(debit)	(debit)	(credit)	(credit)

The first five columns identify the fund and sub-account to which the TRANSACTION SUMMARY applies. The next two columns are references to the source document used to enter transactions. The last five columns indicate the T-account in which transactions are recorded.

The FUND column displays the first four digits of the account number which indicates where the funds came from, i.e. legislative grant or internal University sources.

The DEPT column shows four digits which indicate the department or project. It represents a further breakdown of the FUND, and is not necessarily a unique number, but must be used in conjunction with the FUND number and account number as a bookkeeping code.

Together, the FUND and DEPT columns identify which departmental fund the TRANSACTION SUMMARY pertains to. For example, 0950-1378 is the main UCC departmental fund.

The B column represents the account number and is the last two digits of the complete departmental fund account number. It indicates how department funds are categorized within the departmental fund. For example, 0950-1378-01 is the account used to accumulate UCC salaries information.

The CLASS column shows a three digit number which indicates the type of income or expense. This number is used by the Business Office in their bookkeeping.

The SUB column shows a number which indicates a subdivision of one of the account numbers and this is not used by UCC.

The TYPE column indicates a two digit number or the two letters "BF". The two digit number is a code for each budget entry by the type number of the document used to make it. The two letters "BF" designate balance forward. Balances are carried forward from the preceding month.

The REF column indicates the reference number on the document used in the transaction.

A.2.2 T-Account Descriptions

AMOUNT T-Account

Additions in the AMOUNT column are shown as positive amounts in the column. Additions are created by the generation of income, making an allotment, or when an expenditure is incurred which is less than the related encumbrance, causing the difference to be added in the AMOUNT T-account. Additions in the AMOUNT T-account are considered debits. Subtractions in the AMOUNT column are considered credits.

EXPENDITURE T-Account

Additions to the expenditures in the EXPENDITURE column are shown as positive amounts in the column. This is considered a debit in the EXPENDITURE T-account. Income from within the university is considered a negative expense as was mentioned before and is placed in the EXPENDITURE column. This amount is in the EXPENDITURE column with a negative sign behind it and is a credit in the EXPENDITURE

T-account. Thus, income from university departments can be seen on the TRANSACTION SUMMARY as all negative entries in the column labeled EXPENDITURE. (Note that adjustments may also appear as negative amounts in the EXPENDITURE column.)

ENCUMBRANCE T-Account

Additions to the encumbrances in the ENCUMBRANCE column are shown as positive amounts in the column. This is considered a debit in the ENCUMBRANCE T-account. When an encumbrance was made and the related expenditure is incurred, the encumbrance is subtracted out of the ENCUMBRANCE column. This amount is in the ENCUMBRANCE column with a negative sign behind it and is a credit in the ENCUMBRANCE T-account.

INCOME T-Account

Additions to the income in the INCOME column are shown as positive amounts in the column, that is, no negative sign is shown behind the number. This is considered a credit in the INCOME T-account.

ALLOTMENT Account

Additions to the allotments in the ALLOTMENT column are shown as positive amounts in the column. This is considered a credit in the ALLOTMENT T-account.

Stated simply, positive amounts in the AMOUNT, EXPENDITURE, and ENCUMBRANCE T-accounts are debits and positive amounts in the INCOME and ALLOTMENT T-accounts are credits.

A.2.3 Transaction Effects on T-Accounts

The following transactions will be considered:

- 1) Recording expenditures arising where no encumbrance was made.
- 2) Setting up an encumbrance.
- 3) Recording expenditure equal to previously recorded encumbrance.
- 4) Recording expenditure less than previously recorded encumbrance.

- 5) Recording expenditure greater than previously recorded encumbrances.
- 6) Recording income generated from outside the university.
- 7) Recording income generated from inside the university.
- 8) Recording an allotment.

Initially, the first entry in each sub-account on the TRANSACTION SUMMARY report is always designated "BF". This is the balance in the account carried forward from the previous month. Each of the following lines represents a transaction which affect two of the five T-accounts. The last entry is always the balance in the T-account at the end of the month.

T-accounts and actual relevant portions of the TRANSACTION SUMMARY will be used to facilitate understanding of the effects of the transactions on various accounts. The designation "XX" will represent the beginning balance of a specific account.

- 1) Recording expenditure arising where no encumbrance was made.

Expenditure = \$50

+ AMOUNT -		+ EXPENDITURE -
50		50
	↑ Expenditure incurred ↑	

This \$50 expenditure is added to the total amount of expenditures by debiting the amount in the EXPENDITURE T-account and subtracting it from the AMOUNT balance. This is done by crediting the amount in the AMOUNT T-account as shown in the relevant portion of the TRANSACTION SUMMARY.

... AMOUNT ...	EXPEND- ITURE ...
X X 50-	X X 50

2) Setting up an encumbrance.

Encumbrance = \$50

+ AMOUNT -	+ ENCUMBRANCE -
50	50
↑	↑
↑ Encumbrance made ↑	

This \$50 encumbrance is added to the total amount of encumbrances by debiting the amount in the ENCUMBRANCE T-account; then subtracting it from the AMOUNT balance by crediting the amount in the AMOUNT T-account. This is shown in the relevant portion of the TRANSACTION SUMMARY.

...	AMOUNT	ENCUM- BRANCE	...	...	...
	X X	X X			
	50-	50			

3) Recording expenditure equal to previously recorded encumbrance.

Expenditure = Encumbrance = \$50

+ AMOUNT -	+ ENCUMBRANCE -	+ EXPENDITURE -
50	50	50
Step 1 Income	Step 2 Expenditure	
↑	↑	↑
↑ Encumbered ↑		↑ Incurred ↑

Not every expenditure has a related encumbrance. When an expenditure does have a related encumbrance, they may not equal each other all the time. A discussion of this situation will follow this section.

A discussion of Step 1 is done in the previous section "Setting up an encumbrance".

Step 2 involves adding \$50 to the EXPENDITURE T-account by debiting this amount and writing off the related encumbrance by crediting this amount in the ENCUMBRANCE T-account.

Using the relevant portion of the TRANSACTION SUMMARY, the transaction can be shown in the following illustration.

...	AMOUNT	ENCUM- BRANCE	EXPENDI- TURE	...	...
	X X	X X	X X		
(Step 1)	50-	50			
(Step 2)		50-	50		

4) Recording expenditure less than previously recorded encumbrance.

Expenditure = \$50

Encumbrance = \$60

+ AMOUNT -	+ ENCUMBRANCE -	+ EXPENDITURE -
60	60	50
Step 1 Income	Step 2 Expenditure	Step 2 Expenditure
↑ Encumbered ↑	↑ Incurred ↑	↑
10	10	
↑	↑	
Step 3		

Excess encumbrance written off

Steps 1 and 2 have been discussed in previous sections. Step 3 must be undertaken in order to write off the excess amount of encumbrance. In order to do that a \$10 credit in the ENCUMBRANCE T-account is necessary to make the balance zero. The \$10 is then also debited to the AMOUNT T-account. Remember in double entry bookkeeping there is an equal amount of debits and credits.

Using the relevant portion of the TRANSACTION SUMMARY, the transaction can be shown.

...	AMOUNT	ENCUM- BRANCE	EXPENDI- TURE	...	...
	X X	X X	X X		
(Step 1)	60-	60			
(Step 2)		50-	50		
(Step 3)	10	10-			

5) Recording expenditure greater than previously recorded encumbrance.

Expenditure = \$60

Encumbrance = \$50

+ AMOUNT -	+ ENCUMBRANCE -	+ EXPENDITURE -
50 Step 1 Income	50	60 Step 2 Expenditure
↑ Encumbered ↑		↑ Incurred ↑
10	10	
↑ Step 3 ↑		

Deficient encumbrance added

Steps 1 and 2 have been discussed in previous sections. Step 3 must be undertaken in order to create a zero balance in the encumbrance that is related to the expenditure incurred. After Step 2 there is a \$10 credit balance in the ENCUMBRANCE T-account which means in order to create a zero balance in the account a \$10 debit is needed. The AMOUNT T-account is then credited in the amount of \$10. The relevant portion of the TRANSACTION SUMMARY is shown.

...	AMOUNT	ENCUM- BRANCE	EXPENDI- TURE	...	...
	X X	X X	X X		
(Step 1)	50-	50			
(Step 2)		60-	60		
(Step 3)	10-	10			

6) Recording income generated from outside the university.

Income = \$50

+ AMOUNT -	- INCOME +
50	50
↑	↑
External income generated.	

The \$50 income amount is added to the total amount of income by crediting the INCOME T-account. The \$50 is then added to the AMOUNT T-account by debiting the amount in the AMOUNT T-account. The relevant portion of the TRANSACTION SUMMARY is shown below.

...	AMOUNT	...	...	INCOME	...
X X	50			X X	
				50	

The \$50 income amount is added to the total amount of income and is also added to the AMOUNT T-account.

7) Recording income generated from inside the university.

(Negative expense)

Income = \$50

+ AMOUNT -	+ EXPENDITURE -
50	50
↑	↑
Internal income generated.	

The \$50 income amount is subtracted from the expenditure amount for reasons that have already been explained. This subtraction is a credit in the EXPENDITURE T-account. The \$50 income amount is then added to the AMOUNT T-account by debiting the \$50. Using the relevant portion of the TRANSACTION SUMMARY, the transaction can be shown.

