

**NETWORK MAINTENANCE MANAGEMENT  
SCC ORGANIZATION AND ADMINISTRATION  
ELECTROMECHANICAL SYSTEMS**

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## PART 1

## 1. INTRODUCTION

## A. General

**1.01** This plan advocates and provides general procedures for planning and implementing Switching Control Center (SCC) operations that efficiently centralize the maintenance of Electromechanical Switching Systems. It also provides detailed procedures for centralized force management, which is an integral part of such operations. These procedures represent fundamental changes in traditional central office maintenance practices. The term Switching Control Center (SCC) means simply: a place where the individual end office administration is centralized. The pricing and loading of work, surveillance of ESS, all index preparation, time reporting, management reports, etc, is done there. Operations support systems are considered maintenance enhancements.

**1.02** Whenever these procedures are reissued the reason for reissue will be listed in this paragraph.

**1.03** The procedures described in this document are applicable to electromechanical switching systems and to the maintenance activities associated with the switching machine, trunk and carrier systems, distributing frames and power systems. Any reference made to central office forces is intended to include the switching, frame, and toll personnel.

## B. Documentation Plan

**1.04** This practice is one of a series of documents referred to as the Network Maintenance Management Plan (NMMP). The total series of documentation will cover the following areas (parts contained in this practice are noted by an asterisk):

- (a) Planning and implementation of SCC\*
- (b) Organization and responsibilities\*
- (c) Force management procedures\*
- (d) SCC operations guidelines\*
- (e) Frame force management\*

- (f) Forecasting\*
- (g) Evaluation procedures\*
- (h) Performance reviews
- (i) Personnel development
- (j) Interfaces.

**1.05** Additional maintenance documentation is provided in the Controlled Maintenance Plan (CMP) series of practices. These cover troubles and their causes, preventive maintenance (PM) and corrective maintenance (CM) administration, major outage control, portable maintenance equipment, etc.

**1.06** The glossary to this practice lists AT&T general letters, various system descriptions, and technical Bell System Practices (BSPs) that provide greater detailed information on SCCs and operational support systems.

**1.07** The procedures in this document replace those in plant management instructions (PMI) for organizing and assigning work, (Part 101—First Level PMI) and job control (Part 6—Second Level PMI). Subsequent issues of the network maintenance management plan will update the remainder of PMI and provide detailed instructions to other aspects of the network manager's job.

## C. Motives for Centralizing Maintenance

**1.08** Centralized maintenance of stored program control systems from SCCs is not a new concept within the Bell System. SCC operations in one form or another already exist in most companies. Where maintenance has been centralized, the following benefits have generally been realized:

- (a) More efficient utilization of personnel through the pooling of expertise
- (b) Improved proficiency and training of the maintenance force
- (c) More economical means of continuous service protection.

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**1.09** Considerable effort has gone into developing the SCC concept for maintaining electromechanical switching system central offices in recent model SCC operations. Many of the procedures recommended in this practice are based on that effort.

### **D. Motives For Improved Force Management Procedures**

**1.10** By far, the most compelling reasons for moving toward centralized force management procedures prescribed in this practice are:

(a) To increase management's ability to control the effectiveness of the labor force through centralized pricing and loading of work. This enhanced ability results in significant increases in labor efficiency.

(b) To relieve the central office supervision of much of the administrative and paper work associated with today's CO job. Assigning work, compiling indexes, analyzing trouble tickets and other "paper" tasks have limited the time available for central office supervisors to attend to the technical aspects of their jobs—training, work inspection, quality control, and quality assurance.

**1.11** In addition to administrative work, many interruptions exist in a central office that reduce productivity. These stem largely from telephone calls to the central office which interrupt work in progress. Often these calls are requests for data or low priority work requests which would be more effectively handled on a "programmed" basis coordinated by a centralized organization.

**1.12** Finally, a significant portion of today's central office time is not tied to particular trouble clearing or testing operations. Work descriptions such as "coverage" or "trick time" are examples.

### **E. Role of Centralized Administration**

**1.13** Establishment of a SCC and its associated supervisor and clerical force should be the first phase in any plan for centralizing central office maintenance operations. The SCC force will improve efficiencies by:

(a) Performing such repetitive chores as time keeping, filing, typing, preventive maintenance administration, record keeping, and data gathering for computation of indexes

(b) Acting as a buffer for coordination between offices in the Manager's operation and other groups

(c) Receiving, evaluating, and assigning work inputs requiring central office work

(d) Maintaining indicators of work status including the recording and reporting of results

(e) Analyzing preventive and corrective maintenance results.

**1.14** Coincident with the establishment of a SCC group to relieve CO supervisors of much of their administrative work load and interference due to telephone calls, the CO Manager should establish a plan for increasing the emphasis placed on the technical aspects of the CO supervisor's job. Evaluations should place more emphasis on craft training and development and work quality.

**1.15** As an aid to the administration of preventive maintenance work, planners should consider the use of the Central Office Maintenance Management System—Preventive Maintenance (COMMS-PM) as this becomes available to electromechanical switching systems. This system provides mechanized administration of preventive maintenance.

### **F. Role of Operations Support Systems**

**1.16** Experience with operations support systems has shown that the number of trouble indications that require immediate action are a small fraction of the total trouble indications available from these systems. By converting most of today's coverage and corrective maintenance activity to programmed or loaded work leads to large reductions in coverage hours and improvements in the control and efficiency of the corrective maintenance job. Additional gains are realized through the utilization of operations support systems. Once they are installed, these support systems become an integral part of the second-level Manager's maintenance operations.

**1.17** The principal operations support systems for electromechanical switching systems are the Automatic Trunk Analysis (ATA) system and the Telecommunications Alarm and Surveillance Control (TASC) system. ATA and TASC are minicomputer systems with remote terminals

providing measurement and testing capabilities to SCC and central office personnel.

#### G. Description of Parts In This Practice

##### 1.18 **Part 2—Planning and Implementation:**

This part outlines procedures for the planning and implementation of SCCs, training for those involved, the impact of centralization, and recommendations on center layout.

##### 1.19 **Part 3—Organization and Responsibility**

**Guidelines:** This part provides a summary of organizational and responsibility guidelines as well as detailed descriptions of first- and second-level management positions in a SCC operation and craft work assignment lists.

##### 1.20 **Part 4—EM-SCC Operations Support**

**Systems:** This part provides an overview of operations support systems for electromechanical switching systems.

##### 1.21 **Part 5—Force Management Procedures:**

This part provides procedures to be used in controlling the work as it is received by the SCC, priced, scheduled, and loaded to the field. Also included are analysis procedures and typical summaries and reports.

##### 1.22 **Part 6—Administrative Procedures:**

This part provides procedures for preparing trick assignments and work requests, use of the load and work time record, and administration of corrective maintenance.

##### 1.23 **Part 7—Frame Force Administration:**

This part provides guidelines for end office frame force and load administration as well as some aspects of frame control center operation.

**1.24 **Part 8—Evaluation:**** This part provides suggested criteria for evaluation of management and craft performance, and for evaluation of overall SCC efficiency and effectiveness.

**1.25 **Part 9—Forecasting:**** This part provides procedures to be followed in preparing a “bottom-up” view of maintenance hours required for both monthly and annual forecasts.

**1.26 **Glossary:**** Included is a list of standard abbreviations and terms used in this

document, work and disposition codes used by the SCC and central office, and a list of related documents.

#### H. Ordering Information

**1.27 Network Maintenance Management—Force Management Procedures** may be ordered using form SDI 80.80 as follows:

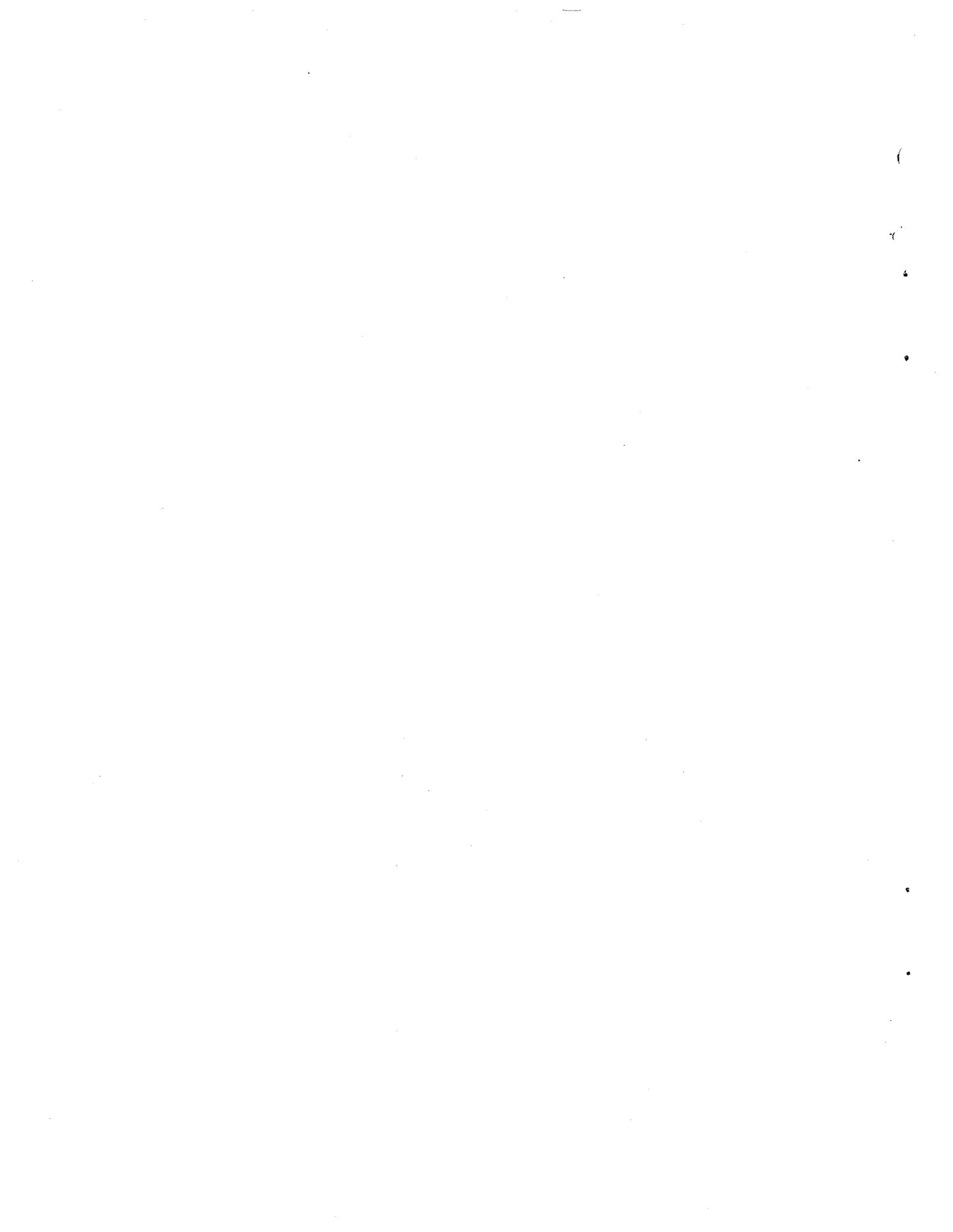
(Quantity)

Orders should be addressed to:

WEC<sub>o</sub>  
Indiana Publishing Center  
POB 26205  
Indianapolis, Indiana 46226

All forms associated with this plan may be ordered through the local WEC<sub>o</sub> Service Center. These forms are provided in pads of 50 forms per pad, one pad per package. All forms should be ordered by numbers of packages as follows:

E-6831	SCC Telephone Log
E-6832	SCC Weekly Force Performance Report
E-6833	SCC Work Pricing Chart
E-6834	SCC Monthly Work Request Summary
E-6835	SCC Monthly T&I Work List
E-6836	SCC Loading Guide
E-6837	SCC Work Schedule
E-6838	SCC Work Request
E-6839	SCC Daily Time Summary
E-6840	SCC Monthly Time Summary
E-6841	SCC Monthly Forecast
E-6842	SCC Annual Forecast
E-6843	SCC Load and Work Time Record



## PART 2

**2. EM-SCC PLANNING AND IMPLEMENTATION****A. General**

**2.01** This section outlines procedures for the planning and implementation of centralized maintenance and force management in a SCC environment.

**2.02** Establishment of a successful SCC is highly dependent upon the understanding, commitment and support of all involved levels of management. Appropriate company/area staff personnel are required to provide assistance and guidance during all phases of implementation. Staff groups can be effectively used in developing work pricing charts, eliminating SCC interface roadblocks, and conducting performance reviews and evaluations to ensure the realization of cost reduction through effective force utilization. A future part of the Network Maintenance Management Plan will provide procedures and techniques for performance reviews.

**2.03** The SCC is designed to function as the administrative control center for a second-level manager's area of responsibility. The manager is responsible for the service and cost results for those switching entities under his jurisdiction; he is, therefore, in the best position to set priorities, schedule, and control the work.

**B. Planning and Implementation Procedures**

**2.04** The concepts of this plan are not complicated; however, the procedures may be foreign to many central office managers. The traditional method of central office maintenance is to have each office with its own force dedicated exclusively to the maintenance effort. The concepts of centralized maintenance and management of the craft force allow for greater flexibility in meeting fluctuating demands. Adjustments to central office forces can better be affected by a manager who has all resources at his disposal.

**Implementation Team**

**2.05** Experience has shown that dedicated staff support is required to effectively establish the SCC and to implement centralized force administration. The staff should also evaluate any substitute procedures used to accomplish centralization.

**2.06** A project manager must be appointed to coordinate the SCC installation on a full time basis. It is recommended that this be a second-level supervisor with some switching background. Ideally, the project manager would be the second-level manager who would supervise the SCC after its installation. This individual should be made available during the implementation phase and be separated from line responsibilities to handle detailed coordination and organizational planning. If operations support systems are to be installed, this should be done after the establishment of the SCC, and a separate hardware coordinator should be appointed.

**2.07** The project manager should chair a cutover committee that would include representation from buildings, installation, marketing, engineering, data or special services, network administration, central office, and others as required. All committee members must be made aware of their responsibilities and be prepared to make commitments to meet all scheduled dates. The detailed list of implementation items may be used to set interim dates and track the progress of the project. The project manager must ensure that time spans are determined for each item and plug them into the critical path.

**2.08** It is critical that all departments interacting with the central office attend an orientation meeting(s) early in the implementation schedule. These groups should be kept informed of all the plans and dates which will affect them, and their participation can be used to help form the centralized organization and operating procedures. Significant interface problems will develop where outside groups are not fully aware of the SCC plans and organization.

**2.09** It is also recommended that a hardware cutover supervisor be appointed before the installation of equipment. This should be a first-level supervisor with a strong technical background (equipment engineer or CO maintenance), or could be the SCC project manager in single installations. The areas of responsibility for this individual are outlined in the following paragraphs.

**2.10** The hardware supervisor should first become familiar with both the central office interface and the SCC located equipment. Care should be taken in ensuring that all miscellaneous piece parts are accounted for. Because some of the apparatus

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is vendor provided, a detailed list of the interfaces, cable, power, and other requirements should be prepared.

**2.11** A detailed schedule should be prepared in conjunction with WECO on the ship dates of all materials. Periodic status reports should be provided to the supervisor through regular method of procedure (MOP) meetings or some other means. This individual should help track down those items that do not arrive on schedule and escalate any problems to the Project Manager.

**2.12** It is recommended that the hardware supervisor or equipment engineer chair a local MOP meeting to closely track the equipment installation. Participants would include the CO supervisor, WECO supervisor, data or special service supervisor, and others as required. A detailed schedule should be prepared with mutually agreed upon intermediate and completion dates. The cutover supervisor should publish minutes for each meeting.

**2.13** The hardware supervisor should be a regular member of the SCC Project Committee and report the status of the hardware portion. This individual must be sure that the schedule for the equipment items fits into the overall project schedule and be prepared to make adjustments if necessary.

**2.14** The hardware supervisor will be responsible for the overall acceptance of all equipment items, and ensure that thorough test procedures are completed on all items. Test results should be documented by the WECO supervisor for equipment installation and by the special service group on the data links and equipment. Any troubles encountered during testing should be corrected promptly. The hardware supervisor should request assistance where needed to rectify problems.

### **Planning and Implementation Sequence**

**2.15** The suggested sequence for implementation is described below.

(a) **ORGANIZATION PLANNING**—Recommended organizational structure, craft and clerical responsibilities, and SCC staffing and training guidelines are presented in Part 3. The implementation committee should hold a sufficient number of meetings to allow complete understanding

of these guidelines and to develop an organization that best suits local conditions.

(b) **SPACE AND HARDWARE**—Arrange for the necessary furniture and work space for the SCC. Arrange for installation of operations support systems. Space and layout requirements are included in EL-3602. A floor plan is discussed in paragraphs 2.17-2.27. If operations support systems equipment cannot be installed within a reasonable time, or is not planned to be, most functions can be implemented utilizing conditional SCC hardware (remote teletypewriters from each office).

(c) **STAFF**—Arrange for the necessary SCC staff. Typical requirements and duties are described in Part 3. It is preferable to establish training needs for all SCC personnel and to provide that training concurrent with the implementation of SCC functions and centralization. (Refer to paragraphs 2.29-2.41). Most SCC functions (office control, analysis, translations, and dispatch and administration) should be started prior to the installation of operations support systems equipment. While trunk testing responsibilities must remain with field maintenance personnel until remote testing equipment is installed, centralized TOS list processing and TN08 analysis can begin immediately.

(d) **INTERFACES**—Before any work requests can be redirected from the central offices to the SCC, all originators of these inputs (refer to Fig. 2.1) must be notified and educated about the roles the SCC will play. The importance of this education process cannot be overemphasized since experience has shown this to be very critical to a successful operation.

(1) **TELEPHONE INPUTS**—Centralize central office incoming telephone lines to the SCC. Paragraphs 2.42-2.51 will assist in determining the required arrangements for electromechanical switching system SCCs. In those cases where full centralization is not practical, groups such as the repair service bureau (RSB), plant service center (PSC), circuit provision, network administration, and construction must be instructed to call the SCC with their requests, rather than the central office. This allows the SCC to establish priorities for work items and minimize interruptions to the central office work force.

(2) **DOCUMENT INPUTS**—Arrange with other groups and departments to receive all document inputs in the SCC. Until daily loading begins, the document inputs should be loaded to the field as soon as they are received in the SCC.

(3) **SERVICE ORDERS**—The daily loading of service orders to central office frame employees is accomplished by determining the actual work load and matching the work force to the load. Frame force administration (Part 7) provides the tools for determining the load, and the procedures to be followed.

### Implementation Meetings

2.16 Organizational and procedural changes that accompany the implementation of centralized maintenance can disrupt employees perceptions of their jobs and their attitudes towards its management. To reduce these complications or employee discontent, such changes should be implemented through a series of meetings. At these meetings the purpose of the changes, the changes themselves, and possible ramifications should be discussed openly. Feedback on proposed operations should be sought and every effort made to incorporate valid ideas. These meetings should precede each major change in procedures and should be held at each organizational level, ie, second-level management, first-level supervisors, and craft and clerical levels.

### C. Buildings and Furniture Considerations

2.17 Planning for the SCC locations must be done early in the SCC implementation. It should be preceded by an operational plan developed by the Network Maintenance Department. Every effort should be made to make the physical environment as comfortable and attractive as possible consistent with sound economic policies.

