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Management Information for LAMPF

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MASTER

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MANAGEMENT INFORMATION FOR LAMPF

by

R. A. Jameson, R. S. Mills, and M. D. Johnston

ABSTRACT

Various types of information are required on a continuing basis for the operation, maintenance, scheduling, budgeting, and general support of a large accelerator facility. Modern general purpose file management and information retrieval systems allow the operating division to concentrate on its information needs with minimal programming investment. This report covers the operational aspects of various data-bases and the associated information retrieval and reporting now in use and under development.

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I. INTRODUCTION

This report outlines the status of the development of computer-based tools proposed¹ as an adjunct to the operation as a production facility of the Clinton P. Anderson Meson Physics Facility at Los Alamos, New Mexico (LAMPF).

A continuing flow of information is required to plan, coordinate, and evaluate the activities of an operational facility, especially in the four areas of maintenance, scheduling, budgeting, and general support to users.

The problems of storing, retrieving, analyzing, and displaying information have been greatly aided in recent years by the development of generalized data-base management software which allow the operating division to concentrate on its information needs with a minimum programming investment. At LASL, a computer program called "Generalized Information Retrieval, LASL System" (GIRLS)² has been available. This is a general purpose file management and information retrieval system which runs on the CDC 6600/7600 computers. It is designed with English language commands to be used without knowledge of programming. With it, one can structure a data-base and specify retrieval problems quickly.

The standard formats provided by GIRLS for input and output are very simple, line-by-line structures. For many applications, specific columnar input formats, graphical outputs, etc., are desired. These must be programmed by the user, but are specific to his particular needs. This report covers the applications for which GIRLS, plus this special programming, have been used. Approximately two man-years have been spent on system analysis and programming. Considerable other help was used on a short-term basis to gather information. The maintenance of the present data-bases occupies approximately 3 full-time equivalents, spread over about 16 people.

The usefulness of the results to date have resulted in the establishment of a solid foundation and approach, and in recent decisions to expand the effort to other areas and to support production use. Also on the horizon are more powerful data-base management tools which will be supported and used Laboratory-wide. A system is presently being evaluated which would run in a time-shared mode, allowing the user to work interactively with his data. Many of the input-output requirements which required user coding up to now will be included in generalized form in the new system, along with more flexible and

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extensive data-handling options. As will be seen in the following, many areas of interest have overlapping data requirements; the capability for cross-referencing in the newer systems is a great advantage. The whole field is undergoing rapid development and presents enormous potential as an aid to the operation of a modern facility.

The Appendixes present the operational aspects of the various data-bases and associated input and outputs so far in use and under development. Appendix A includes program listings which show detailed data-base descriptions. Appendix B contains examples of pre- and post-processor programs which have been written.

II. OPERATIONS/MAINTENANCE

A. Inventory

The initial step was to define what types of equipment had to be handled. It was decided to classify by type rather than by individual piece in order to make the system manageable and because management information concerning types should be sufficient. For instance, there may be 50 identical amplifiers classified as one type. The words "unit" and "item" are synonyms for type. At this point, all equipment from the injectors to the end of the accelerator has been inventoried, organized into system and functional groupings, and cross-referenced to location. A unit number was assigned to each type and labels were affixed to the equipment. There are about 600 categories in the inventory so far; the system will eventually be extended to the switchyard and beam-line equipment. Table I shows the inventory format; it has a three-level hierarchical structure.

B. Background Questionnaire

The second step was to set up a questionnaire to find out pertinent information on each unit. A sample form is shown in Fig. 1. This information was set up in the form of a data-base using the GIRLS program. The stored data for Unit Number 61, in the Controller function of the rf system, is shown in the standard GIRLS output format in Fig. 2.

A great deal of potential is implied in the background data-base. It can be used as a framework for completing development in a number of directions; for example, development of maintenance and system use procedures, drawing updates, preventive maintenance

program development and scheduling, spare parts inventory control, definition of personnel requirements, and so on. Information retrieval can be set up in many different ways as needed. The definition which it can provide, along with the operating history described below, can be used eventually as input for investigation of overall reliability and for system modeling. (Appendix A.1)

C. Daily Reporting

A system for daily trouble reporting and maintenance action reporting was then set up. Information is received on the card format indicated in Fig. 3. A great deal of thought went into this simple card. The main criterion was to make it simple to use, so that it would be used. This meant that the information requested had to be distilled to the minimum feasible amount. The information was to serve two purposes. First, immediate communication is necessary to the maintenance staff, who needs to know what needs repair, where it is, and enough of the symptoms to get started on trouble-shooting. The second requirement is long-range in terms of operational history. In this case, management really needs only enough information to be able to notice trends and to have some systematic measurement capability on an overall basis. The cards are distributed liberally throughout the facility. In many cases, the action is completed on-line; in others, the maintenance personnel finish the report on the yellow copy. The cards are gathered daily, and a daily report is prepared, using a LAMPF PDP-11 data acquisition computer for quick turnaround. This computer contains an abbreviated dictionary which matches the unit number to the unit name, system, and responsible system personnel. Examples are presented in Fig. 4.

D. Summaries of Operating History

The reports are then stored in a data-base for long-term use. Eventually it will be possible to obtain statistical data on trends and various categories of reliability. For the present, graphical summaries are prepared on a monthly basis. The programming for these summaries was done separately, using the information retrieved from the GIRLS data-base. Figure 5 shows the information stored for Unit No. 61. In Fig. 6, Unit 61's history over 1 month is summarized under its functional heading of Controller, with cross-reference to location. In Fig. 7, the controller function is summarized under

TABLE I
MAINTENANCE BACKGROUND DATA BASE - INVENTORY
GENERAL OUTLINE

<u>System</u>	<u>Function</u>	<u>Numbers</u>	<u>Nature of Items</u>
DAC	MAST-TIME	5300, 530	Master-Timer in 805, 201, transport, and injector
	VIDEO	5100	Video bins: sector and module types
	RICE	5200	Rice components - throughout accelerator
	ADS	5000, 500	Analog data chassis; sample and hold bins and components
	LIGHT-LINK	520	Light link transmitters, receivers and related equip. in injector
DIST	PROTECTION	7000, 700	Fast protect equipment; RUN permissive equipment
	RAD-MON	7300	Radiation monitor, beam spill and activation protect equipment
	COMM	7400	Communications and interphone stations
	TV	7200	Television cameras, monitors, amplifiers, etc.
	SAFETY	7100, 710	Personnel safety components; time delay equipment
VACUUM	FACILITY	7500	Accelerator facility status NIM bin
	ION-PUMP	6000, 600	Vacuum ion pump, PS, ion gauges, start supplies
	CONTROL		Vacuum valves, switches, control bins and components
	SFT-VAC		Soft vacuum equipment in 201
WATER	CONTROL	8000, 800	H ₂ O bins, valve assemblies
	PROTECTION		Flow switch
	PLUMBING		H ₂ O cabinets
BEAM	MAGNET	2000 = 805 MHz	Quad, steering, bending magnets, power supplies, bins, and controls
	MONITOR	200 = 201 MHz	Linear actuators, drivers, emittance jaws, collectors, etc. Beam current and position monitor equip.; wire scan gear
		300 = TR	
		400 = XPRT	
RF	POWER		Standard 24V PS, used for much equipment in the racks
	HV	1000 = 805 MHz	High voltage power supplies, meters, controls, HV pads, cap. rooms
	AC-DC-DIST	900 = Source	Sector and module AC and DC distribution system
	HI-PWR-RF	<200 = 201 MHz	
			Klystrons, associated magnets, supplies and controls
			Power amplifiers, supplies and controls
	INT-PWR-RF		Intermediate power amplifiers and associated supplies (201-MHz)
	RF-REF		Source room RF reference equipment
	RF-AMP-805		Source room amplifiers, power supplies, filament supplies for 805 and/or 201 MHz
	RF-AMP-201		
	PROTECTION		Crowbar logic; duty factor interlock; module control units Fault protect equipment; pulse delays
	CONTROLLER		Phase and amplitude controls; feed forward amps, preamps Waveguide couplers; resonance and drive line temp controls; tuning controls
	MODULATOR		Reference line; interface amplifiers and PS; electronic phase shifters Klystron, PA, and IPA modulators; status panel
	AIR		Rack ventilators and blowers
INJECTOR	DELTA-T		All delta-time equipment for phase and amplitude measurements
	C-W	4000	Cockcroft-Walton amplifiers, power supplies, generators
	ION-SOURCE		Ion-source equipment in H ⁺ and H ⁻ domes
	CONTROL		Controls for injectors; computer equipment in ICR
	PROTECTION		Protective devices for injector equipment

its rf system heading, and in Fig. 8, the rf system is summarized with the other major systems. Figures 9, 10, and 11 show the summaries graphically over a year-long period. Figure 12 is a summary by location, cross-referenced to unit number. Recent extensions will provide for storage of scheduled operating time and calculation of MTBF (mean time before failure) and availability at each hierarchical level.

The card format has changed from a two-card system, one each for operations and maintenance, to the present one-card approach. Information has been collected for approximately 6 months, and as operators and maintenance personnel have received experience and training, the data-base is reaching adequate reliability. (Appendix A.2 and A.3)

III. WORK ACCOUNTING

Figure 13 is a form on which work requests can be written. Figure 14 shows an example of a typical work request and subsequent actions. Figures 15 and 16 consist of a weekly and quarterly summary. A nested sorting capability provided by the GIRLS program for retrieved information is evidenced in these summaries. The items are listed according to the group from whom the work is requested, and sorted according to the date required. The basic idea behind this preliminary data-base was just to get needed work written down, with indication of the interfaces involved. This step must precede scheduling. A great deal of thought and work is still needed before effective scheduling tools become a reality. (Appendix A.4)

IV. PROPERTY ACCOUNTING

A. Capital Equipment

Figure 17 exhibits the format for the capital equipment property control data-base. Approximately 10,000 items are now controlled in this manner. (Appendix A.5)

B. LEEP and MP-Pool Equipment Inventory Control

Two pools of equipment, MP-Pool and LAMPF Electronic Equipment Pool (LEEP), have been formed to support in-house research and to support the experimental programs involving outside users. Figures 18 and 19 cover information retrieval formats. This equipment must be scheduled to match the rapidly changing experimental program. Generalized scheduling tools would be a great aid and will be a topic

for future work. For the present, the pool equipment is being allocated with the aid of a specialized Fortran program which uses information retrieved from the GIRLS data-base. (Appendix A.6)

V. EXPERIMENTAL PROGRAM SUPPORT

A. LAMPF Users

The users liaison office maintains records about the nearly 1000 members from some 300 institutions. The data-base is used to provide mailing lists and labels, and listings of interests, institutions, nationalities, etc. Additional statistical reports are provided periodically for the AEC. Figures 20 and 21 show examples of printouts programmed from selected retrieves. (Appendix A.7)

B. Experiment Scheduling

There currently are 115 approved proposals involving 369 participants for the experimental program at LAMPF. An additional 60 proposals have been submitted for consideration. The beam channels to be used, hours of beam time allocated, dates scheduled, and related information are processed through a GIRLS data-base. Mailing labels can be made automatically from this data-base and the LAMPF users data-base above. Figure 22 shows information stored concerning a typical experiment. Figures 23 and 24 display two types of summaries retrieved from the data-base. (Appendix A.8)

VI. GENERAL SUPPORT

A. Office and Lab Space

The arrival of users at LAMPF requires that space assignments be managed to accommodate both temporary and permanent occupants. (Appendix A.9)

B. Summary

In summary, it should be clear that there are many possibilities. Extensions to budgeting, material accounting and other areas are now being considered.

REFERENCES

1. R. A. Jameson, "Management Information for LAMPF," Internal Report, Los Alamos Scientific Laboratory, August 3, 1972.
2. W. Draisin and G. M. Connor, "Guide to GIRLS Vol. 1, User's Manual," Internal Report, Los Alamos Scientific Laboratory, June 1, 1973.

QUESTIONS TO BE ANSWERED BY: _____

QUESTIONNAIRE FOR OPMT EQUIPMENT

DESCRIPTION: _____

UNIT #	UNIT NAME	SYSTEM	FUNCTION	GEN LOC	OTHER LOCATIONS
TOTAL UNITS AVAILABLE: TOTAL = _____ ACTIVE = _____ SPARES = _____					
DOES ITEM FIT UNIT REPLACEMENT PHILOSOPHY? (CIRCLE ONE) "REPLACEABLE" OR "NON-REPLACEABLE"					

(CIRCLE ONE) IS STATUS IN "OPERATIONAL" OR "DEVELOPMENTAL" STAGE?					
ARE MANUALS AVAILABLE? MAINTENANCE? _____ SYSTEMS? _____ (INC. OPERATOR TRAINING, CERT. PROG.)					
COMMENTS: MODEL DESCRIPTION: _____ NO. OF MODELS: _____					
SPARES: (LOCATIONS) _____					
SUBPARTS: (SPECIFY) _____					

PERSONNEL: PERSON-IN-CHARGE: _____ MAINTENANCE CREW: _____					
HOW OFTEN OR WHEN SHOULD PREVENTIVE MAINTENANCE BE PERFORMED? _____					
DRAWING NOS.: ELECTRICAL # _____ DATE OF UPDATE: _____ MECHANICAL # _____ DATE OF UPDATE: _____					
ARE WIRING RECORDS UP-TO-DATE? DATE: _____					
GENERAL: MAINTENANCE LOCATION: _____					
MAINTENANCE DESCRIPTION: _____					
TESTS REQUIRED: _____					
PREVENTIVE MAINT DESC: _____					

CALIBRATIONS: DOES UNIT REQUIRE CHANGE IN SOFTWARE WHEN REPLACED? _____ IF SO DESCRIBE: _____					
DOES THIS UNIT REQUIRE CHECKS LOCALLY _____ IF SO DESCRIBE: _____					
DOES THIS UNIT REQUIRE CHECKS CCR _____ IF SO DESCRIBE: _____					
ARE CHECKS REQUIRED FOR OTHER UNITS LOCALLY _____ IF SO WHAT ARE THEIR #s _____					
ARE CHECKS REQUIRED FOR OTHER UNITS CCR _____ IF SO WHAT ARE THEIR #s _____					
EXPLAIN CHECKS TO OTHER UNITS: _____					
CHIEF-OF-SYSTEM OR EQUIPMENT _____					
FACTORS WHICH MIGHT INFLUENCE FAILURE RATE, REPRODUCIBILITY, STABILITY: _____					
OTHER COMMENTS: _____					

Fig. 1. Questionnaire on accelerator equipment to catalog information concerning operation and maintenance. (Appendix A.1)

```

07/25/73                                     61
RF          CONTROLLER

ITEM NUMBER 0000000061

GB-CATALOG  .610000E+02  P-A-MTR-DR  RF          CONTROLLER  201-MOD    BUN          50          *****
GC-INV      TOTAL-8      ACTIVE-7      SPARES-1      REPLACBLE
GD-STATUS   OPERATNL     MANUAL-NN
GX-COMMENT  MODEL DESC:  STEPPING MOTOR CONTROL MODULE, R02.
             I  SPARES:  SPARES SHELF, MOD. 3.
             I  SUBPARTS: TWO STEPPING MOTOR DRIVER CARDS, ONE DIVIDER CARD 10 RESISTORS, 250 OHMS EW ARE SPECIAL ORDER. $
MA-PERSNL   WALLACE      EICHOR      *****
MB-WHENPM   *****
MC-DWGS     ELECTRICAL   64Y-137406  *****  MECHANICAL   64Y-137406  *****
MX-GENERAL  MAINTENANCE LOCATION: LOB BASEMENT.
             I  TESTS:  CONTINUITY RESISTANCE, SHORT, VOLTAGE, WITH VOM.  STEPPER BOARDS ARE CHECKED IN SPECIAL TEST SET. $
OA-CALIB    LOCAL-CCR    *****
OD-SYSHEAD  WALLACE
OX-TEXT     *****

END OF ITEM NUMBER 0000000061

```

Fig. 2. Computer report format for unit questionnaire information stored in the Background data-base. Unit 61 will be developed as an example. (Appendix A.1)

LAMPF OPERATIONS - MAINTENANCE REPORT			
UNIT NO. OR SYSTEM		LOCATION	RPT NO. 0752
RTM	DOWNTIME, HRS	FIX TIME, HRS	MANHOURS
OP CODE	DATE	TIME OF DAY	INITIALS
REPLACEMENT UNIT ADJ. OR CAL. REQUIRED?		IMMEDIATE SERVICE NEEDED?	
MAINT. CODE	MANHOURS	DATE	
FAIL CODE	PART COST	INITIALS	
DESCRIBE PROBLEM & SYMPTOMS, CAUSE OF PROBLEM, AND CORRECTIVE ACTION TAKEN.			

OP CODES

- U - UPDATE
- 1 - PLACED IN OPERATION
- 2 - ADJ OR REPAIR IN PLACE
- 3 - REMOVED FROM SERVICE - INSTALLED SPARE
- 4 - ON LINE PREVENTIVE MAINTENANCE
- R - REMOVED FROM SERVICE - NO SPARE INSTALLED
- S - SYSTEM PROBLEM
- D - DATA PROBLEM

MAINTENANCE CODES

- 5 - MAINTAINED, FAULT FOUND
- 6 - MAINTAINED, NO FAULT FOUND
- 7 - MAINTAINED, PREVENTIVE
- 8 - SENT OUT FOR REPAIR
- 9 - PLACED IN LONG-TERM STORAGE

FAIL CODES

- E - AC
- F - ACII
- G - BCI
- H - BCII
- I - IND
- M - MOE
- Y - RLY
- X - XTAL

(FRONT)

(BACK)

Fig. 3. Reporting card for actions taken on equipment. Card is same size as an IBM card and is in two copies -- a white top slip and a stiff yellow back with carbon between. White copy is turned in; yellow copy is attached to equipment when appropriate.

RTM = running time meter

Downtime = time lost on primary scheduled objective

Fix Time = time taken to fix or replace; can be same as downtime

Manhours = (fix time) x (people involved)

Op Code = a simple breakdown for computer coding, printed on back of card

Replacement Unit Adj. or Cal. Required? = to be checked when on-line adjustment or calibration is required, either on unit replaced or other units affected. Can be correlated with background data-base and used to reinforce training.

Fail Code = kept very simple on purpose. Presently identifies certain standardized modules.

Comments = left free-form on purpose.

Fig. 4. Examples from the daily operations report and the maintenance report, which is generated once or twice weekly. (Appendix B.4.b)

15-AR-74		DAILY OPERATIONS REPORT										
UNIT NO.	LUC	DATE	NAME	UP CODE	TIME	RTM	ACC DET	FAIL CODE	ALC CAL	FLA TIME	MAN HAS	REPORT
571		100-P-P-S	VACUUM	1	1000			KANADIAN				
571	04	740314	EFH	2	1055		.1			.1	.1	1041
IPPS 4-5 AND 4-1 TRIPPED ON OVERLOAD . RESET 4-1, RECOVERED MOD 4 RF.												
571		100-P-P-S	VACUUM	1	1000			KANADIAN				
571	04	740314	EFH	2	1055		.1			.1	.1	1040
IPPS 4-5 INDICATES A SHORT (1.2. 00) VOLTAGE MAX. CURRENT). ALSO TURNING ON IPPS 4-5 CAUSES THE MOD 4 ARC DETECTION TO TRIP.												
76		FP-SIN-1	RF		PROTECTION			WALLACE				
76	01	740314	EFH	2	1015		.1			.1	.1	3012
TANK 1 OFF ON 10, COMPUTER DID NOT R RESET. RESET LOCALLY.												
57		PH-CON	RF		CONTROLLER			WALLACE				
67	01	740314	RAJ	2	2000	0440						5015
TIGHTENED LOOP. SEEMED TO HELP DELT A-T AT MOD 6 BY REDUCING JITTER.												
68		AMP-CON	RF		CONTROLLER			WALLACE				
68	02	740314	RAJ	2	2000	7708	.1			.1	.1	2562
TIGHTENED AND ADJUSTED LOOP. WAS R1 NGING AND INTEGRATOR GAIN WAS WAY TOO LOW. RF PICKUP-PUT COVER ON AMP LITUDE CONTROL MODULE.												
1184		AMP-CON	RF		CONTROLLER			WALLACE				
1184	05	740314	RAJ	2	2100	0550						1786
ADJUSTED GAINS. OUTPUT OF IFA, UNIT 1111, MAY BE LOW.												
67		PH-CON	RF		CONTROLLER			WALLACE				
67	01	740314	RAJ	2	2300	5844	.5			.1	2.0	2363
PHASE WOULD NOT SCAN, RESET GAINS AG AIN. 4664 SWAMPING WAS TWEAKED UP ALSO.												

continued

15-MAR-74

MAINTENANCE REPORT

UNIT NO	LUC	DATE	NAME	MT CODE	PARTS CUST, \$	MAN HRS	FAIL CODE	REPORT NUMBER	DATE OF REPAIR
7000			FAST-PROT	DIST			HILL		
7000	TA	740129	JMK	6	0.00	0.50		1245	01-24
CHECKED OK.									
5000			ADS	DAL			HILL		
5000	24	740211	JMK	6	0.00	0.50		1546	02-03
ADS CHECKS OUT OK.									
1184			AMP-CON	RF			CONTROLLER	WALLACE	
1184	24	740312	RAJ	5	1.00	1.00		2235	03-09
REPLACED U24(MC8601P). NORMAL OPERATION									
VERIFIED IN TEST STAND.									
9999							SWITCHYARD EQUIPMENT	HARVEY	
9999	SY	740312	AM		0.00	0.00		2420	03-11
PANEL BOARD INSTALLER. UNITECH SVS.									
1177			RF-PERM	RF			PROTECTION	WALLACE	
1177	07	740313	RMJ	5	1.00	1.00		3641	03-11
REPLACED U24(MC8601P). NORMAL OPERATION									
VERIFIED WITH TEST FIXTURE.									
6711			ION-P-PS	VACUUM			ION-PUMP	KANDARIAN	
6711	09	740313	EFH	6	0.00	4.00		2536	03-08
PUMP CABLE IS NOW DISCONNECTED. REWOUND									
DOWN 100% FOR LEAK CHECK. TRIED PUMP ON START SUPPLIES, NOW SEEMS TO BE OK.									
5000			ADS	DAL			HILL		
5000	13	740313	JMK	6	0.00	1.00		2414	03-10
CHECKED CHANNELS THRU VIDEO SYS, ADS, AND									
O CCH. OK THIS DATE.									
9999							SWITCHYARD EQUIPMENT	HARVEY	
9999	SY	740313	AM	5	0.00	0.00		2409	03-05
REPAIRED.									