...	AMOUNT	...	EXPENDI- TURE	...	...
	X X		X X		
	50		50-		

The \$50 income amount is added to the AMOUNT T-account. The EXPENDITURE T-account of an income sub-account contains negative numbers because these are negative expenses. The total in the EXPENDITURE T-account of an income budget is the total amount of negative expenditures. The \$50 income amount is then added to the EXPENDITURE T-account.

8) Recording an allotment.

Allotment = \$60,000

+ AMOUNT -	- ALLOTMENT +
60,000	60,000
↑	↑
Allotment made.	

The \$60,000 allotment amount is added to the ALLOTMENT T-account by crediting the T-account. The \$60,000 is then added to the AMOUNT T-account by debiting the amount in the AMOUNT T-account. The relevant portion of the TRANSACTION SUMMARY is shown below.

...	AMOUNT	...	...	...	ALLOTMENT
	X X				X X
	60,000				60,000

The \$60,000 allotment amount is added to the ALLOTMENT T-account and added to the AMOUNT T-account.

A.3 INFORMATION FLOW

The Business Office records transactions in the manner previously described as part of an information process which includes UCC. This section describes the complete flow of information for all types of transactions.

It is essential for the reader to take notice of delays which occur in the recording of information either by the Business Office or by UCC. These delays are responsible for the inability to match income and expenses in any given period. Once such delays are pinpointed, however, it is possible to suggest alternatives for relaying the information to UCC so that preparation of internal reports is timely and complete. Delays are indicated in accompanying exhibits by a double slash (//).

Basically, the information flow starts with a billing entity. This billing entity prepares a type of invoice which is sent to the Business Office. The Business Office is the central clearing place for all such charges. If the charge is between University departments, the transaction is basically a bookkeeping transaction, as no cash is actually transferred. If the charge is between a University department and a governmental or private organization, the Business Office makes or collects payment.

The Business Office processes all forms of documentation (of which there are many) and returns them to the University departments involved. Thus, the University department is able to maintain books based on the same documents used by the Business Office. The Business Office sends a summary of all transactions to each University department on or about the tenth of each month. This TRANSACTION

SUMMARY lists a beginning balance, itemizes all entries resulting from transactions in the previously described manner and calculates an ending balance in each departmental fund account.

As the 0950-1378 departmental fund is the primary fund used by UCC, the information flow in this fund has been studied in detail.

Flows in the other UCC funds parallel those described herein.

A.3.1. UCC Income

There are basically two types of income included in the 0950-1378 departmental fund:

1. Income generated from usage of the Cyber 74 (see Exhibit A1).

The computer prepares invoice vouchers (Type 11) for users of Cyber 74; one copy is placed on file at UCC and another 3 copies are forwarded to the Business Office for handling. If the user has an authorized University departmental fund, the Business Office records the income as a negative expense.

If the user is not an authorized University departmental fund, the Business Office records income. The Business Office collects payment. Since the percentage of bad debts is quite small, adjustments for bad debts are made in subsequent periods.

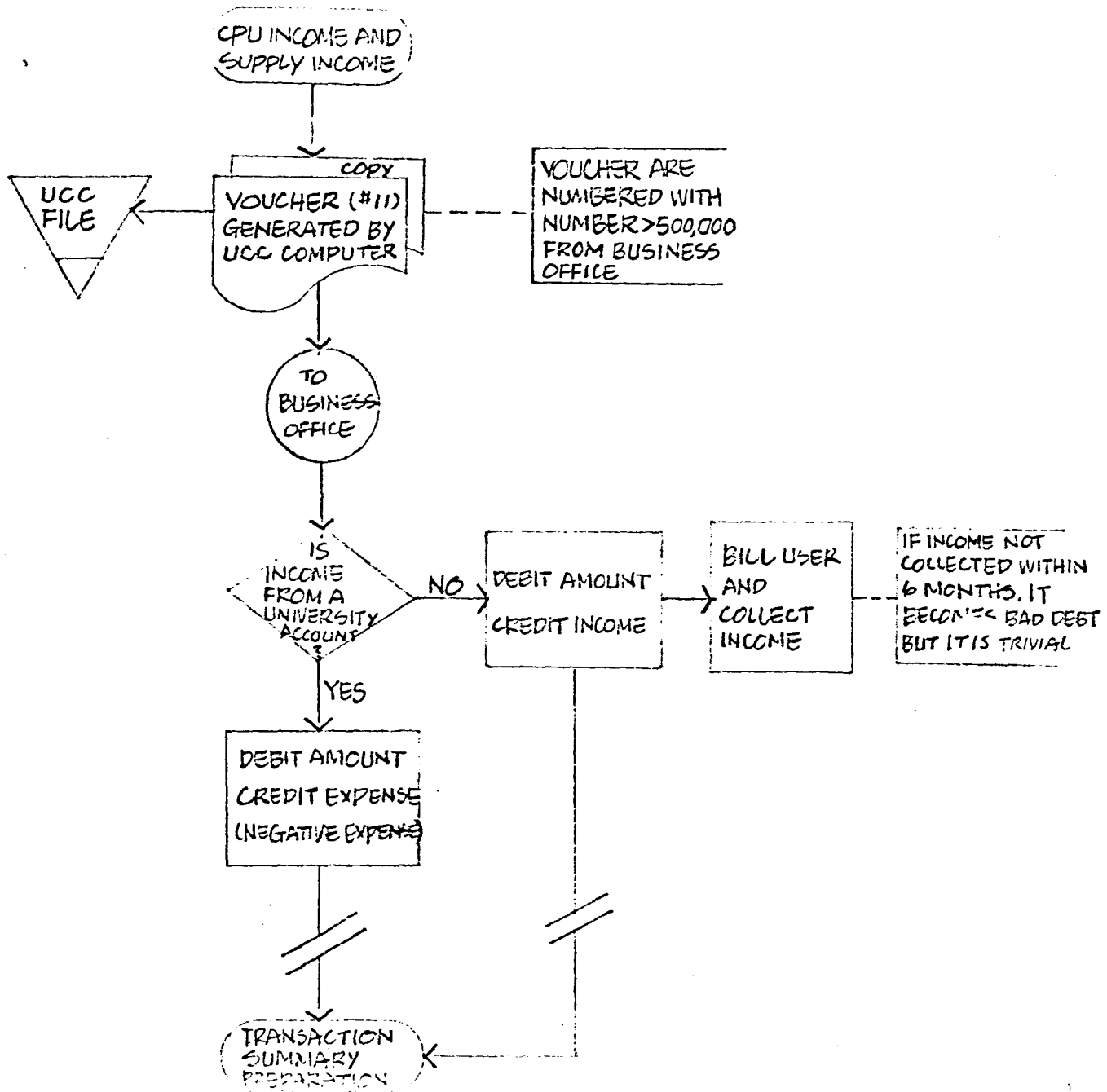
In either case, income (or negative expense) is not recorded on the books of UCC until the TRANSACTION SUMMARY is received.

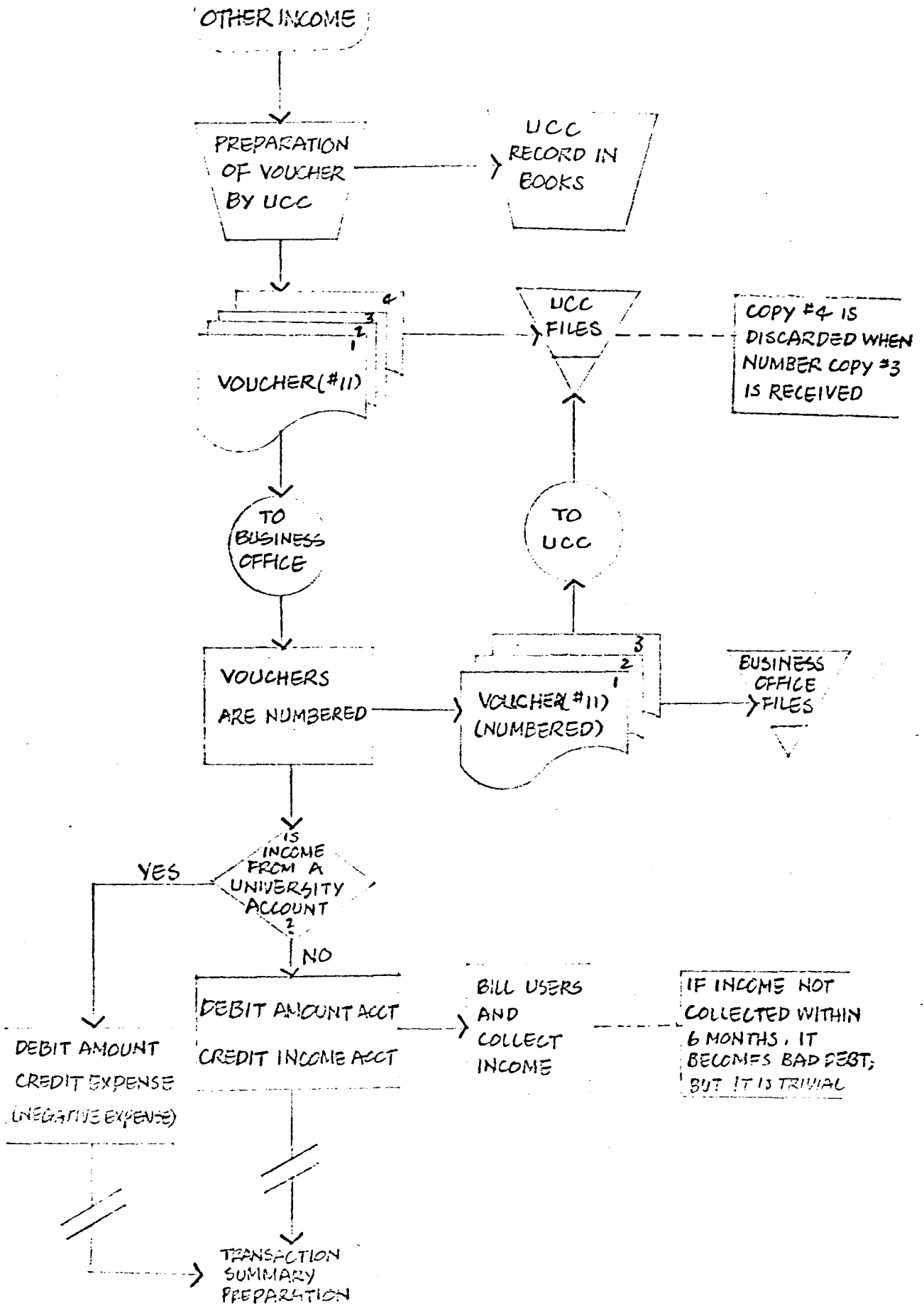
Note that this delay in recording income on UCC's books critically affects their ability to prepare internal financial reports before receipt of the budget statement.