2.18 **Site Selection**—The most desirable location for the SCC can be selected when the following considerations are included in the decision making process:

- Geographical relationship of the proposed location to the equipment offices being served, ie, travel time, traffic conditions
- Communications requirements (paragraphs 2.42-2.51)

- Stand-by power for all equipment, air-conditioning and lighting
- Availability of floor space for future growth, if required
- Parking (company and employees) if in an area where applicable
- Employee safety (all hours)
- Electrical power service applicable to serve equipment and availability of stand-by power
- Environmental requirements, ie, interior finishes, lighting, air-conditioning and acoustics
- Existing amenities, ie, lunchroom, lounges.

A site meeting all or most of these requirements will reflect in lower building costs as well as providing better operational efficiencies.

2.19 **Floor Space**—Space requirements will depend on the number of central offices being served initially and in the projected future, and the personnel force needed to operate the facility.

Listed below is basic information which will assist in determining space needs for the growth period:

- Number of COs to be served initially and ultimately
- Personnel forecast according to job function (Part 3)
- Equipment at each employee position (furniture, typewriters, calculator, etc)
- Common equipment (copiers, calculators, files)
- Document storage by type in lineal feet
- Storage space (equipment, records, office supplies, etc).

To prepare these requirements, an operational plan must be developed by the proposed SCC manager with company staff assistance. This information must precede any building plans and should be included with the initial request for building space.

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After the site has been selected, a study plan can be prepared by the space planner. The plan will show all employee work stations and common areas as they relate to the work flow chart. Other information which should be included on the study plan are:

- Electrical requirements (commercial and stand-by) at each work station and common area
- Communication requirements (telephone, keyboard printer, display terminal) for each work station
- Environmental requirements (sound control, lighting, air-conditioning).

Recommended personnel space allocations:

120 square feet	—	Manager
100 square feet	—	First-level supervisors
100 square feet	—	Surveillance and office control
100 square feet	—	Layout and analysis
100 square feet	—	Trunk and carrier maintenance
100 square feet	—	Manager's clerk
100 square feet	—	Administrative/Dispatch clerk
80 square feet	—	Other clerks

Common areas are defined as areas where work is performed that serves all personnel in the operation of the facility, ie, equipment room (teletypewriter [TTY] and/or computer), storage room, conference room and lounge (if required), files, copiers, and mail handling. Recommended space allocations are:

265 square feet	—	Equipment
200 square feet	—	Storage
150 square feet	—	Conference (if required)
200 square feet	—	Lounge (if required)

If the SCC is to be located in an existing building where conference rooms and lounges are already provided, these areas are not required as a part of this facility. It is important that the SCC forces have convenient access to these facilities at their location.

**2.20 Equipment**—Environmental conditions should be established and considered in the site process. The location should be adaptable to basic office interior treatment at a reasonable cost whether it is in company owned or leased buildings.

- Interior Finishes—durable, easy to maintain, reduce eye fatigue.
- Acoustics—acoustical ceilings, static-free carpet and drapes. Carpet is not recommended near support system hardware sensitive to dust or static electricity.
- Lighting—50 to 70 footcandles at all work surfaces; emergency lighting during power failures.
- Air Conditioning—normal comfort for all areas.

**2.21 Inter-Office Cabling**—A distribution system for cabling from the computer in the equipment room to all surveillance and control work stations is required. This can be done by installing a distributing system above the suspended ceiling and terminating at the work station by the use of communication/power service poles. Caution should be taken so that the service poles do not obstruct viewing of the critical indicator display. Another method is an underfloor duct system. When applying this method, it is important that the ducts are sized sufficiently to handle the cabling requirements. The cabling is only required when the computer is collocated with the SCC. In many cases the computer will be located at a central computer site with the SCC getting access via data links.

**2.22 Power**—Since brief interruptions are acceptable, stand-by power can be provided by an engine, rather than by more expensive inverters. Work station circuits, alarm monitor system, and lighting should be on stand-by power.

**2.23 Building Status Indication**—Because not all SCCs will be staffed on a 24 hour basis,

surveillance of building alarms must be designed to meet the requirements of the local organization. Present alarm systems should probably be left intact until suitable surveillance and control systems can be installed. The central office fire detection system, sump pump, high-low temperature, power failure (commercial and stand-by), security (open door, etc) should be connected to the alarm system.

**2.24** A diagram of a typical SCC layout is depicted in Fig. 2.2. Because of the many organizational differences that will exist, this floor plan should not be construed as a force sizing or organizational recommendation.

#### **Furniture**

**2.25** The SCC organization must be decided upon before the final furniture requirements can be established. An inventory of presently available furniture may be taken and the furniture inspected to determine if any is usable. The same style and color of furniture should be used throughout the SCC. Used furniture may sometimes be painted, but whenever the condition is poor, new furniture should be purchased.

**2.26** A recommended list of furniture required is provided in this section by functional positions. Specific requirements on such items as desks, chairs, etc, will depend on the size of the SCC work force. If lounge and conference facilities already exist at the SCC location, there will be no need to equip those rooms. Furniture should be provided for all supervisors except those assigned to a dedicated central office(s).

- Manager
    - (a) Double pedestal desk
    - (b) Desk chair
    - (c) Three or more side chairs (table optional)
    - (d) Credenza (bookcase optional)
    - (e) Bulletin board or blackboard
  - First-Level Supervisors
    - (a) Double pedestal desk
    - (b) Desk chair
  - Administrative/Dispatch Clerks
    - (c) One side chair
    - (d) Bookcase (may be shared by two supervisors)
- As these clerks will share the same files, they need to be located in close proximity to each other. One recommendation is to place their desks around a rotating wheel (lazy susan) on which the commonly shared logs and dispatch files would be placed. If each clerk is at a separate desk, shared file space must be accessible by each individual. An open tub file can be used efficiently for this purpose. Each clerk will need a desk chair.
- Manager's Clerk
    - (a) Secretarial desk
    - (b) Desk chair (armless)
    - (c) Electric typewriter
    - (d) Bookcase
    - (e) Four drawer file (or equivalent)
  - Surveillance and Control Craftsperson
    - (a) "L" shaped desk
    - (b) Desk chair (armless)
    - (c) Bookcase (may be shared)
    - (d) Two drawer file (or equivalent)
  - Layout and Analysis Craftsperson
    - (a) Single or double pedestal desk
    - (b) Work table
    - (c) Desk chair (armless)
    - (d) Four drawer file (or equivalent)
  - Conference Room
    - (a) Conference table
    - (b) Eight or more side chairs

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(c) Easel and/or blackboard

• Lounge

(a) Lounge chairs and/or sofa

• Miscellaneous Furniture Requirements

(a) Bookcases for BSPs, standard documentation

(b) File cabinets for office records, correspondence, etc

(c) Waste baskets

(d) Copying machine

(e) Extra typewriter (optional)

(f) Calculating machines

(g) Lockers and/or coat racks

(h) Pencil sharpeners

(i) Storage cabinet for supplies (optional if secured room is available)

**2.27** In addition to the above requirements, status boards should be provided to post index results, organizational deployment, frame load, ETL status, etc. The recommended type of board is that of a magnetic composition which can be written on by washable felt markers and easily erased. A combination of bulletin and magnetic boards should be used as an alternative. The status boards should be located where they may be readily observed by the SCC force responsible for that activity and by visitors to the center. Examples of status boards are shown in Part 5.

### D. Hardware Considerations

**2.28** One of the major areas of consideration during the implementation of the SCC is the equipment and hardware associated with the operations support systems. Experience has shown that because of the unfamiliarity with this new equipment, many problems arise that can impede and delay the entire project. Planning information for ATA and TASC is provided in engineering letters.

### E. Training Considerations

**2.29** The SCC concept represents a significant change in traditional methods of managing the central office. The success of the new organization will rely heavily on the training level of all personnel prior to their assignment in the SCC. The first step should be the determination of the training needs of the SCC organization.

**2.30** A schedule should be prepared to allow adequate time to accomplish required training. Care should be taken in not providing the training too far in advance so that its effect might be weakened. Where possible, the work functions explained should be incorporated into the job prior to SCC implementation. For example, if a clerk was trained on indexes and time sheets, that individual could be given those assignments in the pre-SCC mode. The use of SCC load and work time records by craftspersons can be initiated prior to the SCC start-up to smooth over that transition.

#### Management Training

**2.31** All management personnel working as part of the SCC should be thoroughly trained in their area of responsibility. The concept of centralization requires that supervisors be able to function effectively together, with a good understanding of each other's responsibilities. A need exists for management training in three basic areas:

- (a) Management Introduction
- (b) SCC Administration
- (c) Use of Operations Support Systems.

In addition to this specialized training, the SCC management team should be knowledgeable in the technical aspects of the particular switching offices involved.

**2.32 Management Introduction**—An introduction to the concept and functions of the SCC should be presented to all management people at the start of the project. This can be done through a half day slide presentation prepared by the training staff. This talk should include:

- (a) Concept of centralized maintenance
- (b) Benefits of centralization

- (c) Planned organization for the local area
- (d) Projected timetable for implementation
- (e) Brief description of operations support systems
- (f) Question and answer period.

All levels of CO management through Division must receive this presentation. It is recommended that second- and third-level managers in all departments having any interface with the central office be strongly encouraged to become acquainted with the SCC through this overview.

**2.33 SCC Administration**—Supervisors should become thoroughly familiar with all areas of SCC Administration. Until standard training courses are developed, the following modules represent key areas in which local training should be conducted.

- **MODULE 1: Group Work Inventory Record**
  - (a) Introduction to the control center concept
  - (b) Documentation of work functions in CO
  - (c) Preparation of Group Work Inventory Record (E-5847)
  - (d) Procedure for dividing work into trick, corrective maintenance, and service order types
  - (e) Identification of time objectives for each job category.
- **MODULE 2: Trick Inventory Record and Control Center Loading Guide**
  - (a) Introduction of craft loading
  - (b) Definition of individual tricks
  - (c) Division of work items on group inventory record
  - (d) Minimizing demand tricks to increase productivity
  - (e) Preparation of the Work Inventory Record (E-5847) for each individual trick
- **MODULE 3: Work Assignment List and Work Schedule**
  - (a) Introduction of Work Assignment List (E-5848)
  - (b) Examples of work assignment lists and need for detail
  - (c) Work code matrix
  - (d) Penalties in breaking loading
  - (e) Work schedule
  - (f) Preparation of an example work schedule.
- **MODULE 4: Load and Work Time Record**
  - (a) Introduction of SCC Load and Work Time Record (E-6843)
  - (b) Self-paced course on preparation of load and work time record
  - (c) Criteria for evaluating craft use of load and work time records
  - (d) Procedures used to verify that work operations were completed satisfactorily
  - (e) Validation of time entries
  - (f) Review of other documents for evaluation procedure (trouble tickets, ETLs service order [SO], etc)
  - (g) Summarization of evaluation procedure.

This material should be presented to the second-level manager and the person designated as SCC supervisor with training completed well in advance of the operational date of the control center. This is necessary to allow time to properly prepare administrative records, files, and procedures before operations begin. It is recommended that all

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supervisors reporting to the SCC manager be exposed to this material sometime within the first year of the SCC operation.

### **2.34 Operations Support Systems**—A SCC

Supervisor normally has responsibility for the administration of the maintenance related operations support systems used within the SCC. The training emphasis for this individual should be on the administrative techniques required to utilize these tools, and on the maintenance techniques required to ensure their reliability. BSP documentation is available for operations support systems which may be utilized in the SCC.

### **Clerical Training**

**2.35** A key element in the SCC will be the effectiveness of the clerical force. They are expected to remove most of the "paper work burden" from the supervisors and craftspeople. Because the majority of this work will be new to the individuals, an effective training package must be presented to the clerks before the operation of the center.

**2.36** Although the clerks in the SCC will work primarily in one or more general areas of responsibility, they should be provided exposure and training in all areas so that they may fill in during periods of vacation or absence. Some of this cross training can be done by the SCC supervisor on an "on the job" basis.

**2.37** If clerks are used in a central office prior to establishing a SCC, these individuals would be likely candidates for the SCC clerical jobs. A review should be made as to their present level of expertise to help modify the training material presented. In addition to the manager's clerk, one clerk should have typing skills for preparation of reports or correspondence.

**2.38** Modules 1, 2, and 3 (described in paragraph 2.33) should be presented to all clerks. The remainder should be given initially to the administrative clerk(s) and individually to other clerks as required. For example, the frame and dispatch clerk should be familiar with the load and work time record and the Manager's clerk with Module 4. In addition, an equipment appreciation course should be given to all clerks on the type of offices they will be working with.

The SCC supervisor should assure that all clerks are trained in their area of responsibility. The following modules represent key areas of concern.

- Module 1: Introduction
  - (a) Orientation to company
  - (b) SCC interface with other departments
- Module 2: Telephone Language
  - (a) Technical names
  - (b) Acronyms
- Module 3: Telephone Procedures
  - (a) Input log
  - (b) Ticket preparation
  - (c) Ticket classification
  - (d) Call forwarding
- Module 4: Preventive Maintenance
  - (a) Manual ETLs, logs
  - (b) COMMS introduction
  - (c) TTY commands (COMMS)
  - (d) Report preparation
- Module 5: Work Files
  - (a) Document input work requests
  - (b) Trunk orders, carrier work, cable transfers, etc
  - (c) Work file set-up and use
- Module 6: Loading
  - (a) Overview of loading principles
  - (b) Work assignment list
  - (c) SCC load and work time record
  - (d) Pricing lists

- (e) Work schedules
- Module 7: Reports
  - (a) CO indexes
  - (b) Sources of data
  - (c) Work unit forms
  - (d) Other SCC reports
- Module 8: Supply Procedures
  - (a) Ordering supplies and materials
  - (b) Receiving
  - (c) Distribution
- Module 9: Time Reporting
  - (a) Time sheet procedures
  - (b) Mechanized time reporting

#### **Craft Training**

**2.39** The craft training requirements can be broken down into two general areas. Those craftspeople working in the SCC will require training on loading procedures and use of the operational support systems. The craft involved with other systems such as Engineering Administration Data Acquisition System (EADAS) and COMMS should generally be given training by their supervisor. This training should be documented locally and followed up with formal training if required.

**2.40** All craftspeople should be given an introduction to the SCC and its support systems prior to its implementation. One technique is to use slides to present an overview of the SCC concept. There should be opportunity to ask questions about the functions of the new system. This initial training should smooth the transition into the SCC environment, and might identify some problems during the planning.

**2.41** The remaining craft training can be divided into the following functional areas:

- **SCC Load and Work Time Records**

- (a) Introduction
- (b) Heading
- (c) Type of work
- (d) Item identification
- (e) Time accounting
- (f) Work codes and disposition
- (g) Time summaries and remarks
- (h) Practice session and review
- (i) Loading procedures.
- **SCC Surveillance and Office Control**
  - (a) Corrective maintenance loading concept
  - (b) Trouble priorities
  - (c) Exception report procedures
  - (d) Loading and dispatch procedures
  - (e) ATA immediate action report procedures
  - (f) TASC alarm procedures
  - (g) ATA and TASC summary reports.
- **SCC TMP and Analysis**
  - (a) Transmission results
  - (b) Trunk outage procedures
  - (c) Equipment outage procedures
  - (d) Trunk maintenance position (TMP)
  - (e) Trunk order procedures
  - (f) Pricing techniques
  - (g) Analysis techniques for all types of tickets.

**F. Communications Considerations**

**2.42** The communications plan for a SCC should be designed to route the majority of incoming calls to the SCC without isolating the central office forces and without causing repeated retries or excessive waiting time by the calling party. A policy of intercepting all calls directed toward the central office during the early stages appears to be undesirable and in most cases will probably be circumvented. The following information is provided as a guide in formulating SCC communication plans.

**2.43** Calls to the SCC will generally fall into six categories:

- (a) Work groups reporting a central office trouble condition
- (b) Work groups requesting an appointment with the CO forces
- (c) Notification of a change in/or the status of a previously received document or work input item
- (d) Requests for general information about the SCC or central offices
- (e) Calls directed to a specific individual in the SCC
- (f) Requests for the status of pending work.

**2.44** The majority of calls to the SCC must not result in another call to the central office. This second call introduces a delay and annoyance factor to the caller. Therefore, the SCC should be in a position to successfully dispose of most of the calls that it receives. Specific numbers should be established at the main distributing frame, main carrier system panel, and at the trunk test position. These locations receive the calls that would necessarily be passed directly from the SCC to the central office.

**2.45** The central office telephone numbers should not be changed when the SCC is established. A detailed list of calls that can be accepted by the central office work force should be prepared and distributed to all craft forces within the central office and to the supervisors of interacting work groups. The intent of the list is to define the calls that are to be made directly to the central

office. The craft forces within the central offices will be instructed not to perform work functions that are not on the list or have not been loaded by the SCC. Examples of work requests that would be acted upon as a result of a direct call to the central office are carrier system failures or service affecting trunk outage.

**2.46** Requests for programmable work (or work items not on the "direct call list") should be directed to SCC for establishment of an appointment. The SCC clerk will give the requesting office an appointment date and time on which they will be called. This work item is then loaded on a craftsperson for the appropriate date and time.

**2.47** Calls to the central office can be expected to decrease after the establishment of the SCC. The SCC should establish a two-way private line or dial-up paging system between themselves and each central office they serve. Calls to the central office should generally come from one individual at the SCC to better control the status of work items and the establishment of priorities. Specific trick assignments should be designed to assign a person(s) on the central office force to receive calls from the SCC. The objective is to use the SCC loading procedures to control the central office maintenance functions.

**General Requirements**

**2.48** The communication equipment at the SCC should be designed to meet the functional needs of each individual. Preference should be given to serving the SCC from an ESS office. This will provide for custom calling features that can streamline the communications system.

**2.49** A block of numbers should be served for the SCC. A suggested method of assignments, using an example with 50 numbers, is:

- (a) Lines 1-10—An incoming service group (ISG) with the key number published for the SCC
- (b) Lines 11-20—An ISG for trunk order calls serving all offices
- (c) Lines 21-30—Published as management contact numbers with 21, 22 for the manager and the other individual lines for each supervisor at the SCC

- (d) Lines 31-50—Unpublished numbers for outgoing service and growth.

The number of working lines in the first two groups will depend on the volume of calls and should be adjusted periodically.

**2.50** In addition to the above lines, a group of 3-5 FX lines should be provided for emergency service to prevent isolation in a catastrophe. A dial-up intercom should be provided between the SCC and each central office with speakers in the central office. In lieu of this system, a two-way private line should be established to both the CO maintenance center and frame. Telefacsimile equipment should be given serious consideration to facilitate the movement of paper documents. An inserted connection loss (ICL) intercom should be provided at the SCC for communications from one station to another. Phones on the clerks' desk should overlap for efficient operation during absences (lunch, vacations, etc). Clerks are then able to perform their specific job assignments at their own desk while covering for another clerical position.