HF

OPERATION ACTION REPORTS FOR THE MONTH OF JAN 1974

UNIT NO.	REPORT	LOC	DATE	MOON	SYS	HF	NAME	CODE	CAL	RTM	DWNTM	GEN LOC	FCODE	FIXTIME	MANHRS	SU	PARTS
2121	U2	7-0124	1430	RL	S	0	*****	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUYCHEN 2 PHASE THUMBONE STICKS.																	
2399	3	7-0124	2210	PAJ	3	0	*****	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUSPECTED SLIPPING POT, BUT PROBLEM WAS LOADING FROM THE PHASE CONTROL CARD STEERING CIRCUIT. UN																	
IT 07. 48000 CONSTANT CHANGED IN COMPUTER PHASE SCAN CODE-RANGE 415 DEGREES. NO SPARE ON HAND IN S																	
ECTION A. FOUND ONE IN LOG BASEMENT. WASTED MUCH TIME.																	
3	7-0124	JUN	6	0	0	0	*****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THIS UNIT WAS CHANGED IN ERROR. PROBLEM WAS IN PHASE CONTROLLER.																	

UNIT NO.	REPORT	LOC	DATE	MOON	SYS	HF	NAME	CODE	CAL	RTM	DWNTM	GEN LOC	FCODE	FIXTIME	MANHRS	SU	PARTS
2386	J	7-0121	1015	RE	J	0	*****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MODULE CAUSES SHORT ON 24 VDC PWR AND BLOWS FUSE.																	
J	7-0121	RE	5	0	0	0	*****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FOUND CAPACITOR ON DIVIDE/2 BOARD SHORTED. REPLACED CAPACITOR AND INSTALLED IN MOD 3-CHECKS OK.																	
2-00	J	7-0128	2215	TEN	3	0	*****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PUT J20 UNIT ON THE SHELVES UNDER THE STAIRWAY IN SEC A. THE UNIT WAS RUNNING WHEN IT WAS NOT S																	
UPPOSED TO. NO SPARES LEFT.																	
J	7-0128	RE	5	0	0	0	*****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REPLACED THE 4 ICS ON THE DIVIDE BY 2 BOARD. REPLACED THE MOTOR DRIVER BOARDS WITH GOOD SPARES. NO																	
TE THESE BOARDS IN THE SPARE UNIT ARE THE OLD MARK 2 UNITS. THE NEW MARK 4 BOARDS AS USED IN 201 MO																	
DS HAVE NOT BEEN DELIVERED YET. RETURNED TO SPARES.																	
2099	3F	7-0129	1815	RE	U	0	*****	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3F	7-0129	RE	1	0	0	0	*****	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REMOVED TWO MARK 2 MOTOR STEPPER BOARDS. INSTALLED TWO NEW MARK 4 MOTOR STEPPER BOARDS. THIS UNIT																	
IS NOW THE SAME AS UNIT 01 MODULES IN BUNCHERS AND HF MODULES 1-4.																	

UNIT NO.	REPORT	LOC	DATE	MOON	SYS	HF	NAME	CODE	CAL	RTM	DWNTM	GEN LOC	FCODE	FIXTIME	MANHRS	SU	PARTS
2397	4	7-0120	1445	H2D	2	0	6931	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAD TO ADJUST THE THUMBONE IN ORDER TO KEEP THE SYSTEM STABLE WHEN SLEEPING PHASE. SUSPECT FAST																	
PHASE SHIFTER. IT SHOULD BE BENCH CHECKED WHEN TIME ALLOWS.																	
0699	4	7-0128	0000	RSM	U	0	*****	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPDATE OF REPORT DATED 11-0-73 WHICH SAID THERE WAS A GLITCH IN FAST PHASE SHIFTER.																	

Fig. 5. Detailed listing of actions regarding Unit 61 for January 1974. (Appendix A.2, B.1.a, B.2.a)

----- KEY -----									
UNIT NO.	UNIT NAME	(NO. OF REPORTS) GRAPH BY OPCODE							
		DOWN TIME = 0000							
		FIX TIME = 0000							
		OP-MAX-MS = 0000							
		MT-MAX-MS = 0000							
		SYSTEM: RF							
		PAGE 7							
		10	20	30	40	50	60	70	80
		90	100						

**** AC-DC-DIST ****									
11W	CL-AC-DIST	(1)	7						
		(2,0)	W						
	LOCATION	SE							
	OP-CODE	7							
**** CONTROLLER ****									
40	PH-DET-SS	(2)	5A						
		(1,0)	F						
		(1,0)	D						
		(3,0)	000						
		(1,0)	W						
	LOCATION	B2 3							
	OP-CODE	5 A							
61	PH-MTR-PP	(3)	557						
		(1,0)	F						
		(1,0)	0						
		(1,0)	0						
		(1,0)	00000						
	LOCATION	SP 3 3							
	OP-CODE	7 5 5							
67	PH-CON	(2)	5A						
		(1,0)	FE						
		(1,0)	00						
		(3,0)	000						
		(1,0)	000						
	LOCATION	1 3							
	OP-CODE	A 5							
68	AMP-CON	(1)	5						
		(1,0)	F						
		(1,0)	0						
		(1,0)	W						
	LOCATION	4							
	OP-CODE	5							
100	PH-CON-B2	(1)	5						
		(2,0)	W						
	LOCATION	42							
	OP-CODE	5							

Fig. 6. Summary of Unit 61 actions, under the Controller functional heading of the RF system. (Appendix A.2)

[illegible]

JOB NAME _____ For Group _____
REQUESTOR Name _____ Group _____
(Group to do work)

Date Requested _____ Date Required _____

PURPOSE

(attach detail as needed)

INTERFACES * R&D _____ Procurement _____ Fabrication _____

Accelerator - Shutdown _____ Prime _____ Piggyback _____

Follow-up Report Drawing Update
Period, wks. Requested Required

Estimated Costs - Man-Days _____ Cal. Days _____ Dollars _____

Personnel _____ (Lead), _____, _____.

COMPLETED Date _____ Drawing Update _____

Report Date _____ Author _____

Est. Actual Cost - Man-Days _____ Cal. Days _____ Dollars _____

ABSTRACT OF RESULTS

*COMMENTS - continued on back

Fig. 13. Work request form. (Appendix A.4)

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MP-9          03/14/74

ITEM NUMBER T2-T

A-ID          72-T
A-JOHNAME     TRACKBALL; KNOB RESPONSE $
B-BYGROUP     MP-1
C-REQUESTOR   SWENSON      MP-9      0000721003  0000740315
D-PURPOSE     THE BUTTON CARD READER RESTART, AND THE BUTTON RESPONSE IS NOW 100 PERCENT SATISFACTORY. SEVERAL SOFTWARE
               MODIFICATIONS WILL BE MADE THIS WEEK TO THE TRACKBALL SYSTEMS WHICH MAY MAKE THAT SYSTEM SATISFACTORY. THE KNOB
               PERFORMANCE IS BEST ANALYZED WITH PROGRAM 3191. THE KNOB PERFORMANCE WAS QUITE SATISFACTORY IN EARLY JUNE.
               SINCE THEN THE PERFORMANCE HAS DROPPED NOTICEABLY. AN EFFORT SHOULD BE MADE TO REGAIN THE PERFORMANCE THAT WE HAD
               EARLIER. $
E-INTERFAC    *****
F-INTERFAC     FLUP-4W      *****
G-PERSNL      PLOPPER      SWAIN      *****
H-COMPLET     *****
I-COST        *****
J-RESULT      *****
K-COMMENT     I BELIEVE THE PERFORMANCE IS AS GOOD AS IT EVER WAS WHEN THE SYSTEM IS NOT HEAVILY LOADED. IT MAY HAVE
               DETEIORATED FOR A WHILE, BUT THIS HAS BEEN RECOVERED. IT DROPS TO ABOUT 60 PERCENT LEVEL WHEN THE SYSTEM IS HEAVILY
               LOADED. I SUGGEST FURTHER WORK ON THIS ITEM BE GIVEN PRIORITY 51. RPT
               721020 WILL REQUEST ASSIGNMENT TO SWAIN TO GET EXPERIMENTAL DATA PRIORITY 4. RAJ AND RAG
               721025 IMPROVED NOW - CHANGED TIME SLICE
               721115 CONTINUES AT LOW LEVEL - SOME DISCUSSION OF RELATION TO BOMB PROBLEM THIS WEEK RAJ
               721215 TRACKBALL SOMETIMES SLUGGISH WHEN SYSTEM BUSY MAYBE HELPED BY WORK ON NEW FORMAT I/O: STALL ALARM, ETC.
               730109 MAY BE ABLE TO USE SOME OF THE THREE IMPROVEMENTS WERE ALSO. RAJ $
               3-23-73 - BOTH TRACKBALL AND KNOBS FREQUENTLY SUFFER COMPLETE LOSS OF SERVICE FOR PERIODS OF .5 TO 1 SECOND. IN
               ADDITION, THE TRACKBALL GENERALLY MISSES 2 OUT OF 3 OF ITS INTERRUPTS. TRACKBALL CONTROL OF THE CCI CURSOR IS STILL
               TOO SLUGGISH TO PROMOTE GENERAL USE OF THIS IMPORTANT MAN-MACHINE INTERFACE. THE PRIORITY LEVEL OF ASSOCIATED
               INTERRUPTS SHOULD BE REVIEWED. DAS $
               4-30-73 - MEMO SWENSON TO JAMESON THIS DATE REQUESTS HIGH PRIORITY FOR THIS ITEM AFTER INSTALLATION OF NEW CCI I/O
               PACKAGE. RAJ $
               9/26/73 - I HAVE FOUND THE TRACKBALL USEFUL AND QUITE RESPONSIVE DURING THE LAST FEW RUNNING CYCLES. KNOB RESPONSE
               IS STILL SOMEWHAT FRUSTRATING AT TIMES; SUSPECT SOME PROBLEMS MAY BE IN APPLICATION PROGRAMS. PERHAPS CLIFF OR
               GEORGE COULD TEST WITH PROGRAM 3191. RAJ $
               1/21/74 - NEW HARTWAY I/O FEATURES TO BE OPERATIONAL THIS MONTH. GEORGE TO GET QUANTITATIVE RESPONSE DATA. RAJ
               $

