CONTROLLED MAINTENANCE PLAN FOR FRAME DISTRIBUTING FRAMES SUPPLEMENTAL INFORMATION—CENTRAL OFFICES

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1. GENERAL

1.01 This section describes the general plan for maintenance principles as applied to distributing frame operations. It applies to work performed on all types of frames (ie, MDF, IDF, LDF, TDF, etc), and provides the general principles, definitions, descriptions, explanations and examples of the controlled maintenance concept.

1.02 Whenever this section is reissued, the reason for reissue will be included in this paragraph.

1.03 The title for each figure includes a number in parentheses which identifies the paragraph in which the figure is referenced.

1.04 Recommendations for changes, additions, or deletions to this section or to any of the controlled maintenance documents, should be made on Form E-3973 as specified in Section 000-010-015.

1.05 The information in this section is intended for use by the first and second level supervision responsible for the frame operation. Within this section, the first level supervisor shall be referred to as the supervisor and the second level supervisor will be denoted by the term "manager".

1.06 This plan shall be implemented on all frame operations having one or more equivalent frameworkers and can be used on smaller frames where evidence of problems exist. It is used to measure the quality performance of work, regardless of the type of office. It contains instructions and forms for evaluating and recording quality performance data of each individual frameworker. Supervisors and managers are responsible for making the necessary work evaluations and recording the appropriate information. A thorough knowledge of this Controlled Maintenance Plan, the Frame Force Management Plan (Section 201-200-010), and the Frameworker Job Performance Evaluation Plan (Section 201-200-014) is required to ensure that work evaluations are complete, accurate and properly recorded, therefore, providing a fair and meaningful job performance evaluation.

2. CONTROLLED MAINTENANCE

2.01 Controlled Maintenance is the term applied to the general plan described in this section for managing the quality of installation work and upkeep maintenance on all distributing frames. Controlled Maintenance is a series of actions or activities formulated to maintain service reliability using both preventive and corrective maintenance. The effective implementation and ongoing use of a Controlled Maintenance Plan is a major contributing factor to providing excellent service and minimizing operating expenses.

2.02 In the administration of this Controlled Maintenance Plan and the development of a fully trained frame force, there are two basic items that supervision must consider—the quality of the maintenance work being performed by frameworkers and determining if any craft personnel require training, retraining or guidance.

2.03 The series of forms described in this section have been designed for use in the distributing frame controlled maintenance effort. These forms will be used as the primary tools for documenting the maintenance activities and the quality performance level of the frame operation.

2.04 The use of these forms alone will not automatically ensure that an effective Controlled Maintenance Plan is in effect or that the frame

performance index objectives will be achieved. Primary emphasis is to be placed on the timely and satisfactory completion of all maintenance requirements. The completion of the necessary forms documenting these activities and their careful analysis will define what alterations to distributing frame operating procedures are necessary in order to achieve the desired performance level. The use of these forms will be of particular importance to frame operations reporting performance levels in Bands L, and U (Network Switching Performance Measurement Plan or an equivalent measurement plan).

2.05 The word maintenance, as used in this section, refers to the quality of work performed on frames (placement and removal of jumpers) and the general frame "upkeep". There are two basic types of maintenance that can be applied to the frame operation—PREVENTIVE and CORRECTIVE.

2.06 PREVENTIVE MAINTENANCE when applied to distributing frames is somewhat different from preventive maintenance described for switching systems. There are no periodic operational tests or relay adjustments to assure service reliability to our customers. While there are some maintenance routines which must be scheduled (such as frame inspections, cleaning of blocks, maintenance of solder coppers, checking for missing heat coils and special service protection, etc), the bulk of preventive maintenance is doing high quality workmanship on the initial installation, rearrangement, or disconnect of service.

2.07 Service reliability is governed not only by the placement and removal of jumpers on the appropriate terminal, but by the quality of workmanship that was performed on adjacent terminals (T-ZONE). Therefore, frameworkers must be responsible for the "T-ZONE" surrounding the immediate working area (see paragraph 3.13 and 3.14).

2.08 CORRECTIVE MAINTENANCE consists of the activities of logging, locating, repairing and recording details of troubles reported by central office forces, other offices, testboards, and other sources.

2.09 A trouble occurs on the frame when customer service is not installed properly or existing service is interrupted due to poor quality of work. Unlike switching systems, trouble conditions on the frame are very seldom caused by the failure of frame components; however, troubles may be caused by broken blocks, internal crosses within a frame block, protector unit, or permanent frame wiring, etc. The existence of trouble is noted by observation or when trouble reports are received.

2.10 Accuracy and quality of work on distributing frames are most important because the distributing frame presents the greatest exposure of customer service, to the possibility of central office caused troubles. In most cases, troubles occurring on distributing frames are service affecting.

2.11 Troubles are generally categorized into the following two different types:

- SOLID TROUBLES: A solid trouble permanently affects the customer's line or circuit involved, causing a continuous failure. Examples of this would be broken jumpers, missing heat coils, wire clippings, solder splashes, etc.

- INTERMITTENT TROUBLES: Intermittent troubles are those that continue to appear and disappear until they are cleared. For example, wire clippings or solder splashes may cause intermittent failures and may also cause trouble indications to appear in different areas. Frameworker activity may cause vibration which can disturb wire clippings or solder splashes, resulting in intermittent trouble conditions such as temporary crosses. These trouble conditions may be difficult to locate because they appear to move from one location to another.

2.12 The majority of frame troubles are the result of human error or mechanical failures caused by one or more of the following conditions. Responsible maintenance forces must be familiar with these causes.

- ENVIRONMENT: Environmental conditions in the form of wire clippings or solder splashes on blocks, and frame bags, ladder bags or scrape wire containers which have been overfilled can cause frame troubles. Good housekeeping practices will eliminate nearly all improper environmental conditions.

- DEFECTS: Failure of various frame components due to internal crosses and grounds in blocks, spring assemblies and protectors or open protection units are called defects.

- WORK ERRORS: Frame troubles can be caused by human errors which result due to carelessness, faulty workmanship, poor quality, improper training, improper procedures on the part of the frame force and other forces working in the central office. Errors caused by employees in other organizations must be investigated and controlled. Deviations from established documented maintenance methods may also result in work errors.

2.13 Central Office Frame Forces must become familiar with the central office (frame) maintenance practices which define procedures that will reduce the number of environmental problems and work errors. The consistent use of these practices will reduce the number of troubles caused as a result of wire clippings, solder splashes, improperly terminated jumpers, etc.

- TYPICAL FRAME PROCEDURES—Frame force activity may cause troubles or billing errors when proper procedures are not followed in the operation of the frame. These procedures will likely involve such items as proper intercept methods, a go-ahead from the installer on change type orders requiring a field visit, use of proper methods when working transfer orders; therefore, not interrupting customer service for an extended period, coordination with Test Center or control office before working on Special Circuits, etc.

- HOUSEKEEPING—Good housekeeping practices accomplish at least two important objectives in a frame operation. It minimizes the dirt (solder splashes, wire clipping, etc), safety hazards, and other potential problems associated with untidy areas. Secondly, it assists in the establishment of an organized smooth operating atmosphere which is an important part of distributing frame maintenance. Material should not be stored haphazardly in the frame area. Tools, test equipment, drawings, and supplies should not be allowed to become dirt collectors, rather they should be stored in an appropriate area and marked properly. All covers and protection on special circuits must be in place, except when work is in progress.

- OTHER FORCES—Other forces (such as Customer Service, Network Administration, Construction, etc), have occasions to access frames. These forces might cause service-affecting problems. The frame supervisor should maintain coordination with the other forces in their procedures, records, and implementation of changes to ensure trouble-free customer service. In addition, when other forces are required to work in the frame, the frame supervisor is responsible for seeing that work is performed in such a manner that customer service is not jeopardized.

- BELL SYSTEM PRACTICES APPLICATION—Bell System Practices prescribe the proper procedures for placing, terminating, soldering, wrapping, and removing from service. Work performed in accordance with these instructions will result in an operation with high service reliability and low cost.

2.14 The control of distributing frame troubles is comprised of the following activities:

- HANDLING TROUBLE REPORTS—The proper handling of troubles requires the completion of trouble reports with relevant facts pertaining to the trouble indicated and the coordination and follow-up of troubles referred to or referred from the frame force. This activity also includes keeping current status logs for future records or analysis. Prompt response and fast restoral of service through the use of trouble reports is a key part of the distributing frame function.

- ARRESTING TROUBLE-CAUSING FACTORS—Proper housekeeping methods, protection of service, prevention of work errors, and performing quality work on the initial installations are the essence of the frame maintenance job. Frameworkers should be thoroughly familiar with the entire frame job, the use of this maintenance program, the use of frame test equipment, and the significance of trouble reports.

3. PREVENTIVE MAINTENANCE

3.01 The bulk of preventive maintenance on distributing frames is the performance of high quality workmanship on the initial installation, rearrangement or disconnection of service. As described in paragraph 2.06, preventive maintenance is also the term applied to the activities associated with locating, repairing and recording troubles which result from scheduled maintenance routines, (ie, frame inspections, cleaning of blocks, maintenance of solder coppers, checking for missing heat coils and special service protection, etc).

A. Quality Control

3.02 The frame supervisor's responsibility for obtaining high-quality work is directly related to the responsibility for service and cost. Work errors usually harm customer service. Investigations and corrections resulting from work errors increase costs. The order and nonorder activity on distributing frames presents many opportunitites for work errors.

3.03 The supervisor's and manager's activities aimed at reducing work errors to a minimum and then holding them at a low level must be coordinated into a quality control program. This program should provide an overall knowledge of distributing frame work quality and should identify the causes of work errors.

3.04 The supervisor has an obligation to periodically check an adequate sample of each frameperson's work in order to determine the quality of the entire job. Furthermore, supervision must take the indicated action required to correct work which is below standards. This idea implies that quality standards for the various kinds of work be known by the manager, supervisor and the frameworker. These standards are mainly defined in Bell System Practices as performance requirements or the proper method for performing assigned frame tasks. Therefore, it becomes mandatory that the manager and supervisor become familiar with these standards in order to evaluate work quality and take the necessary corrective action.

3.05 The existence of a quality control program can be effective because frameworkers know that quality is a requirement of the job. When they are aware that their work will be checked or observed, they will tend to perform a higher quality work operation.

3.06 It is very important that all kinds of work performed by all frameworkers be checked for quality. The amount of work items checked for each frameworker and for the total frame force may vary according to need. Mainly, the need is determined by the quality of the overall job being done as noted in past evaluations and Frameworker Job Performance Evaluation Plan (FJPEP) requirements.

3.07 Where practicable, supervisors should make quality inspections of work promptly after the work is completed because if an extended period of time has elapsed since the frameworker completed the job, there is always the possibility that someone else could have worked in the same area and caused deviations.

3.08 Results of work evaluations must be recorded on Form E-6954 (FRAMEWORKER WORK EVALUATION SHEET). Details for the completion of Form E-6954 will be included with each package of forms and is included in this plan as part of Fig. 1.

3.09 An inspection item is a work activity that makes up part of the processing of a service order, trunk order, or other frame activity. It is ***not*** the number of orders evaluated. Example: A No. 5 XB main station in service requires Main Distributing Frame (MDF), Number Group (NG), and translator frame (TRNSL) cross connects. The work activity required on this order could provide an inspection item count of at least 14 as indicated by example below:

MDF Jumper Placement	—	1 Item
MDF Jumper Termination	—	2 Items
T-Zone Inspection	—	3 Items (1 item per frame)
NG — Cross Connects	—	3 Items
Translator — Cross Connect	—	1 Item per translator
Tests	—	1 Item
Coils	—	1 Item
Records	—	1 Item per line
Filing	—	1 Item
Total	—	14

3.10 Work evaluation standards (satisfactory or unsatisfactory) for any given inspection item shall be based on the standards provided by FJPEP (see Section 201-200-014). It is the intent of the inspection process to allow an inspection item to fall into either a satisfactory or unsatisfactory category, regardless of the degree of deviation from prescribed Bell System Practices.

3.11 The number of inspection items and the number of items found satisfactory must be recorded on Form E-6954 (see Fig. 1). The results of the individual Forms E-6954 shall be summarized on Form E-6955 (FRAMEWORKER JOB PERFORMANCE SUMMARY) (see Fig. 2).

3.12 All required training as a result of unsatisfactory inspection items shall be noted on Form E-6954. After the required training has been completed, details should be entered on the training record of the appropriate frameworker. The supervisor should discuss results of evaluations only with those directly concerned, such as the frameworker or immediate supervisors.