**2.51** A recommended arrangement for each possible station at the SCC follows.

- (a) Manager: Key Set (6 button)  
Two (2) incoming lines (ISG)  
One (1) outgoing line  
Add-on conference  
Speakerphone
- (b) Manager's clerk: CALL DIRECTOR® (18 button)  
One (1) incoming line  
One (1) outgoing line  
Manager's incoming lines  
Supervisor's (SCC located) incoming line
- (c) SCC supervisor: Key Set (10 button)  
One (1) Line  
SCC listed numbers (6 lines)  
Add-on conference
- (d) Dispatch and administration supervisor:  
Key set (10 button)  
One (1) line  
SCC listed numbers (6 lines)  
Add-on conference

- (e) Evening and night supervisor: Key Set (6 button)

One (1) line  
Add-on conference

- (f) Trunk and carrier supervisor: Key Set (10 button)

One (1) line  
Trunk line listed number (4 lines)  
Add-on conference

- (h) Cutover and growth supervisor:

One (1) line  
Trunk line listed number (4 lines)  
Add-on conference

- (g) Administrative/Dispatch clerk: CALL DIRECTOR (30 button)

Manager's incoming lines  
SCC supervisor's line  
One (1) line  
SCC listed numbers (6 lines)  
CO private lines  
Code A phone(s)

- (h) Preventive maintenance clerk: CALL DIRECTOR (18 button)

One (1) line  
Off-hour supervisor's line  
SCC listed number (6 lines)

- (i) Trunk and carrier clerk: CALL DIRECTOR (18 button)

One (1) line  
Trunk and carrier supervisor's line  
Trunk line listed numbers (4 lines)

- (j) Frame clerk: CALL DIRECTOR (18 button)

One (1) line  
Private line to each frame  
SCC trunking number (4 lines)

- (k) Surveillance and control craftsperson: CALL DIRECTOR (18 button)

Three (3) lines (night closing)  
Add-on conference  
One (1) line per position  
CO private lines

- (l) Layout and analysis craftsperson: Key Set

Two (2) lines  
Add-on conference

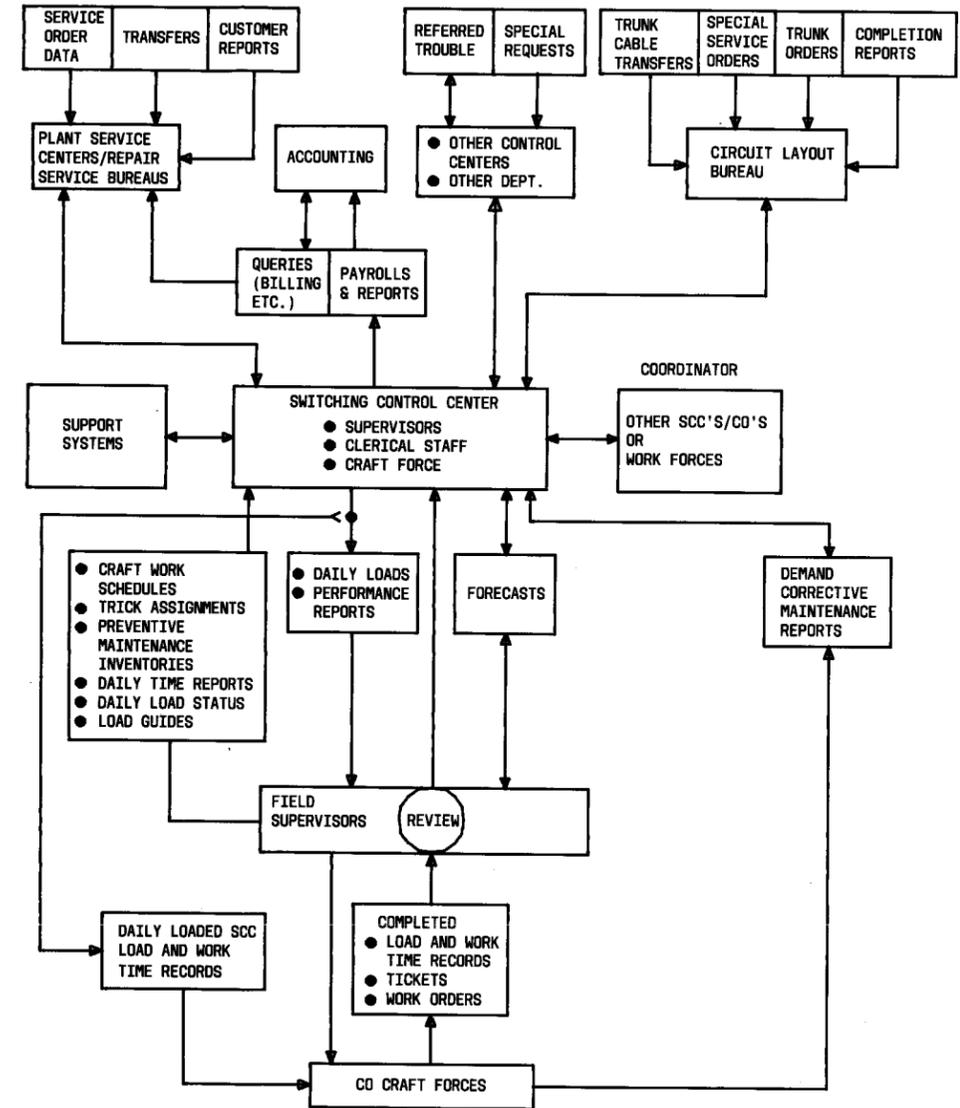
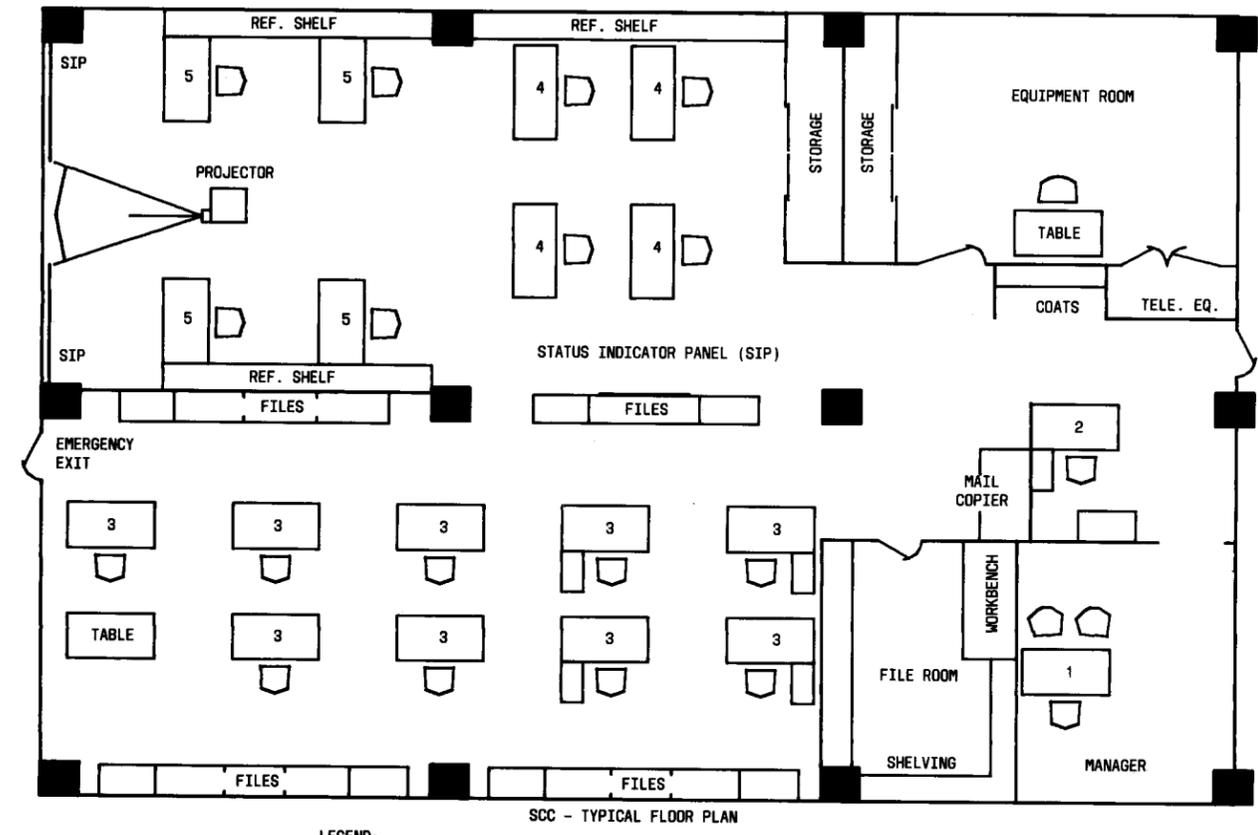


Fig. 2.1—SCC Interface With Other Groups



SCC - TYPICAL FLOOR PLAN

LEGEND:

1 - MANAGER	4 - SUPERVISOR
2 - SECRETARY/CLERK	5 - SURVEILLANCE/CONTROL/ANALYSIS
3 - ADMINISTRATIVE/DISPATCH/CLERICAL	

Fig. 2.2—Typical Floor Plan

## PART 3

**3. EM-SCC ORGANIZATION AND RESPONSIBILITY GUIDELINES****A. General**

**3.01** The term SCC denotes a place for the centralized maintenance of switching offices. The organization at the SCC is created by establishing new work groups and positions, and by modifying traditional central office jobs. This part discusses the factors that influence the configuration of the network maintenance organization. It also provides recommendations on the organization and the assignment of responsibilities for network maintenance in a SCC for electromechanical switching systems.

**B. Factors Influencing EM-SCC Organization Design**

**3.02** Various factors must be considered when determining the configuration of the network maintenance organization. Major factors to consider are discussed below.

**Functionalization**

**3.03** Work activities should be grouped by function in order to gain efficiency and expertise. The SCC is designed to centralize the central office operations at the second level. This will include responsibility for switching equipment, trunks, and frame activity. In organizations where the second-level manager has responsibility for plant or other functions, consideration should be given to functionalizing the central office maintenance responsibilities under one individual. In a functional arrangement, a switching district may have two or more SCCs as well as a second-level network administration group within the district. In a nonfunctional arrangement, a district might have one SCC and other second-level groups for plant operations.

**Specialization**

**3.04** Specializing work groups and supervisors by type of switching system and work function (office control, analysis, translations, etc) is another important organizational consideration. The primary advantage of a work group or supervisor having responsibility for only one type of switching system and work operation is that expertise can be developed that is not usually possible with combined responsibility.

Because there is a need for technically competent work groups and management, specialization is generally recommended wherever possible. However, the definition of separate work functions does not reflect on whether or not people rotate through these functions. In general, there are advantages to rotating both craft and supervision if done at a frequency that does not impair service or personnel evaluation. Specialization will be most prevalent in metropolitan areas but may also be applicable in nonmetropolitan areas where the concentration of offices is such that they can be grouped and managed by switching system types.

**3.05** Another consideration is the amount of retraining that will be required for management, craft, and clerical forces. The initial SCC planning should try to minimize these requirements by keeping people in their area of expertise.

**Geography**

**3.06** Any organization recommended for centralized operation must ensure that it accounts for geographic environmental considerations. The nature of the maintenance responsibility can take on different characteristics depending on the geographical area. A practical distinction can be made between a predominately metropolitan area and a nonmetropolitan area:

- Metropolitan area
  - (a) Multientity buildings
  - (b) Small geographic area
  - (c) Higher centrex development
  - (d) More main stations per entity
  - (e) More service order changes
  - (f) Distinct trunking arrangement
  - (g) Higher percentage of "business" customers
  - (h) More interdepartmental contacts
  - (i) Higher toll/tandem concentration
- Nonmetropolitan area

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- (a) Large geographic area
- (b) Fewer main stations per entity
- (c) More entities
- (d) Distinct trunking arrangements (more direct routing)
- (e) Fewer toll/tandem entities.

The SCC in the metropolitan area will generally be composed of a few large offices and will lend itself to more functionalization at the first level than one composed of small offices. The team concept of specialized craft forces is more applicable where the close proximity of central offices makes the transfer of craft forces less expensive and time consuming.

**3.07** One geographic constraint is that the flow of paper from the SCC to the central offices is made more difficult in the nonmetropolitan areas where mail service may not be as frequent.

### **Nature and Complexity**

**3.08** There are inherent characteristics in the maintenance job which can have a bearing on the organization. Metropolitan areas tend to have a higher percentage of service order and trunk order work which can be classified as "production" type jobs. This is in contrast to offices where most of the activity is of a trouble shooting nature or a "service" type job.

**3.09** The age of the central office may affect the maintenance requirements as will the present service conditions. Provision of special features such as Incoming Wide Area Telecommunications Service (INWATS) and centrex can increase the complexity of the job. In general, the number of offices in a second-level SCC organization will be lower in areas of high activity and complex services.

### **Staffing and Sizing**

**3.10** Proper staffing of the SCC is critical to the success of the overall operation. The needs of each SCC will vary depending upon the numbers and types of central office work groups involved, whether surveillance, analysis and control functions are performed at the center, and to what extent

loading of the field maintenance force is being accomplished. A fully implemented SCC that is performing the above-mentioned functions and is loading several work groups (switching maintenance, trunk/carrier work, and frame activity) will require one or more supervisors, and a staff of clerks and craft employees to perform SCC functions.

**3.11** The sizing of the management and nonmanagement force in a centralized operation will depend upon the complexity of operation (percent centrex, etc), experience levels of supervisors and craft personnel, geographic environment, etc. Care must be taken in trying to increase the span of control too much at the start. Because significant maintenance hours savings with SCCs are anticipated, the supervisor's scope of responsibility will increase and a reduction in craft to management ratios can be anticipated. The same is true for the ratio of first level supervisors to manager, so that the organization should not be expanded to a size which hampers the manager's ability to train and guide new supervisors. Sometime after the implementation of SCCs has taken place, some reduction in management ranks should be expected as the maintenance hour requirements decrease, and more effective surveillance and control tools become available.

### **C. Management Organization and Recommended Responsibilities**

**3.12** Figure 3.1 illustrates a typical SCC organization for electromechanical switching systems. The SCC is headed by a second-level manager who has full control of and responsibility for all SCC and central office maintenance activity, including service and cost results. Reporting to the manager are supervisors having one or more of the following general responsibilities:

- (a) Office control
- (b) Analysis
- (c) Trunk maintenance
- (d) Dispatch
- (e) Administration
- (f) Field maintenance
- (g) Evening surveillance

(h) Cutover and growth.

**3.13** Job descriptions for the management jobs within this organization are provided under paragraph heading G. Each description includes a job summary, a list of duties and responsibilities, and a description of the scope and nature of supervision.

**3.14** While this organization and job descriptions assume that the SCC is equipped with ATA, TASC, and remote trunk testing equipment, only minor changes would be necessary for a SCC that chooses not to use an operations support system or has not yet acquired this equipment.

**D. Recommended Craft and Clerical Responsibilities**

**3.15** Work assignment lists for each EM-SCC work function are contained in Figures 3.2

through 3.8. These should provide further understanding of EM-SCC work functions and aid SCC implementors in constructing such lists which reflect local conditions. Job descriptions must be specific so that each group is aware of their responsibilities.

**E. SCC Staffing Guidelines**

**3.16** SCC staffing guidelines are being developed and will be provided at a later date.

**F. Work Flow Descriptions**

**3.17** The work flow descriptions listing the general tasks for selected work items will be provided at a later date.

**G. EM Job Descriptions**

**3.18** Electromechanical system job descriptions are contained in the pages that follow.



## SWITCHING CONTROL CENTER (SCC) MANAGER

### JOB SUMMARY

Supervises a total of five to eight first-level supervisors who are responsible for the switching maintenance and frame activity of a group of central offices, and for the administration and control function directed from the SCC. Directs the overall maintenance activity of these offices and the clerical and trouble analysis procedures necessary to support the central offices. Coordinates major projects with other departments within the company.

### JOB DUTIES AND RESPONSIBILITIES

#### A. Directs Maintenance

- (1) Directs the first-level supervisors responsible for the maintenance of switching, power and miscellaneous equipment in the central offices. Additional central office functions include service order and trunk order work on distributing frames.
- (2) Responsible for appropriate maintenance area results in the measurements plans, eg, network service performance measurement plan (NSPMP), trunk service results plan (TSRP), transmission maintenance index (TTMI), etc.
- (3) Develops specific plans in conjunction with subordinates to improve areas which are below objective levels, eg, a high level of frame troubles, excessive trunk outage in one or more offices, etc.
- (4) Responsible for the productivity of the combined central office craft forces as measured by work units per hour, eg, equipment maintenance, frame work, trunk testing, etc.
- (5) Prepares maintenance forecasts in conjunction with subordinates. Tracks actual hours expended against forecast objectives and provides an explanation for discrepancies.

#### B. Directs SCC Administration

- (1) Supervises the SCC supervisor(s) who are responsible for the administrative and control functions associated with the maintenance of all central offices. These functions include processing work requests, loading of work to craftspeople, preparation of indexes and reports and the use of operational support systems to aid in identification of central office troubles.
- (2) Directs the full implementation of the SCC which involves increasing the amount of administration and control provided from that central location. This may include the formation of specialized craft teams and the provision and use of computerized support systems such as automatic trouble analysis (ATA), and telecommunications alarm surveillance and control (TASC).
- (3) Resolves work force adjustments to meet fluctuating load requirements when requested by subordinates. Coordinates with other managers if work forces are required from or requested by other central office areas.

#### C. Develops Subordinates

- (1) Critiques the performance of each reporting supervisor at regular intervals to review performance results, quality of craft evaluations, etc.
- (2) Suggests methods for self-development such as providing constructive criticism on written and oral expression.

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- (3) Provides incentive by praising achievement and recommending promotion when deserved.
- (4) Provides opportunities for interdepartmental contacts by having supervisors participate in meetings, eg, method of procedure (MOP) with WEC0 and service control with the customers services department.
- (5) Assigns supervisors to coordinate special projects, eg, equipment additions or modifications, centrex, etc.

### **D. Miscellaneous Duties**

- (1) Provide coordination between the SCC and other departments for special projects, eg, 911 installation, conversion to ESS, etc.
- (2) Participates on interdepartmental teams as the representative of the network maintenance forces, eg, local management team (commercial, installation and repair sales), method of procedure, etc.
- (3) Resolves problems concerning the SCC or central offices that are referred in from other managers or escalated from a subordinate.
- (4) Handles union grievances not resolved at the first level.
- (5) Represents the district manager when requested.

## **SCOPE AND NATURE OF SUPERVISION**

### **A. Supervision Received**

- (1) Reports to a district manager who has two to five other managers involved with the maintenance or network administration functions of central offices within the district.
- (2) Detailed departmental and AT&T operating practices are used as a guide in making most decisions; on occasion, these may be modified for local use.
- (3) Immediate supervisor is available for consultation and guidance (via telephone), although not normally contacted unless unusual situations arise. Supervisor makes periodic visits to review work progress.
- (4) Reports given weekly to supervisor on office results. Concurrence of supervisor not generally required for most decisions (time off requests, overtime expenditures, etc).
- (5) General supervisory review of current results and future plans held at least quarterly.

### **B. Direction of Others**

- (1) Subordinate organization consists of five to eight first-level supervisors. These individuals are a SCC supervisor(s), field supervisors, and may include functionalized supervisors responsible for preventive maintenance and trunk/carrier maintenance for a group of central offices. Each supervisor is responsible for five to ten union represented craft or clerical employees.
- (2) SCC supervisor is located at the same site although other subordinates may be headquartered at central office remote from the manager.