END OF ITEM NUMBER T2-T

```

Fig. 14. Example of a typical work request and subsequent actions. (Appendix A.4)

		SUMMARY OF HP-9 03/14/74		WORKLISTS							
ITEM NO.	JOB NAME	REQUESTOR	LEAD PERSON	DATE REQUESTED	DATE REQUIRED	FOLLOW-UP PERIOD					
HP-1											
73-0011	INJECTOR SYSTEMS MANUAL-CONTROL SYSTEMS \$	STEVENS	WILLIAMS	730109	730601	2	*				
73-0097	M- CONTROL SYSTEM DRAWINGS \$	STEVENS	LEDERER	730214	730701	4					
73-0010	INJECTOR SYSTEMS MANUAL-EQUIPMENT DOME ELECTRONICS \$	STEVENS	LEDERER	730109	730601	2	*				
73-0337	TRIMOS AMPLIFIER CHANNEL \$	STEVENS	LEDERER	731101	731109	0					
73-0195	TRACKBALL INSTALLATION \$	STEVENS	HARTWAY	730223	730301	0					
72-7	TRACKBALL KMR RESPONSE \$	STEVENS	PLOPPER	731035	730105	4	*				
74-0024	M- DVM INSTALLATION \$	STEVENS	WILLIAMS	740229	740301	0					
73-0329	DELAYED RF GATE TO 201 MODULES \$	JAMESON	CONLEY	731011	740301	0					
73-0126	ARC CURRENT SIGNAL \$	STEVENS	LEDERER	730425	740301	0					
73-0104	PARITY PROTECTION OF DISK FILES \$	STEVENS	BUTLER	730223	740301	0					
74-0005	MASTER TIMER NUMBER TWO \$	JAMESON	BUTLER	740229	000000	0					
HP-2											
73-0007	INJECTOR SYSTEMS MANUAL-C-M HIGH VOLTAGE GENERATOR \$	STEVENS	HILL	731009	730601	2					
73-0324	INJECTOR TIMING DOCUMENTATION \$	STEVENS	HILL	730920	731201	0					
73-0300	TR REMINDS MAGNET DVM \$	HALBIG	HILL	731107	740302	3					
73-0364	STIFLE THE SHUNTS \$	HALBIG	HILL	731114	740301	0					
73-0406	TR-SHUNTS \$	HALBIG	HILL	731130	740302	0					
74-0026	INJECTOR DOME INTERLOCKS \$	STEVENS	HILL	740311	740301	0					
74-0019	EMITTANCE STATION SWITCH - TR \$	JAMESON	HILL	740226	740301	0					
HP-4											
73-0248	MODULE TO MODULE PHASING \$	HALBIG	HALBIG	730517	730413	0					
73-0270	RF1 SURVEY IN 201 MHZ AREA \$	JAMESON	WALLACE	730730	730731	2					
73-0158	VERTICAL MAIN LINE TO STEERING \$	HALBIG	BUSH	731107	740102	0					
73-0007	DOUBLE THE FORWARD PWR SIGNAL TO CCR (SECTOR C) \$	GRANDALL	WALLACE	731220	740111	0					
74-0010	IN ALIGNMENT LINE \$	STEVENS	KELLY	740226	740415	0					
74-0014	APT-201-TR HORIZONTAL ALIGNMENT \$	JAMESON	LISKA	740226	740415	0					
74-0015	EMITTANCE GEAR ALIGNMENT \$	JAMESON	MART	740226	740415	0					
74-0017	EMITTANCE GEAR MECHANICAL SPACERS \$	JAMESON	MART	740226	740415	0					
74-0019	EMITTANCE GEAR MECHANICAL DOWEL PINS \$	JAMESON	MART	740226	740415	0					
74-0003	M- PREBUNCHER RF SYSTEM \$	JAMESON	WALLACE	740117	740415	0					
74-0020	M- PREBUNCHER \$	STEVENS	MURSTELL	740228	740421	0					
HP-9											
73-0303	TR HENDER SETUP \$	HALBIG	HALBIG	731114	731002	0					
73-0006	INJECTOR SYSTEMS MANUAL-BEAM TRANSPORT SYSTEM \$	STEVENS	STEVENS	730109	730415	2	*				
73-0222	OVERHEAD ROUGHING LINE \$	STEVENS	LEMONS	730514	730601	0					
73-0218	M- HIGH VOLTAGE MONITOR \$	STEVENS	STEVENS	730503	730601	0					
73-0449	M- GAS FREQ VALVING \$	STEVENS	SLOTT	731101	731109	0					
73-0397	M- REFERENCE POWER SUPPLY \$	STEVENS	ALLISON	731101	731207	0					
73-0397	PROCEDURE FOR CHANGING M2 BOTTLES \$	STEVENS	SCOTT	731128	731214	0					
73-0306	TR HARP SURVEY \$	HALBIG	LISKA	731114	740102	0					
73-0397	EMITTANCE PROGRAM UPDATE \$	HALBIG	HALBIG	731114	740102	0					
73-0007	EM-CODE MODIFICATIONS AND CHECKS \$	HALBIG	HALBIG	731130	740102	0					
73-0392	OVERHEAD PUMPING SYSTEM \$	STEVENS	LEMONS	731128	740103	0					
73-0395	M- COCKROFT-WALTON OPERATION \$	STEVENS	ALLISON	731128	740103	0					
73-0185	EM-1 JAMS AND COLLECTORS \$	STEVENS	STEVENS	740021	740101	0					
74-0005	POLARIZED ION INJECTOR BEAM LINE ALIGNMENT \$	STEVENS	KELLY	740212	740102	0					
74-0012	M- INJECTOR MOTOR-GENERATOR OVERHAUL \$	STEVENS	KELLY	740226	740102	0					
73-0330	FEEDFORWARD SCALING CIRCUIT \$	JAMESON	PATTON	731117	740301	2	*				
74-0021	STEERING MAGNET WIRING \$	STEVENS	MILLEN	740224	740301	0					
74-0022	EM-2 LIMIT SWITCH \$	STEVENS	HALBIG	740224	740301	0					

Fig. 15. A summary of work request information supplied weekly to the requesting group; used to coordinate followup action. (Appendix A.4, B.2.b)

JOBS REQUESTED BY AND/OR FOR WP-9 AND COMPLETED DURING THE FOURTH QUARTER 1973
11/01/73 - 01/31/74
01/31/74

ITEM NO.	JOB NAME	REQUESTOR	LEAD PERSON	DATE REQUESTED	DATE REQUIRED	FOLLOW-UP PERIOD
72-21	DRAFTING S	MORRIS	MORRIS	721101	000000	4
72-24	BEAM PULSER INSTALLATION S	STEVENS	STEVENS	721102	730129	3
73-0111	ICR NOVA SOFTWARE UPDATE S	JAMESON	BERGSTEIN	730223	730401	2
73-0108	PARAMETER SET-UP RECORDING S	JAMESON	MALBIO	730223	730501	0
73-0170	ARC PULSE MODULATOR CONSTRUCTION S	STEVENS	LEDERER	730226	730601	0
73-0112	ICR SOFTWARE - MULTIPLE INJECTOR OPERATION S	JAMESON	BERGSTEIN	730223	730630	2
73-0228	BEAM POSITION AND CURRENT MONITORS S	JAMESON	MORRIS	730511	730630	1
73-0237	201 MHZ LINAC VIBRATION S	JAMESON	BUSH	730521	730706	1
73-0275	CHECKOUT OF H- INJECTOR CONTROLS S	STEVENS	BERGSTEIN	730806	730813	0
73-0270	SOURCE ROOM WORK S	JAMESON	JAMESON	730809	730813	0
73-0268	20" STEPPER MOTOR DRIVER REPLACEMENT S	JAMESON	MILL	730730	730831	1
73-0304	LOCAL TIMER FOR H- INJECTOR S	STEVENS	KOHL	730830	730814	0
73-0333	TR HARP S	MALBIO	MILL	731011	731019	0
73-0322	INSTALLATION OF E-5 EMITTANCE STATION S	STEVENS	LEAVITT	730919	731022	0
73-0340	MODULE 4 SM REPAIR S	MALBIO	MILL	731102	731107	0
73-0352	EMITTANCE GEAR REPAIR S	MALBIO	MILL	731102	731107	0
73-0342	H- BEAM PULSER TROUBLE S	STEVENS	ALLISON	731101	731109	0
73-0344	LOCAL TIMER FOR H- S	STEVENS	KOHL	731101	731109	0
73-0341	INJECTOR FAST PROTECT PROBLEMS S	STEVENS	MILL	731101	731109	0
73-0345	H- COCKCROFT WALTON TESTS S	STEVENS	ALLISON	731101	731109	0
73-0343	ARC MAGNET POWER SUPPLY S	STEVENS	ALLISON	731101	731109	0
73-0348	BEAM POSITION MONITOR SPOOLS S	STEVENS	SCOTT	731101	731109	0
73-0346	H2 BOTTLE REPLACEMENT S	STEVENS	KOHL	731128	731207	0
73-0307	DELTA-T MATRIX SWITCH S	MORRIS	MILL	731128	731214	0
73-0361	INJECTOR A EM GEAR S	MALBIO	MILL	731113	731214	0
73-0337	SWD LINE X ALIGNMENT S	LISAK	KELLY	731025	731221	0
73-0321	INJECTOR POWER SUPPLY INTERLOCKS S	STEVENS	MILL	730919	740101	0
73-0359	DYNAMIC RANGE ADJUSTMENT FOR TR BENDING MAGNETS S	MALBIO	MILL	731107	740102	3
73-0356	INJECTOR PARAMETERS S	MALBIO	MALBIO	731112	740102	0
73-0365	EMITTANCE COLLECTOR REPAIR S	MALBIO	ZASTROW	731114	740102	0
73-0368	HARDWARE POSITION MEASUREMENT S	MALBIO	MILL	731115	740102	0
73-0357	EM-2 REPAIR S	MALBIO	MILL	731112	740102	0
73-0403	EM-7 REPAIR S	MALBIO	MILL	731130	740102	0
73-0393	EM5 EMITTANCE STATION S	STEVENS	LEMONS	731128	740103	0
73-0400	H- VACUUM INTERLOCKS S	STEVENS	WILLIAMS	731128	740103	0
73-0398	TD BEAM COLLIMATING APPARATUS S	STEVENS	STEVENS	731128	740103	0
73-0399	TOCMB3/TOCMB6 DUAL CHANNEL SYSTEM S	STEVENS	LEDERER	731128	740103	0
73-0338	QUAD DATA POLARITY CORRECTION S	MILL	MILL	731025	740107	0
73-0396	WNR CHOPPER BOX S	STEVENS	BENTLEY	731128	740114	0

Fig. 16. Quarterly summary of completed work requests. (Appendix A.4)

ITEMS RETRIEVED FOR PROBI														
PROPNO	DESCRIPTION				KIND	DATE	RECDOC	CONSIGNEE	GR	LOCATION				
E26751	TRAILER	VAN	40	FT	*****	12 71	PTS10986	CUTLER		53	3	P	SOUTH	
E26487	TRAILER	FLY	NC	2	*****	3 71	RR26699D	CUTLER	2	53	3		SOUTH	*****
E26410	TRAILER	PMO	NC	CN	2	****	4 72	PT87746A	MARTIN	7	53	3	NORTH	*****
E26848	TRAILER	VAN	AC	FR	2	****	12 71	PTS10986	CUTLER		53	3	N	NORTH
E29245	TRAILER	FLY	NC	2	30	****	1 73	RR74497D	MARTIN	7	53	3	P	*****
E29452	TRAILER	FLY	NC	2	*****	7 73	RR79396D	MARTIN	7	53	3	P		*****
1459	METER	VOLTAM	SR	C	*****	9 6	*****	PTS97682	8	3	53	2	100	
2025	CAMERA	STILL	GX	4X5	*****	1 73	RS193550	KOHL	9	53	3	J113	*****	
2114	ENLARGER	EA	2X3		*****	4 72	RS68777P	PARKER	1	53	1	C150	*****	
2221	DRILL	PRESS	FLR	17	DL	****	11 73	PT811862	UHER	7	53	3	N	SHOP
2356	SAFE	2	DR	YO	47X26X	****	5 70	PTS64953A	PARKER	1	53	1	B48T	*****
2797	METER	MICRAH	SR	8	*****	3 73	PT815409	SCHNEIDER	8	53	1	D147	*****	
2848	SAW	BND	VE	DL	14	****	1 66	PT899929	HAGERMAN	2	53	1	C114	*****
6043	SAW	BAND	VE	DL	14	****	1 73	RS193630	GEORGE	3	53	1	C133	*****
6594	BANDER	BELT	8	DL	6	****	9 73	PTS11083	MILDER	9	53	3	J06	*****
6935	SAFE	2	DD	MB	20X40X	****	4 70	PTS6896A	PARKER	1	53	4	105	*****
7076	BUFFER	P	US	8	*****	9 73	RS107430	LEMONS	9	53	3	J01	*****	
7125	METER	VOLT	SR	8	*****	11 73	PT811023	THOMAS	8	53	2	101	*****	

Fig. 17. Format for the capital equipment property control data-base. (Appendix A.5, B.1.b, B.1.c, B.2.c)

SUMMARY OF ALL MP
EQUIPMENT BY UNIT NUMBER
03/01/74

UNIT NO.	PROPERTY NO.	MFG	MODEL NO.	-----DESCRIPTION-----	USER	ORG.	EXP. PRI	DATE IN	DATE OUT	-----LOCATION-----
1	239397	TEK	454	SCP 150 MHZ	ANANN	MP10	130		730723	AR EPC
2	255291	TEK	475	SCP 200 MHZ	MINEHART	UUV11	34		730723	LOH D3
2	255252	TEK	475	SCP 200 MHZ	MINEHART	UUV11	34		730723	LOH D3
2	255253	TEK	475	SCP 200 MHZ	MOJH	MP4	96		730723	LOH C123
3	249901	TEK	485	SCP 350 MHZ	BONNER	PDOR	56		740117	ILH 553
4	231491	TEK	556	SCP 500 MHZ	STORAGE					LOH BASB
5	251434	TEK	7934	SCP 500 MHZ	POTTER-J	MP4	137	740131	740122	LOH C133
6	242043	TEK	1200H	SCP X-Y DRY	LEE	MP10	130		730718	LOH C101
33	251435	TEK	7419	S-T AMP P-1	POTTER-J	MP4	137		740132	LOH C133
35	251436	TEK	7412	D-T AMP P-1	MISCHE	MP4	96		730914	LOH C133
43	251437	TEK	7092	DAL TIM HAS P-1	POTTER-J	MP4	137		740122	LOH C133
44	251438	TEK	7071	DLY TIM HAS P-1	POTTER-J	MP4	137		740122	LOH C133
61	253334	TEK	C30A	SCP CAM	BURMAN	MP7	31		731128	ETL
61	253335	TEK	C30A	SCP CAM	HEFFNER	MP4	MP4		740213	LOH C129
61	253336	TEK	C40	SCP CAM	MACEA	MP7	P3		740226	AN P3
61	253337	TEK	C40	SCP CAM	PARKER	MP1	MP1		730723	LOH C150
61	253338	TEK	C40	SCP CAM	SMIVELY	MP4	99		730718	LOH C129
61	253339	TEK	C40	SCP CAM	HUGHES	UYAL1	37		730823	AN SMC
113	224435	ORT	115	PRE AMP PWR SUP	STORAGE			730914		LOH BASB
114	224436	ORT	115	PRE AMP PWR SUP	STORAGE			730723		LOH BASB
121	251934	PWD	HV1570	3KV PWR SUP	LEE	MP10	130		731016	LOH C101
121	252554	PWD	HV1570	3KV PWR SUP	HUGHES	UYAL1	37		731212	LOH C101
121	252555	PWD	HV1570	3KV PWR SUP	HUGHES	UYAL1	37		730809	AN SMC
121	252556	PWD	HV1570	3KV PWR SUP	BURMAN	MP7	31		730723	LOH D3
121	252557	PWD	HV1570	3KV PWR SUP	BURMAN	MP7	100		730809	ILH 553
121	252558	PWD	HV1570	3KV PWR SUP	BURMAN	MP7	56		730723	AN SMC
121	252559	PWD	HV1570	3KV PWR SUP	THOMPSON	MP7	SMC		730723	LOH BAS10
121	252560	PWD	HV1570	3KV PWR SUP	JAKOBSON	UUM01	2		730809	AN SMC
121	252561	PWD	HV1570	3KV PWR SUP	HUGHES	UYAL1	37		730809	AN SMC
121	252562	PWD	HV1570	3KV PWR SUP	MISCHE	MP4	96		730723	LOH C123
121	252563	PWD	HV1570	3KV PWR SUP	BURMAN	MP7	31		730723	LOH C123
141	240044	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240045	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240046	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240047	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240048	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240049	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240050	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240051	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240052	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240053	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240054	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240055	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240056	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240057	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240058	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240059	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240060	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240061	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240062	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240063	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240064	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240065	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240066	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240067	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240068	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240069	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240070	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240071	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240072	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240073	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240074	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240075	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240076	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240077	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240078	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240079	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240080	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240081	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240082	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240083	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240084	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240085	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240086	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240087	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240088	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240089	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240090	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240091	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240092	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240093	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240094	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240095	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240096	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240097	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240098	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240099	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240100	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240101	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240102	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240103	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240104	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240105	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240106	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240107	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240108	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240109	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240110	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240111	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240112	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240113	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240114	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240115	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240116	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240117	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240118	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240119	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240120	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240121	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240122	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240123	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240124	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240125	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240126	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240127	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240128	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240129	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240130	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240131	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240132	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240133	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240134	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240135	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240136	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240137	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240138	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240139	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240140	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240141	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240142	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240143	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240144	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240145	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7		740115	OMEGA
141	240146	MPD	3KV NEG	P-M DIST BOX	SPENCER	P2	7	</		

MP-POL: EQUIPMENT DISTRIBUTION SUMMARY 03/22/74								
UNIT NO.	REG	MODEL NO.	DESCRIPTION	TOTAL	TAUSE	AVAIL	DISTRIBUTION	
1	TEA	454	SCP 150 4HZ	1	1	0	137	1
2	TEA	474	SCP 200 4HZ	3	3	0	34 96	2 1
3	TEA	485	SCP 350 4HZ	1	1	0	56	1
4	TEA	554	SCP 50 4HZ	1	0	1		
5	TEA	7044	SCP 500 4HZ	1	1	0	137	1
6	TEA	10445	SCP X-Y 4PY	1	1	0	137	1
33	TEA	7419	S-T A-P P-I	1	1	0	137	1
41	TEA	7412	L-T A-P P-I	1	1	0	96	1
5	TEA	7442	EAL TCM CAS P-I	1	1	0	137	1
114	TEA	7471	DLY TCM CAS P-I	1	1	0	137	1
61	TEA	ESPA	SCP CAM	3	3	0	MP4 R3 51	1 1 1
7	TEA	CL	SCP CAM	1	1	0	MP1	1
61	ATS	PEF410	T-V HAS GEN	2	2	0	37 99	1 1
113	TEA	7063	PRE A-P P-R SUP	1	1	0	143	1
114	CAT	115	SEA A-T P-R SUP	2	2	0	137 143	1 1
121	PAC	441572	3KV P-R SUP	11	11	0	SMC 2 31 37 56 96 137 130	1 1 2 3 1 1 1 1
141	APU	SUNF	P-R DIST BOX	21	21	0	WAS MP4 2 7 31 37	4 1 1 2 1 2

Fig. 19. Distribution summary for pool equipment. (Appendix A.6, B.2.e)

MEMBERSHIP LIST - NON-LASL		DATE OF RUN 03/26/74
PAGE 1		FROM DB VERSION 16
		CREATED 03/26/74
NAME AND ADDRESS	CITIZENSHIP	
ASADOLAH ARBAHI, M.D. MASSILLON RADIATION CENTER 436 LAKE AVE., N.E. MASSILLON, OH 44640	IRAN	
DR. JEAN-CLAUDE ALLEN INSTITUT DE PHYSIQUE NUCLEAIRE BSP, DOMINION 1015 LAUSANNE, SWITZERLAND	SWISS	
DR. W. KAREN ALFOND PHYSICS DEPARTMENT UNIVERSITY OF WESTERN ONTARIO LONDON, ONTARIO, CANADA	CANADA	
DR. JOHN C. ALLRED PHYSICS DEPARTMENT UNIVERSITY OF HOUSTON HOUSTON, TX 77002		
PETER H. ALPERT, M.D. H. W. ANDERSON HOSPITAL 5723 BERTNER AVENUE HOUSTON, TX 77025	BRITISH	
DR. R. W. ALSMILLER, JR. NEUTRON PHYSICS DIVISION OAK RIDGE NATIONAL LABORATORY OAK RIDGE, TN 37830		
DR. JAMES J. AMATO DEPARTMENT OF PHYSICS OREGON STATE UNIVERSITY CORVALLIS, OH 97331		
DR. RAYMOND G. AMMAN DEPARTMENT OF PHYSICS UNIVERSITY OF KANSAS LAWRENCE, KS 66044		
DR. KEVIN WYLS DEPARTMENT OF PHYSICS UNIVERSITY OF MELBOURNE PARKVILLE, VIC., AUSTRALIA 3052	AUSTRALIAN	
CHARLES W. ANDERSON, M.D. LOS ALAMOS MEDICAL CENTER LOS ALAMOS, NM 87544		

Fig. 20. Output of a query to the LAMPF Users' data-base for non-LASL users arranged alphabetically, with nationality if not United States citizens. (Appendix A.7, B.2.f)

EDUCATIONAL INSTITUTIONS AND ASSOCIATED MEMBERS		PAGE 16
		DATE OF RUN 04/16/74
		FROM DB VERSION 21
		CREATED 04/12/74
INST-CODE	INSTITUTE AND MEMBERSHIP	
UVIR3	VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY BLACKSBURG, VA 24061	
	1. DR. RICHARD ARNDT 2. M.-Y. REHTIN 3. DR. MARVIN FLECHER 4. DR. KAZUMI GOTOW 5. HOLLAND KELLER 6. FERRENCE D. LASERLUND 7. JR. L. DAVID ROEPER 8. DR. W. PETER TROWER	
UWAS1	WASHINGTON UNIVERSITY ST. LOUIS, MO 63130	
	1. DR. EDWARD S. MACIAS 2. DR. ARTHUR C. WAHL	
UWAS3	WASHINGTON STATE UNIVERSITY PULLMAN, WA 99163	
	1. M. R. KNOWLES 2. FRANK M. RUDDY 3. DR. G. E. TRIPARD	
UWFB1	WEBER STATE COLLEGE OGDEN, UT 84403	
	1. DR. JAY W. PHIPPEN	
UYAL1	YALE UNIVERSITY NEW HAVEN, CT 06520	
	1. D. E. CASPERSON 2. THOMAS W. CRANE 3. SATISH DHAWAN 4. JEAN DUCLOS 5. PATRICK D. EGAN 6. DR. RICHARD EHRLICH 7. VERNON W. HUGHES 8. HEINZ F. KASPAR 9. DR. DANIEL C. LU 10. MR. WALTER P. LYSENKO 11. PETER NEMETHY 12. PAUL SOUDER 13. H. D. STAMBAUGH 14. DR. LARRY VARNELL	
THERE ARE 399 PERSON(S) IN THIS SECTION AND		
THERE ARE 111 INSTITUTES IN THIS SECTION.		

Fig. 21. A listing of users listed by institution. (Appendix A.7, B.2.g)

ITEM NUMBER 0000000000 HAS BEEN ADDED TO THE DATA BASE. THE ADD COMMAND WAS ON CARD NUMBER 462.

ITEM NUMBER 0000000020

A-PROPOSAL 0000000080

B-TITLE FORWARD ELASTIC SCATTERING OF P1 PLUS AND P1 MINUS FROM 12C, 13C, 16 OXYGEN, 40CA, 208PB

C-SPOKESMAN PHILLIPS G.C.

D-ADDRESS DR. G. C. PHILLIPS
1 T. W. BONNER NUCLEAR LAB.
1 RICE UNIVERSITY
1 HOUSTON, TX 77001 5

E-PRICIPALS
PHILLIPS G.C. RICE
HUNGERFORD E.V. RICE
VALKOVIC V. RICE
TAYLOR H.C. RICE
MUTCHLER G.S. RICE
COULSON L. RICE
FLETCHER G. RICE
WITTEN T. RICE
MANN D. RICE
GAHITZSCH N. RICE
ALLPED J.C. UHOU
GOODMAN C.D. UHOU
HAYES B.W. UHOU
LEE L.Y. UHOU
GRAM P. LASL

F-EXPTENG KELLY NP-7

G-D-ENGREV 0000730521

H-STATUS APPROVED *****

I-CHNTHDG	CHNL NAME	PAC HOURS	TOTAL EXPT SHIFTS	TOTAL EXPT MICROAMP HRS	ACTL TOTAL SHIFTS	ACTL TOTAL MICROAMP HRS	\$
-----------	-----------	-----------	-------------------	-------------------------	-------------------	-------------------------	----

J-CHANNEL	P3-E	.300000E+03	.255000E+02	.403000E+03	*****	*****	
-----------	------	-------------	-------------	-------------	-------	-------	--

K-SCHTHDG	CHANNEL NAME	BEGIN DATE	END DATE	PRIORITY	EXPECTED SHIFTS	EXPECTED MICROAMP HRS	ACTUAL SHIFTS	ACTUAL MICROAMP HRS
-----------	--------------	------------	----------	----------	-----------------	-----------------------	---------------	---------------------

L-SCHEDULE	P3-E	0000740204	0000740303	PRIME	.400000E+01	.210000E+02	*****	*****
	BACKUP	67-32	*****	*****	*****	*****	*****	*****
	P3-E	0000740204	0000740303	BACKUP-67	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
	P3-W	0000740204	0000740303	BACKUP-32	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
	P3-E	0000740304	0000740315	PRIME	.850000E+01	.440000E+02	*****	*****
	BACKUP-67	*****	*****	*****	*****	*****	*****	*****
	P3-E	0000740304	0000740315	BACKUP-67	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****
	P3-W	0000740304	0000740315	BACKUP-32	*****	*****	*****	*****

Fig. 22. Typical example of information stored concerning an experiment which has been assigned beam time at LAMPF. (Appendix A.8)

STATUS OF PROPOSALS AS OF 04/18/74
PAGE 1

PRCP. NO.	STATUS	CONDITIONS	SPOKESMAN		PAC HOURS	CHANNEL
1	DEFER	NEXT-PAC	TROWER	W.P.	0.0	LEP
2	APPROVED		JAKOBSON	M.	150.0	LEP
3	APPROVED	PARASITE=0	KINSEY	B.B.	0.0	SMC
4	APPROVED		IGO	G.J.	100.0	HRS
			ROLFE	R.M.		
5	APPROVED		CHRISTEN	R.	200.0	HRS
			PALEVSKY	H.		
6	APPROVED		SUTTER	R.J.	200.0	HRS
			IGO	G.J.		
7	APPROVED	WITH=12	PERKINS	R.B.	60.0	SMC
8	DEFER					
9	APPROVED		SOBOTKA	S.F.	250.0	EPICS
10	APPROVED		THIESSEN	H.A.	250.0	HRS
11	APPROVED	WITH=101	ROEHM	F.	170.0	SMC
12	APPROVED		POWERS	R.J.	60.0	SMC
13	APPROVED	WITH=74	SETH	K.K.	100.0	EPICS
14	APPROVED		THIESSEN	H.A.	250.0	EPICS
15	APPROVED		TANAKA	N.	200.0	HRS
16	APPROVED		MEYER	S.L.	10.0	SMC
17	APPROVED		MORRISON	G.C.	230.0	EPICS
			ZEIDMAN	B.		
18	APPROVED		ZEIDMAN	R.	250.0	EPICS
19	APPROVED		LIEBER	A.	75.0	LEP=BIOMED
20	WITHDRAWN					
21	REJECTED					
22	APPROVED		GEMMELL	D.S.	150.0	EPICS
23	APPROVED		RAHNES	P.D.	250.0	EPICS
24	DEFER	FEAS=STUDY				
25	APPROVED		BURMAN	R.L.	200.0	LEP
26	APPROVED		VFFSER	L.	100.0	EPB
27	APPROVED	PHASE=1	WILLARD	M.P.	300.0	EPB
28	APPROVED		YAVIN	A.I.	100.0	LEP
29	APPROVED	WITH=54	GOTOW	K.	100.0	LEP
30	REJECTED					
31	APPROVED		NEMETHY	P.	800.0	NEUTRINO-A
32	APPROVED		MCFARLANE	W.K.	300.0	P3=W
			MACEK	R.J.		
33	APPROVED		HWANG	C.F.	0.0	EPB
34	APPROVED		MINEHAHT	R.	220.0	P3-E
35	APPROVED		ZLOCK	K.D.H.	140.0	LEP
36	RESUBMIT					
37	APPROVED		HUGHES	V.W.	500.0	SMC-S
38	FEAS=STUDY		REFINES	F.	0.0	NEUTRINO-A
39	APPROVED		MACEK	R.J.	250.0	EPICS
40	WITHDRAWN					
41	DEFER					
42	RESUBMIT					
43	APPROVED		SWENSON	L.W.	250.0	EPICS
44	APPROVED		CARLSON	D.E.	30.0	BIOMED
45	APPROVED		DUDZIAK	D.J.	0.0	MAIN=LINEA
			GREEN	W.V.		
			GIORGI	A.L.		
46	APPROVED		PETERSON	R.J.	300.0	EPICS
47	APPROVED		PETERSON	R.J.	100.0	EPICS