2. Income generated from maintenance, leasing and program development

(see Exhibit A2). UCC account clerks manually prepare four copies of invoice vouchers (Type 11), record the transaction in UCC books, file one copy and send the remaining three copies to the Business Office. The Business Office makes appropriate entries based on whether or not the income source is an authorized University departmental fund. If outside, the Business Office collects payment from outside creditors.

When the TRANSACTION SUMMARY is sent to UCC at the end of





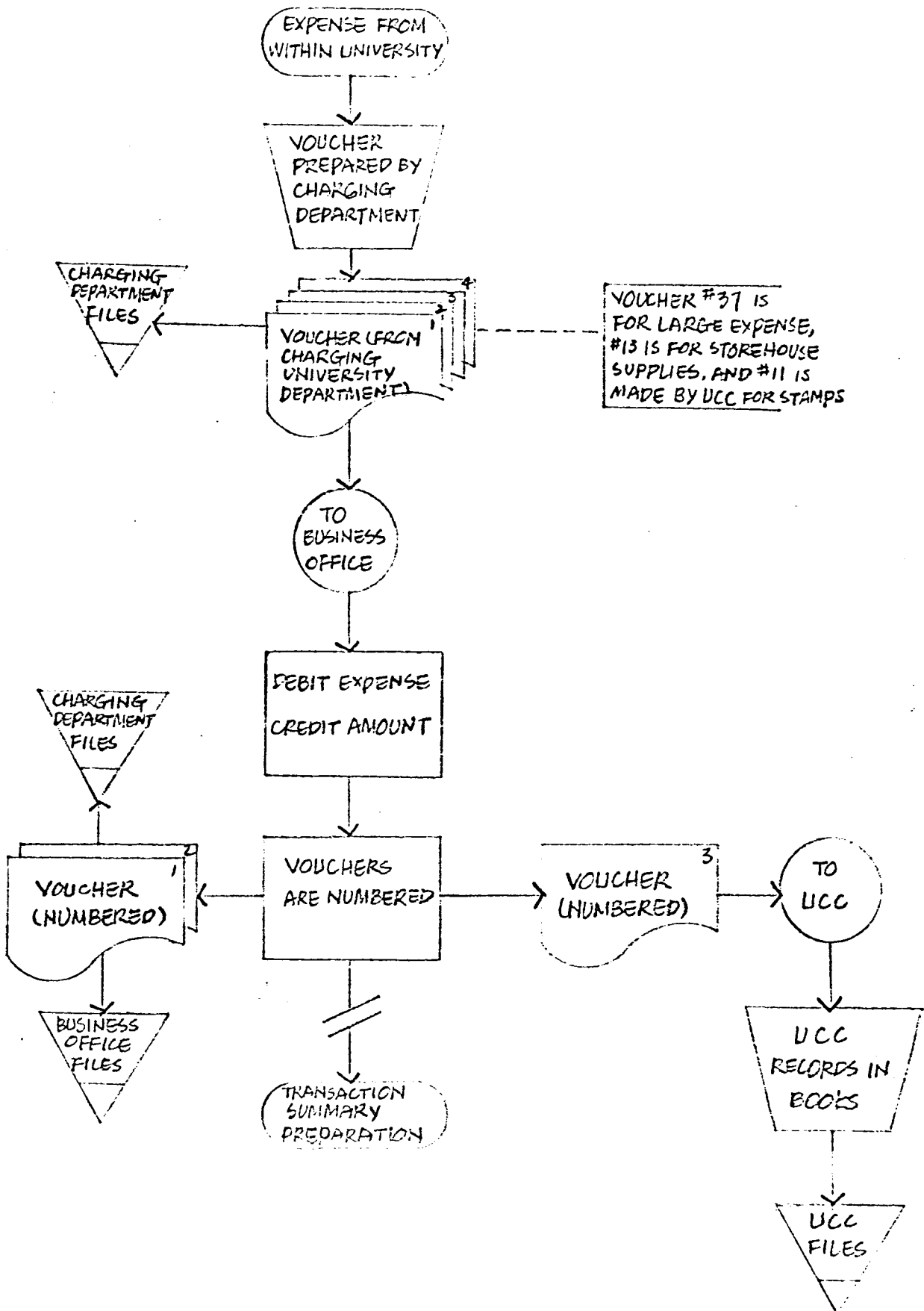
the month, UCC account clerks verify the recording of income from these sources against their own books.

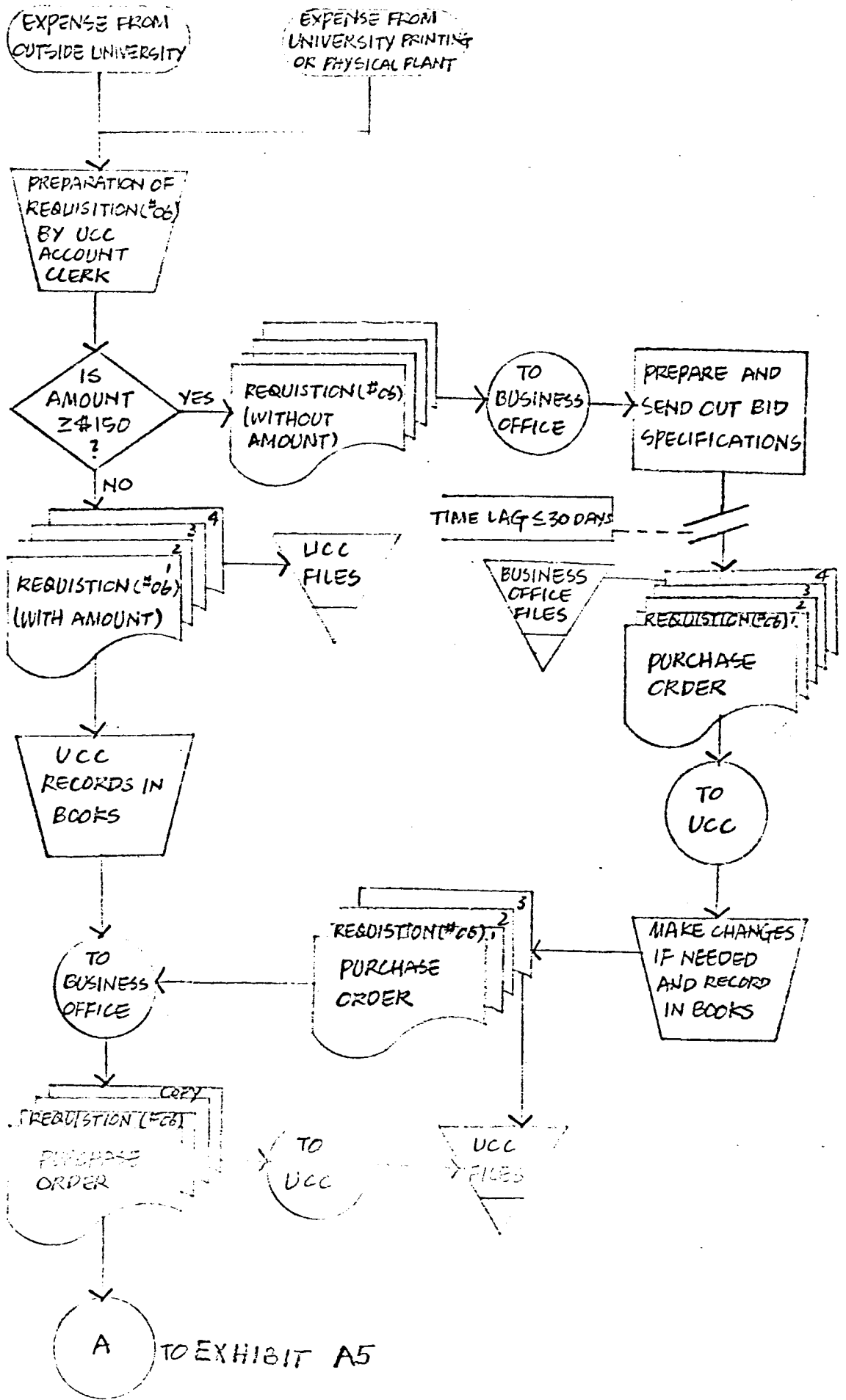
A.3.2 UCC Expenses

There are several means by which expenditures of UCC are routed to the Business Office and recorded in UCC books. These are:

