CENTER REGULATION 66-1, Vol XIII

1 October 1984

EQUIPMENT MAINTENANCE

MAINTENANCE MANAGEMENT L TECHNIQUE

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This volume, in conjunction with Volume I, provides guidance on the maintenance management policies and responsibilities for the Laboratory (L) Technique, the Deputy Chief of Maintenance for the L Technique, the Depot Central Laboratory (MCL), and the field laboratories. It establishes the relationships between the Chief of Maintenance, the Deputy Chief of Maintenance, the training function, and the CENTER's military laboratory system.

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1. GENERAL. The military laboratory system is composed of the Depot Laboratory (MCL), the two detachment laboratories, and the laboratory equipment at Det 057. The first three are production-oriented operational laboratories and the latter performs the training function. The MCL also has a development function. The detachment laboratories are geographically separated from both their parent units and from the MCL. The mission of the military laboratory system precludes the establishment of a fully standardized maintenance management system. The MCL is responsible for logistics engineering of Laboratory (L) Technique equipment, as required, IAW appropriate Air Force procedures. Much of the L Technique equipment can be classed as one-of-a-kind. This equipment is frequently designed, fabricated, operated, maintained, modified and supported by the MCL. Some of the equipment is purchased from and maintained by contractor personnel. Detachment laboratories will report directly to their parent units on laboratory maintenance matters with information copies of all correspondence to Depot/DLX/DLRNL and HQ/LGM/TNL. This volume, in conjunction with Volume I, provides headquarters guidance and policy on maintenance management and general maintenance practices for the CENTER military laboratory system.

2. TERMS:

a. Deputy Chief of Maintenance, Laboratory Technique. The Chief, Plans and Support Division, MCL.

b. Laboratory (L) Technique. All Center unique laboratory equipment that the MCL has item management responsibility and located at the MCL, the two detachment laboratories, and Det 057. For maintenance purposes, the item manager will determine what equipment or combination of equipment constitutes a laboratory system.

c. L Technique Workcenter Supervisor. The individuals in charge of maintenance at the detachment laboratories and at the MCL.

3. RESPONSIBILITIES. Authority and responsibility for the maintenance management of the Laboratory Technique are delegated by the Center Commander through the Director of Logistics to the Chief of Maintenance, HQ/LGM, who has functional management responsibility over the MCL Chief, Plans and Support Division (DLX). The Chief, Plans and Support Division, designated as the Deputy Chief of Maintenance (DCM) for the Laboratory Technique, has direct control over the maintenance management of the MCL internal laboratories and functional management responsibility of the field laboratories through the parent unit Maintenance Supervisor.

a. The DCM, Laboratory Technique will:

(1) Assign a Maintenance Supervisor for the MCL.

(2) Manage the L Technique maintenance program in accordance with CENR 66-1, Vol I and this volume to include the following:

(a) Ensure, through the review of MCL reports, ESRs, MMLs, quality control reports, etc., that maintenance performed on laboratory equipment is timely and of the required quality.

(b) Monitor the utilitization of maintenance personnel assigned to field locations, and coordinate with the appropriate agencies to satisfy maintenance manning requirements. The DCM may direct the temporary transfer of personnel within the MCL complex or provide temporary assistance to the field locations through the Depot Assistance Program (CENR 66-3).

(c) Ensure that sufficient material resources (e.g., spare parts, components, tools, test equipment, technical data, and support equipment) are authorized and available to support the maintenance mission.

(d) Ensure compliance with the equipment configuration control program.

(e) Ensure that a technical documentation system is implemented and used in accordance with applicable governing directives.

(f) Ensure AFTO Forms 22 and Materiel Deficiency Reports (MDR) for the L Technique are reported in accordance with the applicable directives (TO 00-5-2 for AFTO Forms 22 and TO 00-35D-54 for MDRs).

(3) Provide guidance and assistance to the Parent Unit Maintenance Supervisors consistent with the policies provided in CENR 66-1, Vol I and this volume.

(4) Ensure that all facets of equipment maintenance are accomplished efficiently and effectively.

(5) Implement effective safety programs for all parts of the laboratory maintenance complex.

(6) Ensure maintenance personnel are thoroughly and properly trained.

(7) Review all maintenance concepts and maintenance plans for new systems, equipment developments, and procurements to ensure maintenance supportability.

b. L Technique Maintenance Supervisors will:

(1) Conduct periodic maintenance inspections.

(2) Assist the laboratory workcenter supervisors in performing maintenance.

(3) Assist the DCM, Laboratory Technique in managing the L Technique maintenance program to include:

(a) Identify any problem areas concerning maintenance which cannot be resolved at the Maintenance Supervisor level to the Deputy Chief of Maintenance, L Technique.

(b) Review equipment status reports (ESR) to insure accuracy, timeliness, and appropriate action is taken.

(c) Ensure that required supplies and appropriate authorized spares are on hand or on order at all field locations.

(d) Monitor workcenters and inform the DCM L Technique and HQ/DP of any manning problems impacting maintenance capability.

(e) Initiate requests for depot assistance in accordance with CENR 66-3 when appropriate.

(4) Support maintenance capability evaluation (MCE).

(5) Comply with and implement the policies and procedures in AFR 66-1, CENR 66-1, Vol I, and this volume.

(6) Review support agreements and provide assistance to insure requirements necessary to support the maintenance mission are included.

(7) Ensure configuration control monitor duties are performed.

4. MAINTENANCE DOCUMENTATION. The MCL and detachment laboratories will collect and document maintenance data to assist in managing the maintenance of L Technique equipment. The requirements, procedures, and formats for maintenance data collection are set forth in the attachments to this volume.

a. The detachment laboratories will prepare and send Equipment Status Reports (ESR) per attachment 2. The MCL is not required to submit equipment status reports.

b. Weekly operational capability status reports will be sent to headquarters in accordance with CENR 55-19. The reports will contain the current status of all laboratory systems for the period indicated.

c. The detachment laboratories will prepare and send Monthly Maintenance Logs (CEN Form 35) per attachment 3.

d. All laboratories will provide a monthly laboratory equipment availability document, using AFTO Forms 244 and 245, per attachment 4.

e. All laboratories will use AFTO Forms 95 as system historical logs and provide plant-in-place records (PIPRs) per attachment 5.

f. MCL will prepare and send to HQ/LGM a quarterly MCL maintenance data report which will include equipment malfunction information for MCL systems.

