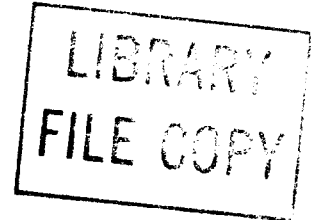


MINICOMPUTER VENDOR MAINTENANCE OPERATIONAL REVIEW
MINICOMPUTER MAINTENANCE AND OPERATIONS CENTER (MMOC)
MINICOMPUTER MAINTENANCE
INFORMATION SYSTEMS



CONTENTS	PAGE
1. INTRODUCTION	1
GENERAL	1
PRINCIPAL FEATURES OF THE REVIEW	1
APPLICATION AND USE OF RESULTS	2
PURPOSE OF REVIEW	2
BACKGROUND	2
SENSITIVE AREAS	2
REFERENCES	3
2. GENERAL INSTRUCTIONS	3
GENERAL	3
REVIEWERS	3
EVALUATION	3
POST-EVALUATION REVIEW MEETING	3
3. OUTLINE OF EVALUATION	4
4. OPERATIONAL REVIEW CHECKLISTS FOR REVIEW OF MINICOMPUTER VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM	4

1. INTRODUCTION

GENERAL

1.01 This practice provides procedures to conduct an operational review and performance evaluation of Vendor Maintenance of an Individual Minicomputer System.

1.02 When this section is reissued, the reason for reissue will be given in this paragraph.

1.03 This section is a guideline intended to be one in a series of practices to be used to conduct operational reviews of minicomputer maintenance operations. Any references to specific vendors are not intended to be an endorsement, and they are cited only for illustrative purposes.

1.04 The practice is divided into four parts:

- Part 1. Introduction
- Part 2. General Instructions
- Part 3. Outline of Evaluation
- Part 4. Operational Review Checklists for Review of Minicomputer Vendor Maintenance of an Individual Minicomputer System.

1.05 This review is intended to evaluate Vendor Maintenance of an Individual Minicomputer System. It is not intended to evaluate minicomputer site operations, the Minicomputer Maintenance Group (MMG) Self Maintenance Operation, or the Minicomputer Operation Group (MOG).

PRINCIPAL FEATURES OF THE REVIEW

1.06 Part 2 explains the methods employed in the review and post-review procedures.

NOTICE

Not for use or disclosure outside the Bell System except under written agreement

1.07 Part 3 consists of a basic outline of the areas covered in the review checklist along with remarks on the key points in each area.

1.08 Part 4 consists of the Operational Review Checklists for Review of Minicomputer Vendor Maintenance of an Individual Minicomputer System.

1.09 The Operational Review Checklist items listed in this section are intended to indicate essential items to be reviewed rather than to limit the scope of the review. Additional items may be considered in the review even though they are not specifically covered in the printed questions. These additional items may be used in later evaluations for company-wide benefit. Furthermore, if a unique method of handling some particular problem or procedure is discovered, the reviewer may (and should) ask additional questions to bring out details for possible wide use of the idea.

APPLICATION AND USE OF RESULTS

1.10 Review results may be used by appropriate levels of management to identify:

- The effectiveness of the vendor maintenance effort as administered by the vendor,
- The performance and efficiency of the vendor maintenance operation, and
- The need for policy or contractual changes.

1.11 The overall view gained in this relatively short study should provide the basis for decisions such as:

- Whether specific action is needed at this time, or
- Certain activities are indicated and should be taken without further evaluation, or if
- Further study of the situation is required to determine the extent of problems indicated by the initial survey and the total corrective programs necessary.

PURPOSE OF REVIEW

1.12 The Minicomputer Vendor Maintenance Operational Review is designed to yield an overall

view of the performance and effectiveness of the vendor maintenance operation. The objective of this review is to identify problem areas and provide a vehicle for administering corrective action rather than rating performance. It serves also as an effective tool to indicate weak spots to the Vendor and to the Operator/User Management.