1. Purchase of goods or services from entities with a University departmental fund (see Exhibit A3). The charging department prepares an invoice voucher (Type 11, 13 or 37). The Business Office receives three copies of this document and forwards one copy immediately to UCC. The amount of the expenditure is simultaneously recorded by the Business Office and UCC from this document.
2. Purchase of a good or service from outside the University (see Exhibit A4). Requisitions (Type 06) are prepared and authorized by the Associate Directors of UCC. For expenditures less than \$150 , the amount of the proposed expenditure is recorded on UCC's books and three copies of the requisition are sent to the Business Office. The Business Office prepares a purchase order for the amount of the requisition and creates an encumbrance which is reflected on the TRANSACTION SUMMARY.

For expenditures greater than \$150, blank requisition forms are prepared and transmitted to the Business Office. The Business Office solicits bids for the requisitioned items and prepares a purchase order for the amount of the lowest bid. An encumbrance is created for the bid amount and is reflected on the TRANSACTION SUMMARY which the Business Office sends to UCC.





Meanwhile, the purchase order prepared by the Business Office is sent to UCC where it is recorded on UCC's books.

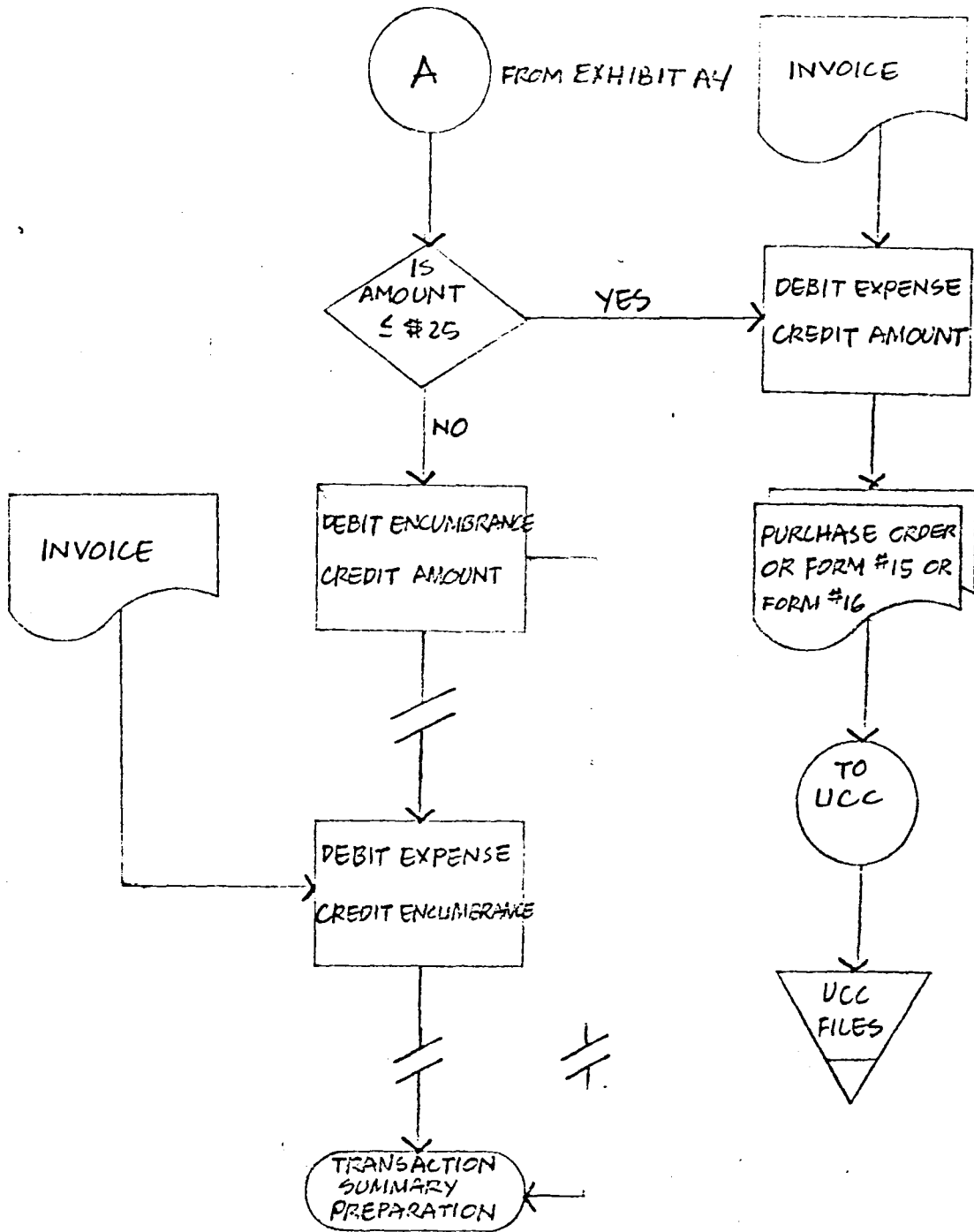
Upon receipt of the invoice, the expense is recorded (see Exhibit A5). The invoice may be received by UCC or the Business Office. Either way, it is matched with the appropriate purchase order and payment is made. The Business Office recognizes expense and eliminates the previously created encumbrance from the TRANSACTION SUMMARY. No entry is necessary on UCC's books to indicate the reclassification of an encumbered amount as an expenditure.

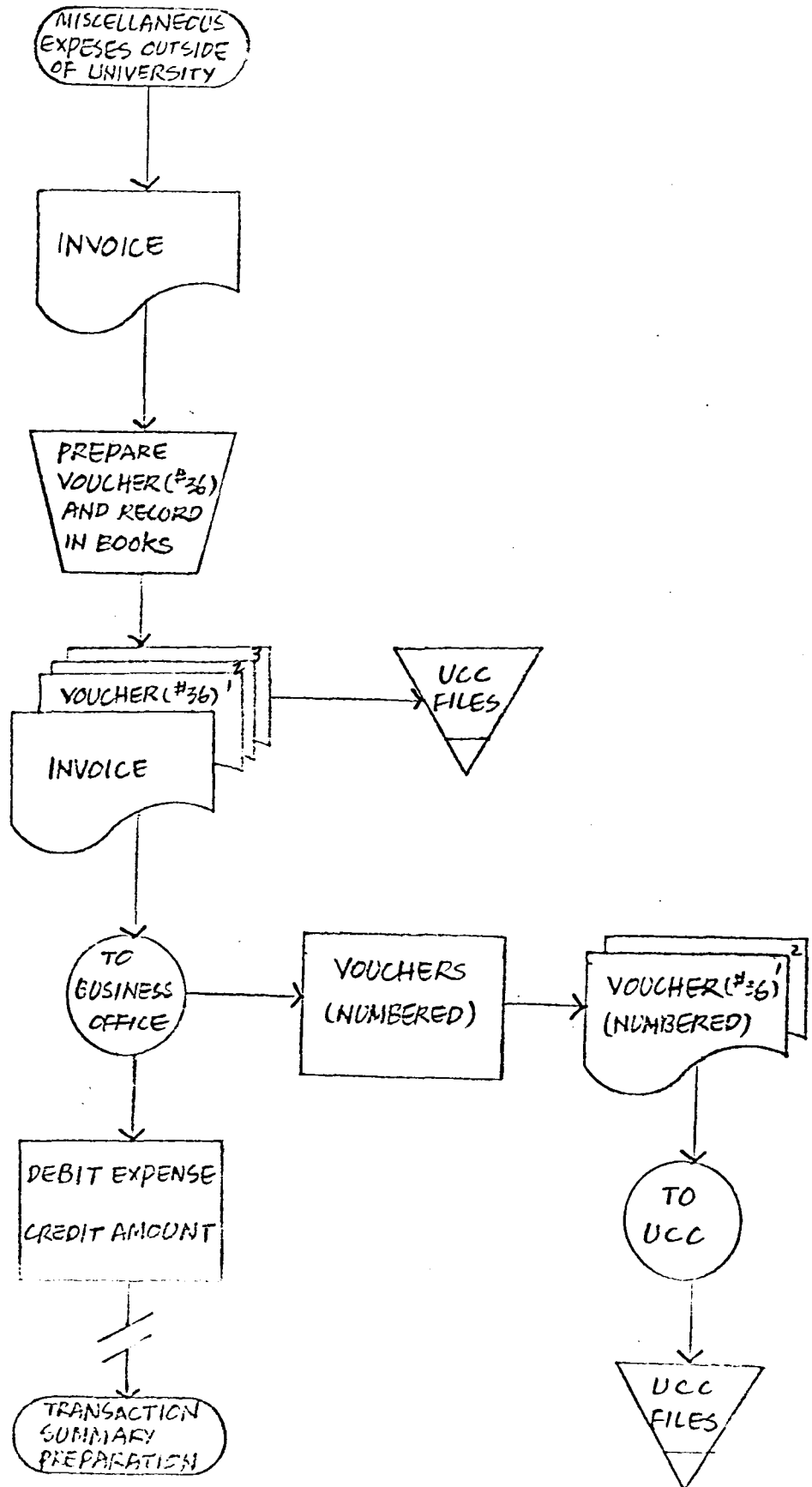
3. Miscellaneous charges for which funds are not encumbered and which are accounted for by immediate expense recording (see Exhibit A6).