## SWITCHING CONTROL CENTER (SCC) SUPERVISOR

### JOB SUMMARY

Supervises the clerical and craft force located at the switching control center (SCC) who perform administrative and control functions in support of the central office maintenance forces. These responsibilities include the receipt and processing of central office work requests, preparation of indexes and reports, centralized analysis of equipment and customer troubles. Coordinates with the field supervisors the loading of work from the SCC to the craft forces and the use of computerized support systems to aid in central office trouble identification and control.

### JOB DUTIES AND RESPONSIBILITIES

#### A. Directs SCC Administration

- (1) Supervises the processing of telephone calls and documents into the SCC. These represent work requests, trouble reports, and status inquiries concerning the central offices served by the SCC.
- (2) Supervises the clerks and craftspeople responsible for the pricing, scheduling, and loading of work items to central offices. These three activities involve the estimating of craft work time, determining the completion date required, and assigning the work item to a specific trick in the central office.
- (3) Supervises the administration of work files at the SCC used to control job loading. Refers to files periodically to keep informed of the general amount of outstanding work in each office.
- (4) Directs the preparation of forecasts, measurement plan results and reports for the manager's area.
- (5) Supervises the handling and tracking of all referrals into the SCC. Periodically checks the telephone and work loading logs to ensure proper procedures are being followed.
- (6) Supervises the scheduling, assignment and summarizing of all equipment and trunk tests associated with the preventive maintenance requirements of each central office.
- (7) Supervises the calculation of frame loads based on the work order volumes. Supervises the assignment of frame work by the clerks and the calculation of work units and productivity results according to the AT&T frame force management plan.

#### B. Coordinates Central Office Interface

- (1) Coordinates the SCC interface with other work groups, eg, repair service bureau, trunk provisioning, Network Administration, etc. This can involve the tracking of trouble reports, or scheduling of work requests, and provision of a common contact between the central offices and other work groups. Provides commitments on completion of critical work requests submitted from external groups.
- (4) Coordinates special projects and WECO installation work that is applicable to all offices. Represents the manager or field supervisor at meetings to plan these projects, and may for instance, insist that WECO forces work nights because of office load or test frame considerations.
- (3) Determines the requirement for the transfer of craft forces between offices to match the force to the load by evaluating the pending work and determining the priorities. Contacts other supervisors to effect the transfer, referring any problems to the manager. Determines need for overtime work if an evaluation of the work load indicates a need for additional hours.
- (4) Administers the distribution of overtime to meet local requirements.

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- (5) Evaluates due date situations that are in jeopardy of being missed, and may initiate a report to stimulate activity in other areas or departments.
- (6) Maintains daily contact with the field supervisors and provides them with both verbal and written feedback on office results, future work, craft transfers, etc.
- (7) Prepares and maintains the training requirements and schedules for all craftspeople in the manager's area with input from the field supervisors. Coordinates training dates, locations, etc, with headquarters staff.

### **C. Develops Subordinates**

- (1) Prepares job assignments for the clerical and craft forces at the SCC.
- (2) Conducts work evaluations on each subordinate and reviews the results with them. Provides constructive criticism or praise where required.
- (3) Monitors the absence and safety record of each subordinate.
- (4) Determines training requirements and conducts on-the-job training with each subordinate.

### **D. Directs Centralized Trouble Analysis**

- (1) Directs the use of mechanical support systems such as automatic trouble analysis (ATA), telecommunications alarm surveillance and control (TASC), and individual circuit usage and peg count (ICUP). Ensures that system updates are processed and coordinates with the field supervisors on the use and maintenance of terminals.
- (2) Directs the centralized trouble analysis functions through the use of data from ATA, TASC, customer trouble reports, switching load data, etc. Reviews the trouble tickets prepared by the work station attendants based on this analysis. May assist in determining priorities on central office troubles.
- (3) Supervises the use of data from the centralized automatic reporting on trunks (CAROT) which is received over a teletype at the SCC. Ensures that defective trunks are taken out of service and that the trouble disposition is received.
- (4) Directs the surveillance of the offices served by the SCC. Supervises the work station attendants at the SCC who use ATA and TASC output to monitor each office. Directs trouble clearances and office control in support of the field supervisors.

### **E. Miscellaneous Duties**

- (1) Monitors housekeeping and security items at the SCC location.
- (2) Represents the manager in his absence.
- (3) Provides current data to the manager on the status of SCC functions and work loads.
- (4) Handles union grievances originating from subordinates.

## **SCOPE AND NATURE OF SUPERVISION**

**A. Supervision Received**

- (1) Reports to the SCC manager along with four to seven additional first-level supervisors who supervise the central office maintenance forces.
- (2) Detailed departmental and local operating practices are used as a guide in making most decisions.
- (3) Immediate supervisor is available for consultation and guidance (on-site). The frequent absence of the supervisor places incumbent in position to make decisions independently.
- (4) Reports daily to supervisor to discuss problems anticipated in meeting workload and to provide updates on current results.
- (5) Formal review of current projects and future plans is held quarterly.

**B. Direction of Others**

- (1) Subordinate organization consists of two to five clerks performing administrative functions and one to five craftspeople performing surveillance, control and analysis functions for all central offices in the manager's area.
- (2) Provides informal direction to field supervisors and is called upon to supervise manager's area during the manager's absence.



## FIELD SUPERVISOR

### JOB SUMMARY

Supervises a force of six to ten craftspeople responsible for completing the corrective maintenance on switching, power, and miscellaneous equipment at one or more central offices. Responsibility may also include cross-connection work on distributing frames for service and trunk orders and the clearance of troubles on these frames.

#### A. Directs Corrective Maintenance

- (1) Supervises the corrective maintenance on switching, power, and miscellaneous equipment within the central office(s). Ensures restoral of out-of-service equipment and the preparation of trouble tickets on work performed by the craftspeople.
- (2) Directs response of the craft force to office alarms, and demand loaded items from the SCC.
- (3) Responsible for maintenance aspects of the network service performance measurement plan (NSPMP), and develops a plan to correct deficient results.
- (4) Coordinates with the SCC supervisor to identify problem areas and develop corrective procedures such as rehabilitation projects. Prepares SCC work requests after projects are identified.
- (5) Supervises completion of preventive maintenance equipment tests that have a scheduled frequency of less than one month (daily, weekly). Those tests which have a scheduled frequency of one month or greater are the responsibility of the evening and night supervisor. Approves the record of these equipment tests prior to forwarding it to the SCC.
- (6) Directs off-hour response to emergency situations when called by the SCC or on-site craft force.
- (7) Ensures that an adequate supply of tools and spare parts are provided at the central office to meet normal maintenance requirements.

#### B. Directs Frame Activity

- (1) Supervises the cross-connection work on distributing frames including service orders, cable transfers, line equipment transfers, and other programmed work requests. Responsible for the frame component of the NSPMP.
- (2) Supervises trouble clearances on distributing frames and ensures there is prompt response to requests from the repair bureau for performing tests on lines.
- (3) Supervises the filing of service orders at the main frame locations and resolves order discrepancies when identified by the craft force.
- (4) Analyzes customer trouble reports found on the frame to identify the cause of work errors and/or the need for a frame rehabilitation project, eg, dead crosswire removal, stenciling, etc.

#### C. Develops Subordinates

- (1) Prepares craft work evaluations on a regular basis, and reviews their performance with them as a means of praise or constructive criticism.

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- (2) Identifies the need for the on-the-job training and trains craft forces on specific areas of the central office maintenance job.
- (3) Identifies the need for formal craft training and coordinates the scheduling with the SCC Supervisor.
- (4) Monitors the absence and safety record of all subordinates.
- (5) Prepares trick assignments which list the daily repetitive work items to be accomplished on a specific job assignment. Updates these assignments as required and prepares a work schedule on a monthly basis.
- (6) Prepares loading guide for use by the SCC in assigning programmable work. Provides input to the SCC supervisor for preparation of pricing guides.
- (7) Reviews completed central office work logs daily to monitor productivity and the effectiveness of craft loading.

### **D. Miscellaneous Duties**

- (1) Directs housekeeping items in the central office and coordinates with the building department on any problems affecting the physical environment.
- (2) Oversees central office security and ensures that all security procedures are understood and adhered to by all employees.
- (3) Provides an interface with WECO for jobs within the central office. Determines the need for, and coordinates the use of craft forces to provide coverage and acceptance work in conjunction with the WECO supervisor and SCC supervisor.
- (4) Maintains communication with the SCC supervisor and advises of any problems with craft loading, trouble analysis, supply requests, or other administrative items.
- (5) Informs supervision of any serious problems or potential problems affecting the central office or work force.
- (6) Handles union grievances originating from subordinates.

## **SCOPE AND NATURE OF SUPERVISION**

### **A. Supervision Received**

- (1) Reports to the SCC manager along with four to seven additional first-level supervisors who supervise maintenance forces.
- (2) Detailed departmental and AT&T operating procedures are used as a guide in making most decisions. Control of personnel follows guidelines in matters such as overtime and job assignments.
- (3) Immediate supervisor is available for consultation and guidance (via telephone) although not normally contacted unless unusual situations arise. Supervisor generally makes weekly visit to review work progress.
- (4) Operates independently on day to day basis to meet agreed upon objectives.

- (5) Formal supervisory review of current projects and future plans held at least quarterly. At this time the attainment of objectives is discussed and plans are outlined for the next period.

**B. Direction of Others**

- (1) Subordinate organization consists of six to ten craftspeople working different shifts.
- (2) Provides feedback to subordinates through work evaluations.
- (3) Directly responsible for training and development of subordinates.

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## **EVENING/NIGHT SUPERVISOR**

### **JOB SUMMARY**

Supervises a craft force working on an off-hour basis to complete programmable tests and the associated repair work on switching, power, trunk, and miscellaneous equipment in a number of central offices. Responsible for the control of these offices during this off-hour tour as the only management person on duty in the manager's area.

### **JOB DUTIES AND RESPONSIBILITIES**

#### **A. Directs Preventive Maintenance**

- (1) Supervises the completion of equipment tests which have a scheduled frequency of one month or greater. These would include all monthly, quarterly, and yearly tests on switching, power, trunk, carrier, and miscellaneous equipment as defined in the BSPs.
- (2) Supervises the repair work on switching equipment that corrects the troubles identified from the above equipment tests or other troubles loaded from the SCC.
- (3) Approves the test records filled out by the craft force prior to their return to the SCC for input into central office maintenance management system (COMMS) or for manual posting.
- (4) Supervises the completion of programmable transmission readings on all trunks not measured by centralized automatic reporting on trunks (CAROT).
- (5) Supervises the completion of special projects within the central offices, eg, equipment rehabilitation, WECO testing, major trunk work, etc.
- (6) Coordinates with the field supervisors responsible for the office to keep them informed of all critical activity performed by the PM team.

#### **B. Directs Off-Hour Surveillance**

- (1) Directs the surveillance and control of all central offices during the off-hour tour. Transfers craft forces among central offices to ensure prompt response to critical equipment troubles. Makes the decision to call-out additional craft forces if required.
- (2) Directs the housekeeping, safety, and security of all central offices, while subordinates are on site. Assumes the duties of the field supervisor in these areas during the off-hour tours.

#### **C. Develops Subordinates**

- (1) Reviews performance of the craft force and prepares work evaluations weekly. Uses evaluations as a basis for praise or constructive criticism.
- (2) Monitors the absence and safety record of subordinates.
- (3) Prepares work assignments and loading guides in conjunction with the SCC supervisor for use in the assignment of work.
- (4) Identifies training requirements of subordinates and provides on-the-job training on the performance of equipment tests and the clearance of troubles.

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**D. Miscellaneous Duties**

- (1) Maintains communication with the SCC manager, SCC supervisor, and field supervisors to keep them informed of off-hour activities.
- (2) Handles union grievances originating from subordinates.
- (3) Prepares and updates monthly work schedules and craft vacation schedules in conjunction with the SCC Supervisor.
- (4) Ensures that all test equipment required for equipment tests is working properly and is available when needed.

**SCOPE AND NATURE OF SUPERVISION**

**A. Supervision Received**

- (1) Reports to the SCC Manager along with four to seven additional first-level supervisors who supervise maintenance activities.
- (2) Detailed departmental and AT&T operating procedures used as a guide in making most decisions. Flexibility in assigning personnel exists to a large degree.
- (3) Off-hours work makes face-to-face contact with supervisor infrequent. Incumbent has authority to make many decisions with supervisor available by telephone in emergency situations.
- (4) Formal performance reviews are held at least quarterly with supervisor to appraise results and review plans for the future.

**B. Direction of Others**

- (1) Subordinate organization consists of five to ten craftspeople who may work at locations remote from the supervisor.
- (2) Provides feedback to subordinates through work evaluations.
- (3) Directly responsible for training and development of subordinates.

## TRUNK/CARRIER SUPERVISOR

If not established as a distinct position, included as part of the field supervisor's responsibilities.

### JOB SUMMARY

Supervises a craft force that install and maintain the trunk and carrier facilities for a group of central offices. Responsible for trunk order work, repair of defective circuits and the turn-up and maintenance of carrier system.

### JOB DUTIES AND RESPONSIBILITIES

#### A. Directs Corrective Maintenance

- (1) Supervises the corrective maintenance of all trunks and carrier systems within offices assigned to the trunk team.
- (2) Directs the restoration of any trunk removed from service and the preparation of the trouble ticket.
- (3) Responsible for the trunk service results for the offices assigned, and prepares any plans required to improve marginal or unsatisfactory results.
- (4) Supervises the completion of programmable noise reading on all trunks not measured by centralized automatic reporting on trunks (CAROT), and reviews these results prior to submission to the SCC.
- (5) Supervises the correction of noise and transmission problems on trunks and is responsible for the trunk transmission maintenance index (TTMI) results in all offices assigned. Coordinates with the transmission engineers on trunks which need to be reassigned.
- (6) Coordinates with other field supervisors on problems referred from subordinates in restoring trunks or making tests.
- (7) Maintains communication with the field supervisors in those offices where the trunk team operates to ensure effective cooperation and efficient use of craft forces.
- (8) Ensures that an adequate supply of spare parts and plug-in units is available in each office for trunk and carrier equipment.

#### B. Directs Trunk Order Work

- (1) Directs the turn-up or rearrangement of all trunk, carrier, and special service circuits within the offices assigned. Monitors the communication between subordinate craft forces and the SCC to ensure that notification of errors and appointment procedures with other offices are working effectively.
- (2) Coordinates with the SCC supervisor in planning the work load to ensure all due dates are met. Prepares a report for the SCC Manager to explain any missed due dates.
- (3) Directs subordinates among assigned central offices to meet the work load identified by the SCC. Ensures that the SCC is aware of force location daily.
- (4) Coordinates with other departments to resolve discrepancies with the service orders, trunk orders, or carrier system design. Maintains communication with the SCC supervisor and SCC clerk concerning trunk order scheduling and problems.

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### C. Develops Subordinates

- (1) Reviews the performance of the craft force and prepares work evaluations weekly. Uses evaluations as a basis for praise or constructive criticism.
- (2) Identifies the need for craft training and coordinates formal training schedules with the SCC Supervisor. Conducts on-the-job training of subordinates.
- (3) Monitors the absence and safety performance of each subordinate.
- (4) Prepares individual work assignments and updates work schedules monthly. Provides loading and pricing information for use by the SCC clerk in assigning trunk and special service work to the craft force.

### D. Miscellaneous Duties

- (1) Directs the use of all automated trunk test frames in each office in which the trunk force operates, eg, automatic progression trunk test (APTT), CAROT, incoming trunk test (ITT). Ensures that proper test records are available and that each test frame is properly maintained.
- (2) Maintains communication with the SCC supervisor and the Evening/Night Supervisor to monitor problems with loading, transmission testing, etc.
- (3) Directs corrective maintenance force in the central office as requested by the SCC Manager in the absence of the field supervisor.
- (4) Handles union grievances originating from subordinates.

## SCOPE AND NATURE OF SUPERVISION

### A. Supervision Required

- (1) Reports to the SCC manager along with four to seven additional first-level supervisors who supervise maintenance activities.
- (2) Detailed departmental and AT&T operating procedures used as a guide in making most decisions. Flexibility in assignment of subordinates exists to a large degree.
- (3) Immediate supervisor is available for consultation and guidance (via telephone). Not normally contacted unless unusual situations arise. Supervisor is in field on weekly basis to observe work progress.
- (4) Reports daily to SCC to update status and review work load. Immediate supervisor is usually available at this location to discuss problems.

### B. Direction of Others

- (1) Subordinate organization consists of five to ten craftspeople who work at a number of central office locations.
- (2) Provides direction and control of craft force including job assignments, time off, training, etc.
- (3) Cooperates with SCC supervisor to direct the trunk and carrier clerk on the loading of work.

