

METHOD OF CLASSIFYING, SCHEDULING,  
ASSIGNING AND RECORDING ROUTINE EFFORT  
COMMUNITY DIAL OFFICES

CONTENTS	PAGE
1. GENERAL . . . . .	1
2. FORM E-4320 . . . . .	2
3. CLASSIFICATION OF ROUTINES . . . . .	2
4. COMPILING ROUTINE LISTS AND SCHEDULING ROUTINES . . . . .	3
5. PREPARATION OF FORM E-4320 . . . . .	4
6. RECORDING ROUTINE RESULTS . . . . .	5
7. SUMMARIZING AND ANALYZING ROUTINE RESULTS . . . . .	6
8. METHOD OF ORDERING FORM . . . . .	6

1. GENERAL

1.01 This section describes Form E-4320, Routine Schedule and Progress Card CDO or PBX.

1.02 This section introduces methods of classifying, scheduling, assigning, and recording routine tests and inspections of the circuits and equipment units in community dial offices.

1.03 The procedures outlined in this section propose that the scheduling of the majority of the routine work performed shall be done on a day-to-day basis using Qualitative Maintenance Procedures as covered in Bell System Practices 226-012-000 entitled, Fundamentals of Maintenance Administration Community Dial Offices.

1.04 In order to derive maximum benefits from this plan, the specific tests and inspections required, as well as the frequency at which this work is scheduled, must be determined locally based on the type of equipment, design, age, past operation, loading, etc, of the various CDO's.

1.05 In general, the majority of routines, should be on an "as required" basis. Where routine frequencies are assigned, they should be designed to meet the conditions prevailing in the local CDO's and should be revised when local conditions change.

1.06 Uniformly scheduled routine testing is not generally recommended as a method of securing improvement in equipment conditions. Scheduled routine tests, used to find specific troubles and to provide information for analytical purposes, should be expanded or curtailed accordingly as they meet these needs. Special cycles of tests performed during periods of equipment installation, major work programs requiring removal of switch covers, trunk rearrangements, building alterations, etc, are effective in reducing subscriber reactions. In the cases mentioned above, there is usually no question of apparatus improvement and it is expected that the trouble rate will drop when the extraordinary activity terminates.

1.07 The probability that service affecting failures can be located by routine tests before they actually affect service calls is in proportion to the ratio of routine test calls to service calls. Considering the frequency with which a particular circuit is used in regular service, it would be necessary to make routine tests at a prohibitive frequency in order to minimize the chance of service reactions.

1.08 Where the troubles are of a type which makes it probable that they will be located by other means, such as an analysis of employee reports, subscriber reports, etc, it would seem that intensive routine tests could not be justified. However, where there is little probability of the trouble being reported, some increase in testing might be justified to reduce the interval that the troubles are allowed to remain in the equipment.

1.09 Within certain limits routine tests will indicate the nature of the defects, the extent to which these defects are present, and their location and distribution in the equipment. To facilitate analysis, routine tests are divided into two general classes as follows:

(a) *Operation tests* which are performed primarily to check the operation of various units of equipment to determine whether they are satisfactory for service under ordinary conditions.

(b) *Marginal tests* which will detect certain types of potential failures in the equipment before they become service affecting; or which test the equipment under certain combinations of service conditions.

1.10 When defects disclosed by routine tests are of one predominate type, or tend to appear with increasing frequency, locating and clearing them by increased tests may be an inefficient and costly method. In most cases, specific corrective action designed to locate these defects by inspection is more suitable.

1.11 Defects disclosed by routine tests should be promptly cleared. Routines to detect and repair apparatus wear should be initiated on the basis of analysis of all trouble indicators and previous experience. Where indicators are lacking, or are not conclusive, sampling inspections should be made periodically, utilizing experience, to determine the frequency.

1.12 Whenever possible, routine inspections should be combined with other work operations. For example, equipment inspections may be combined with scheduled lubrication routines.