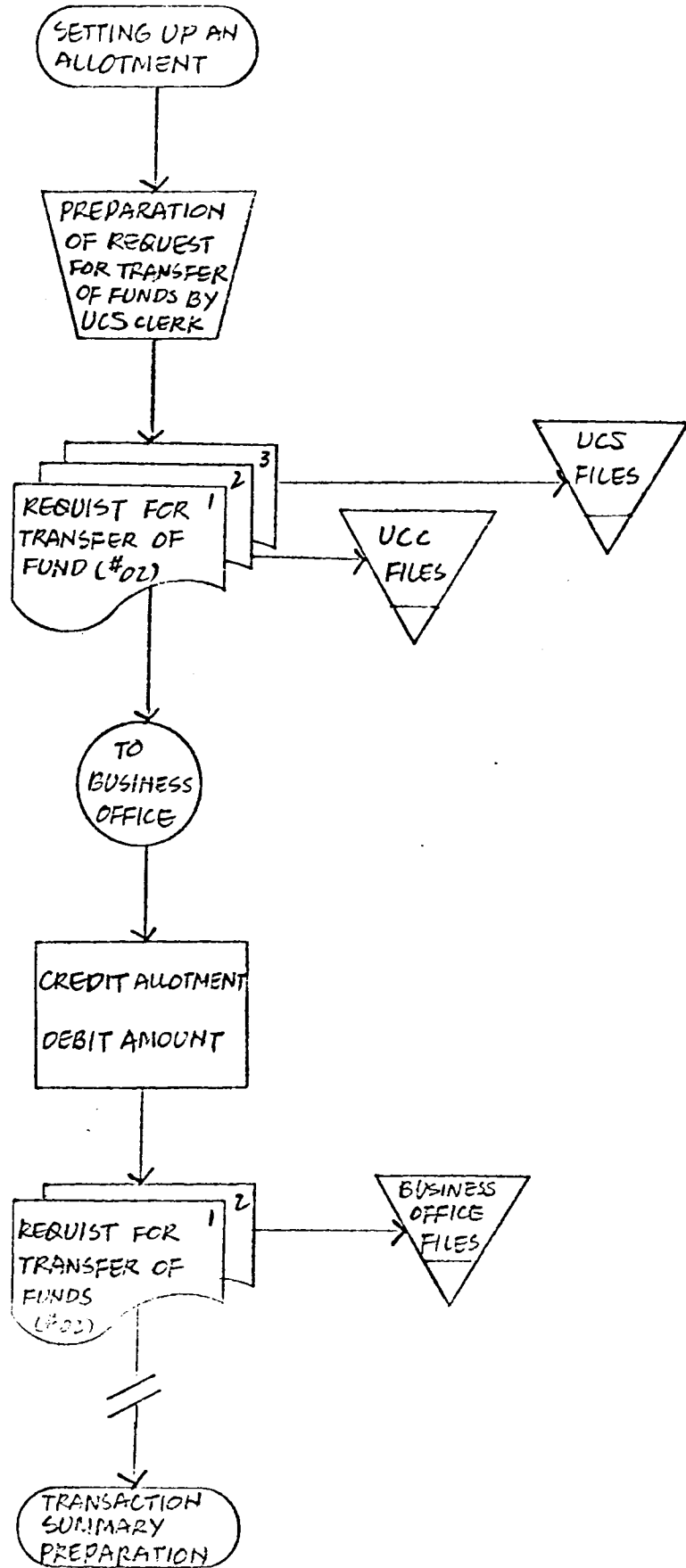
After receiving an invoice, UCC prepares four copies of combined requisition and invoice forms (Type 36). These are then sent to the Business Office after the expenditure is recorded on UCC's books. The Business Office makes payment and records the expense amount on the TRANSACTION SUMMARY.

A.3.3 UCC Allotments

Allotments come from requests for transfers of funds (Type 02) from another University departmental fund. Account clerks within University Computer Services prepare them and send them to both the Business Office and UCC. Both the Business Office and UCC record this allotment as an addition to the account balance. (See Exhibit A7.)







A.3.4 Correction of Income and Expense

Occasionally, it is necessary to adjust the amount of income or expense. This situation may arise through an error on the part of the Business Office, a decision to reduce a charge for Cyber 74 usage, the inability to collect bad debts or an unexpected discrepancy between the amount of an encumbrance and the invoiced amount.

Corrections to the amount of income (see Exhibit A8) are originated by a complaint from the party charged. Either UCC or the Business Office prepares documentation to amend the charge and such an adjustment carries over to the subsequent TRANSACTION SUMMARY.

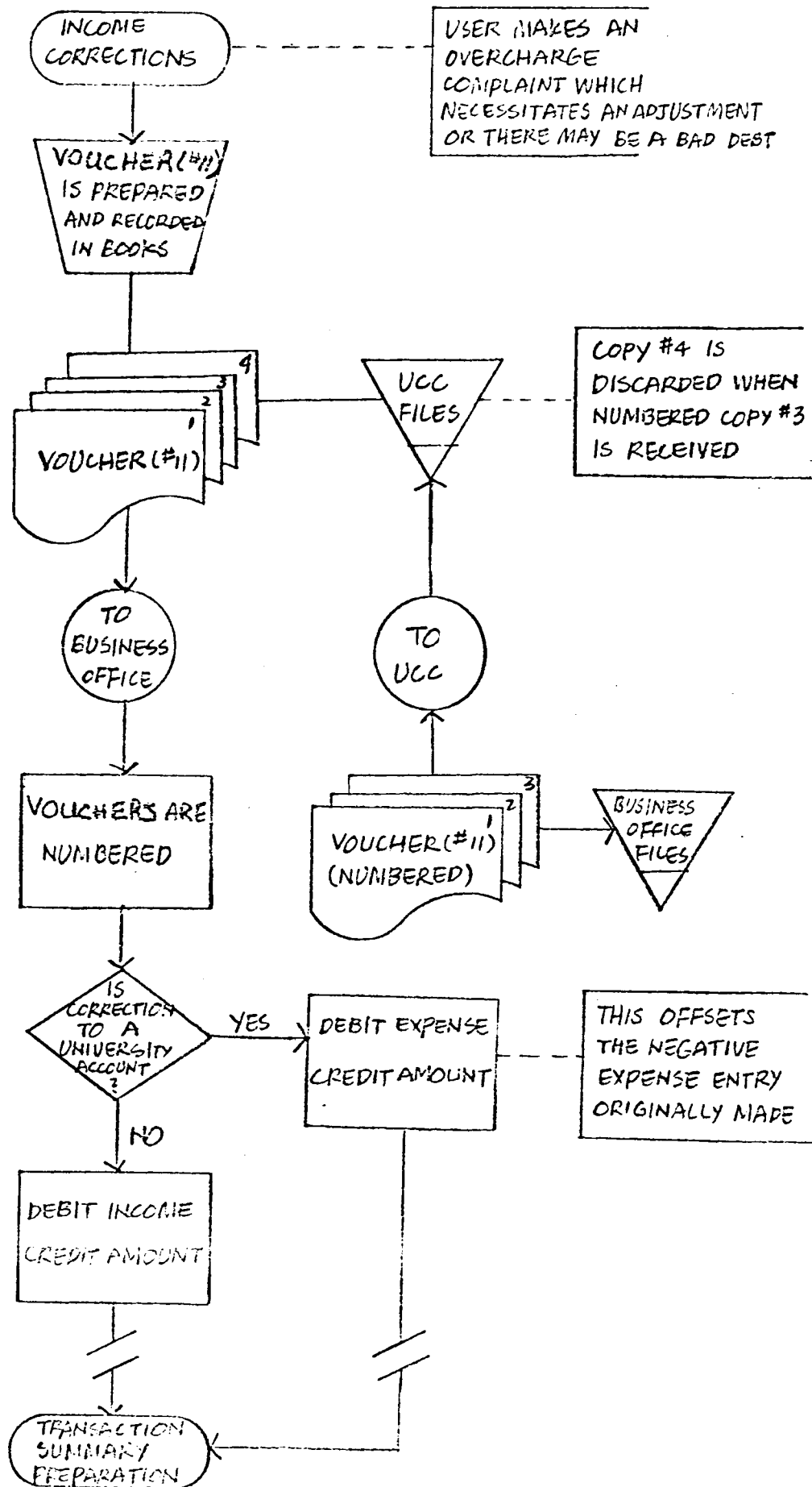
Similarly, when it is necessary to correct the amount of an expenditure (see Exhibit A9), the Business Office makes correcting entries on subsequent TRANSACTION SUMMARIES.