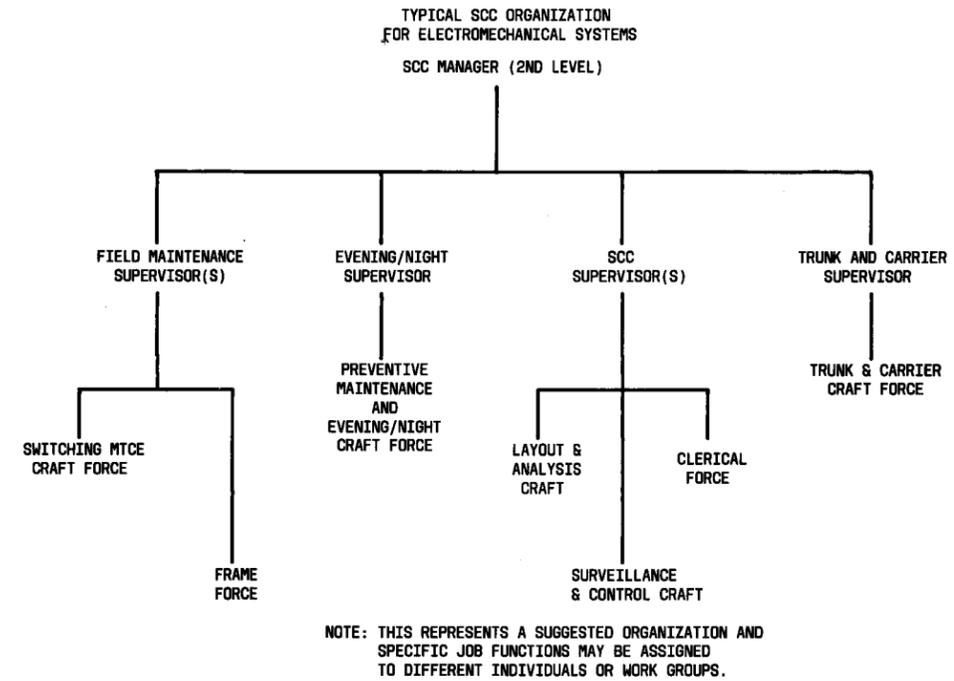


Fig. 3.1—Typical Electromechanical System Organization





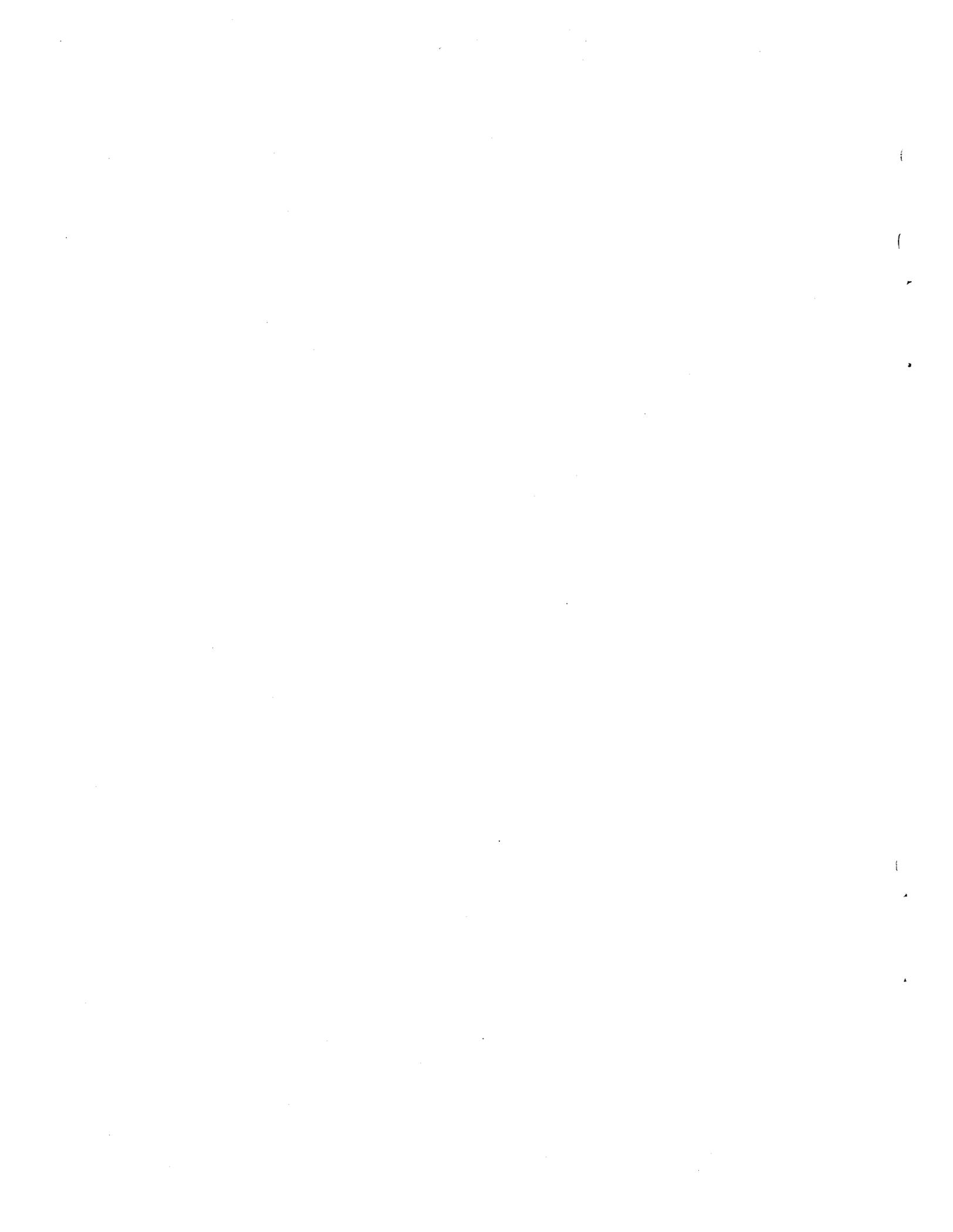












## PART 4

**4. EM-SCC OPERATIONS SUPPORT SYSTEMS****A. General**

**4.01** This section describes the various support systems for the Switching Control Center (SCC) for electromechanical switching systems. These systems provide central monitoring and testing capabilities for the SCC.

**B. Electromechanical Systems****System Description—Automatic Trunk Analysis (ATA)**

**4.02** The Automatic Trunk Analysis (ATA) System is designed to assist in the corrective maintenance of crossbar switching offices. This is accomplished by mechanizing and centralizing the categorization of office troubles through pattern analysis of trouble and equipment combinations. As a result, corrective maintenance is made more effective, efficient, and accurate. The ability to measure and summarize maintenance effort offers a valuable management tool. The system presently has application to No. 1 Crossbar (XB) master test frame equipped No. 5 XB offices.

**4.03** The ATA system consists of a central minicomputer with its attendant software, a number of switching offices, and keyboard printers for craft-ATA communication. The printers are located at both the central office and the SCC.

**4.04** The ATA system is designed to accept trouble indications from the central offices, store these on disk, analyze the inputs for trouble category and equipment failure, and identify the troubles. Software allows the craft to request supporting information about identified troubles, as well as summaries and status reports describing the state of troubles. In addition, the reports, summaries, and control for any office may be transferred or relegated to other keyboard printer locations.

**4.05** Operationally, the ATA system can be split into three major functional parts:

(a) The switching offices with their Maintenance Data Transmitters (MDTs) connected to existing trouble recording or indicating equipment and to the keyboard printers.

(b) The central computer, which accepts and processes the data from the central office MDTs, reports troubles and maintenance measurements and summaries of both central office and ATA system activity.

(c) Teleprinters called control stations which can be located in a SCC.

Both the central offices and the control stations are linked to the central computer by means of full-duplex data links.

**4.06** The MDT serves as the interface between the switching office trouble recording equipment and the ATA central computer. Trouble data is accessed via data concentrators from trouble indicator circuits in No. 1XB offices, and via direct connections from the trouble recorder connector frame in No. 5XB offices.

**4.07** The No. 1 Crossbar maintenance data transmitter is functionally divided into three areas: the controller (Programmable Scanner Distributor [PSD]), the data concentrators, and the trouble indicator interface. The controller performs the data handling and control functions necessary for transmitting and receiving data between the central office and the computer. The data concentrators interface between the trouble indicator lamp panels and the input bus to the controller. The concentrator divides the trouble data leads from the lamp panels into groups which can be read by the controller. The trouble interface provides the means to recognize when trouble record data is present and its type. In addition, the interface provides the means by which the controller releases the trouble indicator. Trouble indicator data is obtained when the display lamps are locked in at the trouble indicator. The controller directs a data concentrator to connect 120 data leads to the input data bus, reads data from these leads into a buffer, and then connects the next group of 120 leads. This action continues until the entire data field is read for that indicator. Depending on the type of trouble data (regular or test), and a mode setting within the MDT, the trouble indicator circuit may then be released. Provision is made with the No. 1XB MDT to handle two teleprinters. This allows keyboard messages to be handled from two locations. An example of the need for this feature would be an ANI trouble

ticketer located on a different floor from the other trouble indicators. In No. 1XB, one MDT can function with the following types and numbers of trouble indicator circuits: one originating trouble indicator, up to three terminating trouble indicators, one controller trouble indicator, one code compressor trouble indicator, one trouble ticketer, and one stuck sender trunk identifier frame. The maximum capacity is six trouble indicators after which a second MDT is required.

**No. 5XB MDT**

**4.08** The No. 5XB MDT consists of two parts: the controller (Programmable Scanner Distributor, or PSD), and the interface to the No. 5 central office (ATA Interface or ATAI). This electromechanical circuitry provides the alarm and control interface.

The input/output and control functions of the No. 5XB MDT are similar to the No. 1XB MDT, with the exception that there is no provision for operation with two on-site keyboard printers.

In No. 5XB, data for the ATA is obtained by delaying the start of trouble card perforation while the MDT "prescans" the data by operating the scan relays of the master test frame connector circuit. The trouble perforator can then be started, or more commonly, the perforation process is bypassed and the trouble recorder is released for the next user circuit.

Trouble data from the trouble recorder circuit enters the MDT directly without passing through the ATA interface.

**Central Computer**

**4.09** The central computer serves as the heart of the ATA system. The computer itself is a minicomputer, equipped with both a large capacity moving head disk and a high speed fixed-head disk. The computer is equipped with interface units which connect the computer with the data links to all MDT teleprinters. In addition, a TTY is directly connected to the computer to serve as a system console for computer maintenance and operating system control. A magnetic tape unit is provided for program loading and program backup.

The minicomputer software consists of a time-sharing operating system, configuration data for the operating

system, a set of application programs normally referred to as the ATA software, and application data used by the ATA software describing each of the central offices to be served. The operating system handles input/output buffering, task scheduling, file management, and other common purpose tasks, while the ATA application programs handle analysis of data and user interaction. The configuration data for the operating system contains information describing the machine hardware configuration, I/O line assignment, disk storage allocation, etc. The ATA application data contains information concerning the central offices served, analysis parameters for each central office, status and assignment of each of the offices, and control stations and other application dependent data.

**Control Stations**

**4.10** The ATA system has been provided with the capability of serving a flexible number and arrangement of control stations (ie, teleprinter only locations). All inputs from these locations are interpreted as commands, inquiring about the state of the ATA system, or modifying the parameters controlling ATA service to the central offices.

One control station must be designated to control the unit operating system. This is a time shared operating system that administers the real-time allocation of system resources, controls operation of peripheral equipment, and provides administration of data files.

This administrative terminal will be at the SCC and will have access to all commands in the ATA system. Among the capabilities of this terminal are the ability to set or modify the parameters governing the binning and matching process for each individual central office. It has the ability to direct different types of output, independently, to any keyboard printer. These types of output include normal trouble (exception) reports, reports on the status of the central office MDTs, and measurements of central office activity specific to ATA. The SCC also has the ability to "delegate" the power to use certain commands which modify the delivery of ATA service to the central offices and controls stations, and the ability to establish a flexible hierarchy of authority by permitting these commands to be exercised only over specified subsets of offices or control stations.

**System Description—Telecommunications Alarm and Surveillance Control (TASC)**

**4.11** The Telecommunications Alarm Surveillance Control (TASC) system is designed to provide a flexible method of meeting the alarm surveillance and control needs of electromechanical switching offices and transmission systems. This is accomplished by mechanizing and centralizing the receipt of office and transmission alarms with the provision of some control functions at a central location. As a result, alarm surveillance is made more effective, efficient, and accurate. The ability to monitor and summarize remote alarms offers an effective management tool as part of a SCC operation.

**4.12** The TASC system consists in part of a computer-based central complex with multiple operating positions which are usually Cathode Ray Tube (CRT) Printers. The primary remote office equipment is E3A (SAC) telemetry, but TASC is also compatible with E1 and E2 telemetry, the C1 alarm system, and the new E3 alarm system. The E3 system is being designed to provide a manual alarm system used in conjunction with a limited size version of the E2A (SAC) remote. It should be available in early 1977.

**4.13** The complete TASC includes seven basic components:

- (a) The computerized central, associated peripherals and remote operating positions.
- (b) The data networks which serve as the communication backbone between the TASC central and the remote telemetry.
- (c) The remote telemetry equipment, (E1, E2, E2A [SAC], and E2A CDO Satellite remote) which is connected to the monitored equipment.
- (d) Standard methods of interconnecting to and modification of central office and radio equipment to allow for their monitoring and control.
- (e) Interfaces to certain other remote alarm systems (C1 and Alarm Extension circuits).
- (f) TASC-ATA links allowing for operation of both systems from combined work stations if desired.

(g) Complete documentation of procedures to effectively plan, operate, and maintain the TASC system.

**TASC Central**

**4.14** The nucleus of the TASC Central Processor Equipment is a DISC based system composed of a disc drive and a disc controller. In addition to the two cabinets required to store the central equipment, an additional cabinet must be provided for mounting of interface equipment. Space provided to house up to six telemetry computer translators (TCT) and six 202T data sets (TELCO supplied) providing the capability to handle up to six telemetry data networks. For applications requiring more than six telemetry data networks, a second cabinet unit is required.

The additional parts of the TASC central are the TASC generic program software and a local operating position near the computer.

**Remote Locations**

**4.15** The TASC system can be used in a wide variety of applications depending on the environment involved. A mix of large switching offices, small community dial offices (CDOs), carrier system, microwave stations, and building alarms may be input to a single system. For planning purposes it may be assured that the TASC system will be able to monitor and control 100 remote locations in a typical urban environment of predominately average size No. 5XB offices (200 alarm and status points per office).

TASC can be utilized in a mixed urban/rural environment and the computer may be used to sort through a mixture of alarming data and send only that which is of concern to each of several operating positions. E1 and E2 remotes may share data facilities with E2A (SAC) remotes. The average number of central offices and radio stations monitored in this environment will approximate one hundred and thirty.

A rural environment is usually composed largely of small CDOs and microwave radio stations. The recommended arrangement is to hub small offices on a larger office equipped via an E2A (SAC) using the E2A CDO Satellite equipment. This unit has a capacity of 15 alarm and status points and four remote controls. The capacity of the TASC systems

in this environment can be assumed at two hundred offices or microwave radio stations.

### ***System Features***

**4.16** The following operational capabilities are associated with TASC.

- An English text printout is available on all messages. Up to 70 alphanumeric characters can be assigned locally to each status or alarm point and this name or message will be printed out in addition to the normal printout of office name, date, and time.
- The system will automatically place all events pertinent to the monitoring and control process on a history log. The log is kept on a removable disk and a hard copy of all or a portion of the file may be obtained upon command.
- Trouble tickets may be created at the keyboard and tracked through the computer over a period of time.
- A summary display is available on the CRTs associated with TASC to provide a "picture" of the status of all offices associated with that operating position.
- Alarm thresholding is provided in software for sites with E2A (SAC) remotes. The user may select thresholding based on the number of alarms per unit against time or as compared to common equipment usage. For example a threshold can relate marker first trial failures to completing marker peg count.
- A program sequence is provided which allows the SCC or other user to link together sequences of operations that are useful to their particular situation. This may involve programmed operations to handle verification of status point, operation of remote switches, text printouts, and other functions.
- An interactive software training package is provided to allow the console user to refresh his memory relating to those operations necessary for day-to-day TASC system operation.
- Data base flexibility exists which allows the user to assign and alter designations of

alarm points to fit local needs. Key alarms are reported and identified individually so the SCC can determine the possible effect on service and if and when dispatch is required.

- Automatic polling of each remote is provided which permits automatic retrieval of station status and alarm analysis. Troubles with response from remotes are also detected and audible alarms arrangements are available.
- An entrance security checking feature permits the TASC attendant to "Log in" any person activating an open door alarm at a remote location. The computer will check the validity of an ID number after the TASC attendant obtains it by phone from the person desiring entrance. If valid, it will print the name of the person assigned that ID number. All history relating to this activity is automatically stored on the disc. (Refer to Bell Systems Practices, Section 190-105-XXX for further details.)

### **C. Other Support Systems**

#### **CAROT**

**4.17** Centralized Automatic Reporting On Trunks (CAROT) is a processor controlled trunk testing system which can perform both operational and transmission tests on trunks between properly equipped offices which are remote from the central controller location. The latest generic of CAROT (CC2) will provide automatic test scheduling, demand testing from remote locations, and centralized, automatic 2-way transmission testing and end-to-end operational testing.

**4.18** The capacity of the CC2 system is approximately 100,000 trunks and thus its installation is only feasible on large scale. It is recommended that the administration of the system be done by a dedicated CAROT group, independent of the SCC.

**4.19** The major benefit to an office is greatly reduced trunk testing time. The CAROT system completes most of the transmission measurements, freeing maintenance personnel for correcting out-of-limits trunks or other central office functions. It ensures that all required measurements are completed each quarter.

**4.20** A SCC should have a good manual trunk transmission program prior to going into a CAROT system. It is important that the trunk records be accurate and that the out-of-limits trunks be minimal. Failure to do this will result in confusion, delays, and extensive work to get the office functioning on CAROT.

**4.21** The normal features of an operating system include:

- (a) Routine transmission testing of trunks
- (b) Automatic scheduling of routine transmission tests
- (c) Automatic analysis of routine test results
- (d) Automatic results dispersal upon request from remote TTYs
- (e) Management summaries and TTMI reports
- (f) Test frame tape preparation
- (g) Demand testing activated from remote TTYs
- (h) Ability to update the data base from direct peripheral input.

**4.22** The functions and responsibilities of a CAROT Center include:

- (a) Ability to provide the central office with a list of bad trunks by means of a dial-up arrangement
- (b) Manage a CAROT maintenance force to repair and maintain all CAROT equipment
- (c) Maintain a record of all CAROT equipment problems including status and disposition
- (d) Analyze trunk troubles to help identify intermittent troubles and end office response
- (e) Correct data-base problems
- (f) Request each remote office to investigate trunk reported permanently busy
- (g) Respond to requests for demand tests when requested by remote office

- (h) Initiate a CAROT and remote office performance report on a monthly basis

- (i) Conduct final transmission acceptance tests on circuit orders if requested.

**4.23** The SCC has the responsibility to:

- (a) Immediately identify and remove from service all trunks tested defective by the CAROT system. A remote CAROT test set may be used at the SCC to test H&D and Q2 trunks prior to dispatching. The no-trouble-founds should be analyzed.
- (b) Enter all CAROT reported trunks removed from service on log of trunk outages (E-4255).
- (c) Expedite repair and alignment of defective trunks.
- (d) Inform the CAROT center of the disposition of all data base problems.
- (e) Assist with the repair and maintenance on all related CAROT equipment, if required by CAROT forces.
- (f) Investigate each permanent busy report on list of trunks not tested and inform CAROT center of possible data base errors.
- (g) Analyze transmission results and develop plans to bring all trunks within required objectives.
- (h) Report trunks that cannot be aligned to specifications to the appropriate force.

**4.24** The reports generated by CAROT include:

- (a) Q2 report—trunks exceeding loss or noise immediate action limits
- (b) Q1 Report—trunks exceeding loss or noise maintenance limits
- (c) Facilities Report—facilities on which Q1, Q2, Busy, and High and Dry reports on trunk, tested in succession by facility, have exceeded specified thresholds

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- (d) Operational Report—trunks not tested and those incurring operational failures during transmission test attempts
- (e) TTMI Report—information necessary to complete Form E-6501 for TTMI index
- (f) Management Summary—continuing totals of test results
- (g) Daily Management Summary—daily results of each office analyzed on last run
- (h) CAROT Operational Summary—summary of all CAROT equipment troubles encountered during routine testing.

**4.25** Operational type failures are categorized as:

- (a) Permanent busy (BUSY)
- (b) High and Dry (H & D)
- (c) Voice Announcement (VA)
- (d) Audible Ring (AR)
- (e) Reorder (RO)
- (f) Delayed Reorder (DRO)
- (g) Dial Tone (DT).

**4.26** Results of synchronous, nonsynchronous, and 103 type operational tests will be listed as:

- (a) Successful Operation Test (P)
- (b) Trip Fail (T)
- (c) Pretrip Fail (R)
- (d) Fail (F).

**4.27** Management Summaries contain the following:

- (a) Total transmission tests
- (b) Trunks exceeding turn down limits (Q2)
- (c) Trunks exceeding maintenance limits (Q1)
- (d) Total operational tests

- (e) Trunks failing operational test
- (f) Trunks not tested due to H & D, BUSY, other reasons.

**4.28** The CAROT center normally conducts routine testing during evening and night periods to allow maximum availability of trunks. The Q1 and Q2 reports should be generated early in the morning so that they may be transmitted to the SCC by 8:00 am. This enables the SCC to load these troubles on the day shift, and remove bad trunks from service prior to the busy hours.

**4.29** The hours during the day should normally be spent in demand testing, report generation, and trunk update.

**4.30** Another feature of the CAROT system is the ability to generate tapes for use with the Automatic Progression Trunk Test (APTT). It is expected that the end offices will continue to use the APTT on a regular basis while operating in a CAROT environment. Some routines may be eliminated if the tests are performed by CAROT.