BACKGROUND

1.13 This review does not use a point system; it takes an overall look at the Vendor Maintenance of an Individual Minicomputer System. The review helps to identify areas for improvement. The Feedback Meeting results in a list of recommendations to improve weak areas with the assignment of responsibility for corrective action and target dates for completing the recommendations. Allowance is made for final summary statements by the reviewer. Follow-up meetings, if required, are used to review the status of implementing the recommendations.

1.14 The single, all encompassing objective of Minicomputer Vendor Maintenance Operational Review is to assure that the task of maintaining the hardware in an individual minicomputer system is accomplished within the terms of the service contract agreement, in the most complete and efficient manner possible.

SENSITIVE AREAS

1.15 With this in mind, it is essential that the reviewer be aware of certain areas of vendor maintenance relative to an individual minicomputer system. Important considerations which help determine whether or not the Vendor is performing maintenance satisfactorily include:

(a) **Percentage of Maintenance Availability:** This reflects the time that the system is available to its users. This availability is affected by outage directly attributed to the maintenance organization because of Preventive Maintenance (PM), Field Change Order (FCO) activity, and Corrective Maintenance (CM) time from the time service was desired until the system was turned over to the operator/user for restoration. This percentage of time is critical to adequate performance of the user functions and is an important measure of vendor maintenance service related to hardware outages.

(b) **Average Response Time:** This measures the amount of time required for the Vendor to

respond to a trouble call and dispatch personnel to correct the problem; ie, from the time a trouble call was received until the vendor minicomputer repair person arrives at the location in trouble.

(c) **Average Repair Hours Relative to CM, PM, and to Performing FCOs:** This involves the time interval from the time the vendor minicomputer repair person has arrived at the trouble location until the time corrective maintenance work is completed.

1.16 The sensitive areas specified in this section do not lessen the importance of the other portions of the operational review nor of other areas of vendor maintenance responsibility. All aspects of the Vendor Maintenance Contract and maintenance effort must fit together to yield an effective operation. If certain functions are not being performed efficiently and effectively, the vendor maintenance work force may spend excessive time and effort on these functions to the detriment of other functions.

REFERENCES

1.17 The primary reference for this Operational Review is Section 007-560-300 plus Operating Telephone Company (OTC) Administrative Practices, the Individual System Site Management Guide, and the Vendor Maintenance Contract.

2. GENERAL INSTRUCTIONS

GENERAL

2.01 This section details a method for evaluation of vendor maintenance of an individual mini-computer system. Although the size and scope of operation will vary from vendor to vendor, the major objectives of meeting the vendor contractual agreement in the most complete and efficient manner possible still apply, and an evaluation can be made in light of these objectives. Responsibility for corrective action should be established at a post-review (district level) feedback meeting.

REVIEWERS

2.02 Ideally, two reviewers should conduct the review. One reviewer should be selected from the OTC Minicomputer Support Group (MSG) and one from the Vendor Organization Field Office Maintenance Management Team. This will require local negotiation with the vendor.

2.03 The OTC may elect to conduct the review in two segments with the MSG reviewer completing telephone company items first and then involving the vendor at a later date, or the OTC may choose not to involve the vendor in the review but rather in the feedback meeting only. In either case, the overall purpose of the review will still be fulfilled.

2.04 The reviewers should interact with the operator/user management, the MMG, and the vendor maintenance repair personnel as required to complete the review.

EVALUATION

2.05 The specific procedure for performing the evaluation is contained in Part 3 of this section. There are over 50 distinct questions in the review. The questions place emphasis on those areas of the vendor maintenance operation which impact the ability of the vendor to fulfill its contractual objectives. More emphasis is placed on the end results than on the means to achieve the end results.

2.06 The vehicle for evaluation is the Operational Review Checklist. The **REVIEW ITEM** column on the form contains the individual question to be addressed. If applicable, Bell System Practices references are included for the individual questions. The **YES/NO DATA** column of the form is used for direct answers to the questions. The **REMARKS/FINDINGS** column is used by the reviewer to designate compliance with the item and/or to expand upon deviation or discrepancies. Certain items may not be applicable to a given vendor maintenance contractual agreement. These items should be noted as **NA** on the checklist.