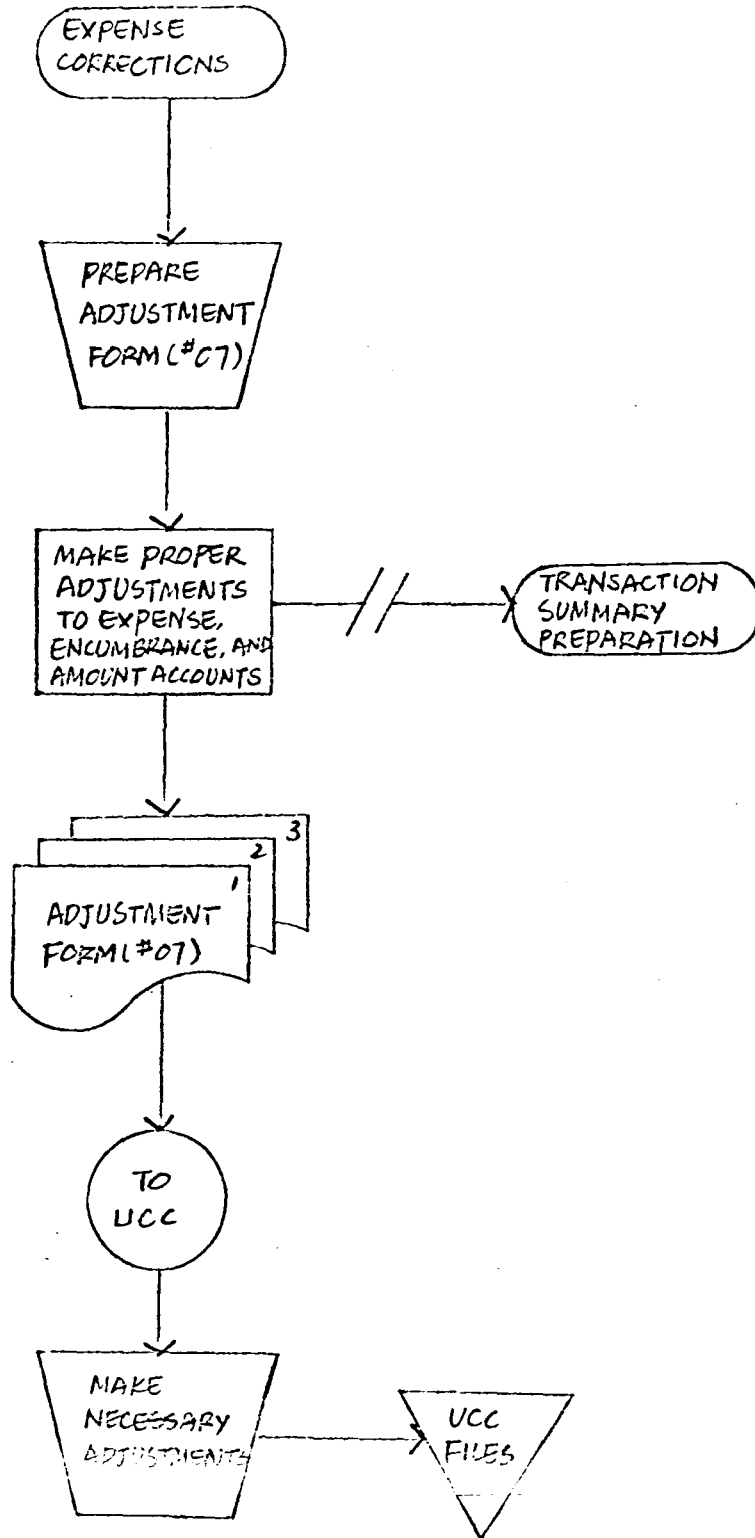
A.3.5 Transaction Summary Preparation

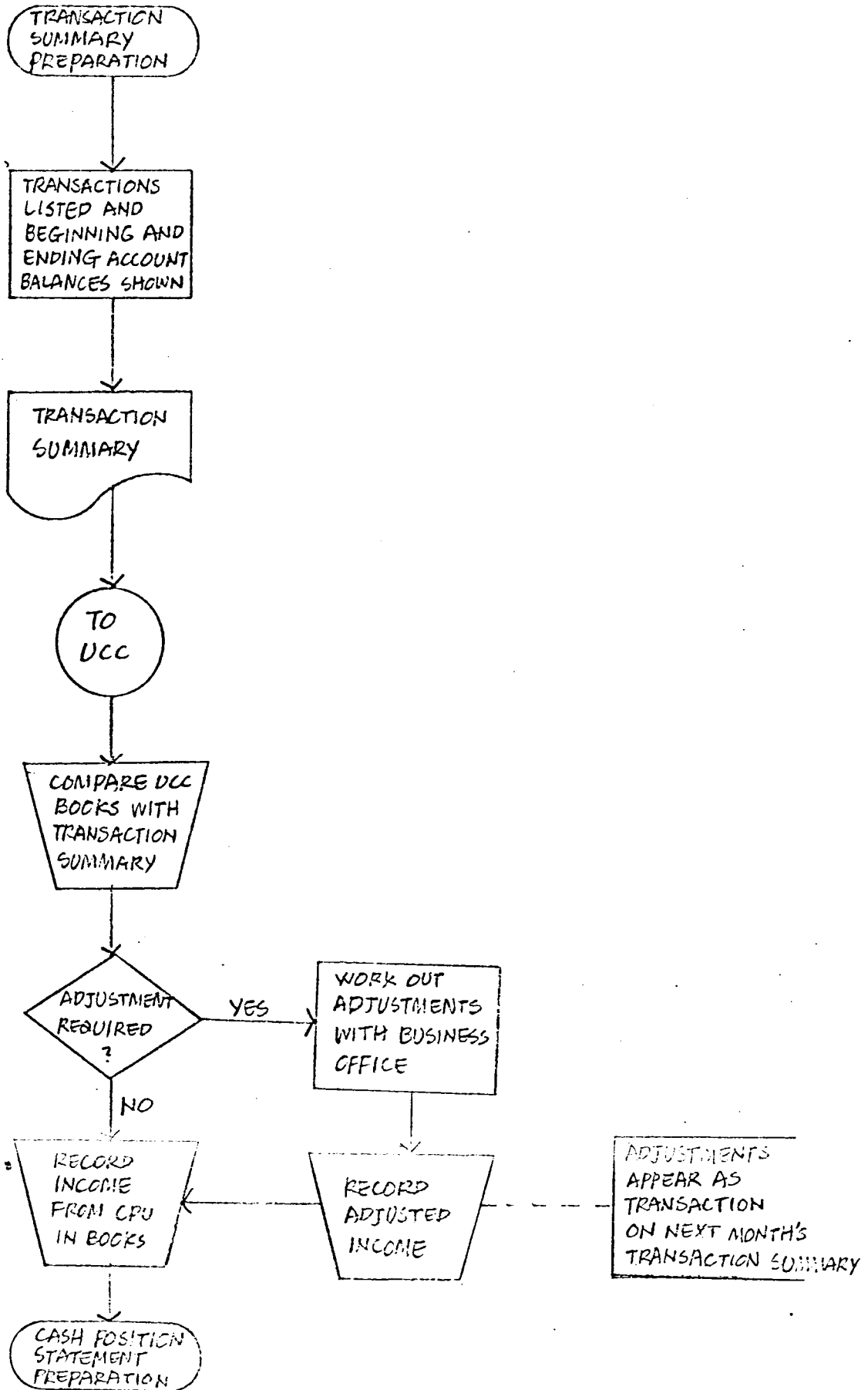
At the end of each month, the Business Office transmits a record of the previous month's transactions to UCC for verification. This document is usually received on the tenth of each month. The TRANSACTION SUMMARY prepared by the Business Office (see Exhibit A10) summarizes transactions in each departmental fund account and calculates month-end balances.

A.3.6 Net Cash Position Statement Preparation

Account clerks at UCC use the TRANSACTION SUMMARY to prepare a Statement of Net Cash Position. They do this by totaling the amounts of the balances in each of the accounts of the 0950-1378 departmental fund.