48	DEFER					
49	APPROVED		PETERSON	R.J.	75.0	HRS

Fig. 23. A summary of experimental proposal status arranged numerically by proposal number. (Appendix A.8, B.2.h)

PARTICIPATION
AS OF 04/18/74
PAGE 8

LAST NAME	INITIALS	INSTITUTE	EXPERIMENT INVOLVEMENT											
SIEGEL	R.T.	CWM	85											
SIEMSEN	R.H.	UPADDEPOLE	17	18										
SIMMONS	J.F.	LASL	56	65	125	129								
SIMON	M.G.	UWY	110											
SMITH	H.H.	NRL	113											
SOBEL	M.W.	UCI	148											
SOBER	C.T.	UCLA	58	90	91	120								
SCROTTKA	S.F.	UVA	9	14	18	23	59	61	77	87	130			
			156											
SPENCER	J.F.	LASL	10	25	77	90	109	128	139					
SPEKINGE	J.	M.	13											
SPEKINGE	J.M.	LRL	74											
SPERRY	M.C.	CHASU	151											
SPRAGUE	J.A.	NRL	113											
SPRINGEN	K.	MUNICH	60	100										
STARKE	J.M.	LASL	125											
STEARNS	K.L.	VASSAR	6											
STEFFEN	R.H.	PURDUE	7											
STEIN	M.	LASL	100	117										
STEINBERG	E.P.	ANL	119											
STETZ	A.W.	LRL	74											
STEVENS	R.	LASL	27											
STRANG	H.	UCLA	117											
STUPEL	D.M.	ORSU	138	156										
SUNIER	J.M.	UCLA	117											
SUTTER	K.J.	RNL	5	6	15									
SWALLOW	E.	UCHI	172											
SWENSON	L.M.	ORSU	14	43	130	138	156							
TANAKA	N.	LASL	6	10	15	59	109	139						
TAYLOR	M.	COL-SOTLAH	80	81	83	84								
TAYLOR	M.C.	RICE	78	79										
THIESSEN	M.A.	LASL	9	10	14	18	23	39	61	74	77			
			87	130	133	136	156							
			77	130										
THOMASON	M.D.	UVA	77	130										
THOMPSON	A.C.	CMU	23	89	153	159								
THOMPSON	P.A.	LASL	37	132	160									
THROOP	M.J.	UOR	138											
TRIPAKO	G.E.	WSU	151											
TRUDER	P.	UZZUR	50											
TRUMP	M.	LASL	19											
TURKEVICH	A.	UCHI	150											
UCLA	STEARNS	R.L.	5											
UNIK	J.P.	ANL	142											
VALKOVIC	V.	RICE	79	80	81	83	84							
VARGHESE	P.	UOR	138											
VASSAR	TANAKA	N.	5											
VEESER	L.R.	LASL	26											
VIGOR	S.	UWY	117											
VINCENT	J.	NASA/LEWIS	87											
VOGEL	P.	CALTEC	11	12	101	166	173							
WADDELL	C.N.	USC	27	73										
WADLINGER	A.	UVA	34											

Fig. 24. A listing of users, showing the experiments in which they are participants. (Appendix A.8, B.2.i)

APPENDIX A

DATA BASE DEFINITIONS

Fig. A.1. Definition of the Background data-base for accelerator equipment as specified in the Generalized Information Retrieval-LASL System (GIRLS) data management system. Information upon which retrievals will be keyed is stored in search fields. Other material is stored in text fields. Refer to Figs. 1-2.

ALL INPUT CARDS HAVE BEEN READ, THE FOLLOWING COMMANDS WERE ISSUED:
NAME DELETE ADD PRINT

VERSION 46 OF DATA BASE BKGROUND 4111 BE CREATED IN THIS RUN, IT WILL BE DATED 04/16/74
IT WILL BE CREATED FROM VERSION 45 DATED 03/06/74 OF DATA BASE BKGROUND
GIRLS VERSION 3.0 WAS USED TO CREATE THE DATA BASE.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
THERE SHOULD BE AN ENTRY IN THIS DATA BASE FOR EVERY ITEM INVENTORIED
AND NUMBERED IN OPERATNL DATA BASE, ITEM NUMBERS(AND UNIT NUMBERS),
ITEM NAMES, SYSTEMS AND FUNCTIONS ARE IDENTICAL IN THE 2 DATA BASES.
THE G IN FIRST LETTER OF FIELD NAME STANDS FOR GENERAL INFORMATION, THE
M FOR MAINTENANCE INFO AND THE O FOR OPERATIONS INFO.

GENERAL

GB=CATALOG 8 SUBFIELDS, 1=UNIT NUMBER 2=UNIT NAME 3=SYSTEM 4=FUNCTION
5=GENERAL LOCATIONS, THESE FIELDS MAY CONTAIN MULTI ENTRIES WHEN
THERE ARE MORE THAN 4 GENERAL LOCATIONS.

GC=INV 4 SUBFIELDS, 1=TOTAL(QUANTITY OF THIS IDENTICAL UNIT)
2=PORTION ACTIVE 3=PORTION SPARES 4=REPLACBLE OR NREPLACBLE FOR;
DOES THIS ITEM FIT UNIT REPLACEMENT PHILOSOPHY, YES=REPLACABLE
NO=NON-REPLACABLE.

GD=STATUS 2 SUBFIELDS, 1= IS STATUS OPERATIONAL OR DEVELOPMENTAL
STATE= OPERATNL OR DEVELOPMTL, 2=ARE MANUALS AVAILABLE,
MAINTENANCE, SYSTEMS, THE ENTRY WOULD BE MANUAL=NN=NO MANUALS READY
OR MANUAL=MM=MAINTENANCE YES,SYSTEM NO, MANUAL=NS=MAINTENANCE NO,
SYSTEM YES, OR MANUAL=MS MEANS BOTH ARE AVAILABLE.

GX=COMMENT A TEXT FIELD CONTAINS MODEL DESCRIPTION, HOW MANY MODELS IF
MORE THAN ONE, SPECIFIC LOCATION OF SPARES AND INSTALLED UNITS(RACK
NUMBERS, TUNNEL, ROOM NUMBER, ETC.) AND SPECIFIES SUBPARTS IF ANY.

MA=PERSONL 4 SUBFIELDS, 1=PERSON IN CHARGE 2=4=OTHERS IN MAINTENANCE CREW
OR PERSONS WITH KNOWLEDGE OF THE UNIT.

MB=WHENPM 1 SUBFIELD, WHEN A PREVENTATIVE MAINTENANCE SHOULD BE
PERFORMED, AT WHAT INTERVALS, IE, NUMBER OF TIMES A YEAR, 1=YEARLY
2=EVERY SIX MONTHS, 12=ONCE A MONTH, ETC.

MC=DWGS 8 SUBFIELDS, 1=ELECTRICAL 2=ELEC, DWG. NO. 3=DATE 4=MECHANICAL
5=MECH,DWG. NO. 6=DATE 7=WIRING 8=WIRING DATE, MAY BE MULTIPLE
ENTRIES, TITLE WORDS (SUBFIELDS 1, 4, 7) MAY BE LEFT BLANK ON ALL
EXCEPT THE FIRST ENTRY, ALL DATES SHOULD BE MOST RECENT UPDATE OF
DRAWINGS.

MX=GENERAL A TEXT FIELD OF MAINTENANCE LOCATIONS, DESCRIPTION AND ANY
TESTS REQUIRED WHEN MAINTAINED, A DESCRIPTION OF PREVENTATIVE
MAINTENANCE, AND ANY COMMENTS THERE MAY BE REGARDING THE DRAWINGS.

OPERATIONS

OA=CALIB 4 SUBFIELDS, 1=DOES THIS UNIT REQUIRE CHECKS LOCALLY AND/OR
CCR WITH AN ENTRY OF LOCAL OR LOCAL=CCR OR CCR, 2= DOES THIS UNIT
REQUIRE CHANGE IN SOFTWARE WHEN REPLACED, AN ENTRY OF SOFT-CHNG=YES
AND *...*=NO, 3=ARE CHECKS REQUIRED FOR OTHER UNITS, LOCALLY OR CCR
WITH ENTRY OF LOCAL OR LOCAL=CCR OR CCR AND IF THIS FIELD HAS AN
ENTRY OF YES THEN THE UNIT NO.(S) SHOULD BE NOTED IN 4.

OD=SYSHEAD 2 SUBFIELDS, 1= LAST NAME OF SYSTEM HEAD 2=GROUP OF SYSTEM
HEAD.

OX=TEXT A TEXT FIELD WITH ANY COMMENTS MADE ABOUT THE SOFTWARE CHANGES,
CHECKS OR CHECKS ON OTHER UNITS, ABOUT FACTORS IF NOTED ON
QUESTIONNAIRE AND ANY OTHER COMMENTS THAT DO NOT FIT INTO THE OTHER
TEXT FIELDS.

continued

SEARCH DICTIONARY FOR DATA BASE BKGROUND VERSION 45 DATED 04/16/74
 THERE ARE 8 SEARCH FIELDS.

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS							
GB-CATALOG	8	NUMERIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
		ALPHABETIC	SUBF 5	ALPHABETIC	SUBF 6	ALPHABETIC	SUBF 7	ALPHABETIC	SUBF 8
GC=INV	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
GD=STATUS	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2				
HA=PERSNL	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
MB=WHENPM	1	ALPHABETIC	SUBF 1						
MC=DWGS	8	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
		ALPHABETIC	SUBF 5	ALPHABETIC	SUBF 6	ALPHABETIC	SUBF 7	ALPHABETIC	SUBF 8
OA=CALIB	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	NUMERIC	SUBF 4
OD=SYSHEAD	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2				

TEXT DICTIONARY FOR DATA BASE BKGROUND VERSION 46 DATED 04/16/74
 THERE ARE 3 TEXT FIELDS

FIELD NAME
 GX=COMMENT
 MX=GENERAL
 OX=TEXT

<p>DATA BASE DESCRIPTION:</p> <p>THIS DATA BASE CONTAINS ITEMS WHICH SATISFY THE UNIT REPLACEMENT OR ADJUSTMENT PHILOSOPHY FOR LAMPF.</p> <p>THE DATA BASE HAS BEEN REDEFINED ON 7-10-73 TO INCLUDE THREE NEW SEARCH FIELDS IN OPERATION AND ONE NEW SEARCH FIELD IN MAINTAIN.</p> <p>SEARCH FIELD UNIT IS NUMERIC.</p> <p>SUBFIELDS FOR CATALOG ARE 1=NUMBER, 2=SYSTEM, 3=FUNCTION.</p> <p>GEN-LOC 1=805, 201, ETC.</p> <p>THE SUBFIELDS IN OPERATION ARE: 1=LOC, 2=DATE, 3=HOURS, 4=NAME, 5=OPCODE, 6=CALIB, 7=RTH, 8=DOWNTIME, 9=FAILCODE, 10=FIXTIME, 11=MANHRS, 12=REPORT NUMBER.</p> <p>THE SUBFIELDS IN MAINTAIN ARE: 1=LOC, 2=DATE, 3=NAME, 4=MT CODE, 5=COST, 6=MANHRS, 7=FAILCODE, 8=REPORT NUMBER.</p> <p>THE FIRST WORD IN ANY TEXT ENTRY IS A REPORT NUMBER, LEFT JUSTIFIED.</p>											
<p>SEARCH DICTIONARY FOR DATA BASE OPENMAINT VERSION 4 DATED 01/31/74</p> <p>THERE ARE 5 SEARCH FIELDS.</p>											
FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS									
CATALOG	3	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3				
GEN-LOC	1	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4		
MAINTAIN	8	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4		
		NUMERIC	SUBF 5	NUMERIC	SUBF 6	ALPHABETIC	SUBF 7	ALPHABETIC	SUBF 8		
OPERATION	12	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4		
		ALPHABETIC	SUBF 5	ALPHABETIC	SUBF 6	ALPHABETIC	SUBF 7	NUMERIC	SUBF 8		
		ALPHABETIC	SUBF 9	NUMERIC	SUBF 10	NUMERIC	SUBF 11	ALPHABETIC	SUBF 12		
UNIT	1	NUMERIC	SUBF 1								
<p>TEXT DICTIONARY FOR DATA BASE OPERMAINT VERSION 4 DATED 01/31/74</p> <p>THERE ARE 2 TEXT FIELDS</p>											
FIELD NAME											
MAINTTEXT											
OPERTEXT											

Fig. A.2. Definition of the data-base OPERMAINT for recording the operating history of equipment. Search fields may have up to 20 subfields of either alphabetic or numeric type. Refer to Figs. 5-8 and 12 for examples of retrievals from this data-base. Appendixes B.1.a, B.2.a, and B.3.b. show input/output programs associated with this data-base.

ALL INPUT CARDS HAVE BEEN READ. THE FOLLOWING COMMANDS WERE ISSUED:
 ALTER NAME PRINT

VERSION 19 OF DATA BASE GRAPHDATA WILL BE CREATED IN THIS RUN. IT WILL BE DATED 04/05/74
 IT WILL BE CREATED FROM VERSION 18 DATED 03/08/74 OF DATA BASE GRAPHDATA.
 GIRLS VERSION 3.6 WAS USED TO CREATE THE DATA BASE.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
 THIS DATA BASE CONTAINS INFORMATION NECESSARY FOR PLOTTING GRAPHS BY THE
 MONTH FOR AN ANNUAL PICTURE.
 THE DATA IS COMPUTED FROM THE OPERMAINT DATA BASE.
 DATA IS STORED HERE BY THE MONTH FOR EACH SYSTEM, FUNCTION, AND ITEM.
 THE FIELDS ARE:

1. CATALOG HAS 4 SUBFIELDS.
 FOR SYSTEM INFORMATION 1=SYSTEM AND 2,3,4 ARE BLANK.
 FOR FUNCTION INFORMATION 1=FUNCTION 2=SYSTEM 3=4 BLANK.
 FOR ITEMS 1=UNIT NO. 2=UNIT NAME 3=FUNCTION 4=SYSTEM.
- SUBFIELD 1 IN EACH CASE IS THE SAME AS THE ITEM NAME.
2. OPCODE HAS 13 SUBFIELDS. EACH, EXCEPT NO. 1 HAS THE TOTAL FOR THE
 PERIOD OF ITS PARTICULAR CODE. 1=YEAR-MONTH, 2= OR BLANK OPCODES
 3=0, 4=1, 5=2, 6=3, 7=4, 8=5, 9=6, 10=7, 11=8, 12=9, 13=0.
3. SUMMARY HAS 5 SUBFIELDS. 1=YEAR-MONTH 2=FIXTURE 3=DOWNTIME 4=UP,
 5=DOWN, 6=UP, 7=DOWN, 8=UP, 9=DOWN, 10=UP, 11=DOWN, 12=UP, 13=DOWN.
4. PARTS-COST HAS 2 SUBFIELDS. 1=YEAR-MONTH, 2=MAINTENANCE PARTS COST.

SEARCH DICTIONARY FOR DATA BASE GRAPHDATA VERSION 19 DATED 04/05/74
 THERE ARE 4 SEARCH FIELDS.

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS							
CATALOG	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
OPCODE	13	NUMERIC	SUBF 1	NUMERIC	SUBF 2	NUMERIC	SUBF 3	NUMERIC	SUBF 4
		NUMERIC	SUBF 5	NUMERIC	SUBF 6	NUMERIC	SUBF 7	NUMERIC	SUBF 8
		NUMERIC	SUBF 9	NUMERIC	SUBF 10	NUMERIC	SUBF 11	NUMERIC	SUBF 12
		NUMERIC	SUBF 13						
PARTS-COST	2	NUMERIC	SUBF 1	NUMERIC	SUBF 2	NUMERIC	SUBF 3	NUMERIC	SUBF 4
SUMMARY	5	NUMERIC	SUBF 1	NUMERIC	SUBF 2	NUMERIC	SUBF 3	NUMERIC	SUBF 4
		NUMERIC	SUBF 5						

TEXT DICTIONARY FOR DATA BASE GRAPHDATA VERSION 19 DATED 04/05/74
 THERE ARE 6 TEXT FIELDS

Fig. A.3. Definition of data-base GRAPHDATA, in which information retrieved from data-base OPERMAINT is stored for plotting summaries in graphical form as shown in Figs. 9-11. See also Appendix B.3.a.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
THIS DATA BASE IS A SUMMARY AND SCHEDULING TOOL OF WORK REQUESTS AT
LAMPF.

THE SEARCH FIELDS ARE:

A=ID (1 SUBFIELD) = ITEM NAME.
B=BYGROUP (1) = GROUP REQUESTED TO DO THE WORK.
C=REQUESTR (4) = 1) REQUESTOR, 2) GROUP OF REQUESTOR, 3) DATE OF
REQUEST, 4) DATE TO BE COMPLETED.
E=INTERFAC (7) = 1) P=AVD=0, 2) PRECUPENNY, 3) FABRICAT,
4) AC-SHUTDOWN, 5) PRIME, 6) PIGGYBACK, 7) SAFETY.
F=INTERFAC (6) = 1) FLUORIN (HAFVETRY NO. WEEKS TO BE FOLLOWED UP),
2) REPORT (MEANS A REPORT IS REQUESTED), 3) D=URED (MEANS A
DRAWING UPDATE IS REQUIRED), 4) M=DAYS=N (N=ESTIMATED MAN DAYS TO
DO WORK REQUESTED), 5) C=DAYS=N (N=ESTIMATED CALENDAR DAYS TO DO
WORK), 6) D=LRS=N (N=ESTIMATED COST IN NO. OF DOLLARS).

G=PERSONL (3) = 1) PERSON IN CHARGE OF WORK, 2-3) CREW.
H=COMPLETE (4) = 1) DATE COMPLETED, 2) D=GN=N (N=DATE OF DRAWING
UPDATE), 3) REP=N (N=DATE OF REPORT), 4) AUTHOR (LAST NAME OF
PERSON COMPLETING REPORT).
I=COST (3) = 1) M=DAYS=N (N=ACTUAL MAN DAYS), 2) C=DAYS=N (N=ACTUAL
CALENDAR DAYS), 3) D=LRS=N (N=ACTUAL COST).

THE TEXT FIELDS ARE:

A=JOBNAME = DESCRIPTIVE TITLE GIVEN BY THE REQUESTOR.
D= PURPOSE = DESCRIPTION OF WHAT IS TO BE DONE.
J= RESULT = ABSTRACT (SUMMARY) OF RESULTS.
R= COMMENT = STATEMENTS ABOUT PROGRESS BETWEEN DATES OF REQUEST AND
COMPLETION.

SEARCH DICTIONARY FOR DATA BASE WORKLIST VERSION 125 DATED 06/25/76
THERE ARE 8 SEARCH FIELDS.

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS						
A=ID	1	ALPHABETIC	SUBF 1					
B=BYGROUP	1	ALPHABETIC	SUBF 1					
C=REQUESTR	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC SUBF 4 :
E=INTERFAC	7	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC SUBF 4
F=INTERFAC	6	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC SUBF 4
G=PERSONL	3	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC SUBF 4
H=COMPLETE	4	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC SUBF 4
I=COST	3	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	

TEXT DICTIONARY FOR DATA BASE WORKLIST VERSION 125 DATED 06/25/76
THERE ARE 4 TEXT FIELDS

FIELD NAME
A=JOBNAME
D= PURPOSE
J= RESULT
R= COMMENT

Fig. A.4. Description of the data-base "Worklist" for work requests. See Figs. 13-16 and Appendix B.2.b.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
 THE SEARCH FIELD NAMES MAY CONTAIN UP TO 9 SEPARATE WORDS DESCRIBING
 ITEMS. IT IS USED ON NEW ENTRIES ONLY.
 PROGRAM IS THE NO PROPERTY NUMBER.
 ITEM CONTAINS L AND LEAD ON M FOR NO-POOL.
 THE SURFIELDS IN NAME ARE 1-MONTH, 2-YEAR, 3-RECORD(RECEIVING DOCUMENT),
 4-NAME, 5-ADDRESS, AND 6-LOCATIONS.
 IN PROGRAM CREDIT, CREDIT, LOANS NAME ARE READ BEGINNING IN COL. 11.
 THE TEXT FIELD PROVIDES ADDITIONAL INFO ON CREDIT ITEMS AND BEGINS
 IN COL. 27.
 INVENTORY INFO IS RECEIVED IN NAME WITH COMPLETION DATE OF INVENTORY
 IN SURFELDS MONTH AND YEAR, AND THE WORD //INV// IN THE THIRD
 SURFIELD. NO OTHER INFO IS DUPLICATED FOR THAT ENTRY.

SEARCH DICTIONARY FOR DATA BASE MPINVLG VERSION 2 DATED 06/12/74
 THERE ARE 4 SEARCH FIELDS.

FIELD NAME	NO. SURFELDS	TYPE OF VALUES IN SURFELDS
NAME	1	ALPHABETIC SURF 1
NAME	0	ALPHABETIC SURF 1
		ALPHABETIC SURF 5
		ALPHABETIC SURF 9
NAME	5	ALPHABETIC SURF 1
		ALPHABETIC SURF 5
PROGRAM	1	ALPHABETIC SURF 1

TEXT DICTIONARY FOR DATA BASE MPINVLG VERSION 2 DATED 06/12/74
 THERE ARE 1 TEXT FIELDS

FIELD NAME
 TEXT

Fig. A.5. Definition of the data-base for the control of capital-equipment property. See Fig. 17 and Appendixes B.1.b, B.1.c, and B.2.c.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:

THIS DATA BASE MAINTAINS THE STATUS OF EQUIPMENT AVAILABLE TO THE VARIOUS EXPERIMENTERS IN THE FACILITY.
 A=ACCTG 5 SUBFIELDS. 1=PROPERTY NUMBER ALSO IS THE ITEM NAME 2=UNIT NO. 3=M OR L SPECIFYING THE POOL OR LIBRARY THIS PIECE OF EQUIPMENT BELONGS IN. 4=COST 5=ACQUISITION NUMBER.
 B=DESCRIP A TEXT FIELD WITH MANUFACTURE, MODEL NUMBER, AND A CODE IN DESCRIPTION OF ITEM.
 C=STATUS 8 SUBFIELDS. 1=USER'S LAST NAME. 2=GROUP OR ORGANIZATION ASSIGNED TO. 3=NUMBER OF EXPERIMENT THE EQUIPMENT IS LOANED TO. 4=PRIORITY OF EXPERIMENT. 5=DATE ITEM WAS RETURNED TO LIBRARY OR IS EXPECTED TO BE RETURNED. 6=DATE ITEM WAS LOANED OUT. 7=LOCATION OF EQUIPMENT.
 D=CALIB, E=MAINT, AND F=RESUME ARE AT PRESENT UNUSED FIELDS. THEY WERE ADDED SO THAT SOMETIME MAINTENANCE RECORDS COULD BE MAINTAINED. MAINTENANCE INFORMATION COULD HAVE MULTIPLE ENTRIES. HOWEVER, NONE OF THE FIRST 3 FIELDS CONTAIN MORE THAN SINGLE ENTRIES.

TEXT DICTIONARY FOR DATA BASE MPPPOOL VERSION 2B DATED 06/05/74
 THERE ARE 2 TEXT FIELDS

FIELD NAME
 B=DESCRIP
 F=RESUME

SEARCH DICTIONARY FOR DATA BASE MPPPOOL VERSION 2B DATED 06/05/74
 THERE ARE 4 SEARCH FIELDS.

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS							
A=ACCTG	5	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	NUMERIC	SUBF 4
C=STATUS	8	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4
		ALPHABETIC	SUBF 5	ALPHABETIC	SUBF 6	ALPHABETIC	SUBF 7	ALPHABETIC	SUBF 8
D=CALIB	3	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3		
E=MAINT	1	ALPHABETIC	SUBF 1						

Fig. A.6. Data-base definition for maintaining allocation status of equipment in the experimental apparatus pool. See Figs. 18 and 19 and Appendixes B.1.d, B.2.d, and B.2.e.

ALL INPUT CARDS HAVE BEEN READ, THE FOLLOWING COMMANDS WERE ISSUED:
NAME PRINT

VERSION 21 OF DATA BASE MP-USERS WILL BE USED IN THIS RUN, IT IS DATED 04/12/74

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
AANAME CONTAINS THE USERS NAME AS IT IS TO APPEAR ON INTERNAL LABEL.
ADDRESS CONTAINS EXTERNAL NAME AND ADDRESS AS IT IS TO APPEAR FOR
EXTERNAL MAILINGS
AITEM=NAME IS THE ITEM NUMBER IN SEARCHABLE FORM, (ALPHA) WHENEVER
POSSIBLE MAKE ALPHABETICALLY ACCURATE.
CITIZEN CONTAINS CITIZENSHIP OF USER, (ALPHA)
DATE-JOIN HAS DATES JOINED IN SUBFIELD 1 AND DATES TERMINATED IN
SUBFIELD 2.
MULTIPLE ENTRIES OCCUR WHEN SOMEONE REJOINS AFTER HAVING BEEN
TERMINATED, (ALPHA) WHEN ENTRY IS MADE IN 2ND SUBFIELD ENTRY
IN MEMBERSHIP IS CHANGED TO INACTIVE.
INST-CODE CONTAINS 2 SUBFIELDS: 1 HAS A CODE FOR USERS INSTITUTE,
2 HAS NAME OF OR ABBREVIATION OF THE
STATE WHERE INSTITUTE IS LOCATED.
FOR (NON=LASL AT LASL) MEMBERSHIPS BE SURE TO PUT NON=LASL CODE
FIRST AND LASL AS THE SECOND ENTRY.
INSTITUTE INCLUDES THE USERS INSTITUTE NAME AND ADDRESS AS IT WOULD
APPEAR ON AN EXTERNAL ADDRESS, (TEXT)
INTEREST INCLUDES MULTIPLE ENTRIES OF CODED NAMES OF ACCOUNTS IN
WHICH THIS USER IS INVOLVED.
LASL=ADDR HAS THREE SUBFIELDS: 1 GROUP BY ENGLISH CODE
2 EMPLOYEE NUMBER,
3 MAIL STOP NUMBER.
THESE FIELDS APPLY TO USERS EMPLOYED BY OR ASSIGNED
TEMPORARILY TO LASL.
MEMBERSHIP IS A SEARCH FIELD WITH ONE SUBFIELD AND CONTAINS SUCH WORDS
AS PROGRPT WHEN MEMBER IS ONLY TO RECEIVE A COPY OF PROGRESS
REPORT,
NEWSLETTER WHEN ONLY TO RECEIVE A COPY OF NEWSLETTERS,
PROGRPT AND NEWSLETTER WHEN TO RECEIVE BOTH REPORT AND LETTER,
HONORARY(VV) WHEN CONSIDERED USER BUT CAN CANNOT BALLOT,
USE=(YEAR) IS USED WHEN A MEMBER IS INCLUDED IN ALL CATEGORIES,
INACTIVE IS USED WHEN A MEMBER HAS TERMINATED INTEREST, WHEN THIS
COMMENT FIELD AND PUT DATE OF ACTION AS SECOND SUBFIELD IN
DATE-JOIN.
OFFCS=HELD TO CONTAIN THREE SUBFIELDS: 1, OFFICE HELD
2, BEGINNING DATE IN OFFICE
3, ENDING DATE IN OFFICE.
PHONE=NOS IS A TEXT FIELD WITH DATA FIELD AS IF IN FOUR FIELDS,
1, LOCATION OF PHONE IN FIRST 20 SPACES,
2, THE NUMBER WRITTEN IN NEXT 15 SPACES,
3, EXTENSION IN NEXT 5 SPACES,
4, SECRETARY IN NEXT 10 SPACES,
Z -COMMENTS TO CONTAIN MISCELLANEOUS TEXT INFORMATION NICE TO HAVE
HANDY, (TEXT)

SEARCH DICTIONARY FOR DATA BASE MP-USERS VERSION 21 DATED 04/12/74
THERE ARE 8 SEARCH FIELDS,

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS
AITEM=NAME	1	ALPHABETIC SUBF 1
CITIZEN	1	ALPHABETIC SUBF 1
DATE-JOIN	2	ALPHABETIC SUBF 1 ALPHABETIC SUBF 2
INST-CODE	2	ALPHABETIC SUBF 1 ALPHABETIC SUBF 2
INTEREST	1	ALPHABETIC SUBF 1
LASL=ADDR	3	ALPHABETIC SUBF 1 ALPHABETIC SUBF 2 ALPHABETIC SUBF 3
MEMBERSHIP	1	ALPHABETIC SUBF 1
OFFCS=HELD	3	ALPHABETIC SUBF 1 ALPHABETIC SUBF 2 ALPHABETIC SUBF 3

TEXT DICTIONARY FOR DATA BASE MP-USERS VERSION 21 DATED 04/12/74
THERE ARE 5 TEXT FIELDS

FIELD NAME
AANAME
ADDRESS
INSTITUTE
PHONE=NOS
Z=COMMENT

Fig. A.7. Definition of data-base for information concerning users of LAMPF. See also Figs. 20-21 and Appendixes B.2.f and B.2.g.

ALL INPUT CARDS HAVE BEEN READ, THE FOLLOWING COMMANDS WERE ISSUED:
NAME ALTER RETRIEVE CRITERIA

VERSION 4 OF DATA BASE EXPERIMENT WILL BE CREATED IN THIS RUN. IT WILL BE DATED 06/16/76
IT WILL BE CREATED FROM VERSION 3 DATED 03/27/76 OF DATA BASE EXPERIMENT.
GIRLS VERSION 3,0 WAS USED TO CREATE THE DATA BASE.

ITEM NUMBERS ARE ASSIGNED BY THE USER.

DATA BASE DESCRIPTION:
THIS DATA BASE SUMMARIZES THE STATUS OF LAMPF PROPOSED EXPERIMENTS.
A=PROPOSAL CONTAINS PROPOSAL NUMBER WHICH IS ALSO ITEM NUMBER.
F=TITLE CONTAINS NAME OR TITLE OF PROPOSAL.
C=SPONSOR HAS SPONSOR'S LAST NAME/FIRST NAME RESPECTIVELY IN FIELDS ONE AND TWO.
D=ADDRESS HAS THE NAME AND ADDRESS OF SPONSOR AS IT IS TO APPEAR ON LABELS.
F=EXPTENG HAS THREE SUBFIELDS. 1=LAST NAME OF PARTICIPANTS,
2=FIRST NAME OF PARTICIPANTS,
3=INSTITUTE CODE OF PARTICIPANT.

F=EXPTENG HAS TWO SUBFIELDS 1=LAST NAME OF EXPERIMENT ENGINEER,
2=GROUP OF EXPERIMENT ENGINEER.
G=ENGINEERY CONTAINS DATE OF ENGINEERING REVIEW.
H=STATUS CONTAINS STATUS OF PROPOSAL, APPROVED, WITHDRAWN, REPLACED BY, ETC
SECOND SUBFIELD MAY CONTAIN CONDITIONS OF APPROVAL.
I=CHANNM IS A TEXT FIELD TO PROVIDE HEADINGS FOR SEARCH FIELD BELOW.
J=CHANNEL HAS SIX SUBFIELDS: 1=CHANNEL NAME, 2=DATE, 3=TOTAL EXPECTED SHIFTS, 4=TOTAL EXPECTED MICROAMP HOURS, 5=ACTUAL TOTAL SHIFTS,
6=ACTUAL TOTAL MICROAMP HOURS.
K=CHANNM IS A TEXT FIELD TO PROVIDE HEADINGS FOR SEARCH FIELD BELOW.
L=SCHEDULE HAS 14 SUBFIELDS: 1=CHANNEL NAME, 2=DATE SCHEDULED TO BEGIN,
3=DATE SCHEDULED TO END, 4=PRIORITY, 5=EXPECTED MICROAMP HOURS,
6=EXPECTED SHIFTS, 7=ACTUAL MICROAMP HOURS, 8=ACTUAL SHIFTS
FOURTH WILL INCLUDE SUCH ENTRIES AS PRIME, USER, PARASITE, BACKUP
9=COMMENTS CONTAINS GENERAL INFORMATION.
BACKUP WILL INCLUDE EXPERIMENT NO. THAT IS PRIME.

SEARCH DICTIONARY FOR DATA BASE EXPERIMENT VERSION 4 DATED 06/16/76
THERE ARE 6 SEARCH FIELDS.

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS											
A=PROPOSAL	1	ALPHABETIC	SUBF 1										
C=SPONSOR	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2								
F=TITLE	3	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2								
F=EXPTENG	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3						
G=ENGINEERY	1	ALPHABETIC	SUBF 1										
H=STATUS	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2								
J=CHANNEL	6	ALPHABETIC	SUBF 1	NUMERIC	SUBF 2	NUMERIC	SUBF 3	NUMERIC	SUBF 4				
		NUMERIC	SUBF 5	NUMERIC	SUBF 6								
L=SCHEDULE	14	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2	ALPHABETIC	SUBF 3	ALPHABETIC	SUBF 4				
		NUMERIC	SUBF 5	NUMERIC	SUBF 6	NUMERIC	SUBF 7	NUMERIC	SUBF 8				
		ALPHABETIC	SUBF 9	ALPHABETIC	SUBF 10	ALPHABETIC	SUBF 11	ALPHABETIC	SUBF 12				
		ALPHABETIC	SUBF 13	ALPHABETIC	SUBF 14								

Fig. A.3. Definition of the data-base "Experiment", used for coordinating and scheduling the experimental physics program assigned beam time at LAMPF. See Figs. 22-24 and Appendixes B.2.h and B.2.i.

DATA BASE DESCRIPTION:

THIS DATA BASE HAS BEEN DESIGNED TO LIST ALL ROOMS AT LAMPF, TO DEFINE THEIR TYPE, AND TO RECORD CURRENT OCCUPANTS AND GROUP, PHONE NUMBERS, PRESENT USE, AND COMMENTS WHERE APPROPRIATE.

THE SEARCH FIELDS ARE:

1. ROOM, 2 SUBFIELDS. BLDG AND ROOM NUMBER. TRAILERS MAY HAVE NO ENTRY IN SECOND SUBFIELD. SINGLE ENTRY ALWAYS.
2. TYPE, 1 SUBFIELD. ASSUMED SINGLE ENTRY. MAY INCLUDE IMPLIED INFORMATION ABOUT SIZE (2-OFFICE).
3. USE, 1-SUBFIELD. ASSUMED SINGLE ENTRY TO EXPLAIN CURRENT USE, PARTICULARLY FOR LAB OR SPECIAL SPACE.
4. OCCUPANT, 2 SUBFIELDS. LAST NAME AND GROUP. MULTIPLE ENTRIES EXPECTED. IF NO OCCUPANT, RESPONSIBLE GROUP IN SUBFIELD 2.
5. PHONE, 1 SUBFIELD. MAY HAVE MULTIPLE ENTRIES KEPT IN CORRECT ORDER OF OCCUPANTS.

A SINGLE TEXT FIELD--TEXT--CONTAINS BRIEF ADDITIONAL DESCRIPTIONS KEPT IN CORRECT ORDER IF THEY APPLY TO SPECIFIC OCCUPANTS. CAUTION MUST BE USED IN DELETING OR MODIFYING INFORMATION.

SEARCH DICTIONARY FOR DATA BASE SPACEDATA VERSION 6 DATED 04/12/74
THERE ARE 5 SEARCH FIELDS,

FIELD NAME	NO. SUBFIELDS	TYPE OF VALUES IN SUBFIELDS			
OCCUPANT	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2
PHONE	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2
ROOM	2	ALPHABETIC	SUBF 1	ALPHABETIC	SUBF 2
TYPE	1	ALPHABETIC	SUBF 1		
USE	1	ALPHABETIC	SUBF 1		

TEXT DICTIONARY FOR DATA BASE SPACEDATA VERSION 6 DATED 04/12/74
THERE ARE 1 TEXT FIELDS

FIELD NAME
R-REMARKS

Fig. A.9. Data-base "Spacedata" is used to coordinate the allocation of office and laboratory space. See Appendix B.4.a.

APPENDIX B
LASL Identification: LP-0356
PROGRAM LISTINGS

B.1. Pre-Processor Programs. These programs are translators which take information from the user input format and prepare it for use by the GIRLS data-management program.