**4.31** During the turn-up of an office on CAROT, it is expected that TTMI results will still be submitted on a manual basis by the SCC. They would receive test results from CAROT and use these to prepare the input documents to TTMI. The SCC would also be responsible for testing these trunks that CAROT missed. Provision is being made for the CAROT center to provide direct input into the mechanized TTMI program, freeing the SCC from this clerical effort. Trunks not tested by CAROT could be submitted manually by the SCC.

**4.32** At the present time, CAROT cannot tests operator-type trunks. These would include those terminating in an ACD, AIS trunks, or others with special features. SCC personnel would be responsible for measuring these.

**4.33** CAROT reports should give the SCC a better tool for analysis of the trunk maintenance effort. The daily management reports should help identify offices and trunk groups with uncleared troubles.

**COMMS**

**4.34** COMMS is a support system for assisting in the administration of central office preventive maintenance (PM) tasks. It is based on the AT&T Controlled Maintenance Plan and is useful in scheduling, monitoring, and controlling maintenance operations in central offices.

**4.35** COMMS-PM is directed toward PM Administration. Its primary objectives are to:

- Reduce the paperwork burden inherent in manual methods of administration
- Provide accurate information about scheduled work and timely feedback on results to facilitate better planning and control of office activities
- Maintain a data base to be used in analyzing test time requirements, productivity of tests and manpower utilization, and in conducting equipment performance studies.

**4.36** COMMS is an automated system. Routine administrative chores are performed by COMMS software so that SCC personnel can be freed for more productive work. SCC personnel control the input to the computer and can administer it to meet their local organizational needs.

**4.37** Specific features provided by COMMS include automated procedures for:

(a) Identifying Applicable ETL Routines—

COMMS matches an office equipment inventory to a file of ETL requirements stored in a computer. The result is a list of most ETL routines required for the office. COMMS uses routines to denote individual test or inspections set forth in the applicable ETL.

(b) Organizing the PM Workload—

COMMS organizes the required preventive maintenance tasks into manageable blocks of work, called work items. Each work item contains a set of routines that can be efficiently performed together and a number of equipment units to be tested.

(c) Scheduling the PM Tasks—

COMMS generates a proposed schedule for the work items according to a work profile submitted by SCC supervisor. The work profile specifies how the work load is distributed, by month, across a 2-year schedule period.

(d) Generating Work Orders—

COMMS supplies work orders and a summary list of the scheduled work each month sent through U.S. Mail.

(e) Building a PM History—

COMMS assembles history files from information on completed work orders transmitted by TTY. At some time in the future these files could provide the basis for adjusting time estimates used in scheduling and manpower forecasts, and provide data for analyzing the performance of the equipment and the routines. The frequency of some routines may be modified based on trouble-found results.

(f) Generating Management Reports—

Monthly, and on request, COMMS furnishes SCC supervisors with information about results, the status of uncompleted work, and the projected workload for the new month. These reports identify backlogged or missed work and alert supervision to unusual results that may require follow-up action. Other reports, with more detailed analyses, are also issued by COMMS, but on a longer interval or on an as requested basis.

(g) Updating and Modifying PM Records—

COMMS greatly reduces the need to manually revise ETL schedules. COMMS ETL files are updated automatically when systemwide ETL changes are made. COMMS notifies the SCC of any pertinent changes and with the supervisor's concurrence, processes the ETL changes and supplies a revised schedule. Similarly, when equipment modifications are entered into the data files, COMMS automatically updates work records and provides new

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documents as appropriate. In addition, supervisory personnel can modify the planned work program to fit local needs using automated COMMS procedures to effect the changes.

**4.38** Initially, COMMS will cover the administration of most Mandatory Work (MW) and Mandatory Review (MR) preventive maintenance routines listed in the No. 5XB 218-series ETL, the T Carrier 365-series ETL, and the Power ETLs of the 155-, 157-, 159-, 161-, 163-, 167-, and 169-series. Additional features are included to allow for entry of locally required routines and periodic maintenance work. ETLs for other equipment systems and for miscellaneous and supplementary ETL items in central offices will also be incorporated as their development work is completed.

### EADAS

**4.39** The Engineering and Administration Data Acquisition System (EADAS) is a mechanized means of gathering switching data from central offices. EADAS employs a minicomputer and peripherals (the Central Control Unit) to provide the following features:

- (a) Near real-time surveillance (30 minutes) of switching machine and trunk group performance
- (b) Hourly status reporting for the periods required each day by the Network Administrator
- (c) Basic data storage on magnetic tape for use by a downstream program to produce weekly, monthly, or busy-season engineering and administrative reports
- (d) Basic data input for network surveillance and control.

The EADAS Phase One development also includes:

- (a) A Traffic Data Converter (TDC) which replaces the cameras and traffic registers in the central office
- (b) A new small office data recording device called the Pollable Data Terminal (PDT-1A)
- (c) The Central Control Unit minicomputer

- (d) A generic software package maintained by WECo to control system features.

**4.40** Switching data can also be gathered with EADAS from ESS offices, TDRS equipped offices, and offices with outside supplier terminal devices, which conform to the defined data output format specifications. Other computer based data gathering systems do exist and provide information similar to that available with EADAS. If these systems are used then plans should be made to utilize the output at the SCC in the manner suggested for EADAS.

**4.41** EADAS was basically designed as a system to be administered and controlled by the Network Administration forces. No change from that concept is planned. It is recommended that the SCC make use of the real time traffic data as another tool to help manage the central office maintenance job.

**4.42** An improved EADAS software package is under development for availability in 1977. Called the Switching Maintenance Results Feature (SMRF), it is directed toward central office maintenance and will have excellent feasibility in a SCC. It is designed to mechanize many operations involved in maintaining the central office control record and in generating the Network Switching Performance Results Report.

**4.43** The SMRF messages will terminate in a TTY at the SCC and operate over data lines at **110, 300, or 1200 baud**. Access can also be made via dial-up links, but the dedicated private line to the SCC is recommended. In contrast to the present system, EADAS will be modified to provide flexible message distribution capability. The SCC will be able to design its own output schedule for SMRF messages, independent of network administration group.

### ICUP

**4.44** The Individual Circuit Usage and Peg Count (ICUP) system uses a new (usually portable) central office terminal device which scans each circuit on a single lead for both the peg count and usage (TUR not required).

In the trunking application this permits:

- (a) Provision of a powerful data-validation and data-base management capability through the comparison of actual peg counts on a trunk group to the carried peg count derived from marker measurements.
- (b) Detection of faulty trunks through statistical tests for abnormal holding times.
- (c) Improvement in the trunk provisioning process by using the detailed measurements available to reflect more realistically the impact of "killer" and "made busy" trunks.

Similar benefits are available when ICUP is applied to common-control components.

**4.45** The ICUR option for EADAS is a concept which involves retaining existing TURs and obtaining usage on each individual circuit rather than on a grouped basis as at present. Peg counts are simulated by counting the changes in state of each circuit as the TUR scans. The ICUP system has more rapid trouble detection and a more powerful trunk data base control through its peg count match feature. In addition, the data is available on a near real-time basis as opposed to ICUR which uses a downstream program (ICAN) for data processing.

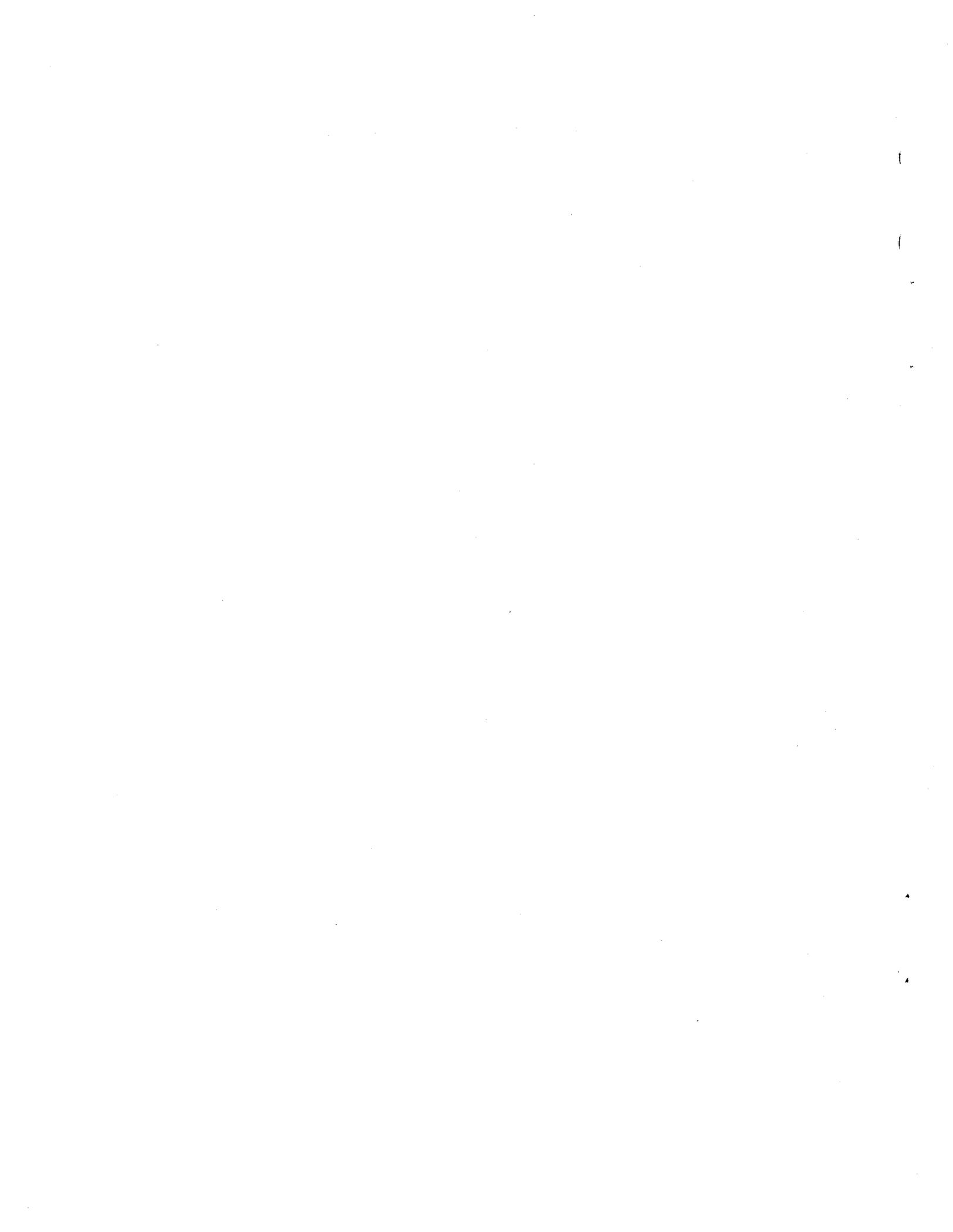
**4.46** ICUP has been proven effective in the more difficult service and maintenance situations

where no TUR is now in operation, and/or where there are limited existing mechanized maintenance aids such as in Step-by-Step (SXS) offices. For example, in crossbar offices where ATA is planned, the ICUP system would generally not prove cost effective, but considerable success may be found with its uses in SXS offices. In this situation the provision of an ICUP terminal at the SCC can provide substantial maintenance data for both analysis and corrective maintenance loading.

**4.47** The decision to use ICUR or ICUP is dependent on a number of considerations including:

- (a) Present type of traffic recording and/or trouble detection devices installed
- (b) Amount and type of data required by dial administration forces
- (c) Service level of the office as measured by customer trouble reports and call completion results
- (d) Interaction with rest of the Total Network Data System (TNDS).

It is necessary that network maintenance forces play an important part in the decision on ICUP. The effectiveness of a SCC administering SXS offices can be improved with this type of system if service considerations warrant it.



## PART 5

**5. FORCE MANAGEMENT PROCEDURES****A. General**

**5.01** The force management procedures part of the network maintenance management section is designed to assist SCC managers in accomplishing the following objectives:

- (a) Improve cost effectiveness and service in the performance of the network maintenance job
- (b) Provide methods for effectively balancing force and load
- (c) Provide an administrative guide with detailed procedures for the effective administration and control of central office maintenance forces.

**5.02** The administrative procedures associated with centralized force management are described in this part. Responsibility for performing this function resides with the SCC Dispatch and Administration Supervisor as indicated in Part 3. General administrative procedures that apply to all central office forces are described in Part 6. These include procedures for preparing employee work assignment lists, work request forms which are used as a work order for general types of EM work, and the load and work time record which is a combined craft loading form and time record.

**5.03** Appropriate controlled maintenance plans should be consulted for procedures associated with the administration and control of corrective and preventive maintenance work. Procedures here that involve this work often refer to these plans.

**5.04** The procedures described here are intended to provide central office managers with a standard approach to force management and administration.

**5.05** It is recognized that the more paper work involved with a plan the less chance there is that it will be adhered to in its entirety. Efforts have been made, therefore, to simplify procedures as much as possible. To effectively control the myriad of tasks associated with central office maintenance, there is a requirement that those

tasks be identified in a quantitative way in order that inventories of pending work can be matched with available force.

**B. Overview of Basic Work Operations**

**5.06** This part introduces and defines the basic work operations and procedures that are associated with a centralized work administration and force management operation at a SCC. These include:

- (a) Handling work inputs
- (b) Pricing work
- (c) Maintaining work files
- (d) Loading SCC and field forces
- (e) Measuring force performance
- (f) Measuring SCC performance
- (g) Preparing SCC time summaries
- (h) Preparing SCC monthly performance report
- (i) Maintaining SCC status boards.

Detailed procedures for these operations are provided in following paragraphs.

**Handling Work Inputs**

**5.07** Prior to centralization, all telephone calls and miscellaneous work input was received directly at each central office. This procedure resulted in considerable paper work and administrative time at each location.

**5.08** A major responsibility of a centralized force management function is the handling of most central office work whether this is received by telephone, from SCC work stations, or in the form of mailed documents. Work inputs normally received by telephone include customer trouble reports, other trouble referrals, and requests for information or assistance. Those normally received from SCC work stations include trouble tickets and work request forms (see Part 6). Document inputs usually include trunk orders, translation change

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notices, service observing rearrangement orders, etc. Document inputs will also include work requests initiated by field maintenance supervisors.

**5.09** Procedures for handling work inputs generally involve the initiation of trouble tickets on trouble referrals, initiating work requests for other types of work, initiating various log entries for tracking work progress, pricing work (establishing an estimated work time and priority), the referral or assignment (loading) of work items to SCC work stations or central office forces, or filing of work items for eventual loading to particular force groups. Handling work inputs also includes the close out or return of work items to their originators.

**5.10** Finally, the administration of preventive maintenance work is also viewed as being part of handling work inputs. Procedures for centrally administering preventive maintenance work that are compatible with a centralized force management operation will be presented in more detail below. If the SCC has responsibility for main frame operations, the administration of frame work orders will also be part of handling work inputs. Part 7 of this plan, containing the Frame Force Management Plan, provides procedures for centrally administering and loading this work.

### Forecasted Work Load Visibility

**5.11** An important function of the SCC is to define future known work loads, in terms of hours, on a daily basis. This knowledge is necessary in order to effectively plan for proper load and force balance for the future. Final guidelines are not yet available in this area of administration. The present situation of development is stated in paragraph 5.43, which explains the monthly work request summary.

### Pricing Work

**5.12** To ensure maximum productivity and to meet required due dates, the centralized force management function must be able to estimate the required work time (price) for items that it loads and establish their priority. Initial work time estimates and priorities for jobs that will be regularly loaded and/or dispatched by the SCC must be established by the SCC and field supervisors. Once work times are established, regular adjustments should be made to them by the SCC based upon the results of time studies and historical data

provided by on-going activity as recorded on the load and work time record (Form E-6843).

**5.13** On some work items, such as trunk orders, the number of units per job will vary. The cost of the first unit will be higher than the remaining units due to paper processing, setup time, etc. In these cases, pricing will be more efficient if one price is established for the first unit and a second price for additional units.

**5.14** Figure 5.1 is an example of a pricing chart for trunk order work. The hours shown are not intended to be all-inclusive or precise estimates of time for any particular operation but rather are examples which may be further expanded or tailored to a specific operation.

**5.15** Work time requirements for preventive maintenance jobs (ETL routines) are established and adjusted as recommended in the CMP. Records for these routines contain cost figures for both test and repair time. It is essential that estimated work times be regularly reviewed and adjusted to more nearly reflect actual work times. When ETL work is loaded, it should be priced based upon the average of combined test and repair times for that particular job.

**5.16** A work pricing chart, Form E-6833 (Fig. 5.1), can be used to record pricing data for other work items. The priced unit column is provided to identify the appropriate unit of work for which the estimate is being made, eg, per trunk, per ticket, per jumper, etc. The time-per-unit column is for the estimated work time required for one unit of this type. The lead days column is provided for due-dated work and is used to establish the number of days before the desired completion date that an item should be started. The start-date calculation should include some allowance for unexpected delays.

### Maintaining Work Files

**5.17** Another important operation associated with a centralized force management function is the maintenance of work files. These files must organize work items that have been assigned to particular craftspeople or work items that are still pending. These files are used in the SCC as a structural means of assembling work items for daily loading to central office and, where possible, SCC work forces. These files and procedures for

administering them are described in paragraphs 5.30-5.31.

### Loading

**5.18** The major objective of centralized force management is the timely and complete daily loading of all central office forces, as well as SCC forces where possible. It is vital that the term "loading" is understood. A load is a distinctly defined series of work items or activities that will take a full work day to accomplish. A work load is issued to each individual daily for that day. Experience has demonstrated that the opportunity exists for planning or scheduling most field maintenance work, and a large portion of work done at the SCC at least one day in advance. This plan, therefore, provides procedures for doing just that. However, since experience has also shown that a number of demand jobs requiring action as soon as possible also arise, procedures are provided for loading this type of work as well. Where these procedures have been applied to properly match the workload to work force, considerable economies have resulted.

**5.19** In general, an efficient loading operation cannot be attained unless the following conditions exist:

- (a) All feasible work inputs are processed by the SCC.
- (b) All feasible work items are priced to determine amounts of time and effort involved.
- (c) Start dates are established on due-dated work, or portions of that work, to facilitate loading.
- (d) All work is stored in the loading files described herein or in a similar type of filing system.

### Measuring Force Performance

**5.20** Another important function made possible by centralized force management is the measurement of force performance. This has proven to be an essential part of properly controlling the switching maintenance force and, therefore, of effective management of a maintenance operation. Previously, managers have, for the lack of other methods, relied on work unit per hour results, which are at best misleading and statistically

inaccurate below the district level. Because this plan lays the groundwork for effective management of work, rather than work units, more direct means of measuring force performance are possible.

**5.21** The method of measuring force performance here is a basic comparison of estimated (or expected) work times for assigned tasks with the time actually required for the force to complete them. The tool provided for making a comparison is the weekly force performance report, Form E-6832, shown in Figure 5.2.

**5.22** While the use of the weekly force performance report requires considerable clerical effort, the report can contribute significantly to the overall force management program. It enables SCC managers to efficiently account for the quantity of work performed. By measuring the quantity of work completed, the report (1) provides an indicator of the effectiveness of force management procedures, (2) highlights performance bottlenecks, and (3) leads to more perceptive evaluation of SCC force management and to some extent individual craftspeople.