5. REQUISITIONING OF PARTS. The following paragraphs establish the priority levels to be used for ordering parts based on equipment status. The determination of equipment status will normally be done by the Workcenter Supervisor in conjunction with operations personnel. The MCL Program Manager has the ultimate responsibility for determining equipment status within the MCL. The laboratory chief has this responsibility at the detachments.

a. Fully Mission Capable (FMC). When equipment is completely functional, capable of providing full mission support, and able to process at least 90% of the required samples (including standards and backgrounds), urgency justification code (UJC) BE, Priority 05, will be used to requisition any needed parts.

b. Partially Mission Capable (PMC). When equipment is not completely functional, cannot provide full mission support, but can process between 50% and 90% of the required samples, one of the following UJCs will be used to order parts using the general guidelines below:

(1) If the failure is seriously impacting production, there is or will be a large backlog due to the failure, high priority samples are expected which may be unacceptably delayed due to the failure, and/or the required parts are hard-to-get items, use UJC BE (Priority 05).

(2) If none of the factors in 5b(1) apply, use UJC BE (Priority 05).

(3) If parts are originally ordered BE and the situation degrades, raise the priority to AE.

c. Not Mission Capable (NMC). When the equipment is nearly or completely inoperable, provides little or no sample data, and can process less than 50% of the required samples, UJC AE (Priority 02) will be used to requisition parts needed to repair the equipment.

6. SPARES. The laboratories will maintain benchstock and forward supply point (FSP) assets in accordance with applicable regulations. Requests for additions or deletions to FSP benchstock will be coordinated with the L Technique item manager (Depot/DLXR).

7. MAINTENANCE RESTORAL PRIORITIES:

a. Immediate maintenance is required for Priority 1 restoral. Maintenance will continue until the Priority 1 condition no longer exists or parts required for repair have been ordered. Since no two samples follow the exact same path for processing, the Program Managers at the MCL or the Detachment Commander at the detachment laboratories will determine Priority 1 conditions through inputs received from their personnel. Safety of personnel and the guidelines prescribed by AFR 66-1 must be considered when directing any maintenance. The following is provided as a guide:

(1) Priority 1. Any equipment failures that result in loss or could result in the loss of a sample. All equipment failures that prevent sample processing during Nuclear Debris Collection and Analysis (NDC&A) alerts and special event conditions. Any failures that prevent the deployment kits from performing their mission, under anticipated deployment conditions.

(2) Priority 2. All equipment failures which prevent sample processing for the Reactor Products (RP), PONY EXPRESS (PE), or Nuclear Products (NP) programs.

(3) Priority 3. All equipment failures affecting backgrounds, standards or PMRs required for equipment integrity.

(4) Priority 4. Minor maintenance that does not affect equipment operation.

b. Equipment problems encountered which are beyond the detachment's capability to repair will be referred by message to the parent unit with informational copies to Depot/DLX/DLRNL and HQ/TNL/LGM.

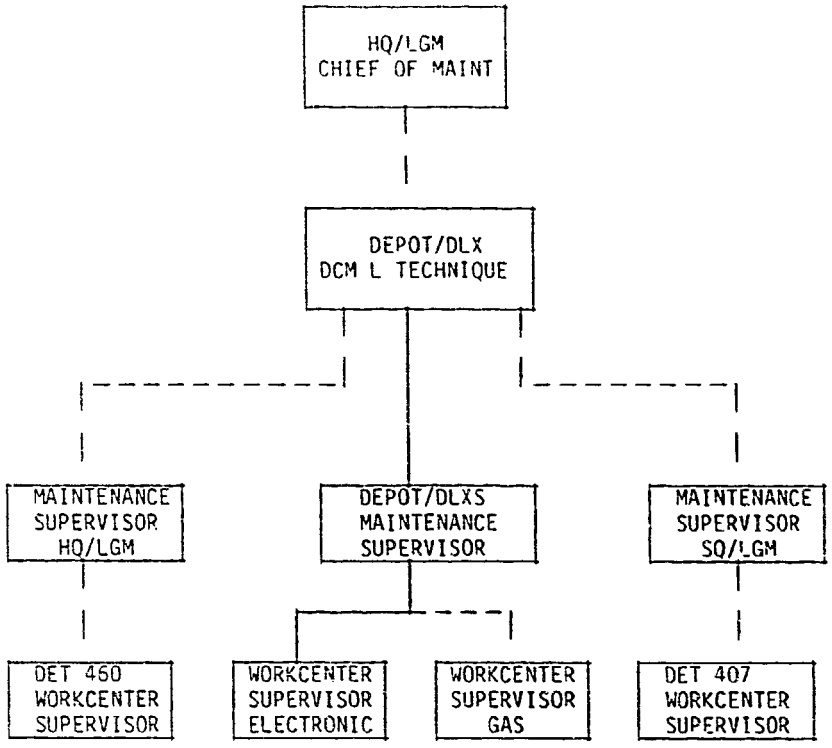
8. MAINTENANCE CAPABILITY EVALUATION (MCE). An MCE of L Technique equipment will normally be performed in accordance with CENR 66-1, Vol I and attachment 1 of this volume when the equipment has been greatly modified, relocated from another laboratory or installed as new equipment. For detachment laboratories, the parent unit is responsible for conducting the MCE, but may delegate the task to the detachment or to depot personnel. Open exceptions/action items will have the current status reported to the Depot/DLX and the parent unit every 30 days until cleared.

9. CANNIBALIZATION. Cannibalization within the L Technique will be done per CENR 66-1, Vol I, para 1-12, except that cannibalization between workcenters will be approved by the OCM, L Technique.

10. CORROSION CONTROL. A corrosion control program for all L Technique equipment will be implemented IAW CENR 66-1, Vol I. Corrosion control will also be applied to non-CEM equipment within the laboratory (e.g., chemistry fume hoods, chemistry balances, microscopes, etc.).

11. CONFIGURATION CONTROL MONITOR. The maintenance technician at the field laboratories and those designated at depot will perform the duties of configuration control monitor.

L TECHNIQUE FUNCTIONAL CONTROL CHART



-----Functional Management Responsibility
_____Direct Control

Figure 1.