```

1      RUN=LCHB9          76/04/85    09.32.21    MPORSHS2UX    PAGE NO. 1

2      PROGRAM TRANSPZ(INP,OUT,IGRLOB)
2      DIMENSION DRFIELD(4),INORDS(8),OPERT(4),ITEMP(7),MTEXT(4)
      INTEG=CONTROL,DATE,OPCODE,HOURS,OPERT,FAIL,CAL,COST,OUTSTM
      DATA NAME/9NDOPERMAINT/
      DATA DRFIELD/9NDOPERATION,8NDOPERTEXT,8NDMAINTAIN,8NDMAINTEXT/
      DATA INP/11THP/,OUTSTM/6LIGRLOB/
2      WRITE (OUTSTM,2000) NAMEDB
2000  FORMAT(1X,A10) NAMEDB
10  ENDFILE OUTSTM
12  1 READ 5,INORDS
15  5 FORMAT(A10)
20  IF (EQ,INP,5) 500,7
23  7 DECODE(19,1P,INORDS),CHAR
10  FORMAT(10X,A1)
33  IF (IC,CHAR,EQ,1M) GO TO 200
35  DECODE(PN,15,INORDS) CONTROL,LOC,DATE,NAME,OPCODE,HOURS,RTN,DWN,
      IF(FAIL,CAL,FIN,MHAN,NUM,OPERT,MNRE
15  FORMAT(A6,A2,A4,A3,A1,1X,A4,A5,F3,0,A1,A1,F3,0,A1,A4,3A10,00,A1)
101  WRITE(OUTSTM,2010) CONTROL
2010  FORMAT(1X,A8)
107  IF(LOC,EQ,2M) LOC=2MXX
112  IF(CAL,EQ,1M) CAL=1M
115  IF(HOURS,EQ,4M) HOURS=HOURS0000
120  IF(FAIL,EQ,1M) FAIL=1M
123  IF(OPCODE,EQ,1M) OPCODE=1M
126  IF(RTN,EQ,5M) RTN=1M
131  WRITE(OUTSTM,2020) DRFIELD(1),LOC,DATE,HOURS,NAME,OPCODE,CAL,RTN,
      1DWN,RTN,1,1X,MHAN,NUM
2020  FORMAT(A10,1X,A3,A7,A5,A4,A2,A2,A5,1X,F6,2,1X,A2,F6,2,1X,F6,2,1X,
      1A0)
C WRITE OPERTEXT AND REP NO. TO OUTSTM
167  IF(OPERT(1),EQ,1M) GO TO 90
171  WRITE(OUTSTM,2060) DRFIELD(2),NUM,OPERT
2060  FORMAT(1X,A5,0X,3A10,A6)
203  65 IF(MPE,EQ,1M) GO TO 80
205  READ 7,ITEMP(1),1M,7),MORE
70  FORMAT(7A10,1X,A1)
215  WRITE(OUTSTM,2070) ITEM
2070  FORMAT(7A10)
223  GO TO 65
220  80 WRITE (OUTSTM,2071)
2071  FORMAT(1X,A30)
230  90 ENDFILE OUTSTM
232  GO TO 1
C READ IN MAINTENANCE CARD
233  200 DECODE(IN,210,INORDS) CONTROL,LOC,DATE,NAME,OPCODE,COST,MHAN,PCOD
      1E,NUM,MTEXT,MORE
210  FORMAT(A6,A2,A4,A3,A1,1X,F5,0,F3,0,5X,A3,A4,3A10,A1)
267  WRITE(OUTSTM,2010)CONTROL
275  IF(LOC,EQ,2M) LOC=2MXX
300  IF(OPCODE,EQ,1M) OPCODE=1M
303  IF(PCODE,EQ,3M) PCODE=2M
306  WRITE(OUTSTM,2220) DRFIELD(3),LOC,DATE,NAME,OPCODE,COST,MHAN,PCOD
      1E,NUM
2220  FORMAT(A10,A3,A7,A4,A2,F7,1,1X,F5,1,1X,A4,A4)

      RUN=LCHB9          76/04/85    09.32.21    MPORSHS2UX    PAGE NO. 2

C CHECK FOR BLANK FIELD, THEN READ IN MAINTEXT
334  IF(MTEXT(1),EQ,1M) GO TO 250
336  WRITE(OUTSTM,2075) DRFIELD(4),NUM,MTEXT
2075  FORMAT(1X,A5,0X,3A10)
350  IF(MHAN,EQ,1M) GO TO 245
352  READ 7,ITEMP(1),1M,7),MORE
362  WRITE(OUTSTM,2070) ITEM
370  GO TO 240
371  245 WRITE (OUTSTM,2071)
375  250 ENDFILE OUTSTM
377  GO TO 1
400  500 ENDFILE OUTSTM
402  REMIND OUTSTM
404  END

```

Fig. B.1.a. Operations/Maintenance Data Base. Reads operations and maintenance cards and transposes them into GIRLS style card images. Checks for blank subfields and adds semicolons. Report number is added as first word to text fields. See Figs. 3-4 and Appendix A.2.

```

      PROGRAM TRANSLAT(INP,OUT,IGRLDB)
2      INTEGER OUTSTM
3      DIMENSION NOMEN(3),IDATE(5),LOC(2),DBFIELD(4)
      DATA INP/3LINP/,ADD/4HADD /,OUTSTM/6LIGRLDB/
      DATA DBFIELD/3HNOMEN,6HPROPNO,4HMORE,4HKIND/
      DATA NAMDB/7LMPINVL/
      C NOMEN=1-24, PROPNO=25-31, GR=32-34, DATE=35-40, KIND=41, RECDOC=42-51,
      C LOC=52-59, NAME=71-80. (TA IN COLS 53-54 IS SKIPPED.)
      C ORDER OF SUBFIELDS IN MORE: 1MO,2YR,3RECDOC,4NAME,5GROUP,6-9LOC.
2      ISEMI=1H
4      WRITE (OUTSTM,2000) NAMDB
11     2000 FORMAT(* NAME *,A10)
11     ENDFILE OUTSTM
13     90 READ 1000,NOMEN,IPROP,IGR,IDATE,KIND,IDOC,LOC,NAME
13     1000 FORMAT( 2A10,A4,1X,A6,1X,A2,1X,5A1,1X,A1,1X,A8,4X,110,A4,1X,A10)
37     IF (EOF(INP)) 500,100
      C REMOVE DASH IN DATE.
42     100 DO 5,I=1,5
44     5 IF (IDATE(I).EQ.1H-) IDATE(I)=10H
      C WRITE INFO ON OUTSTM,BEGIN WITH ADD.
42     WRITE(OUTSTM,2010)ADD,IPROP
42     2010 FORMAT(1X,3A10,A4)
      C WRITE NOMENCLATURE.
42     WRITE(OUTSTM,2010)DBFIELD(1),NOMEN
      C WRITE PROPNO INTO SEARCH FIELD.
72     WRITE(OUTSTM,2010)DBFIELD(2),IPROP
      C WRITE KIND IF NOT BLANK.
102    IF (KIND.EQ.1H ) GO TO 10
104    WRITE(OUTSTM,2010)DBFIELD(4),KIND
      C CHECK FOR BLANK SUB-FIELDS, ADDING SEMICOLONS WHERE NECESSARY.
114    10 IF (IDOC.EQ.10H ) IDOC=ISEMI
117    IF (NAME.EQ.10H ) NAME=ISEMI
122    IF (IGR.EQ.10H ) IGR=ISEMI
125    IF (IDATE(1).EQ.1H .AND. IDATE(2).EQ.1H ) IDATE(1)=ISEMI
136    IF (IDATE(4).EQ.1H ) IDATE(4)=ISEMI
141    IF (IDATE(4).EQ.ISEMI) IDATE(5)=1H
      C WRITE MORE ON OUTSTM
144    WRITE(OUTSTM,2020)DBFIELD(3),IDATE,IDOC,NAME,IGR,LOC
144    2020 FORMAT(1X,A10,5A1,1X,A8,1X,A10,1X,A2,1X,A10,A4)
144    ENDFILE OUTSTM
145    GO TO 90
147    500 ENDFILE OUTSTM
171    REWIND OUTSTM
173    END

```

Fig. B.1.o. MP Inventory Data Base. Reads inventory cards and translates them into GIRLS style card images. Date, month, and year are put into separate subfields after removing hyphens.

RUN-LCH89

74/04/16

11.36.38

LLJAMES2DA

PAGE NO. 1

```

PROGRAM CREDIT(INP,OUT,IGRLDH)
INTEGER OUTSTM
DIMENSION IWORDS(6),IFIELD(2)
DATA INP/3LINP/
DATA NAMDB/7LMPINVLG/,OUTSM/6LIGRLDH/
DATA ISEMI/5L : : 7,IFIELD/4LMORE,4LTEXT/
C  PROPERTY NUMBER IN COLS 1-6, CREDIT OR LOAN BEGINNING COL 11.
C  DATE IN COLS 21-29.  ADDED TO MORE AND AS FIRST WORD IN TEXT FIELD.
C  CREDIT ADDED TO 6TH SUBFIELD OF MORE.  TEXT BEGINS AFTER DATE.
C  MUST END WITH SPACE AND $.
2  WRITE(OUTSTM,2004) NAMDB
2000 FORMAT(* NAME *,A10)
10  ENDFILE OUTSTM
12  1  READ LNO, NUM, LOC, MO, IYR, IWORDS
100  FORMAT (A0,4X,A10,2X,A2,5A10,A4)
30  IF (EOF(INPUT)) GO TO 10
33  10  WRITE(OUTSTM,2001) NUM
2001 FORMAT(* ALTER *,A6)
41  WRITE (OUTSTM,2002) IFIELD(1), MO, IYR, ISEMI, LOC
2002 FORMAT (A10,A2,1X,A2,2A10)
57  WRITE (OUTSTM,2003) IFIELD(2), MO, IYR, IWORDS
2003 FORMAT (A10,A2,*,A2,1A,5A10,A4)
73  ENDFILE OUTSTM
75  GO TO 1
76  500  ENDFILE OUTSTM
100  REWIND OUTSTM
107  END

```

Fig. B.1.c. MP-Inventory Data Base. Simple program to alter items to show removal from MP control when property is sent to salvage, loaned outside the division, or sent out for repair. Text field explains transaction in detail. See Fig. 17 and Appendix A.5.


```

PROGRAM ALINP00(INP,OUT,IGRLUB,FSET)=IGRLUB)
DIMENSION IFIELD(3),ITEXT(4),IWORDS(7)
DATA IFIELD/1A-AC1G,9LB-DESCRIP,BLC-STATUS/
DATA INPUT/3LINP/ALTER/3HALTER/,IDLP/10H 3
DATA NAMUB/0HMPPOOL/
ICK=0
ISEMI=3H 1
C WRITE NAME OF DATA BASE ON FILE.
WRITE(1,202) NAMUB
202 FORMAT('NAME ',A10)
251 HEAD 1, NUM,IWORDS,ICARD
1 FORMAT(A10,0A10,A9,11)
IF(EOP,INPUT) 5,1,11
111 GO TO (1,2) ICARD
C-----ALTER CARD NUMBER 1 FOR A-ACCTG AND A-DESCRIP.
10 DECODE(69,11,IWORDS) IUNIT,IPOOL,COST,IREQ,ITEXT
11 FORMAT(3A9,2A,1,3A,45,3A10)
IF(ICK.NE.NUM) ENDFILE 1
IF(ICK.NE.NUM) WRITE(1,212) ALTER,NUM
WRITE(1,13) IFIELD(1)
IF(IUNIT.EQ.5H) IUNIT=ISEMI
IF(IPOOL.EQ.5H) IPOOL=ISEMI
IF(COST.EQ.5H) COST=2H0.
WRITE(1,12) IFIELD(1),NUM,IUNIT,IPOOL,COST,IREQ
WRITE(1,15) IFIELD(2),IOLN
15 FORMAT(2A10)
WRITE(1,13) IFIELD(2),ITEXT
WRITE(1,14) IOLN
ICK=NUM
GO TO 251
C-----ALTER CARD NUMBER 2 FOR C-STATUS.
20 DECODE(69,12,IWORDS) IUSER,IURGN,IEXPNO,IPRITY,IN,IOUT,LOC
121 FORMAT(A10,A5,5A,2A5,2A8,7A,A10)
IF(ICK.NE.NUM) ENDFILE 1
IF(ICK.NE.NUM) WRITE(1,212) ALTER,NUM
212 FORMAT(2A10)
WRITE(1,14) IFIELD(3)
IF(IUSER.EQ.1CH) IUSER=ISEMI
IF(IURGN.EQ.5H) IURGN=ISEMI
IF(IEXPNO.EQ.5H) IEXPNO=ISEMI
IF(IPRITY.EQ.5H) IPRITY=ISEMI
IF(IN.EQ.5H) IN=ISEMI
IF(IOUT.EQ.5H) IOUT=ISEMI
WRITE(1,242) IFIELD(3),IUSER,IURGN,IEXPNO,IPRITY,IN,IOUT,LOC
242 FORMAT('A10,1A,3A6,2A8,A10)
ICK=NUM
GO TO 251
501 ENDFILE 1
ENDFILE 1
REWIND 1
12 FORMAT(6A10)
13 FORMAT(5A10)
14 FORMAT(A10)
END

```

Fig. B.1.d. Experimental Pool Equipment. Reads cards and transposes into GIRLS format to alter items by deleting previous entry and adding updated information. Card form may vary and is signaled by a read-in variable which determines which fields are to be altered. See Figs. 18-19 and Appendix A.6.