T-ZONE Inspection

3.13 Frame workers shall be responsible on the horizontal MDF for a ***maximum*** T-ZONE area composed of three (3) zones as follows: (1) 20 rows of lugs to the left of the work location, (2) 20 rows of lugs to the right of the work location, (3) 20 rows of lugs immediately below the work location. On the vertical side of conventional frames (VMDF), the ***maximum*** T-ZONE area shall be composed of two (2) zones as follows: (1) 20 rows of lugs immediately above the work location, (2) 20 rows of lugs immediately below the work location. The T-ZONE area shall be determined locally for each frame location, taking into consideration the general condition of the frame and the amount of time required to correct deficiencies within the specified T-ZONE.

3.14 It is recommended that the frameworker clear all discrepancies within the T-ZONE while working in the area and not record the location and number of troubles for clearing later. The T-ZONE area should be of such size that will allow the craft person to clear these discrepancies within a reasonable amount of time. Thus, the size of the T-ZONE area will be dependent upon the overall condition of the frame. Distributing frames with excessive dead jumpers, dirty lugs, unsoldered jumpers, etc, may have T-ZONE areas, established by the supervisor, with only one (1) row of lugs to the right, left, and below the work location. The supervisor shall be alert to the amount of time required for correcting discrepancies within the specified T-ZONE. This will allow for appropriate changes in the T-ZONE area or consideration for this time in the daily loading plan. The frameworker shall not be held responsible for a T-ZONE area larger than described in paragraph 3.13.

Frameworker Work Evaluations

3.15 The main purpose for the evaluation of work is to develop a fully trained force, so as to ensure the overall quality of the distributing frame operation. All employees will need training in order to fully develop their capabilities, thus enhancing their opportunity for further assignments.

The work of employees who are fully trained on their present assignment should be evaluated for continuing evidence that they continue to meet high standards and for input to their performance evaluation.

3.16 Improved performance is usually recognized by higher quality, increased efficiency, greater job knowledge, use of proper methods and safety. In many cases of substandard performance, the reason is a need for training. This required training may be a result of poor work habits, absence of technical knowledge, or a lack of knowledge of the supervisor's objectives. Supervisors should not assume that all frameworkers know how to do all work operations correctly or that they know exactly what is expected of them. Work evaluations are a means by which supervisors can determine training requirements.

3.17 The supervisor should schedule work evaluations so they become a part of the work day along with the other duties. This schedule should reflect a sample of work in progress and work recently completed.

3.18 In addition to the scheduled work evaluations, the supervisor must be aware of situations requiring an immediate investigation. When a frameworker's error interrupts service, there is an immediate requirement for an investigation to determine the reason for the error. Corrective action shall be taken to prevent recurrence.

Work Evaluation Process

3.19 The work evaluation process consists of scheduling work evaluations, making each evaluation, taking appropriate action, recording results on Form E-6954, and the necessary follow-up. There are two (2) kinds of work evaluations: ***work inspections*** and ***work observations.*** Each has its own particular application. The supervisor should be careful to select the one which is best for accomplishing the intended results, and should avoid reliance on one kind because of habit.

3.20 ***Work Inspections*** are used for evaluating a finished job. Jobs such as cross-connections run and terminated, record entries, and service ordering filing are examples of work which can be evaluated accurately when the job is completed. However, the examination of completed cross-connection work that is found faultless does not indicate whether the frameworker worked efficiently and safely, used proper tools or followed proper service protection procedures.

3.21 In evaluating completed work, it is important that the supervisor be totally familiar with Bell System Practices and local requirements that the frameworker is to apply. Unless the required standards are applied, the supervisor will not know if jobs are done correctly and completely. Quick and partial checks are not satisfactory.

3.22 ***Work Observations*** are used to check correct procedures, proper tools, and prescribed methods being used by the frameworker. In addition, such things as safety, service protection, and evidence of job knowledge can also be reviewed while the work is being observed.

3.23 In performing work evaluations, the frame supervisor shall evaluate the following:

- Wire placement
- Wire removal
- Terminations (soldering, wire wrap, etc)
- Protection (coils, special protection, etc)
- Testing
- Order completion
- T-ZONE
- Intercept on disconnect activity
- Use of proper methods
- Use of proper tools
- Completion of logs and records
- Filing
- Safety
- Housekeeping

Need for Work Evaluations

3.24 The need for additional work evaluations, beyond the minimum required, will be

apparent by one or more indicators. Generally, these indicators are: (1) excessive number of frame trouble reports, (2) poor overall office evaluation, (3) weak spots (quality, efficiency, etc).

3.25 Evaluations are made to determine the overall quality of distributing frame work. Evaluations will identify the causes of work errors, such as poor quality. Evaluations also point out the lack of knowledge which results in slower work operations, excessive costs, and potential service interruptions.

3.26 When departures from standards are found or observed, there is a need for correction and training. Each case shall be followed by evaluations of corrected work to see that it now meets standards.

3.27 New or changed procedures, policies, practices, etc, usually affect all employees. The supervisor should make evaluations to determine that the changes have been correctly received and are being applied. Also, that work evaluations made covering these items stress the importance the supervisor attaches to them.

3.28 New employees can mean those just hired or those transferred from other jobs or central offices. In any case, the supervisor needs to know the extent of the new employee's training, experience, and level of job competence.

3.29 Employees returning from formal training should be assigned work requiring the use of their newly gained knowledge. This should be followed by an evaluation covering methods and proper tools for determining the effectiveness of the training. Knowledge gaps and misunderstandings may be detected and corrected on the job. An important aspect of the supervisor's work evaluations made immediately following training is that they emphasize the importance attached to the frameworker's training.

3.30 Those frameworkers who may be fully trained and who consistently perform at a high level of efficiency, produce top quality jobs, and follow approved procedures and practices require less of the supervisor's attention than others who have not developed as far. However, highly qualified people also need to have their work evaluated, so that the supervisor can collect the minimum information for supporting statements of their proficiency and obtain the required data for FJPEP.

Attitudes and Objectives

3.31 The supervisor and reporting employees must have a "quality attitude" to achieve the desired results of quality control. Development of these attitudes may initially place great demands on supervisory time. However, it will be worth all the effort required to establish this type of office environment.

3.32 The supervisor's objective in making quality inspections should be to correct areas where work is deficient and to give credit for quality work. When an employee's work does not meet the quality requirements, the supervisor should work with that employee in whatever way is necessary to overcome the problem. Almost without exception, if employees know that high quality workmanship is expected and will be recognized, this is the type of work they will produce.

3.33 The need for doing work evaluations changes. Generally, it is not practical to specify quotas which would apply to each employee. However, in order to satisfy the requirements for FJPEP, a minimum number of work evaluations ***must*** be performed each month per frameworker. The minimum number of work evaluations (inspections and observations) shall be 100 inspection items per month per frameworker. (See paragraph 3.09 for definition of an inspection item.)

3.34 As evaluations disclose improvements resulting from corrective action, the number of evaluations may be reduced as long as the minimum number of evaluations are made per frameworker each month. In all cases, the first and second level supervisors should agree on quantities of work evaluations.

3.35 When supervisors are absent from their regularly assigned job for a period of one week or more, it shall be the responsibility of the manager to schedule and perform the work evaluations. The number of monthly work evaluations shall not be reduced due to the absence of the supervisor from his regularly assigned job.

B. Scheduled Routine Work (ETLs)

3.36 The following paragraphs describe maintenance routines that must be performed on distributing frames. The basis for this type of preventive maintenance activity is the Equipment Test List (ETL), see Fig. 3 for ETL format. The ETL indicates test requirements and intervals. These tests are scheduled on distributing frames in order to prevent trouble conditions. Figure 4 illustrates the preventive maintenance process as used in this Controlled Maintenance Plan.

3.37 The first step in establishing this part of the frame preventive maintenance program is the identification and scheduling of all required routines. ETLs are available to assist in the identification of these routines. The ETLs which are companions to the test and inspection practices are system standards for the application of maintenance instructions contained in Bell System Practices. ETLs are numbered in the same series as the tests they cover. Distributing frame ETLs are generally found in Sections 201-001-011 and 069-001-011.

3.38 Each ETL lists all tests, inspections, and other instructions prescribed for the frame covered by the ETL. An action classification is assigned to each instruction indicating the manner in which the instruction must be applied. For some action classifications, the ETL assigns minimum frequencies of application. For the most part, the distributing frame tests will have an asterisk (*) indicated as the frequency. This indicates that the frequency for these tests are to be assigned locally as required.

3.39 The test intervals, when specified, will meet the needs of most frame operations and are consistent with reasonable costs. The tests must be performed at the interval listed in the ETL or as assigned locally, but not less frequent than assigned in the ETL. Frame conditions may dictate that tests must be performed at shorter intervals than listed in the ETL. The purpose of performing recurring work is to prevent service interruptions.

Classification of Routines

3.40 All tests, inspections or other requirements in the ETLs for distributing frames are given three classifications. The use of these classifications is described below. The word TEST in the following descriptions is used to mean a test, inspection, or other work requirement.

3.41 MANDATORY WORK (MW): MW tests are used to detect actual or potential trouble conditions that could result in a severe service penalty. Indications of such troubles are sometimes obscure.

- MW tests must be performed at a frequency equal to or more frequently than specified in the ETL.
- Some frame components, such as special service devices are shown as MW because of the critical nature of this service.

3.42 MANDATORY REVIEW (MR): MR tests are used to detect actual or potential trouble conditions that do not result in a severe service penalty. Indications of such a trouble are sometimes obscure.

- The test frequency assigned to MR routines indicates that a review must be made to determine if there is a need to perform the test.
- At the time of review, if the test has been performed on all units since the last time of the previous review, no work is required unless a check of corrective maintenance data indicates otherwise. If the test has not been performed since the previous review, it must be performed on all units. If a decision is made to pass a MR routine, a notation must be recorded on the Test and Inspection Summary, Form E-5453 and E-5454.

3.43 For purposes of this plan, sampling will ***not*** be used to determine if a MR test should be performed.

3.44 TROUBLE TEST (TT): TTs are not performed at a specified frequency, but should be used, as required, to verify and isolate troubles revealed by other indicators or analysis.

3.45 Figure 3 is the format used in the documentation of routine test information. The test information is arranged in the following order from left to right: Section number, issue/addendum, test letter or paragraph number, test title, test class, frequency and the last space is for locally

assigned job number. Figure 3 is not a complete list of Distributing Frame ETLs; reference must be made to the appropriate Bell System Practice section for a complete list of applicable ETLs.

3.46 In order to provide a complete record of all tests and inspections found in the Bell System Practice, the ETLs contain tests which may not apply to all frame operations; therefore, the pages which do not apply should be retained for later use. Parts of other pages which do not apply are indicated by writing NA in the assigned job number column on the ETL or Form E-5450.

3.47 Other tests, not included in the standard frame ETLs, but apply on a local basis, are to be entered on a blank E-5450 Form (Fig. 5). Examples are: security in the frame area, safety items and requirements to other frame equipment which do not have an associated ETL.

Scheduling of Routines (Form E-5451)

3.48 After all required routines have been identified, the supervisor must create a schedule for completing the routines consistent with the needs of the frame operation and the available work force. To assist in this operation, Form E-5451 (Fig. 6) is provided.

3.49 Form E-5451 provides columns for recording most of the information contained on the ETL, if desired. For detailed instructions in preparing this form, see Fig. 6.

Test and Inspection Work Order and Record (Form E-5452)

3.50 Form E-5452 (Fig. 7) is used as a preventive maintenance work order and a record of the work performed. As routines become due, the supervisor prepares Form E-5452 and assigns the routines to the frame force. As the tests are completed, the results are recorded in the appropriate spaces on the form. Details of test failures and troubles found are to be entered in the space provided. Complete or partial details of a job are entered in the progress report portion of the form. For detailed instructions in preparing this form, see Fig. 7. All portions of the form must be completed accurately.

3.51 Some tests and inspections do not ordinarily result in many found troubles and do not require numerous separate work operations. In these cases, it is not necessary to use Form E-5452. Test or Inspection results may be recorded directly on Form E-5453 or E-5454.

Test and Inspection Summary (Form E-5453, E-5454 or E-5455)

3.52 Form E-5453 (Fig. 8), Form E-5454 (Fig. 9), and Form E-5455 (Fig. 10) are prepared from the applicable ETL or Form E-5450. These forms provide a summarization of the results of previous testing for comparison to the current test results and the analysis of corrective maintenance records. It must also provide a record of when the tests were performed and the amount of time required.