2.07 A Review Summary Statement and a list of problem items is prepared by the reviewers for use in the post-evaluation review meeting.

POST-EVALUATION REVIEW MEETING

2.08 The review and discussion of the evaluation results with vendor management representatives and local and higher levels of OTC management is very important.

2.09 The review meeting and summary can be constructively used as a tool to point up contractual weak spots and maintenance problem areas and to offer suggestions for corrective action. The district

level manager should determine responsibilities for corrective action and establish schedules for completion at this review meeting.

2.10 The place and time of the review meeting should be established prior to the performance of the review and should be made known to OTC management up to and including the division level manager. It is preferable that the feedback meeting follow as soon as possible after the review.

2.11 The formal Review Summary Statement and list of Problem Review Items will be prepared by the reviewer and distributed to appropriate parties in keeping with local company practices.

2.12 A follow-up review should be scheduled to discuss status of those items found to need corrective action.

3. OUTLINE OF EVALUATION

3.01 The basic outlines of the operational review evaluation is divided into the following categories:

(a) **Section A—Documentation:** This category addresses the availability and accessibility of necessary maintenance documentation.

(b) **Section B—Trouble Reporting Procedure and Vendor Involvement with OTC Minicomputer Support and Minicomputer Maintenance Groups (MSG and MMG):** This category addresses provision of a documented trouble reporting and escalation procedure and vendor interacting with the MSG and MMG. Reference: OTC Administrative Practice.

(c) **Section C—Corrective Maintenance (CM), Trouble Processing, Billing Verification, and System Grounding Procedure:**

This category addresses accuracy of the vendor trouble log relative to CM, resolution of trouble reports, ability of vendor maintenance personnel, billable service calls, and proper system grounding procedure.

(d) **Section D—Preventive Maintenance (PM) Schedule:** This category addresses the development of a PM schedule, negotiation for system turndown, completion of scheduled items, and customer care items.

(e) **Section E—Field Change Orders (FCOs):** This category addresses the vendor's awareness of all FCOs and efforts to administer FCO application and the actual completion status of FCOs on the equipment being observed.

(f) **Section F—System Reliability:** This category addresses comparison of maintenance results for this minicomputer system to the Bell System averages for a like system. Reference: Section 007-560-300, Minicomputer Reliability Studies System (MRSS)—Quarterly Output Report S.

(g) **Section G—Housekeeping and Safety:** This category addresses adequacy of vendor storage space at the individual minicomputer site, proper storage of parts and equipment, and safety.

(h) **Section H—Summary Statement, Problems and Recommendations:** This category allows for all areas and aspects of vendor maintenance operation to be addressed by the reviewer(s) in a summary statement to provide a complete picture of the vendor maintenance operation. This section should be used to develop a list of problem review items for improvement, recommendations, and commitments to accomplish the recommendations.

4. OPERATIONAL REVIEW CHECKLISTS FOR REVIEW OF MINICOMPUTER VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF MINICOMPUTER VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

- 1. Vendor Reviewed _____
- 2. System Reviewed _____
- 3. Type of Contract (Basic, Critical, etc) _____
- 4. Type of Coverage _____
 - Weekdays _____ AM _____ PM
 - Holidays _____ AM _____ PM
 - Saturday _____ AM _____ PM
 - Sunday _____ AM _____ PM
- 5. Contract Response Time _____

Fig. 1—Operational Review Checklists (Sheet 1 of 11)

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

LOCATION _____ DATE _____ REVIEWER _____

REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
<p>A. DOCUMENTATION</p> <p>Is all available and necessary documentation for this system installation on hand and readily accessible?</p> <p>Note: Look for the following items:</p> <p style="padding-left: 40px;">A.1 Is an up-to-date site management guide or equivalent document provided?</p> <p style="padding-left: 40px;">A.2 Does the site guide contain a vendor trouble log?</p> <p style="padding-left: 40px;">A.3 Are technical manuals and configurations of installed hardware provided?</p> <p>Note: Review hardware configurations.</p> <p style="padding-left: 40px;">A.4 Is a copy of the vendor service contract on hand?</p> <p style="padding-left: 40px;">A.5 Does the contract conform to recommended guidelines? Reference: Section 007-505-330.</p> <p style="padding-left: 40px;">A.6 Is the operator/user management aware of the vendor service contract terms?</p> <p style="padding-left: 40px;">A.7 Are all in-service hardware items used on this installation covered by the contract?</p>		
<p>Additional Comments:</p>		