MAINTENANCE CAPABILITY EVALUATION (MCE)

1. Does equipment meet visual standards? (T.O. 00-25-234)

2. Is equipment physically configured and wired IAW the applicable TIs?

3. Do maintenance diagnostic routines function as intended?

4. Is the equipment operating so that no adjustment is at its extreme?

5. If any special tools are required, are they on hand?

6. Is the required and authorized PME on site?

7. Are all required TOs and TIs on hand, current, and complete? (TO/TI 0-1-01)

8. Has a training program been established to familiarize maintenance personnel with the new ecuipment? (CENR 50-23)

9. Have the AF Forms 797 been updated as required to reflect changes in the equipment? (AFR 50-23)

10. Are all authorized forward supply point spares and bench stock items on hand? Has a list of FSP spares been forwarded to DLX for inclusion in the work unit code manual? (T.I. 21L-1-06)

11. Has the AFTO Form 95 been updated/initiated for the system? (CENR 66-1, Vol XIII)

12. Have the Plant-in-Place records been updated? (CENR 66-1, Vol XIII)

13. Can the host base PMEL support all PME requirements? If not, have appropriate channels been established for the necessary support?

14. Is the maintenance section fully manned with the proper grades and skill levels?

15. Are local transportation facilities adequate for efficient detachment maintenance requirements?

16. Is adequate power available?

17. Is all required support equipment available?

18. Are detachment maintenance personnel adequately trained to properly maintain the equipment?

19. Is adequate emergency power available?

20. Are resupply and repairable shipping channels established?

21. Are space and environmental factors adequate for efficient maintenance requirements?

22. Have proper actions been taken to prevent corrosion? (T.O. 1-1-689)

23. Have proper actions been taken for the disposition of excess (removed) equipment? (CENR 66-3, para 3e(5))

24. Have bench stock and FSP items no longer required been removed and disposition instructions provided? (CENR 66-3, para 3e(5))

25. Have the AFTO Forms, 244 & 245 been initiated for the system? (CENR 66-1, Vol XIII)

26. Are maintenance technicians aware of the hazards associated with the samples processed/separated on the equipment?

27. Is the appropriate safety equipment on hand and in a good state of repair? (AFOSH 127-66)

28. Is the equipment properly grounded to earth ground?

29. Are maintenance personnel trained on all special purpose equipment required to maintain the system?

30. Has the equipment been appropriately tagged with an identification plate to show the stock number and serial number?

31. Has the PMR monitor been notified of the equipment changes and any new PMR requirements?

EXAMPLE

L TECHNIQUE MAINTENANCE CAPABILITY EVALUATION CERTIFICATE

FROM: (Enter location, office symbol, etc.)

SUBJECT: Maintenance Capability Evaluation (MCE), (enter system nomenclature)

TO: Depot/DLX

1. From (ZULU DTG) to (ZULU DTG) the L Technique (enter equipment nomenclature) and all facets of maintenance operations were given a maintenance evaluation in accordance with the MCE checklist in CENR 66-1, Volume XIII, Attachment 1.

2. The purpose of the evaluation was to identify areas that may limit or detract from the maintenance function's ability to maintain the following equipment:

(a. Work Unit Code.)

(b. Nomenclature.)

(c. Stock Number/Part Number.)

(d. Serial Number.)

The system has been (state reasons for evaluation. i.e., modification, retrofit, initial installation etc.) to incorporate modern technology and simplify logistics support.

3. Exceptions to the criteria stated in the checklist are: (detailed list of exceptions, including item number from the checklist not satisified).

4. Operations commenced at (ZULU DTG) with completion of MCE or interim operation commenced at (ZULU DTG) but MCE completion delayed until compliance with item(s) listed in paragraph 3 above from MCE checksheet.

(SIGNATURE ELEMENT)

1 Atch
MCE Checklist and Answers

cc: Parent Unit
HQ/TN/LGM

EXAMPLE

Figure A1-1

Equipment Status Reports (ESR)

1. Initial Report. (For NMC use minimize Code Y; PMC and FMC use Code N). Reports will be initiated whenever a system outage exceeds 6 hours for a PMC or NMC condition. Submission of the report will not be delayed longer than 24 hours after initiation. If parts are required, the ESR and the parts request will be submitted immediately. Initial reports for an NMC equipment status will be sent priority precedence during alert conditions and routine precedence during nonalert condition (see figure A2-1).

a. Reports will be transmitted using appropriate precedence to the parent unit with information to Depot/DLX/DLRNL and HQ/TNL/LGM.

b. All times will be in ZULU date time groups (e.g., 15/2040Z Jan 83).

c. All sections of the report will be completed even if negative.

d. The subject line will be in the following format:

SUBJECT: L Equipment Status Report (give JCN number)

e. The JCN will consist of the site/workcenter designator followed by the four-digit Julian date (the first digit will indicate the current year and the last three will indicate the Julian day), and an alpha character to indicate multiple failures on the same day (A indicates the first, B the second, C the third, etc.). For example: JCN 4603138A would indicate the first equipment malfunction on 18 May 1983 at Det 460.

f. The remainder of the initial ESR message will be in the format shown below:

A. System or systems affected - Status of system or systems during period of report and ZULU date time group of malfunction. If equipment status changes during the period of the report, the time of the status change will be reflected. Example: Elution system - NMC 08/1210Z May 83, PMC - 09/1545Z May 83.

B. TIC (ZULU date time group of the time in commission) or ETIC (day and month of estimated time in commission). NOTE: If a TIC is not reported, an ETIC will be reported using your best local information to determine the date.

C. Specific item or items of equipment that failed including the work unit code and a complete description of the malfunction with accompanying symptoms and circumstances surrounding the failure.

D. Concise description of all corrective action taken and/or planned. If a TIC was reported in B, include the actual maintenance time broken down into troubleshooting and repair time. The values obtained for troubleshooting and repair times must depict the product of hours times the number of persons participating.

E. Whenever parts are ordered to repair or replace equipment identified in C, the nomenclature, stock number or part number, UJC, and document number will be listed. Include the supply source if other than FB4300.

F. Whenever an item or items are returned to depot for repair as a result of the reported malfunction, list the WUC, serial number, and document number of each item. If a serial number cannot be reported, the AFTO Form 350 tag number will be reported in place of the serial number.

G. Remarks - Include any assistance required. Requests for assistance should contain a complete set of circumstances prior to and during the malfunction.

2. Follow-up Reports. Reports will be transmitted routine precedence to the same addressees as the initial report (see figure A2-2).

a. The follow-up report will use the same format and JCN as the initial report. The subject line will read:

SUBJECT: L Follow-up Report to ESR (give JCN number)

b. If the information reported in the initial ESR or last follow-up report has not changed, enter NO CHANGE for that paragraph.

c. Follow-up reports will be sent:

(1) Upon any major change in maintenance posture (progress/deterioration) such as ordering parts, failure of additional items of equipment, PME problems, substantial progress in repair efforts, problem traced to a previously unsuspected area, etc..