```
RETRIEVE PROBLEM ONE
NAME AND GROUP OR DATE
CRITERIA ONE
NAME EQ JONES
GROUP EQ ENGRG
DATE GT 731015
```

[illegible]

```

RUN=LCB89          MONTHLY          74/03/16      12.56.36      48MILL02NN      PAGE NO. 2
      1 27.0CODE=3X, 0CALLS, 0X=RTM, 0X=COUNT, 0X=PCODE, 2X=OFTIME,
      1 2X=NUMBERS, 2X=PARTS, 0X=
100 1 4LINE 4LINE 01
      C 1CALL FOUR FIELDS, SAVING INDEX AND SIZE FROM EACH. SET FLAGS IF NO
      C ENTRIES
170 1CALL GTFIELD(9,OPERATION,NUMENTR,ENTSIZE,INDEX,BUF)
173 1INDEX=INDEX 5 NUMENTR=INENTR+2
177 1CALL GTFIELD(10,OPERENT,NUMENTR,ENTSIZE,INDEX,BUF)
200 1FNUMENTR,EG,0) GO TO 01
204 1FLAG=1
206 1INZOP = ENTSIZE 5 INDOFINDEX
210 41 1CALL GTFIELD(9,MAINTAIN,NUMENTR,ENTSIZE,INDEX,BUF)
213 1FNUMENTR,EG,0) GO TO 00
215 1FLAG=1
217 1INDININDEX 5 NUMENTR=NUMENTR+0
221 1CALL GTFIELD(8,MAINTENT,NUMENTR,ENTSIZE,INDEX,BUF)
224 1FNUMENTR,EG,0) GO TO 00
226 1FLAG=1
228 1INDININDEX 5 INZMTE=ENTSIZE
      C ALL ADDRESSES HAVE BEEN SAVED TO BEGIN TO PRINT AND CHECK. INEP NEEDS TO BE
      C DECODED TO CHECK FIRST ENTRY WORD OF NEXT ENTRIES.
      C CHECK TO SEE IF FIRST FALLS WITHIN TIME SPAN WANTED, OR REVERSE
      C WANTED CARDS

```

40

```

231 49 DO 51 J=1,NUMOP,12
232 101=SRUF(INOP+J)
235 IF(101F,LT,1START,OR,101E,GT,1END) GO TO 58
244 1REP=SRUF(INOP+J+10)
247 DECODE(1P,51,1REP) INREP
51 FORMAT(6X,A4)
C DO NOT UNAUGHT HOURS, BUT PRINT WITH R4 FORMAT.
250 DO 52 J=1,2
251 52 CALL UNAUGHT(SRUF(INOP+J+J=2) )
255 DO 54 J=1,2
256 54 CALL UNAUGHT(SRUF(INOP+J+J=2) )
270 IF(4LINE,LT,NLP) GO TO 550
277 PRINT 27,NAMEPRB
304 4LINE=0
305 550 PRINT 53, 1HREP,(SRUF(INOP+J+K=2),K=1,11)
53 FORMAT(8X,7X,A4,4X,A2,3X,A6,2X,A4,4X,A3,4X,A1,5X,A1,5X,A5,1X,
1 F6,1,5X,A3,3X,F6,1,F6,1)
C CHECK TO FIND CORRECT REPORT IN OPERTEXT, SKIP IF NO ENTRIES.
323 4LINE=4LINE+2
325 IF(4LINE,LT,NLP) GO TO 551
327 PRINT 27,NAMEPRB
334 4LINE=0
335 551 IF(1PLG1,EO,0) GO TO 58
336 DO 56 I=1,1070P
337 IF(1TRUF(INDOT+I=1),NE,1HREP) GO TO 55
344 DO 56 I=1,100
345 IF(1TRUF(INDOT+I=1),NE,100LL) GO TO 56
351 I=I+1=1
C 4LINE=NO LINES IN TEXT ENTRY, 10 WORDS/LINE
352 4LINE=(11-1)/10+1
355 IF(4LINE,GT,NLP) GO TO 58
361 4LINE=4LINE+4LINE

```

RUN=LCH88 MONTHLY 74/05/16 12.06.26 RSMILL02MM PAGE NO. 3

```

361 PRINT 57,(TRUF(INDOT+11),11=1,IV)
57 FORMAT(20X,10A10)
375 GO TO 58
C LEFTNO LINES LEFT ON PAGE
376 50 LEFTNO=4LINE
C INT=ADDRESS OF LAST WORD THAT CAN BE PRINTED
400 INT=(LEFTNO-1)
401 PRINT 57,(TRUF(INDOT+11),11=1,INT)
417 PRINT 27,NAMEPRB
425 INT=INT+1
427 PRINT 57,(TRUF(INDOT+11),11=INT,IV)
442 4LINE=0+LINE-LEFT
445 GO TO 58
445 56 CONTINUE
445 55 CONTINUE
C CIRCLE TWO MAINTNANCE ENTRIES TO FIND A MATCH. USE 1REP TO CHECK.
492 58 IF(1PLG2,EO,0) GO TO 58
493 DO 60 I=1,NUMMM,8
495 IF(SRUF(INOP+I+6), NE,1REP) GO TO 60
496 INT=INOP+I+1
497 DO 61 K=1,8
498 61 CALL UNAUGHT(SRUF(INT+K=1) )
499 IF(4LINE,LT,NLP) GO TO 63
507 PRINT 27,NAMEPRB
508 4LINE=0
509 63 PRINT 62,((SRUF(INT+K=1),K=1,4),SRUF(INT+6),SRUF(INT+5),
1 SRUF(INT+4))
62 FORMAT(16X,A2,5X,A6,10X,A3,4X,A1,20X,A3,10X,F7,1,1X,F6,2)
4LINE=4LINE+1
520 IF(4LINE,LT,NLP) GO TO 65
530 PRINT 27,NAMEPRB
535 4LINE=0
536 GO TO 65
537 60 CONTINUE
542 65 IF(1PLG3,EO,0) GO TO 58
543 DO 73 I=1,1070P
544 IF(1TRUF(INDOT+I=1),NE,1HREP) GO TO 73
549 DO 73 I=1,100
551 IF(1TRUF(INDOT+I=1),NE,100LL) GO TO 73
552 I=I+1=1
C LEFTNO OF LINES IN TEXT TO BE PRINTED
557 INT=(11-1)/10+1
558 IF(4LINE,GT,NLP) GO TO 75
564 4LINE=4LINE+4LINE
565 PRINT 57,(TRUF(INDOT+11),11=1,IV)
566 67 FORMAT(20X,10A10)/(20X,10A10)
567 GO TO 58
568 75 LEFTNO=4LINE
569 INT=(LEFTNO-1)
570 PRINT 57,(TRUF(INDOT+11),11=1,INT)
571 PRINT 27,NAMEPRB
572 INT=INT+1
573 PRINT 57,(TRUF(INDOT+11),11=INT,IV)
574 4LINE=0+LINE-LEFT
575 GO TO 58

```

RUN=LCH88 MONTHLY 74/05/16 12.06.26 RSMILL02MM PAGE NO. 4

```

652 71 CONTINUE
653 71 CONTINUE
657 50 CONTINUE
662 1PLG1=0
662 1PLG2=0
663 1PLG3=0
664 GO TO 1
668 998 CONTINUE
668 END

```

Fig. B.2.a. Operation/Maintenance Data Base. Prints all or selected information for each item retrieved. Maintenance reports are printed with corresponding operator action. See Fig. 5 and Appendix A.2.

```

PROGRAM FOLLOUP (INT, INP, INTRNM)
COMMON /RUFTEXT/INIF /RUSRCH/SRUP
DIMENSION ISM(1),ITRUF(1)
DIMENSION JNM(7)
EQUIVALENCE (ISM(1),ISRUF(1)),(TRUF(1),ITRUF(1))
NDAT=NDAY(MD,MY)*(365/56*(MY-72)+1002*(MY-1)+189*(MD-1))
JMD=1 JNM(1)=3 JY=7M
JDATE=NDAY(JM,JY)
CALL DATE1(MDY)
151 IF(LAG=1)
31 IPRB=0
33 PRINT 11R
110 FORMAT(1H)
36 NAMEPR=11L
40 CALL NEXTITM(NAMEPRM,TRFSLT,ITEMNUM)
43 IF(ITEMSLT.EQ.1)IF(ITEMFOUND) GO TO 1
45 IF(ITEMSLT.EQ.1)IF(ITEMPROBLEM) GO TO 300
47 IF(ITEMSLT.EQ.1)IF(ITEMOUTPUT) CALL EXIT
51 IF(ITEMSLT.EQ.1)IF(ITEMCENR) PRINT 17,NAMEPRB
61 IF(ITEMSLT.EQ.1)IF(ITEMPHLEMS) PRINT 18, NAMEPRB
71 IF(ITEMSLT.EQ.1)IF(ITEMS) PRINT 19, NAMEPRB
101 STOP 1000
103 IPRB=NAMEPRB
105 PRINT 101, NAMEPRB,MDY
101 FCHMAT(= 0,A10,7A,A10//)
110 CALL PRINT
115 GO TO 111
C PRINT HEADINGS.
114 300 PRINT 112, IPRB, MDY
112 FCHMAT(10,53L,05H=MDY OF 0,47,0 40HLISTS=62K,A10)
120 PRINT 50
50 FCHMAT(100,00X,01A0,06X,0DATE=06X,
10DATE=3,0FOLLOUP=0 ITEM NO.=,17X,0JDR NAME=,51X,0REQUESTOR=,5
2H,0PERIOD=,3X,0INQUIRED REQUIRED PERIOD=,//)
132 JRY=0
133 NAMESORT=IPRMB
135 CALL SORTRES(ITEMSLT,NAMEPRM,ITEMNUM)
137 IF(ITEMSLT.EQ.1)IF(ITEMPROBLEM) GO TO 110
142 IF(ITEMSLT.EQ.1)IF(ITEMCENR) CALL EXIT
145 IF(ITEMSLT.EQ.1)IF(ITEMCENR) GO TO 177
147 IF(ITEMSLT.EQ.1)IF(ITEMS) GO TO 100
151 103 CALL GETRES(ITEMSLT)
153 IF(ITEMSLT.EQ.1)IF(ITEMPROBLEM) GO TO 151
155 IF(ITEMSLT.EQ.1)IF(ITEMCENR) GO TO 177
157 CALL GETFIELD(10,NUMENTR,INTSIZE,INDEB,SUP)
162 IONISUB(ITEMS)
164 CALL GETFIELD(10,NAME,NUMENTR,INTSIZE,INDEB,SUP)
170 DO 2 I=1,7
172 JOB(I)=JNM
177 IF(INTSIZE.GT.77) INTSIZE=77
203 DO 4 I=1,INTSIZE
212 A JOB(I)=ITRUF(INDEB+1)
C SUMMARIZING BY GROUP.
210 CALL GETFIELD(10,BYGROUP,NUMENTR,INTSIZE,INDEB,SUP)
220 IONISUB(INDEB)

```

```

222 IF(ITEMS.EQ.1) PRINT 112, 100
231 JRY=100
1121 FCHMAT(10,010)
233 CALL GETFIELD(10,NAME,NUMENTR,INTSIZE,INDEB,SUP)
237 IONISUB(INDEB)
240 IONISUB(ITEMS)
242 IONISUB(ITEMS)
245 CALL UNRIGHT(ITEMS)
247 CALL UNRIGHT(ITEMS)
252 IF(ITEMS.EQ.1)IF(ITEMS) IF(ITEMS)
257 IF(ITEMS.EQ.1)IF(ITEMS) IF(ITEMS)
265 CALL GETFIELD(10,NAME,NUMENTR,INTSIZE,INDEB,SUP)
267 IONISUB(ITEMS)
269 CALL GETFIELD(10,NAME,NUMENTR,INTSIZE,INDEB,SUP)
272 IF(ITEMS)
274 IONISUB(ITEMS)
276 IF(ITEMS.EQ.1) IF(ITEMS) IF(ITEMS)
278 IF(ITEMS.EQ.1) IF(ITEMS) IF(ITEMS)
281 DECDE(10,51,1) IFUP
51 FCHMAT(10,11,51)
311 IF(ITEMS.EQ.1) IFUP
313 IF(ITEMS.EQ.1) GO TO 21
316 DECDE(10,51,1) IFUP
22 FCHMAT(10,12,12)
317 LDATE=NDAY(JM,JY)
319 DO 0 I=1,IPR
320 NDAT=NDAY(JM,JY)+LDATE
322 IF(JDATE.EQ.LDATE) GO TO 5
324 0 CONTINUE
326 IF(NDAT-JDATE.GE.77) GO TO 21
327 IONISUB(ITEMS)
331 21 PRINT 10, JNM, JNM, JNM, JNM, JNM, JNM, JNM
333 FCHMAT(= 0,47,0,7A10,3X,A10,2X,A10,2X,A6,0X,11,2X,61)
374 GO TO 103
38 FCHMAT(= 0 NO PROBLEMS WERE RETURNED FOR RETRIEVE 0,A10)
376 PRINT 10, NAMEPRB
38 FCHMAT(= 0 ITEMS SATISFIED CRITERIA IN PROBLEM 0,A10)
378 GO TO 151
378 PRINT 10, NAMEPRB
381 GO TO 151
378 PRINT 17, NAMEPRB
378 FCHMAT(= 0 FCS (NAME WAS ENCOUNTERED ON READ OF PROBLEM 0,A10)
378 STOP 177
378 END

```

Fig. B.2.b. Work Accounting Followup produces a listing, as in Fig. 15, of all jobs for a retrieve with stars after those that are due to be followed up. This is determined by the date requested and the interval specified in that interface. See also Appendix A.4.

```

PROGRAM BACKEND(INP,OUT,INHTWNU)
COMMON /HUF5CH/SHUF(1) /BUFTXT/BUF(1)
INTEGER SHUF,UBUF,ENTSIZE
DIMENSION INHOMEN(15),IFLU(100)
2  JS=
  NAMEERR=0
1  CALL XCATIT(KNAMEPRB,RESULT,ITEMNUM)
  IF(RESULT.EQ.1)CITEFOUND=1 GO TO 10
  IF(RESULT.EQ.1)CLENOUTPUT=1 GO TO 500
  IF(RESULT.EQ.1)FLNDPROBLEM=1 GO TO 2
  IF(RESULT.EQ.1)ALNOITEMS=1 PRINT 130
130 FORMAT(10) NO ITEMS FOUND FOR ANY PROBLEMS*)
  IF(RESULT.EQ.1)ALNOPROBLEMS=1 PRINT 203
203 FORMAT(10) NO PROBLEMS WERE SUBMITTED FOR RETRIEVAL.*)
  IF(RESULT.EQ.1)LECCERNOH=1 PRINT 205
205 FORMAT(10) ECESEMHOR ON HEAD*)
  STOP 1
5  STOP 11
C  CALL EACH FIELD AND STORE INFO IN ARRAYS
10 CALL GTFIELD(1)NUMBER, NUMENTR,ENTSIZE,INDEX,BUF1
  DO 100 I=1,ENTSIZE
    CALL XAUGHT(1)SHUF(INDEX+I-1)
    INHOMEN(I)=SHUF(INDEX+I-1)
    CALL GTFIELD(4)KIND,NUMENTR,ENTSIZE,INDEX,BUF1
    IF(INHENTR.EQ.1) GO TO 55
    KIND=SHUF(INDEX+I)
    IF(KIND.EQ.1) KIND=4*LECC
    IF(KIND.EQ.1) KIND=4*PCOUL
    GO TO 55
55 KIN=SHUF(1)
50 CALL GTFIELD(4)MORE,NUMENTR,ENTSIZE,INDEX,BUF1
  NUMENTR=ENTSIZE
  DO 500 J=1,K
    CALL XAUGHT(1)SHUF(INDEX+J-1)
    IF(J.EQ.1)CITEFOUND=1
    IF(J.EQ.1) PRINT 400, NAMEPRB
400 FORMAT(10) ITEMS RETRIEVED FOR *A10// PROPNO*2A,*DESCRIPTION*
    A1A=INHOMEN(2X)OUTATEP*4X,*RECDLOC*2X,*CONSIGNEE*3X,*GHW*3X*
    PULCATION*)
    CALL XAUGHT(1)ITEMNUM
    PRINT 420,ITEMNUM,INHOMEN,KIND,(IFLU(I)=1,K)
420 FORMAT(10) *44*2A*A10// *44(2A,1X) *2X*AD*2*2X*48*3X*A10*3A*
    11*3X*46*1X//15C*42*2A*4P*3X*48*3X*A10*3X*4C*2X*46*1X*AD*1A*46*
    1A*40)
    CALL GTFIELD(4)TEXT,NUMENTR,ENTSIZE,INDEX,BUF1
    IF(NUMENTR.EQ.1) GO TO 61
    PRINT *30*(THUF(INDEX+I-1),J=1,ENTSIZE)
    400 FORMAT(35X)TEXT*3X,10A1_)
    6.  J=J+1
    GO TO 1
600 CONTINUE
END

```

43

RUN=LCM89

7/10/78

09,35,35

MPCJDEA2AF

PAGE NO. 1

```

      PROGRAM MFCR(INP,OUT,INRTN)
      COMMON /BUFSCRCH/ SBUF(1) /BUFTXT/ TBUF(1)
      DIMENSION ISBUF(1), ITBUF(1), ITEXT(4)
      EQUIVALENCE (ISBUF(1), SBUF(1)), (ITBUF(1), TBUF(1))
      CALL DATE1(IDATE)
      IFLAG=2
      PRINT 151, IDATE
151  FORMAT(*1*,49X,*SUMMARY OF ALL MP*/47X,
2  *EQUIPMENT BY UNIT NUMBER*/55X,A10//)
13  PRINT 141
141  FORMAT(* *,*UNIT PROPERTY MFG MODEL NO. ----DESCRIPTION-----
2  * USER ORG. EXP. PRI DATE DATE ----LOCATION-----/
3  * NO. NO.*/63X,*NO. IN OUT=//)
17 112  NAMSORT=11*
21  CALL SORTRES(IRESULT,NAMSORT,NUMITMS)
23  IF(IRESULT.EQ.1) GO TO 112
25  IF(IRESULT.EQ.10) GO TO 112
30  IF(IRESULT.EQ.10) GO TO 112
30  CALL RETNEXT(IRESULT)
36 16  IF(IRESULT.EQ.10) GO TO 112
40  IF(IRESULT.EQ.10) GO TO 112
44  IPROP=IRESULT
46  CALL UNAUGHT(IPROP)
47  CALL GETFIELD(71A-ACCTG,NUMENTR,INTSIZE,INDEX,BUF)
53  IUNIT=ISBUF(INDEX+1)
55  CALL UNAUGHT(IUNIT)
57  CALL GETFIELD(91B-DESCRIP,NUMENTR,INTSIZE,INDEX,BUF)
63  DO 121 K=1,4
65  IF (K)=ITBUF(INDEX+K-1)
72  IF (TEXT(K),EQ.2H S) ITEXT (K)= 1H
73 121  CONTINUE
75  CALL GETFIELD(91C-STATUS,NUMENTR,INTSIZE,INDEX,BUF)
101  DO 301 L = 1,INTSIZE
103  CALL UNAUGHT(ISBUF(INDEX+L-1))
105  IF (ISBUF(INDEX+L-1).EQ.10) ***** ISBUF(INDEX+L-1) = 1H
113 301  CONTINUE
116  PRINT 201, IUNIT,IPROP,ITEXT,(ISBUF(INDEX+K-1),K=1,INTSIZE)
201  FORMAT(* *,A4,3X,A6,3X,A3,2X,A10,2X,2A10,2X,A10,2X,A5,2X,A4,2X,
2  A1,2X,A6,2X,A6,2X,A8,2X,A8)
137  IFLAG = IFLAG +1
141  IF (IFLAG,EQ.52) GO TO 607
142  GO TO 16
143 607  IFLAG = 0
144  PRINT 221, IDATE
221  FORMAT (*1*,A10)
152  PRINT 101
156  GO TO 16
157  END

```

Fig. B.2.d. Experimental Equipment Pool. Prints by unit number all equipment, current location, to whom assigned and for which experiment. See Fig. 18 and Appendix A.6.

[illegible]

continued

```

65      CALL UNAUGHT(IEXP(N))
67      5      CONTINUE
72      PRINT 3,NUNIT,(ITEXT(K),K=1,4),KNT,INUSE,IAVAIL,IEXP(1),ICOUNT(1)
      3      FORMAT(10X,6X,A3,6X,A3,5X,A10,3X,2A10,3X,13,5X,13,5X,13,6X,
2      A2,13)
113     IF(M,GT,1) PRINT 102,(IEXP(L),ICOUNT(L),L=2,IX)
133     IF(IX,GE,M) GO TO 4
135     IX=IX+1
136     PRINT 101,IDATE
      121     FORMAT(10X,57X,*LEEF EQUIPMENT*/55X,*DISTRIBUTION SUMMARY*/
2      61X,A10//5X,*UNIT NO.      MFG      MODEL NO.      DESCRIPTION*,
3      12X,*TOTAL  INUSE  AVAIL  DISTRIBUTION*///)
148     LINE=6
149     PRINT 103,(IEXP(L),ICOUNT(L),L=IX,M)
      122     FORMAT(90X,A9,13)
163     LINE=LINE+M-IX
166     4      KNT=J
167     IF(LINE,GE,KK) PRINT 101, IDATE
273     IF(LINE,GE,KK) LINE=10
274     NUNIT=IUNIT
285     IFLAG=J
C-----WHEN OLD NEXPNO IS NO GOOD ANY LONGER, MUST MAKE NEXPNO=IEXPNO.
C-----WE CHANGE IFLAG TO ONE TO SIGNAL MAIN PROGRAM TO MAKE CHANGE.
296     M=J
297     IAVAIL=0
C-----IAVAIL IS SET TO ZERO SO IF NO *** EXPERIMENT NUMBERS ARE
C-----ENCOUNTERED ON THE NEXT UNIT IT WILL REFLECT 0(ZERO) AVAILABLE.
210     RETURN
211     END

```

RUN=LCH89 74/04/08 11,59,03 MPOJDEACN PAGE NO. 1