	<u>JULY</u>	<u>AUGUST</u>	<u>SEPTEMBER</u>	<u>OCTOBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>
ACCOUNT BALANCES	-262,707.21	-238,836.63	-224,925.44	-229,375.75	256,841.41	-218,527.31
ENCUMBRANCES	<u>220,771.85</u>	<u>203,141.81</u>	<u>183,756.45</u>	<u>161,520.75</u>	<u>143,699.16</u>	<u>167,309.81</u>
CASH POSITION	- 41,935.36	- 35,694.82	- 41,168.99	- 67,855.00	-113,142.25	- 51,217.50
BEGINNING CASH BALANCE	<u>30,377.50</u>	- <u>41,935.36</u>	- <u>35,694.82</u>	- <u>41,168.99</u>	- <u>67,855.00</u>	- <u>113,142.25</u>
NET CASH FLOW	- 72,312.86	6,240.54	- 5,474.17	- 26,686.01	- 45,287.25	61,924.75
	<u>JANUARY</u>	<u>FEBRUARY</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>
ACCOUNT BALANCES	-207,023.67	-249,638.74	-242,533.68	-214,778.68	-191,548.00	
ENCUMBRANCES	<u>158,260.37</u>	<u>244,887.55</u>	<u>139,859.58</u>	<u>126,164.75</u>	<u>+120,664.38</u>	
CASH POSITION	- 48,763.30	- 4,751.19	-102,674.10	- 88,613.93	-70,883.62	
BEGINNING CASH BALANCE	- <u>51,217.50</u>	- <u>48,763.30</u>	- <u>4,751.19</u>	- <u>102,674.10</u>	- <u>88,613.93</u>	
NET CASH FLOW	2,454.20	44,012.11	- 97,922.91	14,060.17	17,730.31	

A.4 NET CASH POSITION STATEMENT 1975-1976

	<u>JULY</u>	<u>AUGUST</u>	<u>SEPTEMBER</u>	<u>OCTOBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>
ACCOUNT BALANCES	-168,165.21	-258,729.63	-225,577.44	-225,048.75	-257,557.41	-204,552.31
ENCUMBRANCES	220,771.85	203,141.81	183,756.45	161,520.75	143,699.16	167,309.81
CASH POSITION	52,606.64	- 55,587.82	-41,820.99	- 63,528.00	-113,858.25	- 37,242.50
BEGINNING CASH BALANCE	<u>30,377.50</u>	<u>52,606.64</u>	<u>- 55,587.82</u>	<u>- 41,820.99</u>	<u>- 63,528.00</u>	<u>-113,858.25</u>
NET CASH FLOW	22,229.14	-108,194.46	13,766.83	- 21,707.01	- 50,330.25	76,615.75

	<u>JANUARY</u>	<u>FEBRUARY</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>
ACCOUNT BALANCES	-208,348.67	-259,776.74	-214,170.68	-226,402.68	-188,367.00	
ENCUMBRANCES	<u>158,260.37</u>	<u>244,887.55</u>	<u>139,859.58</u>	<u>126,164.75</u>	<u>120,664.38</u>	
CASH POSITION	- 50,088.30	- 14,889.19	- 74,311.10	-100,237.93	-67,702.62	
BEGINNING CASH BALANCE	<u>- 37,242.50</u>	<u>- 50,088.30</u>	<u>- 14,889.19</u>	<u>- 74,311.10</u>	<u>-100,237.93</u>	
NET CASH FLOW	- 12,845.80	35,199.11	- 59,421.91	- 25,926.83	32,535.31	

A.5 NET CASH POSITION STATEMENT (REVISED) 1975-1976

	(A) CASH POSITION	(B) CASH POSITION (revised)	DIFFERENCE (B - A)
JULY	- 41,935.36	52,606.64	94,542.00
AUGUST	- 35,694.82	- 55,587.82	- 19,893.00
SEPTEMBER	- 41,168.99	- 41,820.99	- 652.00
OCTOBER	- 67,855.00	- 63,528.00	4,327.00
NOVEMBER	-113,142.25	-113,858.25	- 716.00
DECEMBER	- 51,217.50	- 37,242.50	13,975.00
JANUARY	- 48,763.30	- 50,088.30	- 1,325.00
FEBRUARY	- 4,751.19	- 14,889.19	- 10,138.00
MARCH	-102,674.10	- 74,311.10	28,363.00
APRIL	- 88,613.93	-100,237.93	- 11,624.00

	(A) NET CASH FLOW	(B) NET CASH FLOW (revised)	DIFFERENCE (B - A)
JULY	- 72,312.86	22,229.14	94,542.00
AUGUST	6,240.54	-108,194.46	-114,435.00
SEPTEMBER	- 5,474.17	13,766.83	19,241.00
OCTOBER	- 26,686.01	- 21,707.01	4,979.00
NOVEMBER	- 45,287.25	- 50,330.25	- 5,043.00
DECEMBER	61,924.75	76,615.75	14,691.00
JANUARY	2,454.20	- 12,845.80	- 15,300.00
FEBRUARY	44,012.11	35,199.11	- 8,813.00
MARCH	- 97,922.91	- 59,421.91	38,501.00
APRIL	14,060.17	- 25,926.83	- 39,987.00

A.6 COMPARISON OF NET CASH POSITION STATEMENTS 1975-1976

	<u>JULY</u>	<u>AUGUST</u>	<u>SEPTEMBER</u>	<u>OCTOBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>
ACCOUNT BALANCES	-465,504.44	-451,495.74	-393,367.32	-394,870.22	-382,162.47	-318,834.13
ENCUMBRANCES	<u>458,450.51</u>	<u>424,011.52</u>	<u>413,495.83</u>	<u>344,152.81</u>	<u>307,300.64</u>	<u>284,621.26</u>
CASH POSITION	- 7,053.93	- 27,484.22	20,128.51	- 50,717.41	- 74,861.83	- 34,212.87
BEGINNING CASH BALANCE	<u>44,352.67</u>	- <u>7,053.93</u>	- <u>27,484.22</u>	<u>20,128.51</u>	- <u>50,717.41</u>	- <u>74,861.83</u>
NET CASH FLOW	- 51,406.60	- 20,430.29	47,612.73	- 70,845.92	- 24,144.42	40,648.96

	<u>JANUARY</u>	<u>FEBRUARY</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>
ACCOUNT BALANCES	-329,958.19	-282,801.77	-274,501.67	-237,241.35	-223,226.66	- 79,816.28
ENCUMBRANCES	<u>266,912.53</u>	<u>247,922.73</u>	<u>171,875.82</u>	<u>145,294.69</u>	<u>141,441.67</u>	<u>110,193.78</u>
CASH POSITION	- 63,045.66	- 34,879.04	-102,625.85	- 91,946.66	- 81,784.99	30,377.50
BEGINNING CASH BALANCE	- <u>34,212.87</u>	- <u>63,045.66</u>	- <u>34,879.04</u>	- <u>102,625.85</u>	- <u>01,946.66</u>	- <u>81,784.99</u>
NET CASH FLOW	- 28,832.79	28,166.62	- 67,746.81	10,579.19	10,161.67	112,162.49

A.7 NET CASH POSITION STATEMENT 1974-1975

	<u>JULY</u>	<u>AUGUST</u>	<u>SEPTEMBER</u>	<u>OCTOBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>
ACCOUNT BALANCES	-387,895.44	-449,152.74	-385,378.32	-386,881.22	-374,672.47	-324,313.13
ENCUMBRANCES	<u>458,450.51</u>	<u>424,011.52</u>	<u>413,495.83</u>	<u>344,152.81</u>	<u>307,300.64</u>	<u>284,621.26</u>
CASH POSITION	70,555.07	- 25,141.22	28,117.51	- 42,728.41	- 67,371.83	- 39,691.87
BEGINNING CASH BALANCE	<u>44,352.67</u>	<u>70,555.07</u>	<u>- 25,141.22</u>	<u>28,117.51</u>	<u>- 42,728.41</u>	<u>- 67,371.83</u>
NET CASH FLOW	26,202.40	- 95,696.29	53,258.73	- 70,845.92	- 24,643.42	27,679.96

	<u>JANUARY</u>	<u>FEBRUARY</u>	<u>MARCH</u>	<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>
ACCOUNT BALANCES	-312,558.19	-283,593.77	-265,885.67	-233,488.35	-224,801.66	-170,094.28
ENCUMBRANCES	<u>266,912.53</u>	<u>247,922.73</u>	<u>171,875.82</u>	<u>145,294.69</u>	<u>141,441.67</u>	<u>110,193.78</u>
CASH POSITION	- 45,645.66	- 35,671.04	- 94,009.85	- 88,193.66	- 83,359.99	- 59,900.50
BEGINNING CASH BALANCE	<u>- 39,691.87</u>	<u>- 45,645.66</u>	<u>- 35,671.04</u>	<u>- 94,009.85</u>	<u>- 88,193.66</u>	<u>- 83,359.99</u>
NET CASH FLOW	- 5,953.79	9,974.62	- 58,338.81	5,816.19	4,833.67	23,459.49

A.8 NET CASH POSITION STATEMENT (REVISED) 1974-1975

	(A) CASH POSITION	(B) CASH POSITION (revised)	DIFFERENCE (B - A)
JULY	- 7,053.93	70,555.07	77,609.00
AUGUST	- 27,484.22	- 25,141.22	2,343.00
SEPTEMBER	20,128.51	28,117.51	7,989.00
OCTOBER	- 50,717.41	- 42,728.41	7,989.00
NOVEMBER	- 74,861.83	- 67,371.83	7,490.00
DECEMBER	- 34,212.87	- 39,691.87	- 5,479.00
JANUARY	- 63,045.66	- 45,645.66	17,400.00
FEBRUARY	- 34,879.04	- 35,671.04	- 792.00
MARCH	-102,625.85	- 94,009.85	8,616.00
APRIL	- 91,946.66	- 88,193.66	3,753.00
MAY	- 81,784.99	- 83,359.99	- 1,575.00
JUNE	30,377.50	- 59,900.50	- 90,278.00

	(A) NET CASH FLOW	(B) NET CASH FLOW (revised)	DIFFERENCE (B - A)
JULY	- 51,406.60	26,202.40	77,609.00
AUGUST	- 20,430.29	- 95,696.29	- 75,266.00
SEPTEMBER	47,612.73	53,258.73	5,646.00
OCTOBER	- 70,845.92	- 70,845.92	0
NOVEMBER	- 24,144.42	- 24,643.42	- 499.00
DECEMBER	40,648.96	27,679.96	- 12,969.00
JANUARY	- 28,832.79	- 5,953.79	22,879.00
FEBRUARY	28,166.62	9,974.62	- 18,192.00
MARCH	- 67,746.81	- 58,338.81	9,408.00
APRIL	10,679.19	5,816.19	- 4,863.00
MAY	10,161.67	4,833.67	- 5,328.00
JUNE	112,162.49	23,459.49	- 88,703.00

A.9 COMPARISON OF NET CASH POSITION STATEMENTS 1974-1975

A.10 DERIVATION OF INFORMATION FOR PROJECT INCOME STATEMENT

The major income source is from the Cyber 74 usage which is a composite of income from batch operations and interactive operations. The batch operations include internal users, external users and supplies. A further breakdown of the supplies is obtainable from the Systems Administration department. UCC subsidizes Cyber 74 usage. They are never reimbursed for this subsidy. If UCC received a reimbursement, this would be income to UCC. The interactive operations income comes from the MIRJE system. The income figures for each of the described categories are provided in the monthly CYBER 74 PRODUCTION USAGE report which is prepared by the System Administration department at the end of each month.