(2) When ETIC cannot be met, a message will be transmitted, on or before the expiration of the old ETIC, explaining the delay and updating the ETIC.

(3) When the follow-up report is to be the final report (see figure A2-3) for that ESR, the format and JCN of the initial ESR will be used except that the subject line will read:

SUBJECT: L Final Report to ESR (give JCN number)

(4) Item D of final report will explain the action taken to correct the problem and the troubleshooting and repair time. Any malfunction that has had an ESR initiated must have a final report unless all corrective actions were completed and reported in the initial report.

SUBJECT: L Equipment Status Report 4073128A

A - Elution System - NMC - 08/1210Z May 83

B - ETIC - 09 May 83

C - Vacuum leak (60500) severe, found during PMR. Could result in loss of sample.

D - System being checked at all joints for vacuum leaks. All electric relay valves check good. Meter movement checks good.

E - None. Exact cause unknown

F - Negative

G - Remarks - Troubleshooting still in progress. System downtime is affecting interlaboratory calibrations. No mission samples are affected at this time.

FIGURE A2-1 - L Equipment Status Report (Example)

SUBJECT: L Follow-up Report to ESR 4073128A

A - No change

B - ETIC - 10 May 83. Based on technician finishing PMRs for systems necessary to process mission samples.

C - Vacuum leak (60500) no change.

D - No change

E - None. Exact cause unknown.

F - Negative

G - Remarks - None.

FIGURE A2-2 - L Follow-up Equipment Status Report (Example)

SUBJECT: L Final Report to ESR 4073128A

A - No change

B - TIC - 10/0900Z May 83

C - Vacuum Pump (60516) had two bad connections.

D - Hose connections were tightened and this helped some but did not correct the problem. The vacuum pump was removed and replaced.

E - Vacuum pump, P/N-75, UJC-BE, X165LL31300001.

F - WUC-60516, 112115 (350 Tag), X165LL31300001.

G - Remarks - Spare vacuum pump no longer on location. Mission impact none.

FIGURE A2-3 - L Final Equipment Status Report (Example)

Detachment Monthly Maintenance Log

The detachment laboratories will submit a monthly maintenance log (MML) detailing all maintenance actions performed during the month, on L Technique equipment, which did not meet ESR reporting criteria (i.e. short duration maintenance). PMRs will not normally be included in the MML since they are documented on the AFTO Forms 244/245 (see attachment 4). PMRs which take an unusual amount of time or which uncover problems not associated with the PMR will be documented on the MML. The MML will be sent to the parent unit, Depot/DLX, and HQ/TNL/LGM by the fifth working day of the month following the reporting month. CEN Form 35 will be used for the MML. Blocks A through F will contain information as appropriate to the particular maintenance action. (see figure A3-1)

MONTHLY MAINTENANCE LOG

FOR THE MONTH OF:	LOCATION:	DATE:
NOV	Det 407	2 Dec 83

SECTION I – EQUIPMENT FAILURE REPORT

A J. C. N.	B Actual Maintenance Time	C Trouble-shooting Time	D Time Awaiting Parts	E Total Time of Malfunction	F DESCRIPTION (WUC, Failure, Repair, and DOC No.)
3310A	0.3 hrs	0.1 hr	0	0.4 hrs	(WUC) Burned out liquid nitrogen pump heater. Removed and replaced the heater with parts from bench stock.
3320C	0.8 hrs	1.0 hrs	0	3.7 hrs	(WUC) INOP vacuum pump on right side of elution system. Replaced the pump. Delay due to higher priority maintenance. AFTO Form 350 Number 106543. Doc Number S165LL33200026
3328A	0.1 hr	1.6 hrs	0	3.5 hrs	(WUC) Spring on digital dec-writer, LA-120 carriage return loose. Replaced spring.

SECTION II – SIGNIFICANT PROBLEM REPORT *(If more space is needed, use reverse.)*

Only one maintenance technician will be available from 5-7 Dec due to PME training.

CEN FORM May 81 35

FIGURE A3-1.

LABORATORY EQUIPMENT AVAILABILITY

This appendix establishes a program for tracking system availability for all operational systems installed at the Depot Central Laboratory (MCL) and the two detachment laboratories. The provisions of this attachment are directive upon the MCL and the two detachment laboratories. This instruction implements tne provisions of T.O. 00-20-7 Inspection Systems, Documentation and Status Reporting for Support and Training Equipment.

1. General. The purpose of this program is to periodically document the availability of laboratory operational systems to determine whether the monitored equipment is meeting the expected availability levels as determined by the using sections. This provides a management tool for identifying prcblems that are reducing system availability.

2. Definitions:

a. System. The sum total of equipment, documentation, and control software required to perform a desired function or produce a desired result/output and those equivalent resources necessary for its operation, maintenance, and logistics support throughout its lifecycle.

b. Equipment Availability. The total hours per unit time interval that the equipment/system is operational and capable of performing mission work.

c. Equipment Downtime. The total hours per unit time interval that the equipment/system cannot perform mission essential processing of samples whether it be due to facilities problems; Preventive Maintenance Routines (which render the equipment unusable); equipment failures; lack of processing supplies (flowgas, LN, etc.); or known and expected operations which must be performed to ensure proper equipment operation (i.e. standards, backgrounds, calibrations, etc.), but which prevent the equipment from processing mission samples during that time frame.

d. Formula for Equipment Availability -

$$\text{Avail Rate} = 100 \times \left| 1 - \frac{\text{Number of hours outage}}{\text{Total number of hours during the month}} \right|$$

(Based on 24 hours per day times the days in the month)

Example: hours outage = 30 hours
30 days X 24 hours = 720 hours

$$\text{Avail Rate} = 100 \times \left| 1 - \frac{30}{720} \right|$$

$$720 \overline{)\ 30.00} = .0416666 = 4.2\% \text{ outage}$$

100% Availability
-4.2% Outage

95.8% Equipment Availability.

NOTE

Do not confuse equipment availability with operational use or sample processing time. If the system has multiple channels use the fraction of that multiple times the hours of outage - example: WRB has seven channels and one channel is bad. Use 1/7 of the hours of outage and 2/7 if two channels are bad etc..

3. Scope. This appendix is applicable to all operational laboratory systems installed and to development systems with interim waivers for operational use. Specifically excluded from this reporting system is all equipment assigned to or reported on by the Data Automation section, equipment assigned to the laboratory training division, items of test equipment, precision measurement equipment, and development systems not being used for operational or mission support.