Fig. 1—Operational Review Checklists (Sheet 2 of 11)

OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM		
LOCATION _____	DATE _____	REVIEWER _____
REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
B. TROUBLE REPORTING PROCEDURE AND VENDOR INVOLVEMENT WITH THE OPERATING TELEPHONE COMPANY (OTC), MINICOMPUTER SUPPORT GROUP (MSG), AND THE MINICOMPUTER MAINTENANCE GROUP (MMG)		
B.1 Is there a documented trouble reporting procedure at this site location?		
B.2 Is it being followed?		
B.3 Is it acceptable to the operator/user management?		
B.4 Are OTC escalation procedures documented and understood by the vendor?		
B.5 Are escalation procedures being followed?		
B.6 Is the vendor field office knowledgeable of the OTC MSG functions?		
B.7 Does the vendor interact with the MSG on a regular basis?		
B.8 If the OTC has an MMG, are the vendor field personnel aware of the MMG functions?		
B.9 Does the vendor interact with the MMG on a regular basis?		
Additional Comments:		

Fig. 1—Operational Review Checklists (Sheet 3 of 11)

OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM		
LOCATION _____	DATE _____	REVIEWER _____
REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
<p>C. CORRECTIVE MAINTENANCE (CM) TROUBLE PROCESSING — BILLING VERIFICATION AND SYSTEM GROUNDING PROCEDURE</p> <p>Note: Review the Minicomputer Activity Reports (MAR) for the past 3 months and compare them with the vendor trouble log, LARS Report, or any other means the vendor has to keep track of troubles at the site. Explain all "no answers" in the REMARKS/FINDINGS space on this form.</p> <p>C.1 Is there an MAR and a vendor trouble log entry for each maintenance-related activity the vendor has performed?</p> <p>C.2 Is the vendor trouble log posted accurately?</p> <p>Note: Verify that all requested information is posted properly on the vendor trouble log, i.e., dates and times of reported trouble, arrival times, restoral times, completion times, etc.</p> <p>C.3 Has the vendor responded within the time frames specified in the contract?</p> <p>C.4 Review trouble found and resolution. Do both MAR and vendor trouble log agree?</p> <p>C.5 Do MAR and vendor trouble log agree on when the problem was corrected and when the system was returned to normal?</p> <p>C.6 Was the problem corrected on the first call?</p> <p>Note: Look for subsequent problems of the same type.</p>		
Additional Comments:		

Fig. 1—Operational Review Checklists (Sheet 4 of 11)

OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM		
LOCATION _____		DATE _____
		REVIEWER _____
REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
C. CORRECTIVE MAINTENANCE (CM) TROUBLE PROCESSING — BILLING VERIFICATION AND SYSTEM GROUNDING PROCEDURE (Contd)		
C.7 Did part availability contribute to long system outages?		
C.8 Was there proper escalation by the vendor service representative to management and to the OTC operator/user management in the event of an unsolved problem?		
C.9 In the opinion of the operator/user management, do the vendor maintenance personnel appear to be adequately trained, and do they have good work habits?		
Note: Review the vendors bills for the last 6 months.		
C.10 Do vendor bills track with vendor logs and trouble tickets? Are billable service calls correct relative to current contract coverage?		
C.11 Have the MSG and vendor verified that the system grounding procedure is correct?		
Additional Comments:		

Fig. 1—Operational Review Checklists (Sheet 5 of 11)