Expenses relative to Cyber 74 are kept in the 0950-1378 departmental fund in sub-accounts:

06	Equipment Rental
08	Equipment Purchases
10	Supplies & Miscellaneous Expenses

These amounts can be obtained from the Transaction Summary by summarizing entries in the EXPENDITURES column for these sub-account numbers.

The income from the Cyber 72 (6400) facilities usage is a periodically received amount for time-sharing services. This income encompasses both University users and non-univeristy users which include MECC, private colleges, EDUCOM, and the state of North Dakota. This income is recorded by the UCC accounting clerk in the DEPARTMENTAL BUDGET RECORD and the user type is noted.

Expenses relative to Cyber 72 are accumulated in the 0950-1358 departmental fund. Positive entries in the EXPENDITURES column of the

Transaction Summary for this fund will sum to the amount of expenses matched against Cyber 72 income.

The income from the Hybrid Lab is derived totally from usage of the hybrid computer in the Space Science Center on the campus. This monthly income is shown in the SUMMARY OF USAGE report generated by the hybrid computer at the end of each month. The income is shown according to user types. Income coming from the PRIVATE INDUSTRY section plus the GOVERNMENT SPONSORED section of the report includes all non-university income. The balance of the monthly income is from university sources.

Expenses relative to the Hybrid Lab are accumulated in the 0950-7424 departmental fund. Positive entries in the EXPENDITURES column of the Transaction Summary for this fund will sum to the amount of expenses matched against Hybrid Lab income.

The maintenance income is another periodically received amount coming from hardware maintenance service provided by the Systems Engineering department. Most of the servicing handled by this department exists on a contract basis so that billing is not on a regular monthly basis but is usually done quarterly or as required for miscellaneous services. The income figures are obtained from the DEPARTMENTAL BUDGET RECORD kept by the UCC accounting clerk. The income comes either from within the university or from outside of the University and this is noted accordingly by the accounting clerk.

Expenses relative to Maintenance and Engineering Services are accumulated in the 0100-1601-06 sub-account and the 0950-1378-04 sub-account. Positive entries in the EXPENDITURES column of the

Transaction Summary for these sub-accounts will sum to the amount of expenses matched against Maintenance and Engineering Service income.

In tabular form, the sources of revenue and expense information for the Project Profitability Statement are as follows:

	CYBER 74	CYBER 72	HYBRID LAB	MAINTENANCE & ENGINEERING
Revenue	Production Usage Report	Dept. Budget Record	Summary of Usage Report	Dept. Budget Record
Expense	0950-1378-06 0950-1378-08 0950-1378-10	0950-1358	0950-7424	0950-1378-04 0100-1601-06

DEPARTMENT	CATEGORY	BUDGET	JUL	AUG	SEP	OCT	NOV	DEC	JAN
System Administration	Actual Expense		15,136	25,837	33,684	51,299	27,190	38,969	27,13
	Cumulative Expense		15,136	40,973	74,657	125,956	153,146	192,115	219,25
	Cumulative % of Budget	380,000	4.0	10.8	19.6	33.1	40.3	50.5	57.
System Engineering	Actual Expense		45,154	33,853	38,910	76,904	60,980	74,840	40,47
	Cumulative Expense		45,154	79,007	117,917	194,821	255,801	330,641	371,11
	Cumulative % of Budget	718,001	6.3	11.0	16.4	27.1	35.6	46.1	51.
System Operation	Actual Expense		42,108	48,216	28,440	71,941	42,998	55,654	48,78
	Cumulative Expense		42,108	90,324	118,764	190,705	233,703	289,357	338,32
	Cumulative % of Budget	595,300	7.1	15.2	20.0	32.0	39.2	48.6	56.
System Service	Actual Expense		24,392	30,339	20,409	38,131	22,426	35,057	26,55
	Cumulative Expense		24,392	54,731	75,140	113,271	135,697	170,754	197,31
	Cumulative % of Budget	478,000	5.1	11.5	15.7	23.7	28.4	35.7	41.
Hybrid Systems	Actual Expense								
	Cumulative Expense								
	Cumulative % of Budget								

DEPARTMENT	CATEGORY	FEB	MAR	APR	MAY	JUN	ACTUAL	VARIANCE	VARIANCE
System Administration	Actual Expense	39,435	32,749	24,640	35,261				
	Cumulative Expense	258,687	291,436	316,076	351,337				
	Cumulative % of Budget	68.0	76.7	83.1	92.4				
System Engineering	Actual Expense	51,653	40,674	49,565	54,772				
	Cumulative Expense	422,767	463,441	513,006	567,778				
	Cumulative % of Budget	58.9	64.5	71.4	79.1				
System Operation	Actual Expense	64,546	169,984	63,264	50,329				
	Cumulative Expense	402,869	572,853	636,117	686,593				
	Cumulative % of Budget	67.7	96.2	106.9	115.2				
System Services	Actual Expense	26,524	30,690	30,694	29,036				
	Cumulative Expense	223,837	254,527	285,221	314,257				
	Cumulative % of Budget	46.8	53.2	59.7	65.7				
Hybrid Systems	Actual Expense								
	Cumulative Expense								
	Cumulative % of Budget								

A.11 EXPENSE BUDGET SUMMARY 1975-1976

DEPARTMENT	CATEGORY	BUDGET	JUL	AUG	SEP	OCT	NOV	DEC	JAN
System Administration	Actual Expense		24,752	26,052	15,664	12,315	42,844	5,798	9,924
	Cumulative Expense		24,752	50,804	66,468	78,783	121,627	127,425	137,349
	Cumulative % of Budget	251,700	9.8	20.1	26.4	31.3	48.3	50.6	54.6
System Engineering	Actual Expense		3,879	17,655	5,202	(-8,880)	7,756	85,785	21,150
	Cumulative Expense		3,879	21,523	26,736	17,856	25,432	111,217	132,367
	Cumulative % of Budget	255,585	1.5	8.4	10.5	7.0	10.0	43.5	51.8
System Operation	Actual Expense		1,557	2,829	1,005	848	1,454	970	468
	Cumulative Expense		1,557	4,386	5,391	6,239	7,693	8,663	9,131
	Cumulative % of Budget	12,400	12.6	35.4	43.5	50.3	62.0	70.0	73.6
Systems Service	Actual Expense		739	2,328	1,833	2,848	2,007	2,021	729
	Cumulative Expense		739	3,067	4,900	7,748	9,755	11,776	12,505
	Cumulative % of Budget	23,600	3.1	13.0	20.8	32.8	41.3	49.9	53.0
Hybrid Systems	Actual Expense								
	Cumulative Expense								
	Cumulative % of Budget								

DEPARTMENT	CATEGORY	FEB	MAR	APR	MAY	JUN	ACTUAL	VARIANCE	VARIANCE
System Administration	Actual Expense	43,606	14,703	16,075	21,391	28,067			
	Cumulative Expense	180,955	195,658	211,733	233,124	261,191			
	Cumulative % of Budget	71.9	77.7	84.1	92.6	103.8	261,191	9,491	3.8
System Engineering	Actual Expense	24,961	29,844	14,602	37,113	39,615			
	Cumulative Expense	157,328	187,172	201,774	238,887	278,502			
	Cumulative % of Budget	61.6	73.2	78.9	93.5	109.0	278,502	22,917	9.0
System Operation	Actual Expense	1,268	557	3,756	1,008	2,024			
	Cumulative Expense	10,399	10,956	14,710	15,718	17,742			
	Cumulative % of Budget	83.9	88.4	118.6	126.8	143.1	17,742	5,342	43.1
Systems Service	Actual Expense	3,032	10,919	1,158	1,711	3,690			
	Cumulative Expense	15,537	26,456	27,614	29,325	33,021			
	Cumulative % of Budget	65.8	112.1	117.0	124.3	139.9	33,021	9,421	39.9
Hybrid Systems	Actual Expense								
	Cumulative Expense								
	Cumulative % of Budget								

A.12 EXPENSE BUDGET SUMMARY 1974-1975