3.53 These forms are also the source of information for preparing Form E-5452, Test and Inspection Work Order and Record.

3.54 Form E-5453 (Fig. 8) provides spaces on the front of the form for recording assignment data, BSP number, equipment work description, number of equipment units involved, estimate of work time, and the results of the work done. The back of the form provides additional space for results.

3.55 Form E-5454 (Fig. 9) is a smaller card version of Form E-5453 which is more suitable when a card file arrangement for test and inspection routines is desired.

3.56 Generally, it is preferred that ETL job assignments be made so that the work may be completed within one work tour. In large operations, certain jobs may have to be portioned into smaller assignments, because the total amount of work is too great to be completed during one work tour. Form E-5455 (Fig. 10) may be used for this purpose and provides spaces for summarizing multiple assignment work details.

3.57 Where multiple job assignments are required, individual work orders (Form E-5452) are prepared as each assignment is due. When the assignment is completed, details are posted in the appropriate spaces on Form E-5455. If desired, progress on extended routines can be noted by using a light colored pencil to color the WORK COMPL spaces as the completion dates are entered.

3.58 Forms E-5453, E-5454 or E-5455 must be prepared for each MW or MR test specified by the ETL. The proper use of this Controlled Maintenance Plan requires that all information be entered on these forms.

3.59 Distributing Frame operations using a mechanized form of ETL scheduling should refer to Section 201-020-510, Part 4 for a detailed description of an automated ETL administration.

4. CORRECTIVE MAINTENANCE

4.01 In the Controlled Maintenance Plan, corrective maintenance procedures are used for handling trouble reports from all sources other than preventive maintenance routines. These procedures are aimed at:

- Providing an effective means for control and prompt handling of trouble reports.
- Dispatching reports for trouble location and repair.
- Providing for orderly and simplified recordkeeping.

4.02 The corrective maintenance process (See Fig. 11) is initiated by trouble reports and is completed by restoring service and closing out trouble tickets. Trouble records should be periodically analyzed to determine if modifications to the preventive maintenance program are needed.

A. Monitoring and Evaluating Frame Performance

4.03 The primary means of determining frame performance is through the interpretation of service and administrative measurements.

4.04 These measurements should be compared to an established set of objectives. Undesirable deviations in service directly relate to a degradation in customer service and are a stimulus for a detailed analysis of trouble reports.

Setting Objectives

4.05 The establishment of objectives for a frame operation should be based on the attainment of high levels of service performance. In the event that performance is far below the objective level, it may be necessary to set interim objectives that can be met in a short period of time with a reasonable amount of effort. Unattainable or unreasonable objectives tend to have a detrimental effect on attempts to improve performance.

Frame Control Record (Form E-5497)

4.06 The Frame Control Record (Fig. 12) is used to analyze the causes of central office frame troubles. It provides a current picture of the frame 5 codes on a daily basis which can be compared to other days and the established frame objective.

4.07 The use of this form is optional by approval of the District Network Manager (or equivalent) in those frame locations which have maintained performance levels in Band H or O for 12 consecutive months. Frames with such approval, whose results have slipped to Band L or U for two consecutive months, shall immediately initiate the use of this form and continue such use until approval has again been given by the District Network Manager to discontinue. This approval shall be in writing and retained in the associated central office for audit purposes. The approval shall also be reviewed and renewed ***no less than once a year.***

4.08 The use of this form is mandatory in those frame locations which report performance levels of Band L or U for the report period. The report period covered by a control record is the 23rd of one month to the 22nd of the following month. This report period coincides with TREAT (Trouble Report Evaluation and Analysis Tool) used by the Plant Service Center and the appropriate Network Switching Peformance Measurement Plan. Figure 12 provides a detailed description on the use of this control record.

B. Correcting Troubles

4.09 The primary sources of trouble reports are the Repair Service Bureau, other offices, and central office forces. A well-controlled Corrective Maintenance Plan must provide for the proper administration of all trouble reports.

4.10 When a trouble report is received at the Frame Control Center (FCC) or frame location, a Trouble Ticket (Form E-10260) shall be prepared and logged on Form E-5457 (Central Office Log). Once the trouble has been cleared, the results shall be forwarded to the responsible organization (ie,

RSB, SCC, FCC, etc). If frame locations are being administered from a centralized location (FCC, SCC), a Central Office Log shall be maintained in the center for trouble reports received.

Trouble Ticket (Form E-10260)

4.11 Trouble tickets are corrective maintenance work orders and records for maintenance personnel. They also serve as the source document for details of trouble reports and the resulting found or not-found troubles. Trouble tickets shall be written for all trouble reports and the entries must be complete, accurate and legible. It is the responsibility of the supervisor to instruct all craft or clerical personnel in the proper preparation of trouble tickets. Detailed instructions for the preparation of Form E-10260 are found in Fig. 13.

4.12 Trouble tickets are classified as T (Trouble) or M (Memo) according to the following:

- T-type tickets are issued for reports from the Repair Service Bureau (customer reports), other offices, other departments, and central office forces which require corrective action.

- M-type tickets are issued to cover pending work operations as a result of closed-out-T-tickets where repairs are to be made later. An example of this would be a defective frame component, subscriber service is moved to new equipment, repairs to defective component will be made later. The use of "M" tickets will have limited application in most frame operations; however, when these type trouble tickets are written, they shall be administered in accordance with this practice.

4.13 A trouble reporting source is assigned an alphabetical designation for identification on the trouble ticket (See Table A). Class A reports are also given a disposition code to identify where the trouble was found, (Central Office, Outside Plant, etc), and if the trouble was found or not found. If the trouble was found on the distributing frame, it will be a 5 code, and if no trouble condition was apparent or found, then it will be an 8 code.

4.14 When "T" tickets are closed out, details of found or not-found troubles must be recorded for future analysis. A portion of the ticket is arranged for coding trouble data. Table B illustrates entries to be made in the "Frame" and "Apparatus" spaces. Table C provides a list of major distributing frame designations and the appropriate abbreviation. Tables D and E illustrate entries to be made in the "Cause" and "NTF" spaces. Figures 14 through 17 illustrate completed "T" tickets and shall be used as a guide in the preparation of frame trouble tickets.

4.15 Each "T" ticket must have an entry in the "Frame" space. Enter the frame component and number, (ie, VMDF 201/902), NTF or REF OUT. All troubles found in the wiring of a particular frame component are coded to that component. Troubles that "came clear while testing" and were isolated to a particular frame are also coded to that frame component.

4.16 As previously discussed, "Memo" tickets may be issued to cover pending work operations as a result of closed-out "T" tickets. When the report is closed out and the service is restored by removing the defective component from service, the associated "T" ticket is kept in a special file for pending work. Later, when a craft person has been assigned to repair the defective item, a "Memo" ticket is issued for the work operation. When the component is restored to service, the "T" and "Memo" tickets are completed and filed. MEMO tickets may also be issued to clear discrepancies found as a result of T-ZONE inspections.

4.17 Trouble tickets are serially numbered for identification and for relating them to reports or troubles. Ticket serial numbers are to be entered on the Central Office Log described in paragraph 4.19. It is recommended that the tickets be numbered serially beginning at the first of each year. If the frame operation is experiencing a large volume of trouble reports (10 or more per month) then the tickets should be serially numbered beginning at the first of each month, (ie, April's tickets would begin with 4-1). The supervisor must determine the ticket numbering scheme that best fits the individual frame operation. In some of the smaller operations, it may be desirable to serialize and record both central office and frame trouble tickets on the same Central Office Log. Here again, this will be at the discretion of the individual supervisor.

4.18 Trouble tickets are not issued for recording troubles disclosed by preventive maintenance activities.

Central Office Log (Form E-5457)

4.19 The Central Office Log (Fig. 18) shall be used for recording frame trouble reports and other distributing frame activity which could result in trouble reports. The log is a convenient display of pertinent information associated with trouble reports.

4.20 This log may also be used for noting other distributing frame activity, ie, contractor activity, outside plant forces performing work on distributing frames, etc. These entries are useful for investigating trouble reports which may be associated with this type of activity.

4.21 The Central Office Log may be closed out monthly or periodically, depending on the volume of trouble reports and other entries. In small offices, it may be convenient to utilize the same Central Office Log for recording both switching system and frame trouble reports and other office activity. In either case, any trouble reports which are not closed out on a log must be carried over to the log for the next period with explanatory notes.

C. Analysis of Trouble Records

4.22 One important activity that is a part of corrective maintenance is the periodic analysis of completed trouble records. In addition to the trouble tickets, results of preventive maintenance routines should also be analyzed. The purpose of this analysis is to categorize all troubles in terms of frame components, causes of trouble and to initiate positive action to reduce the possibility of future troubles.

4.23 The analysis of trouble reports may result in any number of actions. Some examples of these actions are:

- Increase or recommend a decrease in the frequency of a particular preventive maintenance routine.
- Initiate on-the-job training to reduce work errors.
- Change housekeeping and cleaning routines to reduce wire clippings, solder splashes, etc, on the distributing frame.

Ticket File

4.24 One of the first steps in the analysis of trouble reports is the creation of a ticket file which provides for the systematic storage of trouble tickets. The trouble tickets should be filed in accordance with the equipment code on the trouble ticket. All NTF tickets, which cannot be associated with a particular frame component, should be filed in a bin designated as NTF. Separate bins should be designated for filing MEMO, HOLD FOR REPAIR, and PENDING trouble tickets issued during the current month. The file should be located in the Frame Maintenance Center, Switching Maintenance Center, or in the Switching Control Center (SCC), or Frame Control Center (FCC) of offices in a centralized environment.

4.25 The ticket file bins shall be arranged according to the major distributing frame components as listed in Table C. As experience is gained with a frame operation, the supervisor may change the layout of the ticket file to meet the needs of a particular distributing frame. Figure 19 illustrates a suggested ticket filing arrangement. If practical, the distributing frame filing system may be an addition to the one presently set up for the associated switching system.

4.26 Trouble tickets should be retained in a 3-month moving file. At the end of each report period, tickets for the oldest month should be removed. Figure 19 illustrates two suggested methods of retaining trouble tickets in a 3-month file.

5. QUALITY ASSURANCE (SECOND LEVEL RESPONSIBILITY)

5.01 The procedures in this part will describe the manager's (second level supervisor) role in the administration of an effective distributing frame quality control program.

5.02 An effective quality control program will only come about as the result of an attempt by management to reduce and hold work errors to a minimum. As quality improves, so does the service to our customers and the cost to our company. However, this cannot be accomplished

without the close supervision of both the manager and the supervisor.

5.03 High quality workmanship on distributing frames is directly related to service and cost. The manager must impress supervisors with the absolute requirement for high quality work on the distributing frame and an effective quality control program to minimize work errors.

5.04 It is important that the manager and each of his subordinate supervisors agree upon service and cost objectives, (eg, code 5's frame, percent efficiency, percent nonorder time, etc). In addition, there should be an agreement for the number of work evaluations to be performed, if the indicated need is more than the minimum as outlined in paragraph 3.34. To avoid misunderstanding, such objectives should be in writing, with copies in the files of both the manager and the supervisor.

5.05 In order to ensure high quality workmanship on the frame, performance of work evaluations according to specified inspection standards, an effective corrective action program, and the compliance with all distributing frame administrative programs, the manager is responsible for the following technical and administrative areas.

A. Technical

5.06 ***Work Evaluations***—The manager shall perform work inspections and observations of craft work as follows:

(a) Work Evaluations (Independent of those made by the supervisor)

(b) Work Evaluations (Same as those made by the supervisor)

(c) Work Evaluations (Accompanying the supervisor)

5.07 The manager shall perform a minimum of 25 work inspection items per frameworker per quarter. These work evaluations should be a random number of inspections independent of those peformed by the supervisor, and some inspection items previously evaluated by the supervisor. If the work evaluations performed by the manager and those performed by the supervisor do not agree on the quality of workmanship, then the manager shall accompany the supervisor during work inspections and work observations. This will provide the manager with information regarding the supervisor's technical competence and ability to perform work evaluations according to specified inspection standards.

5.08 Results of work evaluations, performed by the manager, shall be recorded on Form E-6954 (Frameworker Work Evaluation Sheet) and summarized on Form E-6955 (Frameworker Job Performance Summary). Reference should be made to Part 3 of this section for detailed information concerning the performance of work evaluations.

5.09 The manager shall enter on Form E-6954 the data reviewed and any pertient remarks concerning those work evaluations which were performed by the supervisor and reviewed by the manager. Appropriate spaces have been provided on Form E-6954 for this purpose.