```

SUBROUTINE TEXTSTR
COMMON /BUFSRCH/BUF(1) /BUFLTEXT/TSUF(1)
1      COMMON M,ITEXT(4),IEXP(100),ICOUNT(100),IUNIT,NUNIT,KNT,IAVAIL,
1      NCOUNT,IEXPNO,NEXPNO,LINE,IFLAG
1      INTEGER TSUF
C-----THIS ROUTINE STORES TEST INFO IN ARRAY ONCE FOR EACH TYPE UNIT.
1      CALL GETFIELD(9LG-DESCRIP,NUNENTR,INTSIZE,INDEX,BUF)
5      DO 1 K=1,4
7      ITEXT(K)=TSUF(INDEX+K-1)
12     IF(ITEXT(K),EQ,10H $ ) ITEXT(K)=1H
15     1      CONTINUE
17     RETURN
23     END

```

RUN=LCH89 74/04/08 11,59,08 MPOJDEACN PAGE NO. 1

```

SUBROUTINE STOREXP
1      COMMON M,ITEXT(4),IEXP(100),ICOUNT(100),IUNIT,NUNIT,KNT,IAVAIL,
1      NCOUNT,IEXPNO,NEXPNO,LINE,IFLAG
C-----THIS ROUTINE STORES COUNT OF ONE TYPE UNIT FOR A PARTICULAR
C-----EXPERIMENT AND NAME OF EXPERIMENT IN ARRAYS THEN SETS COUNTER
C-----TO ZERO FOR NEXT EXPERIMENTS COUNT AND MAKES NEXT EXPERIMENT NO.
C-----NEXPNO) EQUAL NLN-EXP-NO (IEXPNO).
C-----IF PROGRAM HAS COME HERE BECAUSE THE UNIT OR TYPE OF EQUIPMENT
C-----HAS CHANGED THE PROGRAM GOES ON TO PRINT INFO FOR THIS UNIT.
1      M=M+1
3      ICOUNT(M)=NCOUNT
5      IEXP(M)=NEXPNO
6      IF(NEXPNO,EQ,10L*****M) M=M+1
11     NCOUNT=0
12     NEXPNO=IEXPNO
13     IF(IUNIT,NE,NUNIT) CALL PRNTLIN
16     RETURN
17     END

```


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Format for Fig. 20

Alternate Format, not shown

Headings for page 1 of print

Heading for all successive page headings.

47

```

644      NC11111111
1      FORMAT(10,9X,3A10,5X,A2,2A10/50X,A10,A6,14/10X,0PAGE 0,13,
2      2A10,A7,5X,A2,2A10//18X,0NAME0,33X,0GROUP0)
2      FORMAT(10,9X,3A10,5X,A2,2A10/50X,A10,A6,14/10X,0PAGE 0,13,
2      2A10,A7,5X,A2,2A10//10X,0NAME AND ADDRESS0,29X,0CITY0,29X,0ZIP0)
647      END

```

RUN=LCHAG 74/04/16 16.33.24 MPOMETH6AT PAGE NO. 1

```

      SUBROUTINE PRTINST
1      COMMON/HUFTEXT/TBUF(1) /RUFSPCH/SBUF(1)
1      INTEGER SHUF,TRUF
1      COMMON ICODE,INSTCD,INSTLTH,LINF,M,ITEM,IFLAG,KINST,KPEOP,KNT,NCOD
2F
1      DIMENSION IADDR(4,5)
1      DO 2 M=1,20
7      IADDR(M)=10M
1      LN=1
11     I=1
12     CALL GTFIFLD(9,INSTITUTE,NUMENTR,INTSIZE,INDEX,RUF1
14     DO 1 N=1,INTSIZE
2     IF (TRUF(INDEX+N-1) .EQ.2M 5) GO TO 4
23    IF (TRUF(INDEX+N-1) .NE.1L1) GO TO 3
24    LN=LN+1
27    I=I+1
30    GO TO 1
35    3 I=I+1
36    IADDR(I,N)=TRUF(INDEX+N-1)
41    1 CONTINUE
44    4 L1=LINF+LN+1
44    IF (L1,GT,M-1) LINE = M+1
47    IF (L1,GT,M-1) CALL HEADING
48    PRINT 5, ICODE, ((IADDR(K,L),K=1,4),L=1,LN)
5      FORMAT(10,9X,3A10,5X,A2,2A10//20X,09,0A10//)
78    KNT=0
76    LINF=LINF+LN+1
77    KINST=KINST+1
100    INSTCD=ICOD
112    RETURN
113    END

```

RUN=LCHAG 74/04/16 16.33.24 MPOMETH6AT PAGE NO. 1

```

      SUBROUTINE HEADING
1      COMMON/HUFTEXT/TBUF(1) /RUFSPCH/SBUF(1)
1      INTEGER SHUF,TRUF
1      COMMON ICODE,INSTCD,INSTLTH,LINF,M,ITEM,IFLAG,KINST,KPEOP,KNT,NCOD
2F
1      DIMENSION INDG(12),IGEN(4)
1      DATA INDG/1M,0M FOREIGN,1M,10M MEDICAL,10M G,
2      10M GOVERNMENT,10M E,10M RATIONAL,10M I,
3      10M INDUSTRIAL,1M,1M /,IGEN/35M INSTITUTIONS AND ASSOCIATED MEMBER
4S/
1      CALL DATF(1,DATE)
2      CALL DMINF(1,NAMEUS,NDATE,IVERS)
4      IF (L1,GT,M) GO TO 7
12     I=1
12     IF (ICOD.EQ.1M) INDX=1
14     IF (ICOD.EQ.1MM) INDX=3
2     IF (ICOD.EQ.1MG) INDX=5
23    IF (ICOD.EQ.1MU) INDX=7
24    IF (ICOD.EQ.1M1) INDX=9
31    IF (IFLAG.NE.1) PRINT 4, KPEOP,KINST
42    KINST=0
44    KPEOP=0
44    IF (INDX.EQ.0) GO TO 4
44    IF (INSTLTH.EQ,NCOD) GO TO 5
44    I=1
46    INSTLTH=NCOD
46    INDX=INDX+1
47    7 I=I+1
48    PRINT 3, (INDG(I),I=INDX,NDX), IGEN,IPG,DATE,IVERS,NDATE
74    LINE=6
77    LINE=7
100    IF LAG=3
3      FORMAT(10,9X,3A10,11X,0PAGE 0,13/5X,0DATE OF MUN 0,A10/
2      2X,0FROM DU VHSION 0,14/50X,0CREATED 0,A10//X,0INST-CODE0,
3      1X,0INSTITUTE AND MEMBERSHIP0)
4      FORMAT(//5X,0THE APC 0,14,0 PERSON(S) IN THIS SECTION AND 0//5X
2      2,0THERE ARE 0,14,0 INSTITUTES IN THIS SECTION0)
101    RETURN
102    4 PRINT 2, ITEM,ICOD
112    2 FORMAT(1) PROBLEM 0,A10,0 WAS AN INCORRECT INSTITUTE CODE=0,A10)
112    RETURN
113    END

```

[illegible]

Fig. B.2.g. LAMFf users. Program to print membership list by type of institution (government, university, foreign, or hospital). Within each group, the institutions have been sorted and printed only once, followed by the users affiliated with the institution. See Fig. 21 and Appendix A.7.

```

3      CALL DYNINFO(NAMEDB,NDATE,IVERS)
4      IF (LINE.GT.M) GO TO 7
12     INDX=0
12     IF (NCODE.EQ.1MF) INDX=1
15     IF (NCODE.EQ.1MH) INDX=3
21     IF (NCODE.EQ.1MG) INDX=5
23     IF (NCODE.EQ.1MJ) INDX=7
26     IF (NCODE.EQ.1MI) INDX=9
31     IF (IFLAG.NE.1) PRINT 4, KPEOP,KINST
43     KINST=0
44     KPEOP=0
44     IF (INDX.EQ.0) GO TO 6
44     IF (INSTLTR.EQ.NCODE) GO TO 5
50     IPG=0
50     INSTLTR=NCODE
51     5   KIX=INDX+1
52     7   IPG=IPG+1
55     PRINT 3,(IMDG(I),I=INDX,NDX),IGEN,IPG,IDATE,IVERS,NDATE
74     LINE=6
77     LINE=7
100    IFLAG=3
3      FORMAT(//5X,SA10,11X,0PAGE 0,13/55X,0DATE OF RUN 0,A10/
2 55X,0FROM DB VERSION 0,I4/50X,0CREATED 0,A10//5X,0INST-CODE=,
3 11X,0INSTITUTE AND MEMBERSHIP0//)
4      FORMAT(///5X,0THERE ARE 0,I4,0 PERSON(S) IN THIS SECTION AND 0//5X
2,0THERE ARE 0,I4,0 INSTITUTES IN THIS SECTION,0)
101    RETURN
102    6   PRINT 2, ITEM,ICODE
112    2   FORMAT(01 PROBLEM 0,A10,0 HAS AN INCORRECT INSTITUTE CODE=0,A10)
113    RETURN
113    END

```

RUN=LCHM90

74/04/16 16.33.24 MP04ETH4AT PAGE NO. 1

```

SUBROUTINE PRINST
COMMON/BUFTXT/BUF(1) /BUFSRCH/SBUF(1)
INTEGER SBUF,TRUF
COMMON ICODE,INSTCD,INSTLTR,LINE,M,ITEM,IFLAG,KINST,KPEOP,KNT,NCOD
2F
1   DIMENSION IADDR(4,5)
1   DO 2 MA=1,20
7   2   IADDR(MA)=10M
14  LN=1
11  IWD=0
12  CALL GTFIFLD(9,INSTITUTE,NUMENTR,INTSIZE,INDEX,BUF)
14  DO 1 N=1,INTSIZE
21  IF (TRUF(INDEX+N-1) .EQ.2H S) GO TO 4
23  IF (TRUF(INDEX+N-1) .NE.1L) GO TO 3
24  LN=LN+1
27  IWD=0
30  GO TO 1
34  3   IWD=IWD+1
35  IADDR(IWD,LN)=SBUF(INDEX+N-1)
41  1   CONTINUE
44  4   LIN=LIN+LN+1
46  IF (LIN.GT.M-1) LINE = M+1
49  IF (LIN.GT.M-1) CALL HEADING
54  PRINT 5, ICODE,((IADDR(K,L),K=1,4),L=1,LN)
55  5   FORMAT(00,4X,A15,4A10/(20X,R9,9A10)//)
74  KNT=0
75  LIN=LIN+LN+1
77  KINST=KINST+1
101  INSTCD=ICODE
102  RETURN
103  END

```

Fig. B.2.h. Experiment Scheduling. Program designed to show the status and spokesmen of all proposals submitted to the Program Advisory Committee for LAMPF. See Fig. 23 and Appendix A.8.

```

RUC=LCHRG          74/94/1R          11,54.52          LLKAYBU4EJ          PAGE NO. 1

      PROGRAM STATUS(100,001,100,001)
      COMMON /HUF5CHM/SHUF(1) /HUFTEXT/THUF(1)
      INTEGER SHUF,THUF
      DIMENSION RSHUF(1),ISTAT(10),ICOND(10),LAST(10),IFST(10)
      EQUIVALENCE (SHUF(1),RSHUF(1))
      NAMEPRH=IL*
      LPP=50
      IPAGE=1
      CALL HDG(IPAGE,LINE)
      CALL NEXTTH(NAMEPRH,[RESULT,ITEMNUM])
      IF(RESULT.EQ.1) GOTO 9
      IF(RESULT.EQ.1) GOTO 10
      IF(RESULT.EQ.1) GOTO 11
      IF(RESULT.EQ.1) GOTO 12
      PRINT 10, IRESULT
      10 FORMAT(=,IRESULT = *,A10)
      STOP 1000
      11 CONTINUE
      TPAC=0,0
      PAC=0
      ICHL=1000
      CALL UNHAUGHT(ITEMNUM)
      DO 1 I=1,10
      LAST(I)=100
      IFST(I)=100
      ISTAT(I)=100
      ICOND(I)=100
      LAST(I)=1000000000
      ISTAT(I)=1000000000
      CALL GETFIELD(CALM=STATUS,NUMENT,INTSIZE,INDEX,HUF)
      IF(NUMENT.EQ.0) GOTO 4
      IF(NUMENT.GT.10) NUMENT=10
      INT=NUMENT*INTSIZE
      L=0
      DO 7 J=1,INT,INTSIZE
      L=L+1
      ISTAT(L)=SHUF(INDEX+J-1)
      ICOND(L)=SHUF(INDEX+J)
      IF(J.EQ.1) GOTO 7
      IF(SHUF(INDEX+J-1).EQ.1000000000) ISTAT(L)=100
      IF(SHUF(INDEX+J).EQ.1000000000) ICOND(L)=100
      CONTINUE
      CALL GETFIELD(PLC=SPRKE(SMM,NUMENTH,INTSIZE,INDEX,HUF)
      IF(NUMENTH.EQ.0) GOTO 4
      PRINT 17, ITEMNUM,ISTAT(1),ICOND(1)
      17 FORMAT(2X,2G,A13,A11)
      IF(1,GT,1) PRINT 10, (ISTAT(I),ICOND(I),I=2,L)
      10 FORMAT(4X,A13,A11)
      LINE=LINE+1
      IF(LINE.GE.LPP) CALL HDG(IPAGE,LINE)
      GO TO 2
      4 CONTINUE
      IF(NUMENT.GT.10) NUMENT=10
      INT=NUMENT*INTSIZE
      L=0
      DO 5 J=1,INT,INTSIZE

```

```

RUN=LCH89          STATUS          74/64/18      11,54,52      LL94YBUJFJ      PAGE NO. 2
176      L=L+1
177      LAST(L)=SUBF(INDEX+J-1)
178      IFST(L)=SUBF(INDEX+J)
179      IF(J,1,3) GO TO 5
180      IF(SUBF(INDEX+J-1),EQ,1WH***** ) LAST(L)=1WH
181      IF(SUBF(INDEX+J),EQ,1WH***** ) IFST(L)=1WH
182      K=INDEX+J
183      IF(MINEXT,GT,K) K=MINEXT
184      K=K
185      CALL CTF(J,INCOLJ=CHANNEL,MINEXT,INTSIZE,INDEX,BUF)
186      IF(MINEXT,GT,0) TCHNL=SUBF(INDEX)
187      IF(MINEXT,EQ,0) GO TO 16
188      IF(PSRUS(INDEX+1),EQ,1WH***** ) PAC=0,
189      IF(PSRUS(INDEX+1),GT,0,0) A,
190      PSRUS(INDEX+1),LT,000000000) PAC=PSRUS(INDEX+1)

```

continued

```

260 16  CONTINUE
260      TPAC=TPAC+PAC
262      PRINT 11, I, IFMNM, ISTAT(I), ICOND(I), LAST(I), IFST(I), TPAC, ICHNL
11      FORMAT(2X, A4, A13, A11, 2A13, F7.1, A17)
304      LINE=LINE+1
306      IF (K, E7, 1) GO TO 14
307      KLINE=LINE+K
310      IF (KLINE, GE, LPP) KA=(KLINE-(LPP)+1)
314      PRINT 12, ISTAT(I), ICOND(I), LAST(I), IFST(I), I=2, KA)
12      FORMAT(A19, A11, 2A13)
340      LINE=LINE+KA-1
342      IF (LINE, GE, LPP) CALL HDG(IPAGE, LINE)
350      KA=KA+1
352      IF (KA, LE, K) PRINT 15, (ISTAT(I), ICOND(I), LAST(I), IFST(I), I=KA, K)
15      FORMAT(*, A4, A19, A11, 2A13)
400      LINE=LINE+(K-KA)
403 14  CONTINUE
403      IF (LINE, GE, LPP) CALL HDG(IPAGE, LINE)
411      GO TO 2
412      END

```

RUN=LC489

74/04/18

11.54.52

LLRAYBU4EJ

PAGE NO. 1

```

SUBROUTINE HDG(IPG, L)
6  CALL DATE1(IDATE)
7  IPAGE=IPAGE+1
11 PRINT 1, IDATE, IPAGE
1      FORMAT(*STATUS OF PROPOSALS AS OF *, A10/* PAGE *, I3/* PROP. NO.,
2STATUS CONDITIONS SPOKESMAN*, I5X, *PAC HOURS CHANNEL*/)
24  L=5
24  RETURN
25  END

```

```

1      RUN=LCMR9                                74/04/18    14.35.44    LLRAYBU4IE    PAGE NO. 1

      PROGRAM PARTINST(INP,OUT,INRT=M)
      COMMON/BUFSQCH/SHUF(1) /BUFTXT/TRUF(1)
      INTEGER TRUF,SHUF
      DIMENSION NAM1(1500),NAM2(1500),INST(1500),ITM(1500),ICOMB(1000),
      2 ITMS(50),ITCM(100)
      CALL DATE1(IDATE)
      PRINT 100
      100  FORMAT(*1*)
      10  100  IPP=50
      11  1  IP=0
      12  KNT=0
      12  IFLAG=1
      13  IPAGE=1
      14  NAMEPRR=10
      16  2  CALL NEXTITM(NAMEPRR,IRESULT,ITMNUM)
      21  IF(IRESULT,FO,PLENFOUND) GO TO 3
      23  IF(IRESULT,EO,PLENDPROBLE) GO TO 6
      25  IF(IRESULT,FU,PLENDOUTPUT) CALL EXIT
      27  PRINT 10,IRESULT
      10  10  FORMAT(*1,IRESULT=*,A10)
      35  STOP 1000
      37  3  CALL GETFLD(9LE=PRICPTS,NUMENTR,INTSIZE,INDEX,BUF)
      43  IF(NUMENTR,EO,0) GO TO 2
      44  INT=NUMENTR*INTSIZE
      46  DO 4 IN=1,INT,INTSIZE
      60  KNT=KNT+1
      61  NAM1(KNT)=SHUF(INDEX+ID-1)
      61  NAM2(KNT)=SHUF(INDEX+ID)
      63  INST(KNT)=SHUF(INDEX+ID+1)
      64  ITM(KNT)=ITMNUM
      66  4  CONTINUE
      71  GO TO 2
      71  6  PRINT 11, IDATE,IPAGE
      11  11  FORMAT(*1*,4X,*PARTICIPATION=5X,*A5 OF *,A10/5X,*PAGE *,13//
      2 5X,*LAST NAME INITIALS INSTITUTE EXPERIMENT INVOLVEMENT*//)
      CALL SORT2(KNT,NAM1,1,NAM2,1,ICOMB,M8RK)
      101  MR=1
      110  MA=MR
      111  7  K=ICOMB(MA)
      112  MR=0
      115  IPER1=NAM1(K)
      116  IPER2=NAM2(K)
      120  INST=INST(K)
      122  DO 8 MH=MA,KNT
      123  I=ICOMB(MH)
      124  IF(IPER1,NE,NAM1(I),OR,IPER2,NE,NAM2(I)) GO TO 9
      134  MH=I
      135  ITMS(M)=ITM(I)
      140  8  CONTINUE
      142  IFLAG = 10
      143  9  CONTINUE
      143  CALL SORT1(M,R,ITMS,ITCM)
      147  DO 12 J=1,M
      151  CALL UNHAIGHT(ITMS(J))
      153  12  CONTINUE

```

```

      RUN=LCMR9                                74/04/18    14.35.44    LLRAYBU4IE    PAGE NO. 2

      L=M
      156  IF(M,GT,0) L=0
      162  PRINT 21, IPER1,IPER2,INST,(ITMS(J),J=1,L)
      21  21  FORMAT(5X,A10,2X,2A10,3X,9A5)
      177  L=L+1
      201  IF(M,GT,0) PRINT 22, (ITMS(J),J=L,M)
      22  22  FORMAT(40X,9A5)
      213  IP=IP+1/10
      217  IF(MOD(M,9),GT,0) IP=IP+1
      225  IF(IP,LT,IPP) GO TO 23
      227  IPAGE=IPAGE+1
      231  IP=0
      231  PRINT 11, IDATE,IPAGE
      241  23  IF(IFLAG,NE,10) GO TO 7
      243  GO TO 1
      244  END

```

Fig. B.2.i. Experiment Scheduling Data Base. Program which sorts participants, prints their names, institutions, and all proposals with which they are involved. See Fig. 24 and Appendix A.8.

B.3. Pre-Processor Programs that have been produced from Post-Processor Programs.

Fig. B.3.a. Summary of Operating History. This post-processor is run once a month to summarize, graph, and store the total activity for the month. The information is taken from active items in OPERMAINT. Bargraphs are printed and the data is stored on temporary tape in GIRLS ALTER format. At this point, OPERMAINT is released and another data base, GRAPHDATA, is secured. The ALTER tape is read then as input to GRAPHDATA where the statistics are stored permanently to be retrieved later for film graphs. See Figs. 9-11 and Appendices A.2 and A.3.