4. Responsibilities:

a. The Laboratory Item Manager will determine what constitutes a system.

b. The MCL laboratory chiefs and the detachment laboratory commanders will:

(1) Implement this program.

(2) Maintain AFTO Forms 244 and 245, System/Equipment Status Record, for each system and place them conspicuously on or near each system in their section (see figure A4-1 and A4-2).

(3) Send an availability report, by the sixth working day of each month, to Depot/DLX and the parent unit (see figure A4-3). An additional copy will be sent to HQ/LGM/TNL.

(4) Insure the AFTO Forms 244/245 are reviewed every 90 days.

c. System operators will:

(1) Check the current status of the system by reviewing the records prior to use of the equipment (see figure A4-1 and A4-2).

(2) Make appropriate entries in the AFTO Forms 244/245 as specified in the Procedures Section of this appendix (see figure A4-1 and A4-2).

(3) Insure any PMR required as a result of a maintenance action will be recorded as an operational check for the time the system is down (see figures A4-1 and A4-2).

(4) Insure that operational checks are performed as soon as possible upon completion of all maintenance. A separate entry will be made for the operational check. The dash symbol will be used for this entry (see figures A4-1 and A4-2).

d. Maintenance tecnnicians will:

(1) Make appropriate entries in the forms as specified in the Procedures Section of this appendix (see figures A4-1 and A4-2).

(2) Reopen any job using the same job control number if the operational check fails.

5. Procedures - AFTO Forms 244 and 245:

a. Section I:

Block 1 = Enter correct system nomenclature
Block 2 = Enter serial number of unit
Block 3 = Leave blank
Block 4 = Leave blank
Block 5 = Enter work unit code
Block 6 = Enter office symbol
Block 7 = Enter date form is started. When the form is completely filled, enter the date after "TO".
Block 8 = Enter phone number of equipment location.

b. Section II - Not required; local use optional.

c. Section III - Not required; local use optional.

d. Section IV - Every 90 days the supervisor of the office symbol owning the equipment shall review the forms and document this review by placing the last name in the "EMPLOY NO." block and the date of the review in the "DATE" block.

e. Section V:

Block 9 - Enter system nomenclature
Block 10 - Enter serial number
Block 11 - Enter work unit code
Block 12 - Enter office symbol
Date discovered - enter the date and time.
Discovered by - enter first initial and last name.
Symbol - Enter in red, enter a dash(-) for an unknown condition or overdue PMRs; enter a diagonal (/) for PMRs performed on time or for partially broken systems (i.e. one channel out or 1/2 of equipment is unusable, but equipment can still perform operational or mission support); enter a cross (X) for severe conditions (i.e. circuit breakers popping, equipment totally down,possible loss or loss of sample could occur.
Discrepancy - Enter the problem with the equipment.
Job Control Number - will be filled in by maintenance for repairs and by the user for user Preventive Maintenance Routines (PMRs).
Corrective Action - filled in by user for PMRs and by maintenance personnel for repairs (i.e. repaired broken wire to main switch).
Date Corrected - enter date and time completed.
Corrected by - enter first initial and last name.
Inspected by - the operator enters his or her first initial and last name after an operational check is performed successfully and initials his or her last name initial over the symbol.

NOTE

Only fully qualified personnel may sign off symbols. This means they must be certified on the task in AF Form 623 before they can sign off symbols.