## 2. FORM E-4320

2.01 Form E-4320, Routine Schedule and Progress Card CDO or PBX, is printed on McBee Keysort cards, 6-1/2 in. by 7-1/2 in. The

outer edges of the form are perforated with small holes, 3/32 in. in diameter. Keysort (Trademark Registered U. S. Pat. Off.) is a sorting system. This system uses marginally punched card records for sorting, analysis, etc. The holes around the edges of the Keysort card are coded by notching away the portion of the card between the hole and the edge. When a sorting needle is inserted in one of the holes of a group of cards, the notched cards fall from the group while the unnotched cards remain on the sorting needle. By associating certain information with individual holes, it is possible to sort specific cards desired. Form E-4320 is designed to provide information on the nature of the test and equipment involved, amount of equipment to be tested, estimated time required, frequency of the assignment, time (month, week, and day) it is to be assigned, classification of the routine, date of completion, time required, number of defects indicated, etc.

## 3. CLASSIFICATION OF ROUTINES

3.01 CDO routine effort can generally be grouped into three major categories; routine tests, routine inspections, and effort incident to the general equipment maintenance.

(a) *Routine tests* are prescribed procedures for setting up conditions to disclose the state of equipment in relation to a predetermined quality. These tests are performed through the use of test facilities such as portable test equipment, and other test apparatus.

(b) *Routine inspections* are prescribed procedures for visually determining the condition of equipment in relation to a predetermined quality.

(c) *Effort incident to the general equipment maintenance* includes those activities such as equipment cleaning, lubrication, battery checks, etc.

3.02 A specific routine test, routine inspection, or general maintenance effort is classified as "insurance," "productive" or "as required" in accordance with its service protection and trouble detection quality.

(a) "*Insurance routines*" are those which, from a standpoint of service protection alone, are performed at periodic intervals to reduce to

an acceptable level the possibility of serious interference with service. (Bell System Practices and/or local instructions often specify service protection requirements.)

(b) **"Productive routines"** are those scheduled periodically where local experience indicates a definite anticipated volume of trouble. The frequency or classification of such routines must be adjusted, or changed, from time to time in terms of the type and quantity of troubles found as a direct result of the routine, as compared with the total time used to perform the routine.

(c) **"As required"** routines are those routines where trouble history can not justify a definite frequency of performance. In general, routines should be placed in this classification when other means such as alarms, operator or subscriber reports, etc, will indicate failures more effectively than a routine testing program. Experience has indicated that the majority of routines will be placed in this classification. Such routines may be performed when analytic evaluation indicates the need for corrective action.

**3.03** Routine frequencies and classifications should be assigned locally to meet the conditions prevailing in the particular CDO and should be revised when local conditions change. These changing conditions may require the performance of an "as required" routine, or changing the frequency of "productive" or "insurance" routines. The experience and ability of the force, the skill with which the trouble pattern is analyzed, and the use of trouble expectancy figures, are among the factors that are to be considered in establishing the routine frequency.

#### **4. COMPILING ROUTINE LISTS AND SCHEDULING ROUTINES**

**4.01** It is important that a complete list of all "insurance," "productive" and "as required" routines be compiled.

**4.02** The appropriate sections of the Bell System Practices dealing with routine tests, inspections, work operations, etc, may be used as a guide for determining the actual routines applicable to the equipment involved. This list should be supplemented with a list of inspection items determined by experience which will reveal trou-

ble conditions or equipment wear. These items may not necessarily be covered by Bell System Practices.

**4.03** The front of Form E-4320 provides spaces for listing information relating to 20 routine tests, inspections, or other work operations.

**4.04** It is recommended that all "as required" routines, applicable to a specific CDO, be listed on separate Forms E-4320. This will eliminate the necessity of handling cards listing "as required" routines until the need arises.

**4.05** Although "as required" routines are not scheduled at predetermined intervals, the scheduling procedures outlined for periodic routines should be followed when trouble analysis indicates the need for scheduling an "as required" routine.