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

LOCATION _____ DATE _____ REVIEWER _____

REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
D. PREVENTIVE MAINTENANCE (PM) SCHEDULE		
D.1 Has a PM schedule been developed for this system?		
D.2 Does it cover the current year?		
D.3 Are all in-service hardware options for this system listed on the PM schedule?		
D.4 Does the schedule include all of the PMs recommended for this system installation? (Review site management guide for recommended PMs and compare to extent of PMs on the schedule.)		
D.5 Did the vendor meet with the system operator/user management to negotiate system turndown times when developing the PM schedule?		
D.6 Is all requested information posted on the PM schedule?		
D.7 Is PM schedule in the site management guide up-to-date?		
D.8 Have the scheduled PMs been completed on schedule?		
D.9 Are customer equipment care items listed on the PM schedule?		
D.10 Are customer equipment care items performed as scheduled?		
Additional Comments:		

Fig. 1—Operational Review Checklists (Sheet 6 of 11)

OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM		
LOCATION _____	DATE _____	REVIEWER _____
REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
E. FIELD CHANGE ORDERS (FCOs)		
E.1 Does the vendor have a system to keep track of all manufacturer recommended FCOs?		
E.2 Does the vendor have a record of all BTL recommended FCOs (BWT List 19)*.		
E.3 Does the vendor have a record of all FCOs that have been applied?		
E.4 With the data available, have all BTL recommended FCOs that are 6 months old or older been applied?		
E.5 Has the vendor developed a schedule to apply FCOs?		
E.6 Has the schedule been developed with the concurrence of the operator/user management relative to system turn-down?		
E.7 Were the last two FCOs that were shown as completed by the vendor really completed?		
<ul style="list-style-type: none"> • Physically check the system with the vendor to ensure they were completed. 		
Additional Comments:		
* DEC only		

Fig. 1—Operational Review Checklists (Sheet 7 of 11)

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

LOCATION _____ DATE _____ REVIEWER _____

REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
<p>F. SYSTEM RELIABILITY</p> <p><i>Note:</i> Review Section 007-560-300 Minicomputer Reliability Studies System (MRSS) Output Report S (Operations System Maintenance Summary Report) for company and Bell System total.</p>		
F.1 Compare the average repair hours for the systems reported troubles to the Bell System Results. Is improvement required?		
F.2 Compare the average response hours for the systems reported troubles to the Bell System Results. Is improvement required?		
F.3 Compare the average CM downtime for this system to the Bell System Results. Is improvement required?		
F.4 Compare the average PM downtime for this system to the Bell System Results. Is improvement required?		
F.5 Compare the percent maintenance availability for this system to the Bell System Results. Is improvement required?		
Additional Comments:		

Fig. 1 — Operational Review Checklists (Sheet 8 of 11)

OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE OF AN INDIVIDUAL MINICOMPUTER SYSTEM		
LOCATION _____	DATE _____	REVIEWER _____
REVIEW ITEM	YES/NO DATA	REMARKS/FINDINGS
G. HOUSEKEEPING AND SAFETY Reference: RL 80-03-002 and IL 81-04-383 Computer Room Environment G.1 Is the vendor's storage space at the Minicomputer Site adequate? G.2 Are the contents of vendor storage spaces stored in an orderly and safe manner? G.3 Are vendor media properly stored? G.4 Have any serious vendor safety infractions been observed by the operator/user management?		
Additional Comments:		

Fig. 1—Operational Review Checklists (Sheet 9 of 11)

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OR VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

LOCATION _____ DATE _____ REVIEWER _____

H. SUMMARY STATEMENT

Fig. 1—Operational Review Checklists (Sheet 10 of 11)

**OPERATIONAL REVIEW CHECKLIST FOR REVIEW OF VENDOR MAINTENANCE
OF AN INDIVIDUAL MINICOMPUTER SYSTEM**

LOCATION _____ DATE _____ REVIEWER _____

REVIEW ITEM	RECOMMENDATIONS	COMMITMENT (WHO/WHEN)
-------------	-----------------	-----------------------

I. PROBLEMS AND RECOMMENDATIONS

Fig. 1—Operational Review Checklists (Sheet 11 of 11)