**Note:** Estimated work times used for loading are based on averages. Actual completion times are expected to vary, depending on circumstances, PARTICULARLY ON CORRECTIVE MAINTENANCE TIMES. Reluctance to work beyond the estimated time allotment may be generated if averages are adhered to as the absolute. Although a trouble found rate to troubles loaded comparison is not yet developed, careful consideration is appropriate in this area.

### Preparing SCC Time Summaries

**5.23** By centralizing the force management responsibilities at the SCC, time report processing and the collection of data for forecasting purposes can also be centralized. The load and work time record, Form E-6843 (Fig. 5.3), provides the basic input information for these functions.

**5.24** The recommended procedure is to use a table of 2-digit work codes provided on the back of the load and work time record. The field forces use these work codes for time reporting in addition to the conventional reporting codes such as 47R, 47M, etc. Write-in entries will be required for estimates, hours charged to other areas, etc. The

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SCC will make the necessary translation from the 2-digit work codes to the proper reporting codes for accounting purposes.

**5.25** From the load and work time record (described in Part 6), the SCC constructs a SCC Daily Time Summary (Fig. 5.4) and the SCC Monthly Time Summary (Figure 5.5). The daily time summary is used to accumulate and translate payroll and labor hour data. The monthly time summary is used to accumulate hours spent on various work codes. Generally, a separate form should be utilized for each SCC or central office work force.

### Preparing SCC Monthly Performance Reports

**5.26** SCC monthly performance tracking procedures are currently under development and will appear in subsequent issues of this practice.

### Maintaining SCC Status Boards

**5.27** The SCC manager and supervisors need up-to-date information regarding work load, office performance, and force disposition to assist them when they must establish or change short term priorities or make effective decisions regarding the disposition and utilization of the available work force to meet changing work loads. In a multiple office operation, the required data are normally located in files, ticket logs, document input logs, and office control records that are located at the SCC and/or work locations. This makes it difficult to obtain the timely, comprehensive picture necessary to effectively manage the job.

**5.28** Therefore, an integral operation to the centralized force management function is the maintenance of SCC status boards by the SCC clerical force. The boards should be large enough to be easily seen throughout the work area of the SCC and of light color to provide good contrast and visibility. The boards should be made of a material that will retain magnetic letters or numerals and can be marked with erasable and semipermanent ink markers to facilitate daily posting.

**5.29** Three status boards are recommended. They are:

- (a) The Personnel Status Board: Used to display the assignment and location of personnel.

- (b) The Office Status Board: Used to display the corrective work load and service performance for the offices controlled by the center.

- (c) The Frame Status Board: Used to display the performance and work load for distributing frames controlled by the center.

Descriptions of these boards and procedures for updating them are provided in paragraphs 5.89 - 5.95.

### C. Recommended Work File System

**5.30** The basic work filing system is illustrated in Figure 5.6 and is described below.

**5.31** Each SCC or central office work group that is being force managed should have the following files:

- (a) **"In Progress" File:** This file should contain a copy of work loads (load and work time record and associated work orders or items) for craft currently assigned to the particular work force. Usually this file can consist of a folder or clip board for each craftsman.

- (b) **"Pending Work" File:** This is a file of all pending work (trouble tickets, work requests, and this month's T&I work list, Form E-6835) for the particular work force. Within the file, work should be ordered by priority: work due today first, that due tomorrow second, that due this week third, and deferrable work last. With the possible exclusion of a very large work force, this file can usually take the form of a single binder or narrow divided folder.

- (c) **"Future Work" File:** In addition to the file for each work force, a "Future Work" file can be established for work items that cannot be assigned to any SCC or central office work force until a specific date. These items should be held by the date on which they can be loaded. This file can usually take the form of a filing cabinet drawer. It should be searched daily for work items that become assignable. These items should be removed and placed in the appropriate pending work file.

**D. Procedures for Handling Telephone Inputs**

**5.32** Incoming telephone calls fit into several general categories. Examples are:

- (a) Trouble reports from the Repair Service Bureau (RSB)
- (b) Trouble reports or requests for corrective action from other sources
- (c) Status or verification requests
- (d) Coordination requests
- (e) Messages to be relayed.

These calls are generated from such sources as:

- (a) Other SCCs and organizations
- (b) Supervisors
- (c) Staff and engineering
- (d) Outside sources.

**5.33** Some requests require immediate action, others need action sometime today, while action on the balance can be deferred until tomorrow or later. The submission of written requests should be encouraged for work not immediately required.

**5.34** A central office log, Form E-5457, or a SCC telephone log, Form E-6831, is a daily log used by the SCC to record details of telephone calls received and subsequent actions. (Either or both forms may be used.) A separate log should be maintained for each central office.

**5.35** Details of all incoming calls are recorded on the selected log when received. Each item should be acted upon and closed out before the end of the day. Figure 5.7 shows typical entries of the central office log and Figure 5.8 shows typical entries on the telephone log. For trouble reports, the following actions should be taken:

- (a) Record the details of the trouble on a trouble ticket.
- (b) Record appropriate details on a central office log or telephone log.

(c) Determine the priority of action required and estimated work times from established pricing charts or other local guidelines. (A priority of action chart should be prepared for guidance in handling inputs.)

(d) Refer or load the work items according to their priority to the appropriate SCC or field maintenance force. Urgent work or that with a high priority will normally be dispatched by telephone while less urgent work can be filed for loading at a later date.

(e) Close out the report with the originator when the SCC or central office employee reports back that the item is complete.

(f) Close out the item on the central office log or telephone log after notifying the originator or after preparing a work document.

**5.36** For other requests for short-term actions, local procedures should be established. These should specify required actions and their priority for most type of requests.

**5.37** After-Hours: The designated SCC forces will receive after-hours telephone inputs. These calls will be from various sources and for various central offices. This force should follow the same procedures as above.

**5.38** Figure 5.9 is a flow chart showing the SCC operation in handling telephone inputs.

**E. Procedures for Handling Document Inputs**

**5.39** Document inputs are usually requests for change work or for work not requiring immediate action. A priority of action chart should be prepared for guidance in handling inputs. Some examples are:

- (a) Trunk orders
- (b) Cable or line transfers
- (c) Network administration trouble reports or studies
- (d) Verification requests
- (e) Miscellaneous work from SCC Work Stations

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(f) Other internally generated work.

**5.40** Originators of requests should be required to submit written rather than telephone requests. This reduces the possibility of misinterpreting the request and enables the SCC to program the work request and provide adequate followup. Telephone requests should be accepted if a written request is impractical.

**5.41** SCC work request, Form E-6838 (Fig. 5.10), is used for recording coordination information, estimated labor hours, work units generated, loading file, work status, completion information, and other details. Attach a form to each document input as it arrives in the SCC.

**5.42** An appropriate work pricing chart should be used for estimating the required hours for common document items such as trunk orders and cable transfers and corrective maintenance work.

**5.43** The SCC Monthly Work Request Summary, Form E-6834 (Fig. 5.11), is provided for recording details of input documents. This form is used to summarize all work request inputs for each central office in the area. The item identification and work request number columns are self-explanatory. For the date and hours column, enter the number of work hours in the left hand side of the column under the date they are to be done. In the right hand side of the column add the work hours for each date on a cumulative basis. Using this procedure, the total number of work hours to be performed on any future date can be determined at a glance. If work hours scheduled for any future date becomes too large, there should be sufficient time to reschedule it.

**5.44** Some examples of document inputs are:

- (a) Trunk orders
- (b) Translation change notices
- (c) Special service orders
- (d) Cable transfers
- (e) Line transfers
- (f) Miscellaneous.

**5.45** As soon as possible after receiving an input document, the SCC will follow the procedures below and in the flow chart provided in Figure 5.12.

- (a) Stamp the date received on the document.
- (b) Attach a SCC work request sheet.

**Note:** Many inputs will require loading more than once. For example, a trunk order adding interoffice trunks must be loaded for the wiring work and also for overall testing.

(c) Enter information for each separate loading step on the work request sheet. This includes the type of work, work code, number of priced units, description of work entries, and estimated work time.

(d) Refer the work to the appropriate SCC work force for coordinating with other force groups if necessary. (A chart should be prepared stating the kind of work requiring coordination and with whom.)

(e) Enter work unit details on the appropriate work unit summaries for all trunk orders.

(f) Enter the latest central office start date or scheduled date/time for each loading step on the form. The latest start date is determined by subtracting the total of the established lead days and estimated labor hours from the scheduled test date or due date. Place the start date on the work request form.

(g) Enter the work request on the monthly work request summary using a separate line for each work request.

(h) File the work request form as follows:

(1) If work on the item has no specified time, place the item directly into the appropriate pending work file.

(2) If the work cannot be assigned until a future date, place the item in the future work file according to the date on which the work can be loaded.

(i) If field work is required, mail the input document with a copy of the work request

sheet to the appropriate field location. (A chart should be prepared stating the kind of work requiring field activity.)

**5.46** After loading, the SCC maintains the daily status of the percentage of completion and time spent for each loading step on the work request. This information will be supplied by the central office employees on the load and work time record.

**5.47** After the work item is completed, post the completion date on the work request. Use the form to record as required:

- (a) Date on which the completion notice was sent
- (b) Date on which the work unit record was updated.

**F. Procedures for Handling Work Inputs from SCC Work Stations**

**5.48** Work inputs from SCC work stations to the dispatcher for loading will generally be requests for corrective maintenance in individual EM offices (documented with a trouble ticket) or requests for testing assistance which might be delivered verbally.

**5.49** The procedure for handling trouble tickets is as follows:

- (a) Determine the priority and estimated work time from the appropriate pricing chart if not already priced.
- (b) Assign the ticket to the appropriate work force as follows:
  - (1) If the ticket has a sufficiently high priority, it should be dispatched immediately to the central office. This can be accomplished by telephoning the central office force and reading the trouble ticket information to the field craft. The field maintenance craftsperson should record the trouble details on a memo ticket. The original ticket should be placed with the remainder of the craft load in the in progress file.
  - (2) If the trouble ticket has a lower priority, it can be filed in the appropriate pending

work file. From there it can be dispatched later in the day by telephone as above or loaded for the next day.

**Note:** Procedures for loading work are discussed in more detail later in this section.

(c) When the work on the trouble has been completed and required completion details acquired from the field craft, the ticket should be returned to the originating SCC work station.

**5.50** Requests for testing or other short term assistance should be passed along to the appropriate craftsperson commensurate with the priority of the work in which that craftsperson is engaged.

**G. Procedures for Administering Preventive Maintenance Work**

**5.51** ETLs and schedules for ETL work should be maintained and administered by the SCC in accordance with the Controlled Maintenance Plan (CMP).

**5.52** Revisions to ETL work orders, schedules, and estimated work times are done by the SCC. These changes are made from:

- (a) Inventory changes caused by central office equipment additions or removals. These data are supplied to the SCC by the field supervisors.
- (b) Trunk or facility type orders which add or delete circuits that are tested by ETL. These data are obtained from work requests (Form E-6838) for completed work.
- (c) On-going data supplied by completed T&I work orders (Form E-5452, shown in Fig. 5.13).

**5.53** Form E-6835, the monthly T&I work list (Fig. 5.14), is provided to show the status of T&I work orders as the month progresses and to facilitate the loading of this type of work. The form is prepared as follows.

- (a) Prepare the form at least one month early to allow completion ahead of schedule if the force is available. This does not mean the force

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is to be loaded for a month in advance; they are to be given their load one day at a time.

- (b) Enter the job numbers for the month from the ETL work schedule.
- (c) Using Form E-6835 as a guide, pull the master T&I work order forms and reproduce the required work copies.
- (d) Enter the type of work code, class/frequency, and any required priority on Form E-6835.
- (e) If a coordinated work effort is needed, enter this information in the "Remarks" column.
- (f) Enter the estimated work time (price) from past T&I summaries.
- (g) Entries in the "Loaded Date/To" column will be made when the T&I order is loaded.
- (h) Actual time is entered when the T&I work order has been completed.

**5.54** Form E-6835 is placed in the Pending Work file and is used during the work loading procedure. The individual T&I work orders (E-5452) requiring central work should be mailed to and filed in the central office. Routines done at the SCC should be filed at the SCC.

**5.55** It is helpful to show special requirements such as coordination requirements and test sets on the master T&I work list. Loading of T&I work orders is described in 5.70.

**5.56** Those central offices that are served by Central Office Maintenance Management System-Preventive Maintenance (COMMS-PM), a mechanized preventive maintenance administration system, will be administered by the rules of that system and will not be required to maintain duplicate manual records. The use of the work file system for the monthly T&I work list, Form E-6835, remains the same.

**5.57** It is recommended that T&I work orders be structured in increments of 8 hours or less to expedite loading and increase control.

**5.58** When trouble test (TT) or special T&I work orders are required, enter the information

on the monthly T&I worklist (Form E-6835), and handle as described in the previous paragraphs.

### H. Procedures For Handling Central Office Equipment (COE) Jobs

**5.59** The SCC receives all COE schedules, cost estimates, and job specifications for WECO jobs in the area. The SCC is responsible for record updating and reporting requirements.

**5.60** A COE schedule is kept in the SCC and copies of applicable pages are sent to the field supervisor involved. Cost estimates and job specifications are logged in the SCC and immediately forwarded to the involved field supervisor.

**5.61** An abeyance file is maintained in the SCC to ensure that the following actions are taken:

- (a) The field supervisor and/or the second-level manager will make a preliminary job analysis and central office labor hour estimate based on the COE schedule. This analysis and labor hour estimate should be used by the SCC to update the SCC forecast and then placed in the abeyance file.

- (b) If temporary force additions are estimated to be required, contingency plans should be made.

- (c) If permanent force additions are required, necessary requisitions should be prepared at the appropriate time.

- (d) Any training requirements resulting from the COE job should be forecasted at this time.

**5.62** The central office labor hour estimates for upcoming jobs should be reviewed each time an updated COE schedule or other pertinent engineering document is received.

**5.63** After a WECO job start, the cutover supervisor or field supervisor must continually coordinate with the WECO job supervisor to determine exactly when and how much observation and testing will be required. The cutover supervisor or field supervisor will use Form E-6838, SCC work request, to inform the SCC as soon as the requirement is known. The SCC will treat the

WECO observation and testing activity as scheduled work for loading purposes.

**5.64** As equipment is accepted from WECO, the field supervisor will inform the SCC of the required ETL and work unit updates. The SCC will update the ETL and work schedule and prepare the appropriate work unit forms. The SCC will forward the work unit forms per local instructions.

**5.65** The SCC will forward inventories of assignable equipment to the plant assignment office (PAO) at the time that the equipment is accepted from WECO.

**5.66** Major projects requiring a project team may be handled by using SCC procedures and coordinating related work with other SCCs to the extent that it is feasible.

## I. Loading Procedures

### General Procedures

**5.67** The basic goal of centralized force management is to plan all or as much of the work as possible for both SCC and field maintenance craftspeople. The responsible SCC force will assemble in advance all work items that each craftsman is expected to complete during the next full shift. Each item is listed on a load and work time record (see Part 6). A copy of the load and work time record and all supporting documents are sent to the field via company mail. Unless instructed otherwise, the craftspeople should address the work items in the order shown on their load and work time record, reporting work progress and work time at set intervals to the dispatcher. The SCC force will update the load and work time record at the SCC for time reporting purposes. While the SCC can change the work load if conditions dictate, the objective is to minimize interruptions.

**5.68** Before tomorrow's load can be assigned, the SCC must know the status of today's loaded work. (Items not completed from today's load will normally be reloaded before new work items are assigned.) To accomplish this, the SCC must obtain a report of work that is incomplete. Ideally, this information should be gathered as late in the day as possible but soon enough to prepare tomorrow's work load.

**5.69** From the SCC copy of the load and work time record, status is posted on the work requests. Work requests are handled as follows:

- (a) Forms for completed items are closed out.
- (b) Forms for multiple-loaded items having one or more loading steps remaining are placed in the pending work file for the next loading step.
- (c) Forms for other uncompleted work items are held for reloading. However, any scheduled work that was not completed may require rescheduling with other SCCs or work forces before reloading is possible. Any uncompleted due-date work should be reviewed for possible escalation to the SCC manager.

**5.70** The specific actions required to construct craft work loads are as follows:

- (a) Enter heading information on a load and work time record for each employee scheduled to work tomorrow.
  - (b) For each trick having a demand estimate, enter TRIK in the "Type Work" column for line 1 and the total demand estimated hours in the "Hour Estimate" column (extreme right on form). This information is available on the SCC loading guide. Preparation of the loading guide is covered in Part 6.
- Note:** Steps (a) and (b) should be completed early in the day.
- (c) At loading time for tomorrow's work, place the load and work time records prepared in steps (a) and (b) across the loading table desk.
  - (d) Match the current day's copies of load and work time records (with status as defined in 5.31) with tomorrow's copies. This allows reloading any uncompleted work items from today's load and work time records to those for tomorrow. Work requests and/or copies of the items that are to be reloaded should be removed from the in-progress work file and associated with the loading record of the trick to which they will be assigned.

- (e) Pull tomorrow's work items from the pending work file. Using the loading guide, associate

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each work item with the load and work time record of the preferred trick for the type work code. If sufficient time is not available on the preferred trick, use lower preference tricks. If lower preference tricks are not available from the loading guide, contact the supervisor for assistance.

(f) Use the current month's monthly test and inspection work list, Form E-6835, to determine which T&I work orders to load. In those cases when some of next month's T&I work orders can be done ahead of schedule, the T&I work orders with the longest interval should be selected for completion first. This permits the more critical short-interval T&I work orders to remain at their prescribed intervals.

(g) The SCC supervisor should review the work loads for reasonableness at this stage of the loading process and make any necessary adjustments.

(h) Enter the work items for tomorrow on each load and work time request in the following sequence:

- (1) Trouble tickets with a priority 1
- (2) Work requests due tomorrow
- (3) T&I work due tomorrow
- (4) Trouble tickets with priority 2
- (5) Work requests due within a few days
- (6) T&I work due this week
- (7) Other trouble tickets
- (8) Other work requests
- (9) Other T&I work.

(i) As each item is entered, post the estimated time in the extreme right column on the load and work time record. Enter the loaded date and trick to whom assigned on work request forms. Place these in the in-progress file. Enter the loaded date of T&I work items on the SCC monthly T&I work list. Return the form to the in-progress file.

(j) Separate the load and work time record copies. Place the top copy in the in-progress file. Send the second copy to the field supervisor, and the card stock and the associated work items to the central office employee.

**5.71** If the daily mail run or other forms of delivery from the SCC to a central office are not adequate, loading can be done by telephone. In this case blank load and work time records should be sent to the central office at the beginning of the month in order that the central office employees will have them available when the load is telephoned to the central office. Similarly, it may be desirable at some locations to have short-interval transfers mailed directly from the PAO to the central office, with a copy sent to the SCC for estimating and loading. Other items will be sent from the SCC to the central office consistent with mail time and work start time.

**5.72** While the SCC should generally assign work according to established priorities, occasions may arise where variation may increase field craft efficiencies. For example, it may be more productive to assign a lower priority ETL at the same time as a higher priority ETL if they involve the same equipment, the same test gear, or possibly involve similar testing procedures. The same holds for equipment repairs and rearrangements and change work. By distributing T&I work orders to remote locations on a monthly basis, field forces who are dispatched on an urgent trouble condition at these locations can be loaded with additional work items for the remainder of the trick.