5.10 ***Distributing Frame Congestion***—At least once every six months, the manager shall perform checks to determine horizontal shelf and express trough pileup on all distributing frames. The checks shall be made on the various types of distributing frames as follows:

(a) ***Conventional Frame***

(1) The jumper pileup must not block access to the distributing rings at the rear of the horizontal shelf.

(2) The jumper pileup must not block access to the fanning holes in the base of the horizontal terminal strips.

(3) There must be a minimum of 3 1/2 inches between the top of the jumper pile and the next higher shelf for the frameworker to easily reach the distributing rings at the rear of the shelf.

These requirements limit the maximum jumper pileup to 3 1/2 inches on the conventional MDF with 8-inch shelf spacing and 1-inch support arms, and to 5 1/2 inches on the conventional MDF with 10-inch shelf spacing. Figure 20 illustrates a maximum jumper pileup that satisfies the three physical conditions listed above. Frames having either moderate (1-2 shelves with congestion) or excessive (3 or more shelves with congestion) shall be fully analyzed to determine the cause

and to establish an effective corrective action program.

(b) ***ESS Modular Frame***—On an ESS Modular Frame the test for congestion is applied to both the upper and lower jumper troughs at the same point in the frame lineup. Select by inspection, the four locations in the frame lineup where the jumper pileup in both the upper and lower troughs appears to be greatest. Compress the jumpers in each trough and measure the compressed jumper pileup from the bottom of the trough to the top of the pileup. Add the two measures together. The frame is not considered to be congested if the combined measure is less than 5 inches at all of the four locations. If the combined measure is 5 inches or greater at either of the four locations, the frame is congested and shall be fully analyzed to determine the cause and to establish an effective corrective action program. In some later versions of the ESS Modular Frame, the upper trough was subdivided into two troughs. In these cases the combined compressed pileup in both upper troughs and the lower trough cannot exceed 5 inches.

(c) ***COSMIC Frames with COSMOS***—On COSMIC Frames that operate in conjunction with the Computer System for Mainframe Operations (COSMOS) the standard, on line, Frame Trough Jumper Count Report (transaction code FJC) will be used in the test for congestion. Before obtaining this report, ensure that the Tabulation of Module Jumpers program (transaction code TOM) has been run not more than one week prior to the review. This program updates the jumper tables in the data base and will ensure that information obtained is current. Obtain the FJC report for the frame or frames being reviewed. Select the four locations that have the highest jumper count between adjacent modules. For any of these four locations, the frame is congested if the jumper count is 5000 or more. There is no congestion, if the jumper count is less than 5000.

(d) ***COSMIC Frames Without COSMOS***—On COSMIC Frames that do not have COSMOS, the test for congestion is applied to both the upper and lower jumper troughs at the same point in the frame lineup. Select by inspection, the four locations in the frame lineup where the jumper pileup in both the upper and lower troughs appears to be greatest. Compress the jumpers in each trough and measure the compressed jumper pileup from the bottom of the trough to the top of the pileup. Locate the point on the graph in Fig. 21 that corresponds to the measured height of the compressed pileup in the upper and lower trough. If the point falls below the line for all four locations, there is no congestion. If the point is on or above the line at either of the four locations, the frame is considered to be congested. Frames (ESS-MODULAR or COSMIC) having congestion shall be analyzed to determine the cause and to establish an effective corrective action program. The manager shall be a member of the Congestion and Control Review Committee as outlined in Sections 680-535-009 or 680-830-012.

B. Administrative

5.11 ***Corrective Action Program***—Each supervisor shall have an established corrective action program for correcting deficiencies found through the use of FFMP, CMP, and FJPEP. This program should include the required training or retraining as a result of unsatisfactory work items or a low percentage of efficiency on individual frameworkers or the overall frame force. The manager shall also ensure that necessary follow-up and documentation of this training is being made. Other areas of corrective action could include frame rehabilitation, investigation and control of discrepancies, roadblocks, service affecting troubles, etc.

5.12 ***Controlled Maintenance Plan (CMP)***—Each frame operation with one or more full time frameworkers shall be utilizing the Controlled Maintenance Plan as outlined in this section. It is the responsibility of the manager to see that the Controlled Maintenance Plan is being properly used, and that all the associated forms and control records are filled out correctly.

5.13 ***Frame Force Management Plan (FFMP)***—Each frame operation with one or more full time frameworkers shall be utilizing the frame force management plan as outlined in Section 201-200-010. Initially, the manager must determine that the time and motion study was properly performed, that it was properly recorded, and that realistic objectives have been set. On an ongoing basis, the manager should also check the other required frame force management control

forms for completeness, accuracy, and utilization. These will include:

- Daily Forecast (E-6619)
- Loading Sheet (E-6620)
- Daily Time and Work Long (E-6621)
- Daily Central Office Frame Activity Log (E-6622)
- Other Work Log (E-6623)
- Central Office Monthly Control Log (E-6624)
- Speaker Activity Log (E-6625)
- Frame Control Record (E-5497)
- Work Assignment List (E-5848)

5.14 ***Frameworker Job Performance Evaluation Plan (FJPEP)***—The manager must be assured that the information used by FJPEP for the appraisal of each craft person is accurate and reliable data. The E-6620 (Loading Sheet), E-6621 (Daily Time and Work Log), and E-6954 (Frameworker Work Evaluation Sheet) of each individual frameworker shall be checked periodically for accuracy. The appropriate information shall be summarized on Form E-6955 (Frameworker Job Performance Summary). A check should also be made to verify that the supervisor is exercising job rotation among the frame force. If job rotation is not feasible, justification for lack of rotation must be documented and carefully considered for its effect upon the employee.

> ***Note:*** An audit trail of the activities is an excellent indicator as to whether or not the plans are being used to improve the quality of workmanship and technical competence of individual frameworkers and an increase of overall frame efficiency.

5.15 The manager should schedule office visits at least monthly to perform the necessary work evaluations and review the administrative procedures as outlined in paragraphs 5.11 through 5.14. These results should be critiqued with the supervisor, documented, and when required the necessary follow-up action taken.

5.16 During these office visits, other areas of the frame operation should be reviewed and critiqued, such as the Accident Prevention Plan, Cable Transfer Administration (Section 620-050-020), etc.

5.17 Having performed the functions as outlined above will enable the manager to make judgment as to the effectiveness of the frame supervisor in the areas of quality and productivity of the service order and other work activities. It will also enable the manager to more readily respond to higher level management inquiries as to the technical and administrative health of the frame operation.

6. DOCUMENTATION

6.01 The proper maintenance of a distributing frame depends upon the availability of the required documentation. Reference shall be made to Section 201-200-001 for documentation that pertains to distributing frame operations. A copy of all applicable documents should be available to the distributing frame force.

7. RETENTION OF RECORDS AND ORDERING INFORMATION

A. Retention of Records

7.01 The forms described in this section have been designed for containing useful information in an orderly fashion. The minimum length of time each record should be kept is found in the company record retention schedule. If it appears advisable to retain certain records for a longer period of time than is indicated in this retention schedule, action should be taken to have the retention requirements changed. The normal procedure should be to retain a record no longer than its possible usefulness.

7.02 A simple method for retaining these records is to establish large folders or mailing envelopes, each marked with the month and year. As each report month ends, records may be removed from binders and filed in the appropriately marked envelopes or folders. At the same time, records in an envelope with a date exceeding company retention requirements should be discarded.

B. Ordering Information

7.03 Forms should be ordered in multiples of the quantities contained within each package. All forms associated with this plan may be ordered through the local Western Electric distributing center. Prepare requisition as follows:

(Quantity) Form (Number)

7.04 The following list provides a physical description of all forms associated with this plan.

FORM	TITLE	SIZE (INCHES)	PAPER STOCK	MARGIN/ PUNCH	FORMS PER PACKAGE
E-5450	Equipment Test List	8 3/8 × 10 7/8	Bond	Right/7 Hole	50
E-5451	Preventive Maintenance Schedule	11 × 7	Bond	Standard/7 Hole	50
E-5452	Test and Inspection Work Order & Record	8 3/8 × 10 7/8	Bond	Standard/7 Hole	50
E-5453	Test and Inspection Summary	8 3/8 × 10 7/8	Bond	Standard/7 Hole	25
E-5454	Test and Inspection Summary	5 × 8	Card	None	25
E-5455	Test and Inspection Summary Multiple Assignments	11 × 17	Bond	Standard/7 Hole	25
E-5457	Central Office Log	8 3/8 × 10 7/8	White	None	50
E-5497	Frame Control Record	8 3/8 × 10 7/8	Bond	None	50
E-6954	Frameworker Work Evaluation Sheet	8 3/8 × 10 7/8	Bond	Standard/7 Hole	50
E-6955	Frameworker Job Performance Summary	8 3/8 × 10 7/8	Bond	Standard/7 Hole	25
E-10260	Distributing Frame Trouble Ticket	3 1/2 × 6 1/2	White	None	50

FRAMEWORKER
WORK EVALUATION SHEET

FORM E-6954
(12-78)

EMPLOYEE _____ SUPERVISOR _____
OFFICE _____ INSPECTION ☐
DATE _____ OBSERVATION ☐
DATE REVIEWED WITH EMPLOYEE _____

DISTRIBUTING FRAMES	ITEM COUNT	NO. ITEMS INSPECTED	NO. ITEMS SATIS.	SOURCE S.O.NO., ETC.	REMARKS
JUMPER PLACEMENT	1 PER JUMPER				
PROPER TERMINATION	2 PER JUMPER				
JUMPER REMOVAL	1 PER JUMPER				
T-ZONE	1 PER FRAME				

EQUIPMENT FRAMES & WIRE BAYS	ITEM COUNT	NO. ITEMS INSPECTED	NO. ITEMS SATIS.	SOURCE S.O.NO., ETC.	REMARKS
JUMPER PLACEMENT	1 PER JUMPER				
JUMPER REMOVAL	1 PER JUMPER				

OTHER	ITEM COUNT	NO. ITEMS INSPECTED	NO. ITEMS SATIS.	SOURCE S.O.NO., ETC.	REMARKS
TESTS	1 PER LINE				
INTERCEPT	1 PER LINE				
COILS AND SPECIAL PROTECTION	1 PER LINE				
RECORDS	1 PER LINE				
FILING	1 PER ORDER				
	TOTAL				

FOLLOW UP REQUIRED YES ☐ NO ☐
DATE REVIEWED BY 2ND LEVEL _____
ADDITIONAL REMARKS _____

Fig. 1—Frameworker Work Evaluation Sheet—Form E-6954 (3.08) (3.11)

DEFINITION OF TERMS

BSP Requirements Are The Standard For Inspection Items

DISTRIBUTING FRAMES: MDF, LDF, IDF, etc.

EQUIPMENT FRAMES WIRING BAYS: N. G., BLK. RLY., TRANSL., NUMBER NETWORK, etc.

JUMPER PLACEMENT: The entire jumper has proper Slack, Dress and is using ***Routing*** rings and ***Fanning*** strips correctly. Count 1 item inspected per jumper. Count 1 item satisfactory only when the entire jumper meets requirements. If one end is incorrect the entire item is unsatisfactory.

PROPER TERMINATION: All leads in the jumper must be terminated per BSP. If both ends are examined, count 2 items inspected. Count 1 item satisfactory for each end of the jumper in which all leads are properly terminated, ie, ***Max*** satisfactory is 2 per jumper.

JUMPER REMOVAL: Jumper completely removed and related lugs at both ends of jumper cleaned. Count 1 item satisfactory only when ***both*** locations of previous termination are acceptable.

T-ZONE: ***CAUTION*** This inspection must be made as soon as possible following order completion to justify responsibility for any defects upon the frameworker under inspection. The maximum horizontal MDF T-Zone area shall be composed of three (3) zones as follows: (1) 20 rows of lugs to the left of the work location, (2) 20 rows of lugs to the right of the work location, (3) 20 rows of lugs immediately below the work location. On the vertical side of conventional frames (VMDF) the T-Zone area shall be composed of two (2) zones as follows: (1) 20 rows of lugs immediately above the work location, (2) 20 rows of lugs immediately below the work location. The T-Zone area shall be determined locally (See Section 201-200-013, paragraphs 3.13 and 3.14). Count 1 item per line inspected for each frame examined, ie, count 1 item per line satisfactory for each frame, irregardless of the number of jumpers or terminations found free of defects.

TESTS: Count 1 item inspected for each line requiring a test. Count 1 item satisfactory for each line having all required order completion tests performed.

INTERCEPT: Count 1 item inspected for each line examined. Count 1 item satisfactory for each line correctly intercepted.