...ON ...ENT	INSPECTION INTERVAL	DATE DUE	DATE COMPL	DATE DUE	DATE COMPL

SUPERVISORY REVIEW

NO.	DATE	EMPLOY NO	DATE	EMPLOY NO.	DATE
...GE	10 AUG 83				

SYSTEM/EQUIPMENT STATUS R

I ITEM IDENTIFICATION

1 EQUIPMENT TYPE MODEL: WRB DETECTOR SYS #1

2. ~~REGISTRATION~~ SE... 00

3 ID NO

4. FIELD NO

5

6 ORGN WC ASSIGNED: DLRN

7. PERIOD COVER: 10AUG82 TO

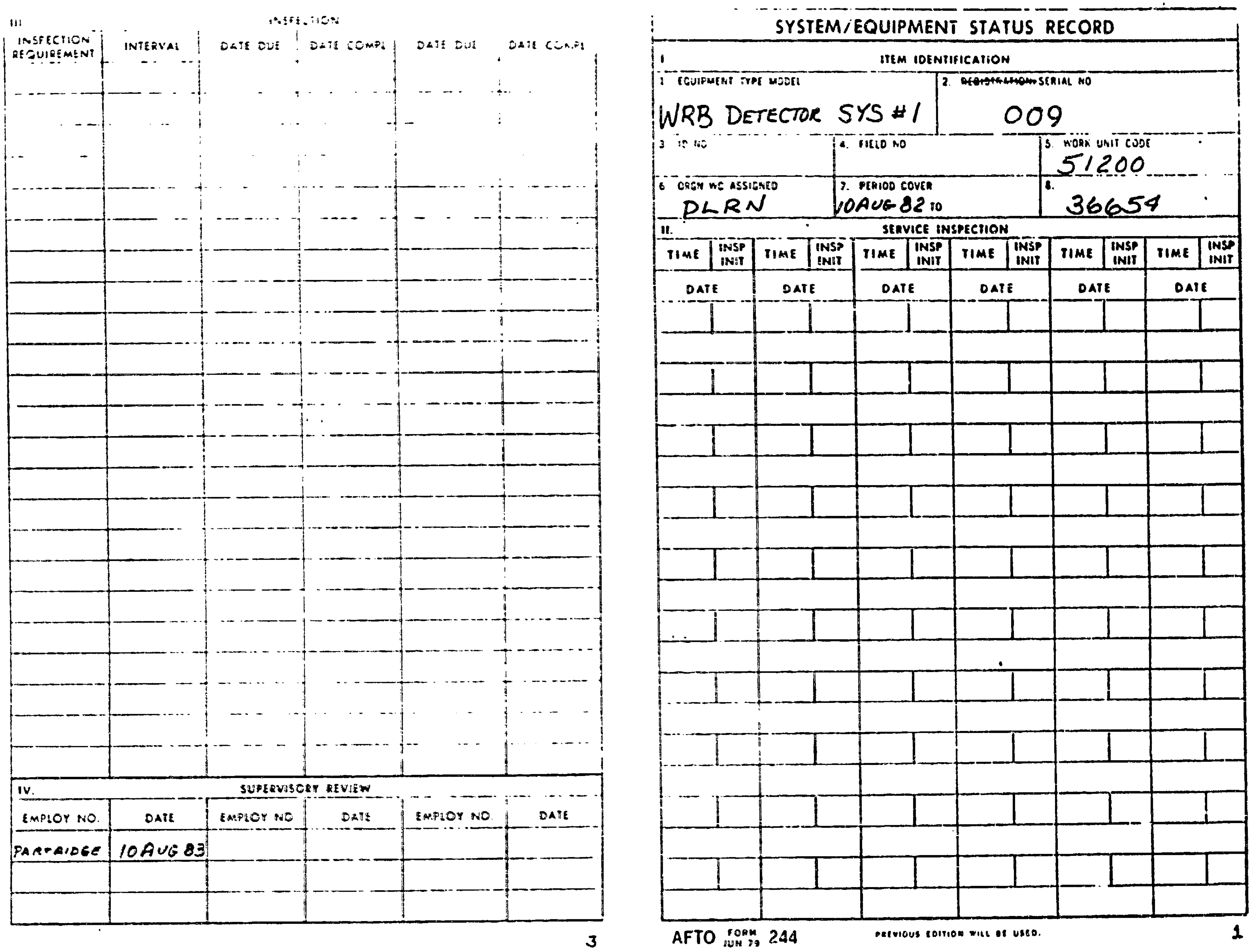
8

II. SERVICE INSPECTION

TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT
DATE		DATE		DATE		DATE	

AFTO FORM JUN 79 244

PREVIOUS EDITION WILL BE USED.



SYSTEM/EQUIPMENT STATUS RECORD

I ITEM IDENTIFICATION

1. EQUIPMENT TYPE MODEL WRB DETECTOR SYS #1	2. ~~REGISTRATION~~ SERIAL NO 009	
3. ID NO	4. FIELD NO	5. WORK UNIT CODE 51200
6. ORGN WC ASSIGNED PLRN	7. PERIOD COVER 10AUG82 TO	8. 36654

II. SERVICE INSPECTION

TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT	TIME	INSP INIT
DATE		DATE		DATE		DATE		DATE		DATE	

AFTO FORM JUN 79 244 PREVIOUS EDITION WILL BE USED. 1

III INSPECTION

INSPECTION REQUIREMENT	INTERVAL	DATE DUE	DATE COMPL	DATE DUE	DATE COMPL

IV. SUPERVISORY REVIEW

EMPLOY NO.	DATE	EMPLOY NO	DATE	EMPLOY NO.	DATE
PARTRIDGE	10AUG83				

3

FIGURE A4-1.

V. MAINTENANCE DELAYED DISCREPANCY

WRB DETECTOR SYS #1 | 009 | 51200 | DLRN

10 Aug 83 0800	K. WARD	/	WILL NOT COUNT ON CHANNEL 1.	2221051	REMOVE AND REPLACE TIMER SCALER	10 Aug 83 1115	D. LADD K. WARD
10 Aug 83 1130	K. WARD	—	OPS CHECK DUE TO INCLUDE STANDARD FACTOR	2221051	CHANNEL 1 OPS CHECKS GOOD	10 Aug 83 1150	K. WARD
10 Aug 83 1390	K. WARD	X	MASTER CIRCUIT BREAKER IN PANEL 17 KEEPS TRIPPING	2221058	FACILITY WIRING IN PANEL 17 FRAYED AND SHORTING CIRCUIT BREAKER C.E. NOTIFIED C.E. REPLACED WIRING TODAY		
12 Aug 83 1010	K. WARD	—	OPS CHECK TO INCLUDE BACKGROUND AND STANDARD FACTUR	2221058	OPS CHECK GOOD ON ALL 19 CHANNELS	12 Aug 83 1290	K. WARD

2

FIGURE A4-1 Continued.

SYSTEM EQUIPMENT STATUS RECORD

(CONTINUANCE SHEET)

V. MAINTENANCE/DELAYED DISCREPANCY

WRB DETECTOR SYS #1 | 009 | 51200 | DLRN

DATE DISCOVERED	[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	DATE CORRECTED	CORRECTED BY INSPECTED BY

AFTO FORM MAR 79 245

FIGURE A4-2.

REPORTING FORMAT

FROM: (Enter Office Symbol)

SUBJ: System Availability For The Month of (Enter month)

TO: Depot/DLX

INFO: Parent Unit

Total hours for this month (number of days in the month x 24 hours)

	HOURS OF EQUIPMENT NONAVAILABILITY							
Nomenclature of System	FAC	MTN	OPC	PMRs	SUP	OTH	TOTAL	AVAILABILITY
WRB Counting System #1	0.0	22.1	16.9	17.0	0.0	0.0	56.0	92.5%

LEGEND

MTN = Maintenance
PMR = Preventive Maintenance Routine
OPC = Operational Checks (including machine backgrounds, standard factors, calibrations, absorber checks, plateaus, etc.)
FAC = Facilities (power outages, loss of air conditioning, etc.)
SUP = Supplies (operational supplies such as LN, flowgas, tracers, counting tubes, etc.)
OTH = Items which don't fit into other categories (e.g., production systems which are in temporary modification/upgrade status, systems which are inoperative due to lack of qualified operators, etc.)

FIGURE A4-3

PLANT-IN-PLACE RECORDS

This appendix establishes a standardized method for developing and maintaining Plant-In-Place Records (PIPR) at all L Technique locations. This instruction implements the provisions of T.O. 00-20-8, Inspection System Documentation, and Reporting For Ground Communications-Electronics-Meteorological Equipment; AFM 100-19, USAF Ground Communications-Electronics Program Implementation Management; and CENR 66-1, Volume 1. Provisions of these instructions are directive upon all users of L Technique systems.

1. General. The purpose of PIPRs is to develop records that show what, where, and how L Technique systems are installed. The information is necessary for maintenance and operation of L Technique systems. It allows engineering and development, along with maintenance, to perform logical preplanning in the design and installation of new systems. Storage cabinets and office furniture do not need to be shown, but they may be shown if desired.

2. Scope. This is applicable to all operational laboratory systems installed at the Depot Laboratory (MCL), the two detachment laboratories, and the L Technique training equipment at Det 057.

3. Responsibilities:

a. The laboratory item manager determines what constitutes a system.

b. The Workcenter Supervisor of a detachment and the Workcenter Supervisor of each laboratory within the MCL will:

(1) Accomplish one AFTO Form 95 (Significant Historical Data Record) for each system installed and maintain this record on location either on the equipment or in the files with their Plant-In-Place Records (see figure A5-1). Reference TOs 00-20-1 and 00-20-4.