**4.06** In planning the schedule of routines to be performed, allowance should be made for variations in available manpower. Work schedules should be planned so as to absorb such variations without building up excessive deferred maintenance. In this respect long range consideration should be given to other activity when the normal maintenance force may not be available for upkeep work.

**4.07** When scheduling routine tests and inspections, consideration should also be given to the location and age of each CDO. Such considerations, when related to trouble data, may indicate varying frequency requirements for similar types of equipment.

**4.08** For the purposes of simplifying the entry of the frequency at which the routines or work items are scheduled, it is suggested that the following symbols be used. This will also provide for uniform usage and interpretation.

Symbol	Frequency
W	Once each week
M	Once each month
3M	Once each 3 months
6M	Once each 6 months
12M	Once each 12 months

**Note:** Frequency, as used here, indicates the period or interval in which a complete test or inspection of all circuits or equipment units, in a CDO, should be made.

**5. PREPARATION OF FORM E-4320**

**5.01** The front of Form E-4320, Routine Schedule and Progress Card, CDO or PBX, provides spaces for information relating to the scheduling and assignment of routine tests and inspections.

**5.02** The back of Form E-4320, Routine Schedule and Progress Card, CDO or PBX, provides spaces for information relating to the completion of routine tests and inspections. Figs. 1 and 2 illustrate Form E-4320.

**5.03 Coding:** The holes around the sides of Form E-4320 are coded by notching away that portion of the card between the hole and the edge with a punch. See Fig. 1. The marginal holes on Form E-4320 are identified as Code Position, Code Field or Code Section as covered in Bell System Practice 226-013-000, Paragraph 5.04.

**5.04 Sorting:** (See 226-013-000, Part 6 for sorting procedure.)

ROUTINE SCHEDULE AND PROGRESS CARD CDO OR PBX <small>E-4320 (5-57)</small>											
NAME <b>JOHN DOE INC.</b>			TEL. NO. <b>ED 32648</b>			EQUIPMENT <b>740E (556)</b>			ACCESS INFO. <b>MON-FRI 9-5 ONLY</b>		
ADDRESS <b>1019 MAIN ST.</b>											
JOB NO.	BSP NO.	TST LTR OR PAR	NATURE OF ROUTINE	FREQ. OF ROUT.	DATE ADOPT.	TOTAL UNITS	EST. TIME FOR ROUT.	ROUT. CL.	MONTH	WEEK	DAY
1	252003	A	LINE FOR. OPR. TEST	AR	1-4-53	8	10	AR			
2	"	C	L.F. GR. AND CHAIN EXT.	"	"	1	5	AR			
3	252004	ALL	SEL. CONN. TEST	"	"	8	10	"			
			ETC.								
ROUTINE SCHEDULE											
YEAR											

MCBEE KEYSORT  
NEW YORK

Fig. 1 — Illustrates How Form E-4320 Is Prepared



**7. SUMMARIZING AND ANALYZING ROUTINE RESULTS**

**7.01** By entering all routines applicable to a specific CDO on Forms E-4320, the results of an individual routine, inspection, or other scheduled work effort, can easily be summarized, or compared with other routines, and the past performance productivity of an individual routine can readily be determined.

**7.02** The Trouble Ticket CDO or PBX Form E-4319 should be analyzed for the relationship between troubles found as a result of reported and routine trouble tickets. Where it is indicated that all the troubles found for any particular classification are the result of reported tickets only, an investigation should be made to see if some productive routines can be instituted to correct this condition at a frequency which

would justify its cost. On the other hand, if all the troubles found are the result of routine tickets, it may be well to investigate the possibilities of extending the frequency of the routine covering this condition, with the objective of limiting routine effort expended on items which are not service affecting.

**8. METHOD OF ORDERING FORM**

**8.01** The form described in this section is packaged and ordered in the following manner:

**Packaging Information:** Form E-4320 — Routine Schedule and Progress Card CDO or PBX. 100 forms per package.

**Ordering Information:** Requisitions for this form in multiples of the standard package unit shown above, should be worded as follows:

(Quantity) Form E-4320