COILS AND SPECIAL PROTECTION: Count 1 item inspected for each line examined. Count 1 item satisfactory if proper coils are in place and special protection, if required, is in use.

RECORDS: Count 1 item inspected per line examined. Count 1 item satisfactory only, when the service order, equipment transfer, etc, has been correctly signed off and logged by the frameperson.

FILING: Count 1 item for each order examined. Count 1 item satisfactory only when the service order, transfer, etc, has been filed in accordance with Section 201-200-010.

FOLLOW UP REQUIRED: A CHECK should be made in either the "yes" or "no" box on each work evaluation sheet. If follow up action is required, the "ADDITIONAL REMARKS" should be used for recording the appropriate information.

DATE REVIEWED BY 2ND LEVEL: This space is to be used by the manager for recording the date on which he/she evaluated those work items previously inspected by the supervisor.

Fig. 1—Definitions of Terms for Frameworker Work Evaluation Sheet—Form E-6954 (Back) (3.08) (3.11)

E 6955 (3-78)

FRAMEWORKER
JOB PERFORMANCE SUMMARY

EMPLOYEE _____ IDENTIFICATION NO. _____
OFFICE _____ SHIFT (D. E. N) ___
SUPERVISOR _____ MONTHS IN TITLE ___
MONTH ___ YEAR ___

	PRODUCTIVITY				QUALITY		TRICK #	
	TIME				NUMBER			
	EXPECTED	ORDER	NON-ORD.	TOT. B&C	ITEMS	SAT		
	A	B	C	D	E	F		REMARKS
1								
2								
3								
4								
5								
6								
7								
8								
9			DETAILS FOR THE COMPLETION OF THIS FORM ARE FOUND IN SECTION 201-200-014 (FRAME-WORKER JOB PERFORMANCE EVALUATION PLAN).					
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
(10) T								

%EFF. ___ %NON-ORD. ___ % SAT. ___

#OF DAYS WITH LESS THAN 4 HOURS OF EXPECTED ORDER TIME. ___

REVIEWED BY

Fig. 2—Frameworker Job Performance Summary—Form E-6955 (3.11)

4.0 DISTG FRAMES

4.1 DISTG FRAMES; CONVENTIONAL

FOR ALL UNITS

201-220-501	(1/0)	A	CROSS CONNECTION WIRES	MR *	-----
		B	CONNECTIONS TO TERMINALS	MR *	-----
		C	DISTRIBUTING RINGS & FANNING STRIPS	MR *	-----
		D	TERM STRIP & LUGS	MR *	-----
		E	CABLING	MR *	-----
		F	JACK BOXES	MR *	-----
		G	PROT SPGS, JK SPGS & PROT, JK, OR CONN LUGS	MR *	-----
		H	PROTECTOR BLOCKS	MR *	-----
		I	HEAT COILS	MR *	-----
		J	BAT. & GRD BINDING POSTS	MR *	-----
		K	GROUND CONNECTIONS	MR *	-----
		L	MARKING & DESIGNATION CARDS	MR *	-----
		M	S. O. CORD HOOKS	MR *	-----
		N	S. O. & TEST CORDS	MR *	-----
		O	MISSING & DEFECTIVE PARTS	MR *	-----
		P	STORAGE CABINETS & END GUARD STG SPACES	MR *	-----
		Q	SPECIAL SERVICE DEVICES	MW 6M	-----
		R	REVERSE DEVICES	MR 2M	-----
		S	TALK CIRCUITS	MR *	-----
		T	ELECTRIC OUTLETS	MR *	-----
		U	TESTING DEVICES	MR *	-----

TROUBLE TESTS

201-206-501	(2/0)	A	RESISTANCE TEST	TT	-----
		B	SHORT-CIRCUIT TEST	TT	-----

4.2 DISTG FRAMES; ESS TYPE MODULAR

FOR ALL UNITS

201-221-501	(1/0)	A	CROSS CONNECTION WIRES	MR *	-----
		B	CONNECTIONS TO TERMINALS	MR *	-----
		C	FANNING STRIPS & WIRE RETAINERS	MR *	-----
		D	CONNECTING BLOCKS & TERMINALS	MR *	-----
		E	UPPER EXPRESS WIRE TROUGH	MR *	-----
		F	LOWER EXPRESS WIRE TROUGH	MR *	-----
		G	CABLING	MR *	-----
		H	JACK PANELS	MR *	-----
		I	JACKS	MR *	-----
		J	CONNECTIONS & PROTECTORS	MR *	-----
		K	BATTERY & GROUND TERMINALS	MR *	-----

Fig. 3—Equipment Test List Format (3.36) (3.45)

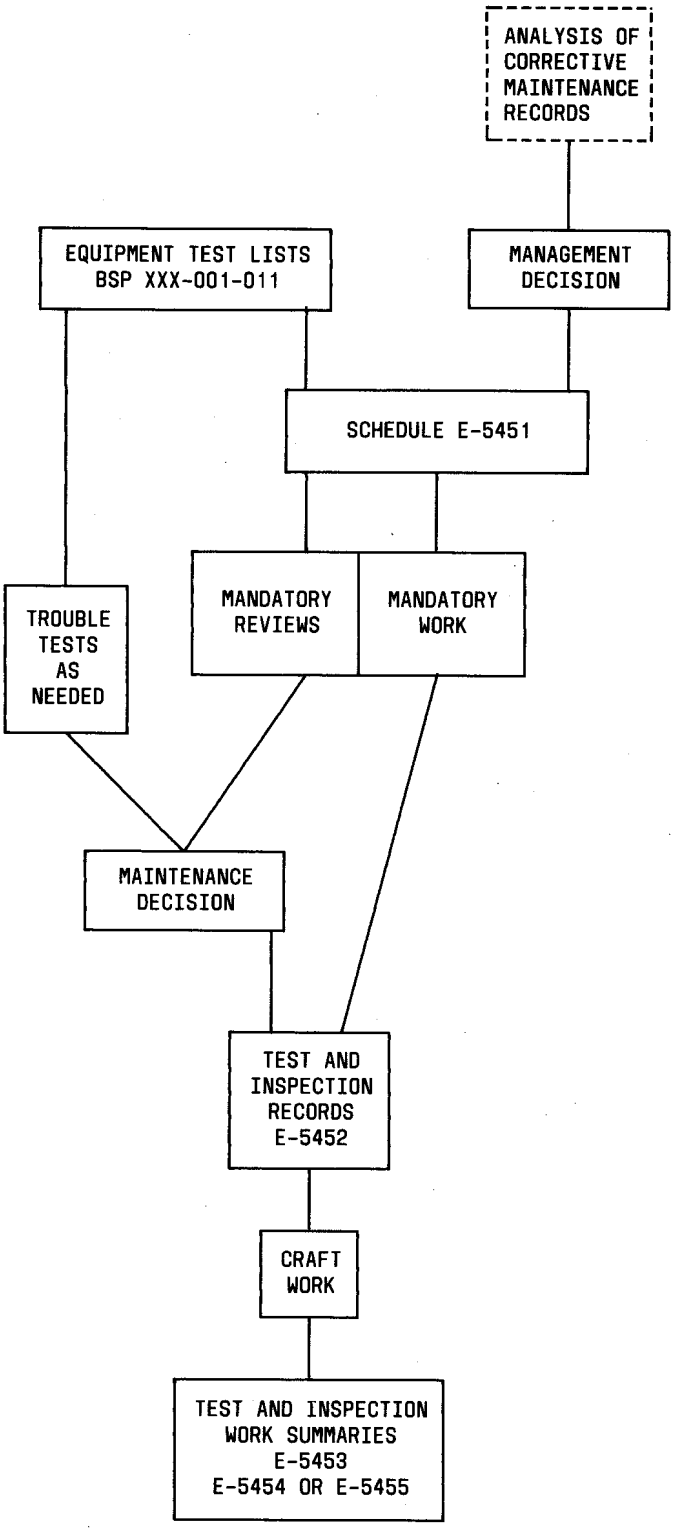

Fig. 4—Preventive Maintenance Diagram (3.36)

SECTION–, ISS–

AT & TCo Standard

EQUIPMENT TEST LIST

B.S.P.	I S S	TEST OR REQT.	EQUIPMENT AND WORK DESCRIPTION	CLASS	FREQ.	JOB NO.

Page

Fig. 5—Equipment Test List—Form E-5450 (3.47)

OFFICE 267 NO. SHEETS ___ SHEET NO. 1

PREVENTIVE MAINTENANCE SCHEDULE

YEAR 1978

OFFICE 267 NO. SHEETS ___ SHEET NO. 1

E-5451 (11-76)

JOB NO.	EQUIPMENT AND WORK DESCRIPTION	CLASS	FREQ.	NUMBER UNITS	MIN. PER ASGN.	JANUARY 1 2 3 4	FEBRUARY 1 2 3 4	MARCH 1 2 3 4	APRIL 1 2 3 4	MAY 1 2 3 4	JUNE 1 2 3 4	JULY 1 2 3 4	AUGUST 1 2 3 4	SEPTEMBER 1 2 3 4	OCTOBER 1 2 3 4	NOVEMBER 1 2 3 4	DECEMBER 1 2 3 4
	BSP 201-204-501																
	Main & Inter. Distributing Frames - Inspections																
1	Test "A" Cross-Connections	MR	*	2000	1200						X						/
2	Test "B" Connections to Term.	MR	*	4000	2400					½							
3	Test "I" Heat Coils	MR	*	500	60	X			X		\	←/			/		
4	Test "Q" Special Service Devices	MU	6M	-	60		X						/	→\			
5	Test "R" Reverse Devices	MR	2M	-	15		X		X		X		X		/		/

LOCALLY ASSIGNED JOB NUMBERS

ENTER TEST CLASSIFICATION AS SPECIFIED ON E.T.L.

INTERVAL AT WHICH THE WORK ITEM IS SCHEDULED FOR PERFORMANCE

NUMBER OF UNITS SCHEDULED FOR TEST AT THE INTERVAL SHOWN

MINUTES REQUIRED TO PERFORM THE WORK ITEM

THIS FORM PROVIDES FOR SCHEDULING RECURRING WORK ITEMS ON A "PERIOD" BASIS. EACH MONTH IS DIVIDED INTO 4 SCHEDULE PERIODS. THE DATES FOR THE DESIGNATED PERIOD ARE:

PERIOD	DATES
1	1-7
2	8-14
3	15-21
4	22 TO END OF MONTH

ENTRIES IN THESE COLUMNS SHOW THE PERIOD IN WHICH EACH ITEM IS SCHEDULED TO BE PERFORMED AND PERIOD IN WHICH THE WORK IS COMPLETED. CODES USED ARE AS FOLLOWS:

- ☒ ITEM SCHEDULED
- ⊠ ITEM COMPLETED IN PERIOD SCHEDULED
- → ⊠ ITEM COMPLETED IN PERIOD LATER THAN PERIOD SCHEDULED. THE ARROW SHAFT SHOULD BE DRAWN IN AT THE END OF EACH PERIOD IF ITEM IS STILL SCHEDULED BUT NOT COMPLETED. (ARROW IN REVERSE DIRECTION MAY BE USED TO SHOW ITEM COMPLETED AHEAD OF SCHEDULE).
- ⊠ SCHEDULE BY-PASSED. ITEM DEFERRED TO NEXT SCHEDULED PERIOD.