(2) Develop a floor plan showing the physical location of each system installed, on plain bond paper. Show the outlets, circuit breaker boxes and which circuit breakers (include amperage rating) are used and what they are used for. If the circuit breaker is inside a panel which is not inside the same room as the equipment, annotate the PIPR to show which room or hall the circuit breaker panel is in. The grounding scheme will also be shown along with the UPS installation if one is installed. Insure the drawings are referenced to North-South references. Each drawing will be dated with an "as of date". Include the dimensions of each room in terms of feet x feet. (see figure A5-2)

(3) Forward copies of para 3b(2) to Depot/DLX, the parent unit, and HQ/LGM.

(4) If installed systems are moved or replaced, update the PIPRs and forward copies per item 3b(3) above.

(5) When a system is permanently removed from service, attach the AFTO Form 95 and forward along with the removed system. If the disposition instructions state "Dispose of Equipment Locally", forward the AFTO Form 95 to Depot/DLX, with copies to the parent unit, after writing the disposition on the face of the AFTO Form 95.

(6) Plant-In-Place Records are maintained IAW AFM 12-50, Table 100-3, Rule 2.

4. Procedures - AFTO Form 95

a. Block 1 - Enter the nomenclature of the system.

b. Block 2 - Enter the manufacturer of the equipment (in many cases this will be the MCL).

c. Block 3 - Enter the serial number.

d. Block 4 - Enter the date the system was installed. If the date of installation is unknown, enter unknown.

e. Block A - Enter the date each entry is made.

f. Block B - Enter the applicable information, using as many lines as necessary to document significant maintenance actions. (i.e. Permanent removal of an end item installed in the system, a modification of an end item which is part of the system, a change of a software program which could have bearing on future maintenance of equipment etc.)

NOTE

Routine maintenance actions are not recorded on the AF Form 95. MDAT or Depot level maintenance will not be recorded on the AFTO Form 95 unless it meets the criteria of section f above.

g. Block C - Enter the name of the organization responsible for the equipment.

SIGNIFICANT HISTORICAL DATA

PAGE 1 OF 1 PAGES

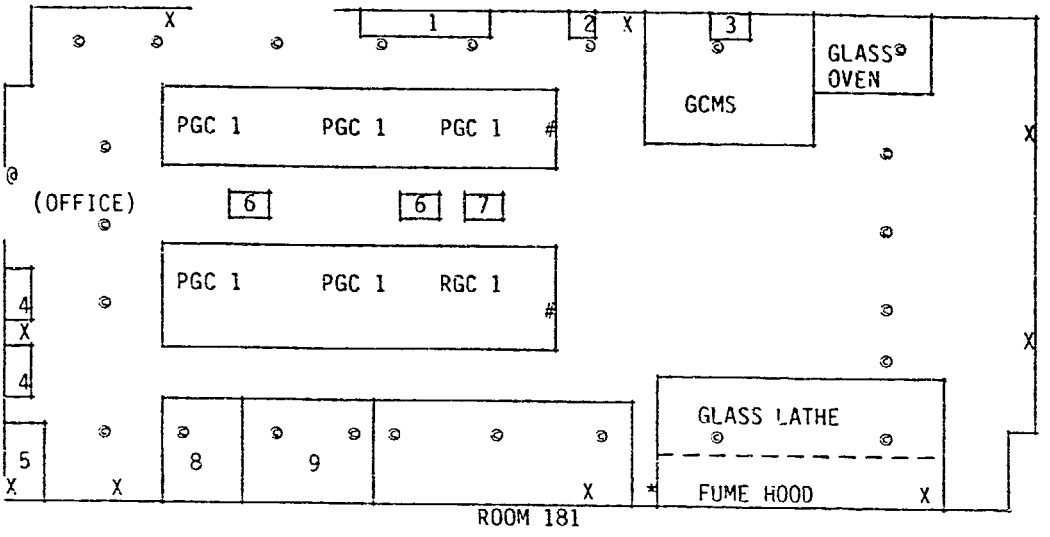
1. MISSION DESIGN SERIES/TYPE, MODEL AND SERIES	2. MANUFACTURER	3. SERIAL NUMBER	4. ACCEPTANCE DATE
GAS CHROMATOGRAPH	HEWLETT PACKARD	084	UNKNOWN

DATE (A)	REMARKS (B)	ORGANIZATION (C)
17 Sep 83	Original installation of the system.	MCL/DLG
19 Sep 83	Removed Alcatel pump and installed Edwards Vacuum pump.	MCL/DLG
29 Sep 83	Loaded new softward pack DLOXSQBE dated 9 Aug 1983	MCL/DLG
8 Oct 83	Coaxial Trap installed on the system today.	MCL/DLG

AFTO FORM 95 FEB 65 PREVIOUS EDITION WILL BE USED.

FIGURE A5-1.

EXAMPLE



1. Trap heater
2. GCMS Fusebox 220 VAC
3. Glass Oven Fusebox 220 VAC
4. Circuit Panels (see page 2 and 3)
5. Telephone Terminal
6. Vent to Roof
7. Eight 110VAC Outlets in Roof
8. Helium Bottles
9. Gas Chomatagraph

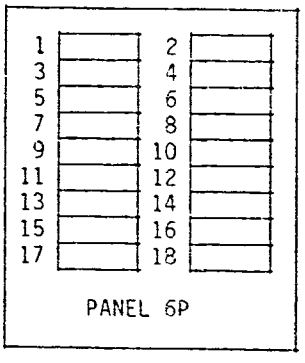
⊙ 110 VAC in ceiling
@ 110 VAC above door
\# Compress Gas from Ceiling- Air, Helium, and Nature Gas
X 110 VAC Wall Outlets

EXAMPLE

Page 1.

EXAMPLE

LIGHTS AND WALL OUTLETS



1. Lights, front of room
2. Lights for bathroom
3. Lights, back of room
4. Recepticles East
5. Spare
6. GCMS and glass oven
7. Spare
8. GC
9. Spare
10. RGC side A
11. PGC middle C and D
12. PGC Module B
13. Spare
14. PGC middle module B
15. PGC Module C
16. RGC Side B
17. Spare
18. Spare

EXAMPLE

Page 2.