```

RUN=LCMBY          74/04/05   14.43.38   MPOMD,JH3DU   PAGE NO. 1

PROGRAM ALTRUTA(INP,OUT,INUTW,MARGE,FSETI=MARGE)
COMMON/BUF TEXT/THUF(1)/BUF SRCH/SHUF(1)
2   DIMENSION ISHUF(1),ITHUF(1)
2   EQUIVALENCE (ISHUF(1),SHUF(1)),(ITHUF(1),TBUF(1))
2   DIMENSION ICODE(200),ICUMH(400),IFIELD(4)
2   DIMENSION LINE1(5),LINE3(5),LINE4(2),LINE5(2),LINE6(2),LINE7(2)
2   DIMENSION LINE1(2),LINE8(3)
2   DIMENSION LETCODE(12),TOTCD(12)
2   DIMENSION ISYSSUM(3),IFUNSUM(3),NAMFUN(75),NAMSYS(75)
2   COMMON N(75),SFIX(75),SDWH(75),SMT(75),NCODE(100,50),SOP(75)
2   2 5PC(75)
DATA LETCODE/10L*****1LU,1LR,1LS,1LU,10L0000000U1,10L000000 A
1000C,10L0000000U0,1 L0000000004,10L0000000005,10L0000000006,10L00 A
2000000007/
DATA IULN/10M $ /
C   CHANGE NEXT DATA CARD TO CURRENT MONTH.
2   DATA ITHMC/AL7403/.IMC/16M MAR 1974/
DATA IFIELD/7MCATALOG,7HSUMMARY,6HOPCODE,10MPANTS-COST/
DATA ACTIGN/5MALTER/
DATA ISYSSUM/20HSUMMARY OF REPORTS BY SYSTEM/
DATA IFUNSUM/30HSUMMARY OF REPORTS BY FUNCTION/
DATA LINE1/10MUN THE MONTH OF /
DATA LINE1/45M----- KEY -----/
DATA LINE3/45MFUN:TION (NO.OF REPORTS) GRAPH BY OPCODE/
DATA LINE4/16MOWNTIME = DDUU/
DATA LINE5/16MIX TIME = FFFF/
DATA LINE6/16MOP-MANHRS = 0000/
DATA LINE7/16MHT-MANHRS = MMMM/
DATA LINE8/21MHT-PANTS-COSTS = $$$$/
2   CALL DATE1(IUATE)
4   DECODE(1L,3Q,1YRMO) IPLTUAT
30  PUMHAT(14)
14  PRINT 5
5   FORMAT(1*)
20 112 ICOUNT=0
21  NFUN=1M
22  NSYS=1H
24  ISYS=1H
25  IFUN=1M
27  FLAG=0
27  UMHT=0
30  OPMH=0
31  MPMH=0
31  PCL=0
32  IFLAG=1
33  MSE=
33  NLINES=1
35 553 NAMSORT=1L*
37  CALL SUMTRES(IRESULT,NAMSORT,NUMITMS)
41  IF(IRESULT.EQ.10LNOITEMMETR) GO TO 553
43  IF(IRESULT.EQ.10LENDSCRIPMB) GO TO 1061
45  IF(IRESULT.EQ.10LECSERRUR ) STOP 2777
50  NAME = IRESULT
52 102 CALL GETNEXT(IRESULT)
54  IF(IRESULT.EQ.10LENDPROBLEM) GO TO 1751

RUN=LCMBY          ALTRUTA          74/04/05   14.43.38   MPOMD,JH3DU   PAGE NO. 2

56  IF(IRESULT.EQ.10LECSERRUR ) STOP 3777
62  IF(NAME.EQ.4LITEM) GO TO 1003
64  CALL GETFIELD(7LCATALOG,NUMENTR,INTSIZE,INDEX,BUF)
70  IF(NUMENTR.EQ.0) GO TO 102
72  ISYS=ISHUF(INDEX+1)
73  IFUN=ISHUF(INDEX+2)
75  IF((NAME.EQ.6LFUNCTION).AND.
2   (IFUN.NE.NFUN).AND.(IFLAG.NE.1)) GO TO 1051
110 IF((NAME.EQ.6LSYSTEM).AND.
2   (ISYS.NE.NSYS).AND.(IFLAG.NE.1)) GO TO 1051
123 NFUN=IFUN
124 NSYS=ISYS
125 IFLAG=2
127 GO TO 2051

```

continued

NUN-LCMBY #LTPITA 74/04/05 10.43.38 PPOMDJA3011 PAGE NO. 3

continued

[illegible]

```

112      PRINT 411,SF1X(KA),(ICH,II=1,ISF)
130      NLINES=NLINES+1
133 5541 IF(SOP(KA).LT..001) GO TO 5551
136      ISO=SOP(KA)*.5
141      IF(ISO.GT.1.0) ISO=100
144      PRINT 411,SCP(KA),(ICH,II=1,ISO)
146      NLINES=NLINES+1
165 5551 IF(SMT(KA).LT..001) GO TO 5561
170      ISM=SMT(KA)*.5
173      IF(ISM.GT.1.0) ISM=100
176      PRINT 411, SMT(KA),(ICH,II=1,ISM)
214      NLINES=NLINES+1
217 5561 IF(SPC(KA).LT..001) RETURN
223      ICST=SPC(KA)*.5
226      IF(ICST.GT.100) ICST=100
232      PRINT 511, SPC(KA),(IPC,II=1,ICST)
511      FORMAT(11X,1H(F7.2),4H) ,160K1)
NLINES=NLINES+1
411      FORMAT(13X,1H(F5.1),4H) ,100K1)
5521 5521 FORMAT(00*100,3H (,13.6H ) ,100A1)
253      RETURN
254      END

```

Fig. B.3.b. Pre-Processors can write the retrieval program from data which is used also in the Post-Processor. This program is one of several designed to analyze failure reports for LAMPF. Reports can be made for specific locations and/or time periods. Data cards are read by the Pre-Processor which then writes the retrieval program onto card images in GIRLS format. The same information is written on a temporary file and used by the Post-Processor to select only those entries which satisfy the criteria desired. (A data management system which returned only these entries which satisfy retrieval criteria would eliminate many of the complex Post-Processors now needed. Such systems are becoming available on today's market.)

```

RUN=LCN59          74/04/05    13.33.26    MPORSMS2ZF    PAGE NO. 1

      PROGRAM PREPHOS(INP,OUT,IGALDB,FSET1=IGALDB,IPOST,FSET2=IPOST)
      DIMENSION IFIELD(4)
      DATA INP/2LJNP/
      DATA IFIELD/7LCATALOG,9LOPERATION/
      AND=9H AND
      SEMI=3H ;
      GE=4H GE
      LE=4H LE
      EQ=4H EQ
      NE=4H NE
      WRITE(1,5)
      5  FORMAT(10 NAME OPERMAINT*)
      ENDFILE 1
      2  READ(10,*,ISTART,IEND,SCHED,PERIOD,ISYS,IPROB,ICRIT) — Reads data cards, processes each
      IF (ICRIT.EQ.0) GO TO 7                                immediately.
      10  FORMAT(12,2X,10,1X,A6,3X,F5.0,5X,4A10)
      7  WRITE(1,20)IPROB,ICRIT
      20  FORMAT(9 REPRISE,9A10,1X,A10) — FSET1 will be read as input to GIRLS program.
      WRITE(1,25)IFIELD(1),AND,IFIELD(2)
      ENDFILE 1
      25  WRITE(1,30)ICRIT
      30  FORMAT(10 CRITERIA,9A10)
      WRITE(1,35)IFIELD(1),SEMI,EQ,ISYS
      35  WRITE(1,37)IFIELD(2),SEMI,GE,ISTART,LE,IEND
      37  FORMAT(10,45,A10,A10,A4,10)
      45  WRITE(1,37)ISTART,IEND,SCHED,ISYS,IPROB,PERIOD — FSET2 will be read by post-processor.
      37  FORMAT(12,26,A6,F5.0,3A10,A4,3A10)
      ENDFILE 1
      GO TO 2
      500 ENDFILE 2
      REWIND 1
      REWIND 2
      END

RUN=LCN59          74/04/05    13.33.25    MPORSMS2ZF    PAGE NO. 1

      PROGRAM MTRF(IPOST,FSET2=IPOST,OUT,INATWN,PUN)
      COMMON /MTRF/SHUF(1) /MTRTEXT/TEUF(1)
      DIMENSION ISHUF(1),MA(25),IX(25)
      DIMENSION ITRFP(10),NOREP(10),DOWN(10),FIX(10),JLOC(10)
      EQUIVALENCE (ISHUF(1),SRUF(1))
      INTEGER ENTSIZE
      NAME=33333333333333333333333333333333
      JLOC(2)=7H2AT=4HZ
      JLOC(3)=6H5QJCE
      JLOC(4)=7H405=MHZ
      JLOC(5)=3HALL
      C  N=DUN*TIME -2. M=FIXTIME=2.
      11  IMPRT=10H
      12  N=0
      13  M=0
      14  M=0
      15  1  READ(2,5)IFLAG,ISTART,IEND,SCHED,ISYSTEM,IPROB,IPERIOD
      5  FORMAT(12,46,A6,F5.0,3A10,A4,3A10)
      27  IF (IFLAG.EQ.0) GO TO 2
      42  2  NUM=IFLAG + 1 — IFLAG=0 when no breakdown of reports by location is
      44  JLOC(1)=7H40JCE — wanted. IFLAG=4 when wanted and NUM becomes 5 which
      46  DO 3 I=1,NUM — is a total of reports for all locations.
      50  NURFP(I)=0
      52  DOWN(I)=0
      54  FIX(I)=0
      56  3  ITRFP(I)=0
      57  ENCODE(10,4,NSTART)MASK,ISTART — Adds leading aughts to correspond to dates as stored
      70  ENCODE(10,4,NFNU)MASK,IEND — by GIRLS.
      4  FORMAT(10,46)
      102  NAMEPRB=0
      103  DO 4 I=1,10
      105  CALL FETCH(I,IPROB,IN) — Left justifies NAMEPRB to correspond to GIRLS configuration.
      107  IF (IN.EQ.55) GO TO 50
      111  CALL PUT(I,NAMEPRB,IN)
      114  9  CONTINUE
      116  56  CONTINUE
      118  9  CALL NEXTITH(NAMEPRB,RESULT,ITEMNUM)
      121  IF (RESULT.EQ.10LITEMFOUND) GO TO 10
      123  IF (RESULT.EQ.10LNOITEMRETR) GO TO 200
      125  IF (RESULT.EQ.10LENDPHOBLEM) GO TO 200

```

continued

B.4. Miscellaneous.

Fig. B.4.a. Office and Lab Space Data Base. Retrieved items have been sorted by a GIRLS subroutine and are printed with this program. Variable LINE is used to store information until all fields have been called and is used as a "print positioner." See Appendix A.9.

```

1      RUN=LCM69                      74/24/12    16,46,32    MPOLLJA2GI    PAGE NO. 1

      PROGRAM OCCLIST(INP,OUT,INBTNN)
      COMMON/BUFSRCH/5BUF(1) /BUFTXT/TBUF(1)
      INTEGER 5BUF,TBUF
      DIMENSION LINE(48)
      II=48
      CALL DATE1(DATE)
      PRINT 7,DATE
      7 FORMAT(*1*,52X,*SPACE OCCUPANCY AT LAMPF, TA=53*//64X,A8*///9X,
      1*BUILDING*,7X,*ROOM*,10X,*TYPE*,12X,*USE*,11X,*OCCUPANT*,7X,
      2*GROUP*,6X,*PHONE*,13X,*REMARKS*//)
      10 NANSORT=1L
      15 CALL SORTRES(IRESULT,NANSORT,NUMITHS)
      17 IF(IRESULT,EQ,1)END(ITEMRETR)STOP 1
      23 IF(IRESULT,EQ,10)ENDSORTPRB)CALL EXIT
      24 IF(IRESULT,EQ,10)LECSERROR )STOP 2
      32 11 CALL GETTEXT(IRESULT)
      34 IF(IRESULT,EQ,10)ENDPROBLEM)GO TO 10
      36 IF(IRESULT,EQ,10)LECSERROR )STOP 3
      C BLANK OUT ALL WORDS IN ARRAY LINE FIRST TIME THROUGH, THEREAFTER JUST NO. OF
      C WORDS THAT HAVE BEEN PRINTED,
      42 DO 15 I=1,II
      50 15 LINE(I)=10H
      C CALL SINGLE-ENTRY FIELDS AND IDENTIFY
      51 CALL GETFIELD(4)ROOM,NUMENTR,INTSIZE,INDEX,BUF)
      56 IBLDG=5BUF(INDEX)
      57 IROOM=5BUF(INDEX+1)
      61 CALL UNAUGHT(IROOM)
      63 IF(IROOM,EQ,1)*****IROOM=1H
      66 CALL GETFIELD(4)TYPE,NUMENTR,INTSIZE,INDEX,BUF)
      72 ITYPE=5BUF(INDEX)
      74 CALL GETFIELD(3)USE,NUMENTR,INTSIZE,INDEX,BUF)
      100 IF(NUMENTR,EQ,0)GO TO 20
      101 IUSE=5BUF(INDEX)
      103 GO TO 25
      174 20 IUSE=1H
      C CALL REMAINING FIELDS AND STORE INFO IN WORD POSITIONS,
      176 25 CALL GETFIELD(6)OCCUPANT,NUMENTR,INTSIZE,INDEX,BUF)
      182 J=1
      183 NOLINE=NUMENTR
      184 K=NUMENTR*INTSIZE
      187 DO 30 I=1,K,2
      186 LINE(J)=5BUF(INDEX+I-1)
      187 LINE(J+1)=5BUF(INDEX+I)
      194 30 J=J+2
      194 CALL GETFIELD(5)PHONE,NUMENTR,INTSIZE,INDEX,BUF)
      197 J=3
      198 IF(NUMENTR,EQ,0)GO TO 42
      199 IF(NUMENTR,GT,NOLINE)NOLINE=NUMENTR
      200 DO 35 I=1,NUMENTR
      206 LINE(J)=5BUF(INDEX+I-1)
      211 IF(LINE(J),EQ,1)*****LINE(J)=1H
      217 35 J=J+6
      C CHECK FOR POSITION OF 3 AND STORE PRECEDING WORDS ACCORDINGLY,
      160 43 CALL GETFIELD(9)REMARKS,NUMENTR,INTSIZE,INDEX,BUF)
      164 IF(NUMENTR,EQ,0)GO TO 46

      RUN=LCM69                      OCCLIST          74/24/12    16,46,32    MPOLLJA2GI    PAGE NO. 2

      165 J=4
      166 DO 45 I=1,INTSIZE
      170 IF(TBUF(INDEX+I-1),EQ,2H $)GO TO 46
      173 LINE(J)=TBUF(INDEX+I-1)
      175 J=J+1
      176 GO TO 45
      177 45 M=MOD(J,3)
      203 IF(M,NE,1)LINE(J)=10H
      206 IF(M,EQ,1)J=J+3
      211 IF(M,EQ,0)J=J+4
      214 IF(M,EQ,2)J=J+5
      217 45 CONTINUE
      222 48 II=NOLINE+6
      C PRINT FIRST ENTRY OF ITEM,
      224 PRINT 50,IBLDG,IROOM,ITYPE,IUSE,(LINE(I),I=1,6)
      50 FORMAT(*8*,9X,A6,7X,A6,3(6X,A10),6X,A5,7X,R4,6X,2A10,A2)
      C PRINT ALL ADDITIONAL ENTRIES,
      242 IF(NOLINE,GT,1)PRINT 55,(LINE(I),I=7,II)
      55 FORMAT(* ,66X,A10,6X,A5,7X,R4,6X,2A10,A2)
      253 GO TO 11
      254 END

```

Text entries are limited to three words, with each entry matching one in search field OCCUPANT. Words are stored until end of entry (\$) is found.

Fig. B.4.b. Daily Operations/Maintenance Report. Program for PDP-11 to read maintenance cards, search data files, and print information from stored catalog and from the card. See Fig. 4 for output.

```

C      THIS PROGRAM WILL READ A MAINTENANCE CARD, LOOK IN THE APPROPRIATE
C      DATA FILE FOR THE SAME UNIT NUMBER AND THEN PRINT THE DATA AND THE
C      INFORMATION ON THE MAINTENANCE CARD.
C
C      EACH DECK TO BE READ IN SHOULD END WITH A BLANK CARD.
C
C      THIS PROGRAM WILL BE CALLED MAINT
C
      DIMENSION IDATE(5)
      DIMENSION LTEXT(35),NUM(5),PER(5,5),A(5),N(5),KREC(2),KDA(3),
      KNA(2),KTE(20),UNIT(20),KFL(2),NDAT(3)
      INTEGER A,E,UNIT
      DATA PER(1,1),PER(1,2),PER(1,3),PER(1,4),PER(1,5)/'HI','LL','I','I',
      'I','I'
      DATA PER(2,1),PER(2,2),PER(2,3),PER(2,4),PER(2,5)/'KA','LL','AC',
      'E','I','I'
      DATA PER(3,1),PER(3,2),PER(3,3),PER(3,4),PER(3,5)/'ST','EV','EN',
      'S','I','I'
      DATA PER(4,1),PER(4,2),PER(4,3),PER(4,4),PER(4,5)/'KA','ND','AH',
      'IA','IN','I'
      DATA PER(5,1),PER(5,2),PER(5,3),PER(5,4),PER(5,5)/'KI','SL','DV',
      'E','I','I'
      DATA A(1),A(2),A(3),A(4),A(5)/1,2,3,4,8/
      DATA N(1),N(2),N(3),N(4),N(5)/250,250,125,50,20/
      CALL SETFIL(1,'DDHEAM.DAT',ERR,'DK',0)
      CALL SETFIL(2,'IRF.DAT',ERR,'DK',0)
      CALL SETFIL(3,'INJ.DAT',ERR,'DK',0)
      CALL SETFIL(4,'VACUUM.DAT',ERR,'DK',0)
      CALL SETFIL(6,'WATER.DAT',ERR,'DK',0)
      CALL SETFIL(7,'READI.FRR','CR',0)
      CALL SETFIL(6,'KBI',ERR,'KB',0)
      CALL SETFIL(5,'LIST',ERR,'LP',0)
      CALL DATE(IDATE)
C
C      WRITE DATE AND HEADINGS FOR OUTPUT.
      WRITE(5,1) IDATE
1  FORMAT(1H1,5A2,13X,'MAINTENANCE REPORT'///
      1' UNIT LOC DATE NAME MT PARTS MAN',3X,'FAIL',5X,
      2' REPORT',4X,'DATE OF'//
      3' NO',24X,'CODE COST,S HRS',3X,'CODE',5X,'NUMBER',4X,'OP CARD')
C
C      CARD READER READS AND PROCESSES CARDS ONE AT A TIME.
C
C
8  READ(7,2) NUM,KLO,KDA,KNA,KOP,M,CST,HRS,NDAT,KFL,KREC,KTE,KPD
2  FORMAT(5A1,1X,A2,3A2,A2,A1,A1,A1,F5.0,F3.0,2A2,A1,A2,A1,2A2,20A2,
      1A1)
      IF(M.EQ.'M') GO TO 10
      WRITE(6,9)
9  FORMAT(1' COLUMN 19 WAS MISPUNCHED IN FOLLOWING CARD')
      WRITE(6,6) NUM,KLO,KDA,KNA,KOP,M,KREC
6  FORMAT(1' ,5A1,1X,A2,3A2,A2,3A1,5X,2A2)
10 NDX=0
      IF(NUM(1).EQ.'9'.AND.NUM(4).EQ.'9') GO TO 199
      IF(NUM(1).EQ.'I') GO TO 100
      IF(NUM(3).EQ.'I') NDX=2
      IF(NUM(1).EQ.'1'.OR.NUM(1).EQ.'9') NDX=2
      IF(NDX.NE.0) GO TO 16
      IF(NUM(1).EQ.'2'.OR.NUM(1).EQ.'3') NDX=1
      IF(NUM(1).EQ.'5'.OR.NUM(1).EQ.'7') NDX=1
      IF(NUM(1).EQ.'4'.AND.NUM(4).EQ.'I') NDX=1
      IF(NUM(1).EQ.'6') NDX=4

```

continued

```

C
C THIS IS A UNIVERSAL READ, ERROR PRINT OUT AND WRITE STATEMENTS FOR
C ALL DATA FILES.
C
16 E=A(NDX)
   REWIND E
   NC=N(NDX)
   DO 21 NN=1,NC
     READ(E,51,END=30) (UNIT(J),J=1,20)
31   FORMAT(5A1,15A2)
     DO 15 K=1,5
       IF(UNIT(K).NE.NUM(K)) GO TO 21
15   CONTINUE
     GO TO 22
21   CONTINUE
C ERROR
30   WRITE(6,3) NUM,KLO,KDA,KNA,KOP,KREC,E
3   FORMAT('1,5A1,1X,A2,3A2,A2,A1,A1,3X,2A2,' WAS NOT FOUND IN FILE
      1',15)
     IF(KMJ.NE.' ') GO TO 47
     GO TO 8
C WRITE
22   WRITE(5,24) (UNIT(J),J=1,20),(PER(NDX,I),I=1,5)
24   FORMAT(/'1,5A1,4X,5A2,4X,5A2,5A2,4X,5A2)
C
C THIS PORTION PRINTS CARD INFO ON SECOND LINE OF DATA AND FIRST LINE
C OF TEXT.
C
201  WRITE(5,25) NUM,KLO,KDA,KNA,KOP,CST,HRS,KFL,KREC,NDAT,KTE
25   FORMAT('1,5A1,2X,A2,2X,3A2,4X,A2,A1,3X,A1,2X,F8.2,F7.2,4X,A2,A1,
      1 4X,2A2,6X,2A2,A1/10X,20A2)
     IF(KMJ.EQ.' ') GO TO 8
C
C TEXT CONTINUATION CARDS PROCESSING.
C
26   READ(7,27) LTEXT,LMO
27   FORMAT(35A2,1X,A1)
     WRITE(5,28) LTEXT
28   FORMAT('1,35A2)
     IF(LMO.NE.' ') GO TO 26
     GO TO 8
C
C ERROR ON ORIGINAL READ IN =
C
45   WRITE(6,29) NUM,KLO,KDA,KNA,KOP,CST,HRS,KFL,KREC,KTE
     WRITE(6,46)
46   FORMAT('1 THE ABOVE CARD HAS AN ERROR ACCORDING TO READ NO. 8')
     IF(KMJ.EQ.' ') GO TO 8
47   READ(7,48) LMO
48   FORMAT(71X,A1)
     IF(LMO.NE.' ') GO TO 47
     GO TO 8
199  WRITE(5,200) NUM
200  FORMAT(/'1,5A1,22X,'SWITCHYARD EQUIPMENT HARVEY')
     GO TO 201
100  REWIND 1
     REWIND 2
     REWIND 3
     REWIND 4
     REWIND 8
     END

```