EXPLAIN DEVIATIONS FROM SCHEDULE ON BACK OF FORM

ENTER TOTAL WORK TIME FOR PERIOD IN HOURS

TOTAL HOURS PER PERIOD — 1' | 15" | 1'10" | 1'10" | 30" | 1' | 15" |

Fig. 6—Preventive Maintenance Schedule—Form E-5451
(3.48) (3.49)

TEST AND INSPECTION WORK ORDER AND RECORD

E-5452 (6-68)

OFFICE (A) 267 ASSIGNMENT OR JOB NO. (B) 3

ASSIGNMENT DATA

B.S.P. NO. TEST LETTER OR PAR. BSP 201-204-501 Test "I" (C)

EQUIPMENT: VMDF (D)

WORK DESCRIPTION: Check for missing heat coils (E)

FROM EQPT. UNIT (F)		TO EQPT. UNIT		TOTAL UNITS (G)	SHIFT (H)
CA	PR	CA	PR		
200	000	212	1099	40 Verticals	Day

ASSIGNED TO (I)	TO BE STARTED (J)	TO BE COMPLETED
JRG	1-4-78	1-5-78

PROGRESS REPORT

DATE	FROM EQPT. UNIT CA	FROM EQPT. UNIT PR	TO EQPT. UNIT CA	TO EQPT. UNIT PR	TIME SPENT (MINUTES) TEST	TIME SPENT (MINUTES) REPAIR	BY
1-4	200	000	205	999	30	5	JRG
1-5	206	000	212	1099	30	-	JRG
			(N)				

WORK RECORD

EQPT. UNIT (K)		TROUBLE APPEARANCE (L)	ACTION TAKEN (M)	REPAIR TIME	BY
CA	PR				
201	1006	Missing heat coils	Replaced T/R coils	5	JRG

NOTE	EXPLANATION
A	Central Office Identification
B	Locally Assigned Number and/or Letter to Identify Assignment or Job by Type of Work, Shift, Equipment, Etc
C	Reference Information
D	Identification of Equipment
E	Description of Work to be Performed. Limited Trouble Might be Expected on this Test. Use of this Form on this Test Would be Optional
F	For Designating the First and Last Circuit or Equipment Assigned by Work Order
G	Total Units this Assignment
H	"Shift" Work to be Performed (Day, Evening, Night)
I	Show Trick Designation or Initials of Employee Work Assigned to
J	Show Date and/or Time Work is Scheduled to be Started and Completed
K	Equipment Unit on Which Trouble is Indicated
L	Details of Trouble Appearance
M	Details of Action Taken to Clear Trouble, Time Consumed, Workman's Initials
N	Show Workman's Initials and Summary of Time Spent Testing and Repairing by Date and Equipment Involved
O	For Totaling Trouble Appearances on this Record

TOTAL TROUBLE APPEARANCES (O) 1

NO. SHEETS 1 SHEET NO. 1

Fig. 7—Test and Inspection Work Order and Record—Form E-5452 (3.50)

TEST AND INSPECTION SUMMARY E-5453 (6-67)

OFFICE (A) 267 ASSIGNMENT OR JOB NO. (B) 3

BSP NO. AND TEST LETTER OR PAR. BSP-201-204-501 Test "I" (C)

EQUIPMENT VM DF (D)

WORK DESCRIPTION (G) Check for missing heat coils

FROM (E) VER 00 TO VER 39

TOTAL UNITS (F) 40

TEST (H) CLS FREQ

(I) ESTIMATED TIME PER UNIT 60 PER ASGN.

DATE (J) E-5452 ISSUED	DATE (J) WORK COMPL.	(K) BY	(L) TROUBLES	TIME SPENT (M) TEST	TIME SPENT (M) REPAIR	SUMMARY OF TESTS, INSPECTIONS, SAMPLES, REVIEWS
1-4-78	1-5-78	JRG	1	60	5	Replaced (N) heat coils in CA/PR 201/1066

NOTE	EXPLANATION
A	Designation of Central Office
B	Locally Assigned — Cross-reference to Equipment Test List
C	Test Reference Information
D	Description of Equipment
E	Show First and Last Unit of Equipment on this Assignment
F	Total Circuits Covered by this Assignment
G	Description of Test or Inspection
H	Test or Inspection Class and Frequency — From Equipment Test List
I	Estimated Test Time Per Unit and Assignment
J	Date E-5452 Issued and Date this Assignment Completed
K	Workman's Initials
L	Total Trouble Appearances — Taken From E-5452
M	Total Test and Repair Time — Taken From E-5452
N	Space for Summarizing Trouble Detail — Shown on E-5452 When Used

Fig. 8—Test and Inspection Summary—Form E-5453 (3.52) (3.54)

FORM E-5454 (6-67)

TEST AND INSPECTION SUMMARY

OFFICE 267 ASSIGNMENT OR JOB NO. 10

BSP NO. AND TEST LETTER OR PAR. BSP 201-204-501 Test "J"					WORK DESCRIPTION Check Battery and Ground Binding Posts: 1. Secured Properly to frame; 2. Leads are soldered to posts; 3. GRD. Connections are tight.				
EQUIPMENT MDF									
FROM		TO		TOTAL UNITS	TEST		ESTIMATED TIME		
VMDF +		HMDF		—	CLS. MR	12M FREQ.	PER UNIT —	30	PER ASGN.
DATE		BY	TROU-BLES	TIME SPENT		SUMMARY OF TESTS, INSPECTIONS, SAMPLES, REVIEWS			
E-5452 ISSUED	WORK COMPL.			TEST	REPAIR				
4-12-78	4-12-78	ETO	0	45	0	NTF			

Fig. 9—Test and Inspection Summary—Form E-5454 (3.52) (3.55)

E-5455 (6-67)

TEST AND INSPECTION SUMMARY
MULTIPLE JOB ASSIGNMENTS

OFFICE (A) _____ ASSIGNMENT OR JOB NO. (B) _____

EST. TIME (G) PER ASGN.	EST. TIME (G) PER UNIT	TEST (F) FREQ.	TEST (F) CLASS	EQUIPMENT (E) WORK DESCRIPTION	BSP NO. AND TEST LETTER OR PAR. (C)	JOB NO. (H)	MO. DUE (I)	FROM EQPT. UNIT (J)	TO EQPT. UNIT (J)	NO. UNITS (K)	DATE (L) E-5452 ISS.	DATE (L) WORK COMPL.	BY (M)	NO. OF TBL. (N)	TIME SPENT (O) TEST	TIME SPENT (O) RE-PAIR
						1										
						2										
						3										
						4										
						5										
						6										
						7										
						8										
						9										
						10										
						11										
						12										
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						29										
						30										
						31										
						32										
						33										
						34										
						35										

NOTE	EXPLANATION
A	Designation of Central Office
B	Locally Assigned – Cross-Referenced to Equipment Test List
C	Test Reference Information
D	Description of Equipment
E	Description of Tests or Inspections
F	Test or Inspection Class and Frequency – From Equipment Test List
G	Estimated Test Time per Unit and Assignment
H	Number suffixed to Assignment or Job No. to Identify Individual Assignments
I	Month Work Assignment is Scheduled for Review, Sample or Completion
J	Show First and Last Unit of Equipment for Each Assignment
K	Enter Number of Units Per Assignment
L	Enter Date Form E-5452 was Issued and Date the Assignment was Completed, Reviewed or Sampled
M	Workman's Initials
N	Total Trouble Appearances – Taken From Form E-5452
O	Total Test and Repair Time – Taken From Form E-5452

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Fig. 10—Test and Inspection Summary—Multiple Assignments—Form E-5455 (3.52) (3.56)

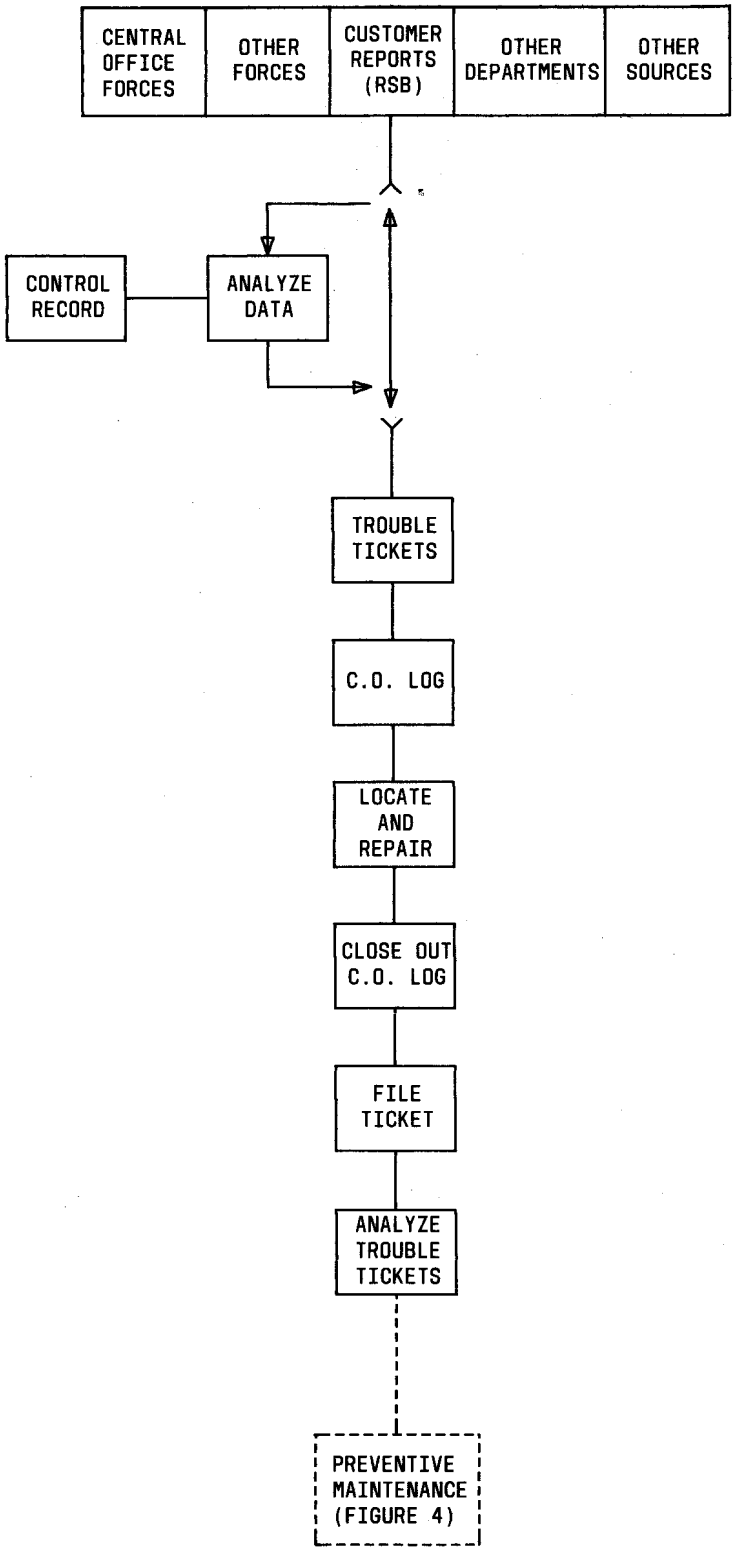


Fig. 11—Corrective Maintenance Diagram (4.02)

FORM E-5497
(7-69)

FRAME CONTROL RECORD

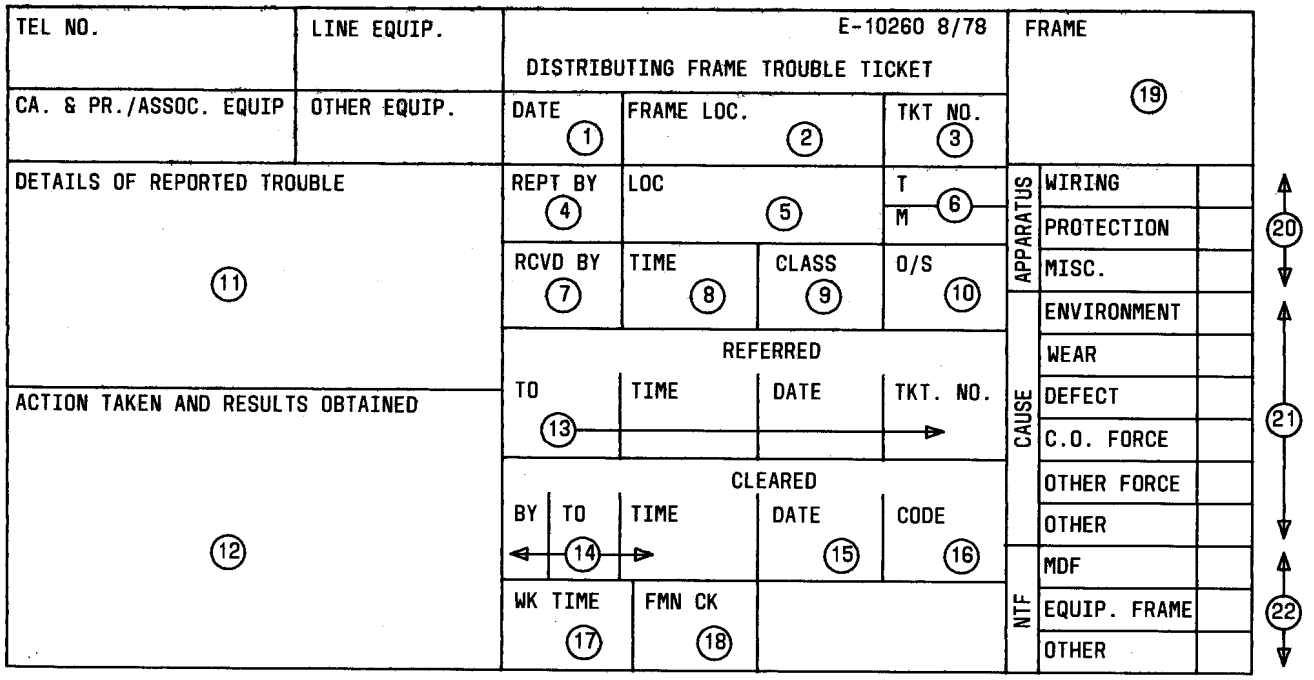
DATE	FRAME CODES	REG. ERRORS	INCPT. ERRORS	TROUBLE REPORT BY TYPE OF FRAME					TROUBLE REPORT TREND BY TYPE											
				MDF	IDF / LDF	NG / BR	TRNSL / NN	TDF	CROSS CONNECTIONS					SOLDER SPLASH	WIRE CLIPPING	INCPT. TOOLS	HEAT COILS		CAR-BONS	P.S.C. ERRORS
									WRONG	CUT	BROKEN	LOOSE	DISC.				MISSING	OTHER		
1 Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓘ	←				Ⓙ							→
5																				
10																				
15																				
20																				
25																				
30																				
31																				
TOTAL																				
OBJ 10 DAYS																				
OBJ 20 DAYS	←			Ⓚ				→												
OBJ TOTAL																				