FIGURE A5-2. Example of Plant-in-Place Records

EQUIPMENT MAINTENANCE
MAINTENANCE MANAGEMENT L TECHNIQUE

CENR 66-1, Vol XIII, 1 October 1984, is changed as follows:

1. Write-in changes:

Page	Paragraph	Line	Action
2	1	13	Change "Depot/DLX/DLRNL" to "Depot/DLX/DLR"
3	4b	2	Change second sentence to read " The reports will contain the current status of all laboratory systems, along with general maintenance information, for the period indicated." Add to the end of the paragraph "HQ/LGM will be included as an informational addressee."
4	6	3	Change "(Depot/DLXR)" to "(Depot/DLX)"
4	7b	2	Change "Depot/DLX/DLRNL" to Depot/DLX/DLR"
4	8	6	Change "... every 30 days until cleared." to "... every 60 days until cleared."

2. Page changes:

Remove	Date	Insert
6	1 October 1984	6
A1-1	1 October 1984	A1-1

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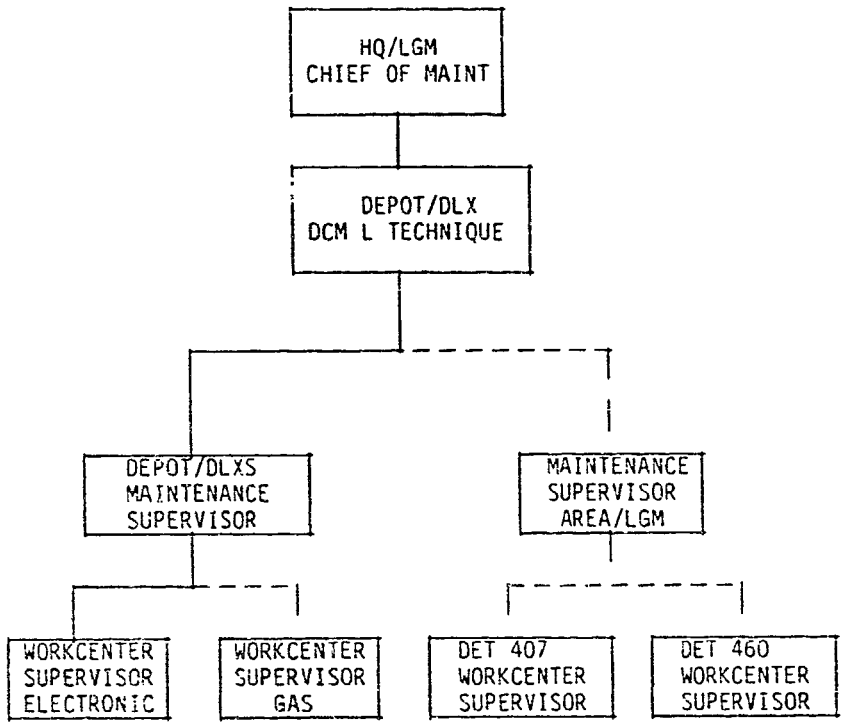
L TECHNIQUE FUNCTIONAL CONTROL CHART



-----Functional Management Responsibility
_____Direct Control

Figure 1.

MAINTENANCE CAPABILITY EVALUATION (MCE)

1. Does equipment meet visual standards? (T.O. 00-25-234)

2. Is equipment physically configured and wired IAW the applicable TIs?

3. Do maintenance diagnostic routines function as intended?

4. Is the equipment operating so that no adjustment is at its extreme?

5. If any special tools are required, are they on hand?

6. Is the required and authorized PME on site?

7. Is all required documentation (TOs, TIs, LPs, etc.) on hand, current, and complete? (TO/TI 0-1-01)

8. Has a training program been established to familiarize maintenance personnel with the new equipment? (CENR 50-23)

9. Have the AF Forms 797 been updated as required to reflect changes in the equipment? (AFR 50-23)

10. Are all authorized forward supply point spares and bench stock items on hand? Has a list of FSP spares been forwarded to DLX for inclusion in the work unit code manual? (T.I. 21L-1-06)

11. Has the AFTO Form 95 been updated/initiated for the system? (CENR 66-1, Vol XIII)

12. Have the Plant-in-Place records been updated? (CENR 66-1, Vol XIII)

13. Can the host base PMEL support all PME requirements? If not, have appropriate channels been established for the necessary support?

14. Is the maintenance section fully manned with the proper grades and skill levels?

15. Are local transportation facilities adequate for efficient detachment maintenance requirements?

16. Is adequate power available?

17. Is all support equipment available and ready to support the mission of the system?

18. Are detachment maintenance personnel adequately trained to properly maintain the equipment?

19. Is adequate emergency power available?

20. Are resupply and repairable shipping channels established?

21. Are space and environmental factors adequate for efficient maintenance requirements?

22. Have proper actions been taken to prevent corrosion? (T.O. 1-1-689)

23. Have proper actions been taken for the disposition of excess (removed) equipment? (CENR 66-3, para 3e(5))

24. Have bench stock and FSP items no longer required been removed and disposition instructions provided? (CENR 66-3, para 3e(5))

25. Have the AFTO Forms, 244 & 245 been initiated for the system? (CENR 66-1, Vol XIII)

26. Are maintenance technicians aware of the hazards associated with the samples processed/separated on the equipment?

27. Is the appropriate safety equipment on hand and in a good state of repair? (AFOSH 127-66)

28. Is the equipment properly grounded to earth ground?

29. Are maintenance personnel trained on all special purpose equipment required to maintain the system?

30. Does the system have a stock number or is a DD Form 1348-6 being processed to obtain a stock number?

31. Has the system been added to the appropriate CA/CRL or is an AF Form 601 being processed to establish or transfer accountability to the appropriate CA/CRL?

32. Have provisions to protect the system from the adverse effects of disruptive power fluctuations been incorporated into the system, as required?

33. Are all safety analyses been completed and with no open exceptions which preclude the system from becoming operational?

34. Has the equipment been appropriately tagged with an identification plate to show the stock number and serial number?

35. Has the PMR monitor been notified of the equipment changes and any new PMR requirements?

EQUIPMENT MAINTENANCE
MAINTENANCE MANAGEMENT L TECHNIQUE

CENR 66-1, Vol XIII, 1 October 1984, is changed as follows:

Write-in changes:

Page	Paragraph	Action
3	4b	Change para to read "Weekly operational capability status reports and supplemental operational status reports will be sent to HQ IAW CENR 55-19. The weekly reports will contain the current status of all laboratory systems for the period indicated. The supplemental reports will signal a change to a NMC condition for the NDC&A system.

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