NOTE EXPLANATION

A DATE ON WHICH THE TROUBLES OCCURRED.
B TOTAL (CUMULATIVE) FRAME CODES TO DATE.
C MESSAGE REGISTER ERRORS (CUMULATIVE).
D INTERCEPT ERRORS (CUMULATIVE).
E CUMULATIVE NUMBER OF TROUBLES FOUND ON THE "MAIN DISTRIBUTING FRAME".
F CUMULATIVE NUMBER OF TROUBLES FOUND ON THE "LINE DISTRIBUTING FRAME OR THE "INTERMEDIATE DISTRIBUTING FRAME".
G CUMULATIVE NUMBER OF TROUBLES FOUND ON THE "BLOCK RELAY FRAME" OR "NUMBER GROUP FRAME".
H CUMULATIVE NUMBER OF TROUBLES FOUND ON THE "TRANSLATOR FRAME" OR "ANI NUMBER NETWORK FRAMES".
I CUMULATIVE NUMBER OF TROUBLES FOUND ON THE "TOLL OR TRUNK DISTRIBUTING FRAME".
J THESE COLUMNS ARE USED TO LIST THE DAILY TOTAL OF TROUBLES BY CAUSE.
K 10 DAY, 20 DAY AND TOTAL MONTHLY OBJECTIVES FOR TROUBLE REPORTS BY TYPE OF FRAME.
L FRAME DESIGNATION AND DISTRICT.
M REPORT PERIOD OR MONTH COVERED BY THIS CONTROL RECORD.

OFFICE/DIST. Ⓛ MONTH Ⓜ

Fig. 12—Frame Control Record—Form E-5497 (4.06) (4.08)



1 - DATE REPORT RECEIVED AT FRAME LOCATION
2 - CENTRAL OFFICE NAME OR FRAME DESIGNATION
3 - SERIAL NUMBER OF TICKET
4 - INITIALS OF PERSON REPORTING THE TROUBLE
5 - ORIGIN OF REPORT OR LOCATION OF PERSON MAKING REPORT
6 - CHECK "T" OR "MEMO"
7 - INITIALS OF PERSON RECEIVING REPORT
8 - TIME REPORT RECEIVED AT FRAME LOCATION. USE 24-HOUR CLOCK
9 - REPORT CLASS
10 - CUSTOMER'S LINE IS OUT OF SERVICE
11 - DETAILS OF TROUBLE REPORT
12 - DETAILS OF ACTION TAKEN, INCLUDING REFERRALS
13 - INITIALS OF PERSON REFERRED TO PLUS DATE, TIME, AND HIS TICKET NUMBER, IF TROUBLE IS REFERRED TO ANOTHER WORK FORCE
14 - INITIALS OF PERSON CLEARING TROUBLE AND PERSON REPORT CLEARED TO PLUS THE TIME
15 - DATE REPORT CLOSED OUT
16 - CENTRAL OFFICE TROUBLE CODE (OPTIONAL)
17 - TIME SPENT ON THIS TROUBLE
18 - FOREMAN'S INITIALS UPON REVIEW OF TICKET
19 - FRAME DESIGNATION (ABBREVIATION) AND EXACT LOCATION
20 - CHECK APPARATUS WHERE TROUBLE IS LOCATED
21 - CHECK CAUSE FOR EACH CASE OF FOUND TROUBLE
22 - IF NO TROUBLE IS FOUND, CHECK ACCORDING TO REPORT

Fig. 13—Distributing Frame Trouble Ticket (4.11)

TEL NO. 565-3449	LINE EQUIP. 17-82	E-10260 8/78 DISTRIBUTING FRAME TROUBLE TICKET			FRAME HMDF 17-82		
CA. & PR./ASSOC. EQUIP 14/394	OTHER EQUIP.	DATE 6-6-78	FRAME LOC. Downtown	TKT NO. 1	APPARATUS	WIRING	✓
DETAILS OF REPORTED TROUBLE NDT Test Ring Side Open In		REPT BY KLH	LOC LTD	T ✓ M		PROTECTION	
		RCVD BY WJB	TIME 1010	CLASS A / O/S ✓		MISC.	
ACTION TAKEN AND RESULTS OBTAINED Ring Jumper Not Soldered at HMDF Soldered - Retest OK		REFERRED TO	TIME	DATE / TKT. NO.	CAUSE	ENVIRONMENT	
						WEAR	
						DEFECT	
						C.O. FORCE	✓
		CLEARED BY WJB / TO KLH	TIME 1025	DATE 6-6-78 / CODE 5		OTHER FORCE	
						OTHER	
		WK TIME 15 min.	FMN CK DLS		NTF	MDF	
						EQUIP. FRAME	
						OTHER	

A customer reports "no dial tone." The test center tests one side open in the central office and refers the trouble to the frame for correction. Investigation of the frame connections discloses that the ring side had not been soldered on the HMDF. The connection is repaired and the ticket closed out to the test center.

Fig. 14—"T" Ticket—Wiring C.O. Force (4.14)

TEL NO. 263-1006	LINE EQUIP. 06-07-09	E-10260 8/78 DISTRIBUTING FRAME TROUBLE TICKET			FRAME VMDF 3/418		
CA. & PR./ASSOC. EQUIP 3/418	OTHER EQUIP.	DATE 6-7-78	FRAME LOC. Uptown	TKT NO. 2	APPARATUS	WIRING	
DETAILS OF REPORTED TROUBLE NDT Test Open "Out"		REPT BY ABC	LOC LTD	T ✓ M		PROTECTION	✓
		RCVD BY EAP	TIME 1330	CLASS A / O/S ✓		MISC.	
ACTION TAKEN AND RESULTS OBTAINED Missing heat coils on VMDF. Coils were Removed per AC on LTD at 1210. See E-6625 - dated 6-7-78		REFERRED TO	TIME	DATE / TKT. NO.	CAUSE	ENVIRONMENT	
						WEAR	
						DEFECT	
						C.O. FORCE	
		CLEARED BY EAP / TO ABC	TIME 1340	DATE 6-7-78 / CODE 5		OTHER FORCE	✓
						OTHER	
		WK TIME 10 min	FMN CK BT		NTF	MDF	
						EQUIP. FRAME	
						OTHER	

Customer reports "no dial tone." Testman tests line open out and asks for a cord on cable pair at VMDF. Investigation by frame worker discloses that the heat coils are missing from pair. After checking the daily "speaker activity log," he discovers that the coils were removed per "AC" on LTD.

Fig. 15—"T" Ticket—Protection Other Force (4.14)

TEL NO. 563-1456	LINE EQUIP. 842-05	E-10260 8/78			FRAME HMDF 842-05			
CA. & PR./ASSOC. EQUIP	OTHER EQUIP.	DISTRIBUTING FRAME TROUBLE TICKET						
		DATE 6-7-78	FRAME LOC. 2nd Ave.		TKT NO. 3			
DETAILS OF REPORTED TROUBLE		REPT BY GW	LOC LTD		T ✓ M	APPARATUS	WIRING	✓
NDT S/C In		RCVD BY TM	TIME 0930	CLASS A	O/S ✓		PROTECTION	
		REFERRED					MISC.	
		TO	TIME	DATE	TKT. NO.	CAUSE	ENVIRONMENT	✓
ACTION TAKEN AND RESULTS OBTAINED		CLEARED					WEAR	
Solder Cross HMDF		BY TM / TO GW	TIME 1000	DATE 6-7-78	CODE 5		DEFECT	
		WK TIME 30 min	FMN CK WM				C.O. FORCE	
							OTHER FORCE	
							OTHER	
						NTF	MDF	
							EQUIP. FRAME	
							OTHER	

Customer report of "no dial tone" is referred to frame. The trouble is a solder cross on the HMDF. This is coded "environment."

Fig. 16—"T" Ticket—Wiring Environment (4.14)

TEL NO. 565-3449	LINE EQUIP. 117-08	E-10260 8/78			FRAME NTF			
CA. & PR./ASSOC. EQUIP	OTHER EQUIP.	DISTRIBUTING FRAME TROUBLE TICKET						
		DATE 6-8-78	FRAME LOC. Madison Ave.		TKT NO. 4			
DETAILS OF REPORTED TROUBLE		REPT BY KG	LOC LTD		T ✓ M	APPARATUS	WIRING	
Unable to make "DDD" calls at times. Operator asks for calling number. Test OK		RCVD BY DC	TIME 1010	CLASS A	O/S		PROTECTION	
		REFERRED					MISC.	
		TO	TIME	DATE	TKT. NO.	CAUSE	ENVIRONMENT	
ACTION TAKEN AND RESULTS OBTAINED		CLEARED					WEAR	
Verified all wiring on LDF and on the ANI number network, with NTF.		BY DC / TO KG	TIME 1025	DATE 6-8-78	CODE 8		DEFECT	
		WK TIME 15 min	FMN CK EF				C.O. FORCE	
							OTHER FORCE	
							OTHER	
						NTF	MDF	
							EQUIP. FRAME	✓
							OTHER	

Customer reports "unable to make DDD calls at times, operator intercepts and asks for calling number." Testman is able to make DDD calls on this number ok. However, he requests that all the associated wiring be checked. The frame worker's investigation discloses that both the "IDF" and "ANI NN" frame connections are proper.

Fig. 17—"T" Ticket—No Trouble Found (4.14)

E-5457 (6-67)

CENTRAL OFFICE LOG

OFFICE 267 (A) PERIOD June 78 (B)

DATE	TKT. NO.	TIME RCVD.	FROM OR REPORT CLASS	NATURE OF REPORT OR ACTIVITY	DISP. TO	CLOSED OUT	EQPT. GROUP
(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)

NOTE	EXPLANATION
A	Central office name or frame location.
B	Period covered by form.
C	Date report is received.
D	Frame trouble ticket serial number.
E	Time report received.
F	Trouble report source or report classification.
G	Brief description of report.
H	Initials of individual investigating report.
J	Indicates report closed out. Enter time or date.
K	Trouble ticket filing information. Enter frame designation.

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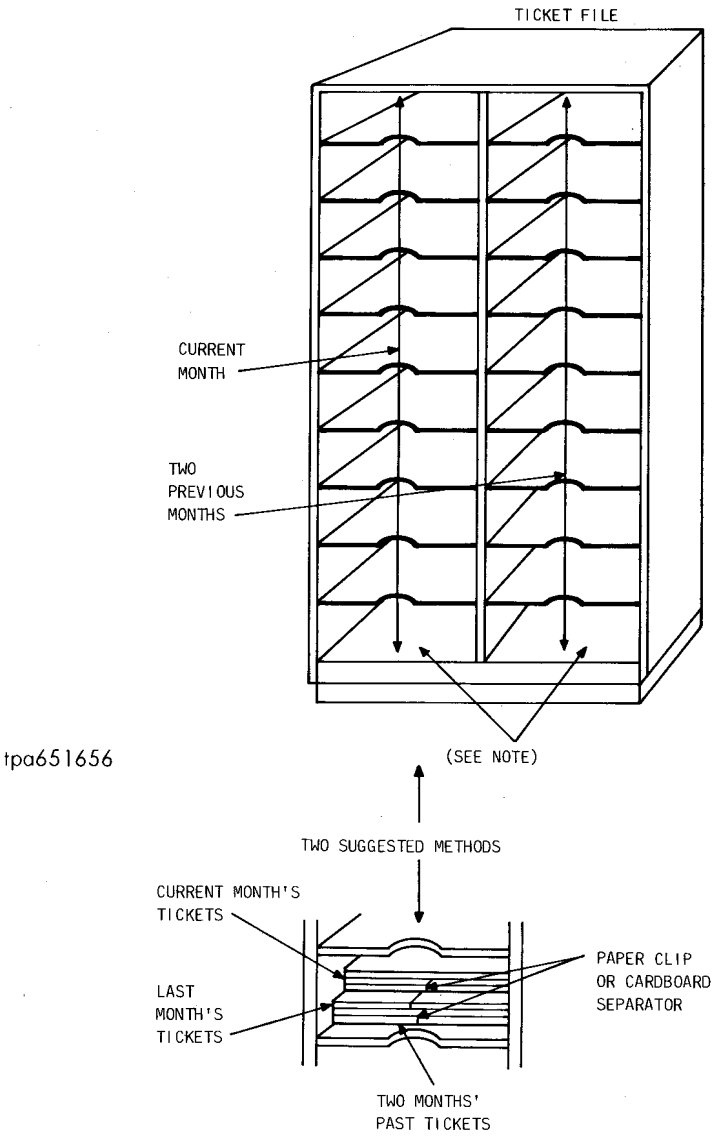
Fig. 18—Central Office Log—Form E-5457 (4.19)



TICKET FILE ORDERING INFORMATION:
(QUANTITY) - TICKET ANALYSIS FILE - DRAWING 38-Y-3868
(QUANTITY) - SNAP ON 8G DESIGNATION STRIP, TICKET ANALYSIS FILE - DRAWING 38-Y-3868
(QUANTITY) - DIVIDER, TICKET ANALYSIS FILE, DRAWING 38-Y-3868

NOTE:
EACH BIN SHOULD CONTAIN A MAJOR ITEM OF EQUIPMENT (I.E. VMDF,HMDF,NGF,TRNSL,ETC.)

Fig. 19—Trouble Ticket File (4.25) (4.26)

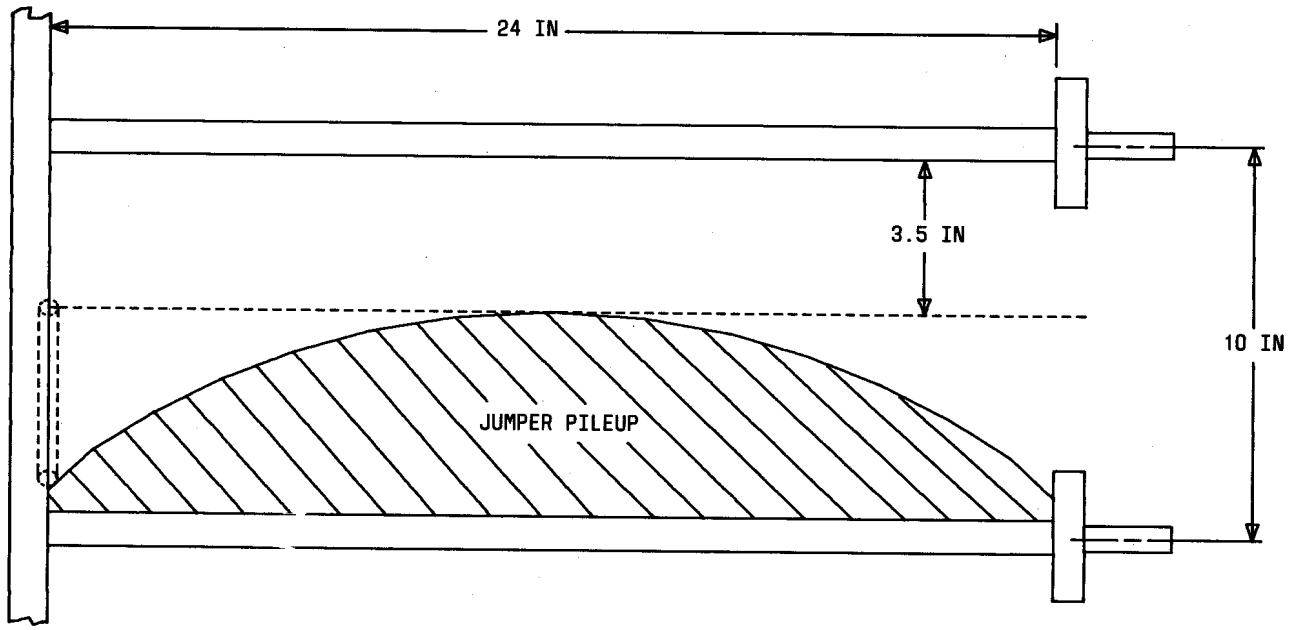


Fig. 20—Maximum Jumper Pileup on Horizontal Shelves of a Conventional MDF (5.10)

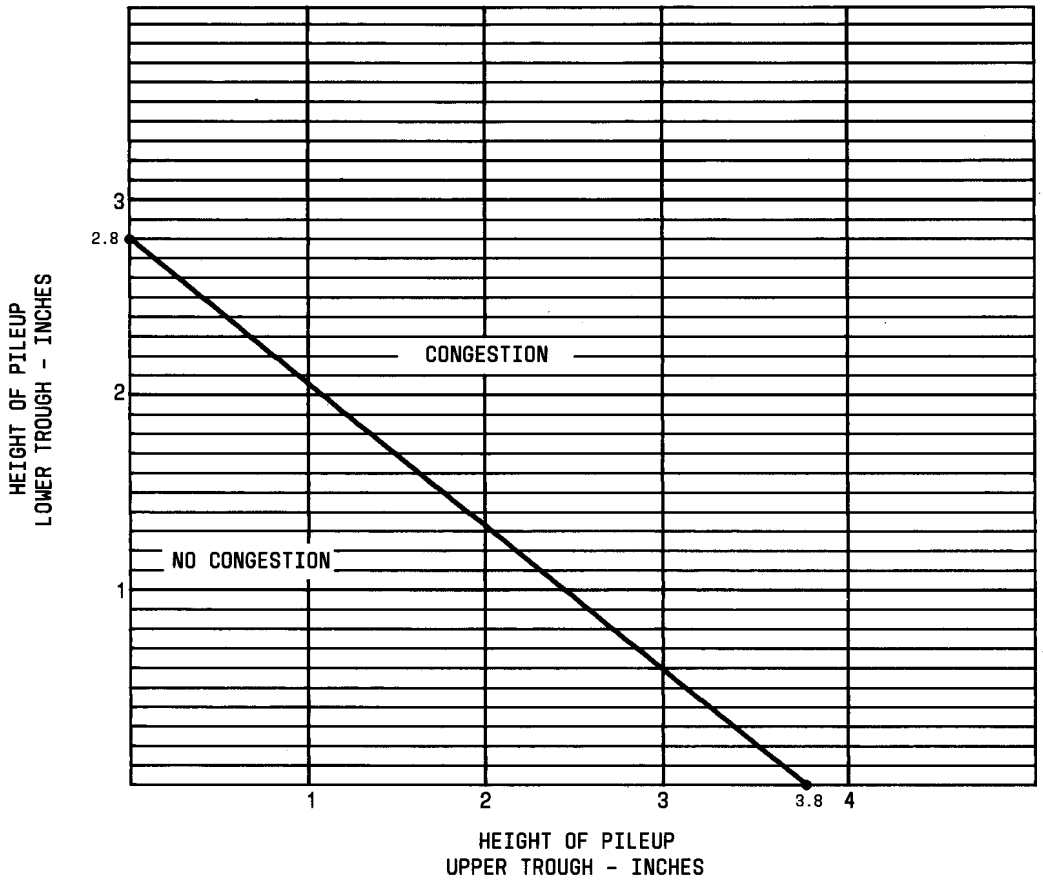


Fig. 21—Graph for Determining COSMIC Frame (without COSMOS) Congestion (5.10)

TABLE A

REPORT CLASSIFICATIONS

TYPE OF TICKET	REPORT CLASS	REPORT SOURCE
T	A	Plant Service Center or Testboard
T	B	Traffic Department
T	C	Sender
T	D	Alarm
T	E	Trouble Recorder or Trouble Indicator
T	J	Other office or other source of report
Memo	No Class	All "Memo" Tickets

Note: The predominant report class used by frame forces will be "A". However, some of the other report classes will be used and frameworkers should become familiar with them.

TABLE B

CODING "T" TICKETS — FRAME AND APPARATUS

TROUBLE CODING SPACES		SITUATIONS
FRAME		Enter frame type, and location, (see Table C for abbreviations) for cases of found trouble and for cases where trouble disappears. If frame is not determined or no trouble is found, enter NTF. Enter Ref. Out (Referred Out) when trouble is referred to another office, PSC or testboard.
APPARATUS		Score one for each case of found trouble.
	WIRING	Score "wiring" for loose connections, opens, crosses, transpositions or low insulation resistance, either in wiring, cabling or between wiring terminals. Includes cases where solder or wire clippings cause short circuits, grounds or crosses. Also includes troubles caused by missing, open, grounded, transposed or left-in cross-connections.
	PROTECTION	Score "protection" for troubles caused by open, grounded, missing, short circuited protection units (heat coils, carbons, etc). This will include troubles caused as a result of using the wrong type of protection units.
	MISC.	Score "misc." (miscellaneous) for troubles that cannot be assigned to one of the above apparatus categories.

TABLE C

DISTRIBUTING FRAME COMPONENT DESIGNATIONS

COMPONENT (FRAME TYPE)	ABBR.
Main Distributing Frame	MDF
Vertical Side of Main Distributing Frame	VMDF
Horizontal Side of Main Distributing Frame	HMDF
Toll Distributing Frame	TDF
Trunk Distributing Frame	TRDF
Circuit Distributing Frame	CDF
Line Distributing Frame	LDF
Intermediate Distributing Frame	IDF
Block Relay Frame	BRF
Number Group Frame	NGF
Translator Frame	TRNSL
Message Register Distributing Frame	MRDF
ANI Number Network Frame	ANI
Assignment Distributing Frame	ADF
Traffic Register Frame	TRF
Protector Frame	PF

TABLE D

CODING "T" TICKETS — CAUSE

SITUATIONS		EXAMPLES
CAUSE	Score one cause for each case of found trouble.	
ENVIRON-MENT	Score "environment" for troubles caused by untidy areas. These will include trouble caused by wire clippings, solder splashes, etc.	Customer report of "No Dial Tone" is referred to the frame. The trouble found is a solder cross on HMDF.
WEAR	Score "wear" for troubles caused by apparent normal deterioration or aging. Includes troubles caused by deteriorated terminal strips or connection blocks, old cross-connection wire, loss of tension on 444 Type Jacks, etc.	Customer's line tests grounded ring side. Trouble found was that insulation had deteriorated from the jumper causing it to ground against ironwork.
DEFECT	Score "defect" for troubles corrected by replacement of apparatus or component for reasons other than "wear" or "work error." Includes electrical or mechanical failures of apparatus or components, such as open heat coils or 3A protection units.	Customer's line tests open. Trouble found was an open 3A protection unit on protector frame.
C. O. FORCE	Score "C. O. force" for troubles likely or known to have been caused by central office maintenance, frame, toll, and special service personnel.	M.D.F. jumper tip wire loose at terminal. Ring wire is properly connected. Conclusion is that tip wire was improperly placed or pulled off by activity.
OTHER FORCE	Score "other force" for troubles likely or known to have been caused by forces other than central office maintenance personnel, such as, assignment forces, RSB forces or contractors forces.	Service order incorrectly assigned customer as tip party instead of ring party for 2-party service.
OTHER	Score "other" for troubles where the cause cannot be included in one of the above. The "action taken" portion of trouble ticket must show a complete explanation whenever this "other" is checked.	In clearing a case of trouble, wire is found to be open in cable between two terminations. Open is under sheath and cause of open is unknown.

TABLE E

CODING "T" TICKETS — NO TROUBLE FOUND (NTF)

TROUBLE CODING SPACES		SITUATIONS
NTF (NO TROUBLE FOUND)		Score one when cause of trouble cannot be determined.
	MDF	Score when trouble report describes service associated with MDF connections or equipment (NDT, Can't Break Dial Tone, etc.)
	EQUIPMENT FRAME	Score when trouble report describes service associated with equipment frame terminations or equipment, (Can't Call DDD, Can't Receive Calls, etc.)
	OTHER	Score when trouble reports cannot be associated with the above categories.