### **Procedures for Demand Work**

**5.73** While most central office and SCC work can be assigned using the above procedures, a number of demand jobs requiring immediate action will arise. These include customers out-of-service, major equipment outages, and certain nondeferrable requests for assistance. Because of the usual urgency required by demand work, the SCC dispatch force must deal with it as rapidly as possible. The following procedures should be followed.

(a) The most available craftsperson should be selected. This will usually be the person who is working on the lowest priority work in a given work force or the person with dedicated Trick time for demand work (see Part 6). It

will on occasion be necessary to move a craftsperson to an unattended office or work area.

(b) The selected craftsperson should be contacted by telephone and given the details of the job to be done. The craftsperson should be told to contact the SCC when the job has been completed.

(c) Appropriate entries should be made on that person's load and work time record to identify the job, accounting code information, and estimated work time for the job. The work item and load and work time record should be returned to the in-progress file.

(d) When the craftsperson reports that the job is complete, entries on the load and work time record should be closed and the work item closed with or returned to its originator.

#### J. Force Performance Objectives

5.74 Each work force is capable of performing at a given percent efficiency. How well the jobs are priced and how efficiently each employee performs the work are the determining factors. Well thought-out, reasonable objectives should be established and agreed upon at least through the district level of management. (See Note in paragraph 5.22.)

#### K. Preparation and Use of SCC Time Summaries

5.75 The SCC uses the following forms for processing time data:

- (a) Load and work time record (described in Part 6)
- (b) SCC daily time summary (Fig. 5.4)
- (c) SCC monthly time summary (Fig. 5.5).

#### SCC Daily Time Summary

5.76 The SCC daily time summary is used to accumulate and translate payroll and labor hour data. The load and work time record is the source for completing the daily summary form. To ensure that there are no delays in completing the daily summary, certain data from completed load and work time records must reach the SCC as soon as possible. One means of minimizing

delays is to telephone this information to the SCC, preferably to a recorder. When this method is used, relay the information from each load and work time record in the following sequence:

- (a) Employee name
- (b) Actual start time
- (c) Actual end time
- (d) Actual hours worked
- (e) Account code, Work code, and hours from the summary line; ie, Acct code 47R, Work code 31 (XBAR Trick Assignment), 1/2 hr.

All completed load and work time records will be forwarded to the SCC for posting completion notices and other reports.

5.77 Where the information is not telephoned to the SCC, the SCC will transcribe the information directly from the load and work time record.

5.78 If not on a mechanized time reporting procedure, a manual count of hour accumulations, by report codes, should be kept.

#### Use of SCC Daily Time Summary (E-6839)

5.79 A separate SCC daily time summary is prepared for each central office work force or field supervisor's group. Each form should be preposted with the following entries:

- (a) Work force
- (b) Office (building or exchange)
- (c) Names of employees (normally assigned to that work force)
- (d) Most frequently used work codes, grouped under reporting codes applicable to that work force.

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**5.80** Other entries on the form are made from completed load and work time records or from recorded telephone calls as follows:

- (a) Enter the actual shift start time, shift end time, and total hours worked by each employee in the work force.
- (b) Post the hours (to the closest quarter hour unit) to each work code on the right side of the form.
- (c) Label right hand columns for undistributed hours, time charged to estimates, etc, and make time entries as appropriate.
- (d) Total each column and enter on the column totals line.
- (e) Total work codes by reporting code.

### Use of SCC Monthly Time Summary (E-6840)

**5.81** If not on a mechanized time reporting procedure, a manual count of hour accumulations, by report codes and subwork codes, should be kept. A separate form should be utilized for each central office work force. The following items should be preentered on the form for each central office:

- (a) Work force
- (b) Office (building or exchange)
- (c) The most frequently used reporting codes and subwork codes applicable to that work force.

**5.82** Post the daily work code entries from the daily summary form. Post all other hours, such as undistributed time, C & X time, overtime, unpaid absence, and hours charged to reporting codes not covered by work codes. Each column must be subtotaled weekly and at the end of the month.

### L. Preparation and Use of the Weekly Force Performance Report (E-6832)

**5.83** Preparation of the Weekly Force Performance Report requires a clerical effort to accumulate estimated and actual work times for work items listed on load and work time records for measured craftspeople. Results of each work group are

summarized weekly. Figure 5.2 is an example of a completed report. Initial entries required on the report include the identity of the force group, the dates for the period covered, and the identity of each employee to be measured in that force group. The information required for the completion of the report are the estimated work time and actual work time data from each craftsperson's load and work time record. Results for the previous day's records should be accumulated by the following steps:

- (a) Total the estimated work time for all completed tasks. Normally completed tasks should include those marked with a C, NTF, F, or REF in the disposition code column corresponding to the task. If an item does not have an established estimated work time, the actual work time can be used as the estimated time to provide credit for a completed task.
- (b) Next, the total estimated work time should be entered on the report in the column marked EST HOURS for estimated hours.
- (c) Enter the total number of actual hours that the craftsperson has worked in the ACT HOURS column. Work times should be entered in quarter hour increments. Be sure to include overtime and call-out hours.

**5.84** When a complete weeks' data has been accumulated, the ACT HOURS and EST HOURS columns for each craftsperson should be totaled and the percent efficiency is calculated by dividing the total number of EST HOURS by that of ACT HOURS and multiplying by 100. The percent efficiency for the total work force is entered in the ACTUAL space. The percent efficiency objective as established by the SCC manager is entered in the OBJECTIVE space on the form.

### Interpretation and Use of Force Performance Results

**5.85** To utilize the results of the force performance report effectively, SCC managers must work together with their supervisors to develop programs that will both correct cases of substandard performance and recognize superior performance. In developing such programs, managers and supervisors should keep in mind that this particular report measures only the quantity of work being completed, that quality must also be evaluated, that certain SCC

jobs may not be measured, and that today's results may not be at all indicative of obtainable performance levels. Also important is that good performance or, for that matter, poor performance does not mean that jobs are being assigned and completed in the right order.

**5.86** In all cases, programs should be directed at improvement of performance over the long run. Such programs should have two primary objectives. First, they should seek to accurately identify and effectively deal with the real causes of performance problems, and secondly, they should serve to inform employees of management's interest and concern regarding their individual performance. Low performance can be a result of a variety of causes:

- (a) Incorrect pricing chart
- (b) Excessive personnel
- (c) An inexperienced work force
- (d) Inadequate supervision of work activity
- (e) An inexperienced supervisor
- (f) Personal problems.

**5.87** A frank discussion of the circumstances between the SCC manager and the supervisor and, in turn, between the supervisor and employees involved to properly identify the cause of any problem is an important prerequisite to any remedial action. Of equal importance is that the review of performance results be made a part of established supervisory and craft evaluation programs. Along with providing a proper work environment, training, tools, and supervision, it is essential for SCC managers (and their representatives) to instill in every employee a recognition of the importance or their contribution in relationship to the overall goals of the SCC.

#### **M. Preparation and Use of the SCC Monthly Performance Report**

**5.88** SCC monthly performance tracking procedures are currently under development and will appear in subsequent issues of this practice.

#### **N. Updating SCC Status Boards**

##### **Personnel Status Board**

**5.89** The *personnel status board* is used to display the location of vehicles and the availability, location, and job assignments of personnel in the work forces controlled by the SCC. A format that can be used for this board is illustrated in Figure 5.15.

**5.90** In Figure 5.15, space has been provided in the upper left-hand corner of the board for the name and telephone number of the duty supervisor. The remainder of the top horizontal line is used to display the work locations to which personnel may be assigned and the various categories of unavailable time to which they may be assigned; ie, scheduled off, school, vacation time, etc. The left-most column is used to display the names of personnel and the identity of vehicles. Magnetic letters, numerals, or markers are used to identify the truck to which individuals are assigned. By placing these markers at the appropriate intersection of horizontal and vertical lines, the work location and job assignment of each member of the force can be quickly determined.

##### **Office Status Board**

**5.91** The *office status board* is used to display the outstanding corrective maintenance work load, central office service results plan components, and unusual conditions that reflect the demand maintenance work load for the offices served by the SCC. There are many ways to arrange a status board. Fig. 5.16 is one example of an office status board.

**5.92** The No. 5XB status board (Fig. 5.16) is organized in a grid system in which horizontal lines are used to identify marker groups, and vertical columns are used to identify the type of data being displayed. The top grid in the left-hand column is used to identify the date on which the board was updated. Columns have been provided to identify the NNX codes served by each office, the measured components of the No. 5XB NSPMP, and to identify items of equipment or trunking that are out of service. The remarks area is used to identify abnormal conditions or unusual events that could affect maintenance efforts; eg, WECO activity, cable failures etc.

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**5.93** Items should be posted on this board in a manner that clearly identifies those areas requiring special attention. For example, index components which are below objective level can be posted in red while satisfactory results could be posted in black.

### **Frame Status Board**

**5.94** The *frame status board* (Fig. 5.17) can be used to display performance and load information for locations using the frame administration plan. Space has been provided to show individual frame performance as indicated by the percentage of efficiency for the previous month, the previous week, and the current percentage of order discrepancy.

Today's work load is indicated by columns that show the number of hours required for service order activity, the efficiency figure used to reach this estimate, the total number of available frame force hours, and the time available for loadable work (such as trunk order or cut sheet preparation) or time usable for force loans to work locations. The remarks space is used to indicate special activities such as force loans or important events that effect the operation.

**5.95** The management team should consider the need for additional status board information pertaining to items such as trunk order activity or toll operations in order that they can visualize the total work load picture affecting their operation.

E-6833  
(9/76)

SCC WORK PRICING CHART									
OFFICE/WORK FORCE: <u>CARLTON</u>					EFFECTIVE DATE: <u>SEPT. '76</u>				
	TYPE OF ACTIVITY	PRICED UNIT	TIME/UNIT	LEAD DAYS		TYPE ACTIVITY	PRICED UNIT	TIME/UNIT	LEAD DAYS
	<b>FRAME</b>					<b>EQUIPMENT</b>			
1	TRUNK, ADD, WITHOUT E6				26	TRUNK, ADD, WITHOUT E6 1WAY OUT	TRUNK	3/4	5
2	1 WAY OUT	TRUNK	3/4	5	27	TRUNK, ADD, WITH E6, 1WAY OUT	TRUNK	1	5
3	TRUNK, ADD, WITH E6 1WAY OUT	TRUNK	1	5	28	TRUNK, ADD, WITHOUT E6 2WAY	TRUNK	1	5
4	TRUNK, ADD, WITHOUT E6 2WAY	TRUNK	3/4	5	29	TRUNK, ADD, WITH E6 2WAY	TRUNK	1 1/4	5
5	TRUNK, ADD, WITH E6 2WAY	TRUNK	1	5	30	TRUNK, ADD, 1WAY IN	TRUNK	1	5
6	TRUNK, ADD 1WAY IN	TRUNK	3/4	5	31	TRUNK, PRETEST 1WAY OUT	TRUNK	1/2	WEQ
7					32	2 WAY	TRUNK	3/4	WEQ
8					33	1WAY IN	TRUNK	1/2	WEQ
9					34	TRANSMISSION TESTING 1WAY OUT	TRUNK	1/4	SCHED
10					35	2WAY	TRUNK	1/2	SCHED
11					36	1WAY IN	TRUNK	1/4	SCHED
12	TRUNK, REMOVE 1WAY OUT	TRUNK	1/4		37	TRUNK, REMOVE 1WAY OUT	TRUNK	1/2	
13	TRUNK, REMOVE 1WAY IN & 2WAY		1/4	SCHED	38	TRUNK, REMOVE 1WAY IN & 2WAY	TRUNK	1/2	SCHED
14	TRANSFERS, SUBCABLE, ADVANCE	ITEM	4 MIN.	2	39				
15	TRANSFERS, SUBCABLE, CUTTING	ITEM	5 MIN.	SCHED	40				
16	TRANSFERS, TRK CABLE, ADVANCE	TRUNK	1/2	5	41				
17	TRANSFERS, TRK CABLE, CUTTING	TRUNK	1/4	SCHED	42	TRANSFERS, TRUNK CABLE, CONTROL & TEST	TRUNK	1/2	SCHED
18					43				
19					44				
20					45				
21					46				
22					47				
23					48				
24					49				
25					50				

Fig. 5.1—SCC Work Pricing Chart (E-6833) for Trunk Order Work

SCC WEEKLY FORCE PERFORMANCE REPORT

E-6832(9/76)

FORCE ALPHA  
FROM 10/4/76 TO 10/10/76

DATE	EMPLOYEE HOURS WORKED	MERRILL		LYNCH		FENNER		EST. HOURS	ACT. HOURS												
		EST. HOURS	ACT. HOURS	EST. HOURS	ACT. HOURS	EST. HOURS	ACT. HOURS														
10/4	MONDAY	5 1/2	8	7 1/2	8	7 1/2	8														
10/5	TUESDAY	5 1/2	8	7 1/2	8	7 1/2	8														
10/6	WEDNESDAY	5 1/2	8	7 1/2	7 1/2	6	8														
10/7	THURSDAY	5 1/2	8	7 1/2	7 3/4	7 1/2	8														
10/8	FRIDAY	5 1/2	7 1/2	7 1/2	8	7 1/2	8														
10/9	SATURDAY																				
10/10	SUNDAY																				
	TOTAL	27 1/2	39 1/2	37 1/2	38 1/4	36	40														
% EFFICIENCY = (EST HRS ÷ ACT HRS) × 100		70%		98%		90%														ACTUAL	OBJECTIVE
																			84%	93%	

TOTAL FORCE

FORCE FROM \_\_\_\_\_ TO \_\_\_\_\_

DATE	EMPLOYEE HOURS WORKED	EST. HOURS	ACT. HOURS																		
																				MONDAY	
TUESDAY																					
WEDNESDAY																					
THURSDAY																					
FRIDAY																					
SATURDAY																					
SUNDAY																					
	TOTAL																				
% EFFICIENCY = (EST HRS ÷ ACT HRS) × 100																				ACTUAL	OBJECTIVE

TOTAL FORCE

Fig. 5.2—SCC Weekly Force Performance Report (E-6832)

**LOAD AND WORK TIME RECORD**

OFFICE CARLTON #510 EMPL J. JONES TRICK D3 DATE 10-1-76  
 SHIFT: START \_\_\_\_\_ END \_\_\_\_\_ HRS. WORKED \_\_\_\_\_ APPROVAL \_\_\_\_\_

TYPE WORK	ITEM IDENT.	START TIME	END TIME	TIME	WORK CODE	DISP. CODE	OFFICE	EST. R.O. REMARKS	EST. TIME
1	TRIK								
2	DEQ L1-533	1100			37		Employer	CALL CENTER	
3	TRTN	77			43				
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
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24									
25									
26									
27									
28									
29									
30									
31									
32									

: : : : : : : :

WORK CODE	EXCH ESS	EXCH SXS	=1 & =S X BAR	TRUNK TEST	EXCH CKT EQ	TOLL CKT EQ					DISPOSITION CODE
TRICK ASSGT	11	21	31	41	51	61	71	81	91		CORR MTC
CORR MTC	12	22	32	42	52	62	72	82	92		F - FOUND
PREV MTC	13	23	33	43	53	63	73	83	93		NTF - NO TBL
SO USSO-FRAME	14	24	34	44	54	64	74	84	94		FOUND
SO USSO-EQUIP	15	25	35	45	55	65	75	85	95		MB - MADE BUSY
TRK FAC ORDER-FRAME	16	26	36	46	56	66	76	86	96		REF - REFERRED
TRK FAC ORDER-EQUIP.	17	27	37	47	57	67	77	87	97		X -
FAC XFER	18	28	38	48	58	68	78	88	98		Y - SPEC STUDY
TRAVEL	19	29	39	49	59	69	79	89	99		Z - LOCAL USE
	10	20	30	40	50	60	70	80	90		

E-6843 (9-76)

← **BACK**

Fig. 5.3—SCC Load and Work Time Record (E-6843)

SCC DAILY TIME SUMMARY

E-6839(9/76)

WORK FORCE ALPHA

OFFICE BETA

DATE 10-6-76

REF	NAME OF EMPLOYEE	GO CODE	HOURS					REMARKS	47R		47M		603-04		17R		17M		47R	
			START TIME	END TIME	HOURS WORKED	CITY ALLW	SUPR MONY		WORK-CODE											
1	BRIGHT, B.T.		1800	1700	8			31	33	34	36					61		66		
2	HUGHES, H.		0730	1630	8			1/2		6	1					3/4		1/2		
3	MASSON, E.T.		1600	2400	8			6 3/4		1 1/2										
4	MORRIS, N.M.		0800	1700	8		SCHOOL												8	
5	SCHUSTER, P.L.		0800	1730	9 1/2			3 1/2		5										
6																				
7																				
8																				
9																				
10																				
11																				
12																				
								COLUMN TOTALS	18		24 1/2	1				3/4		1/2		8

REF	NAME OF EMPLOYEE	GO CODE	HOURS					REMARKS	WORK-CODE		WORK-CODE									
			START TIME	END TIME	HOURS WORKED	CITY ALLW	SUPR MONY		WORK-CODE											
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
								COLUMN TOTALS												

Fig. 5.4—SCC Daily Time Summary (E-6839)

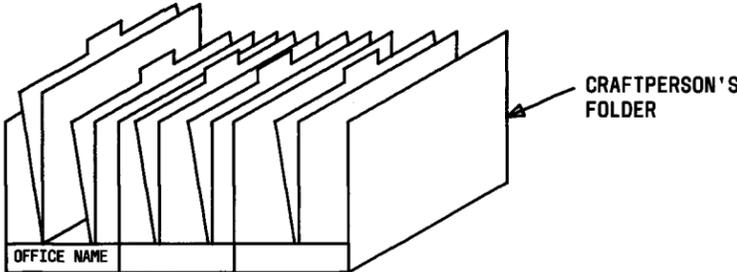
SCC MONTHLY TIME SUMMARY

WORK FORCE AND OFFICE BETA

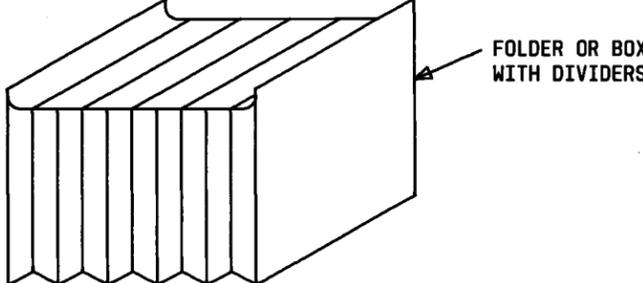
PERIOD OCT. '76 PAGE 1 OF 1

DATE	REPORT CODE 47 R			REPORT CODE 47 M			REPORT CODE 603-04			REPORT CODE 17 R			REPORT CODE 17 M				
	WORK CODES			WORK CODES			WORK CODES			WORK CODES			WORK CODES				
	31	32	33	34	36							61			66		
1	17		6	14	1 1/2							1			1		
2																	
3																	
4	16		2	8	10	2 1/2						1			1		
5	14		3 1/2	8	13	1						1					
6	18			8	12 1/2	1						3/4			1/2		
7	15 1/2		2 1/2	8	11	2 1/2						3/4			1/2		
CUM	80 1/2		14	32	60 1/2	8 1/2						4 1/2			3		
8																	
9																	
10																	
11																	
12																	
13																	
14																	
CUM																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
CUM																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
CUM																	
29																	
CUM																	
29																	
30																	
31																	
MONTHLY TOTAL																	

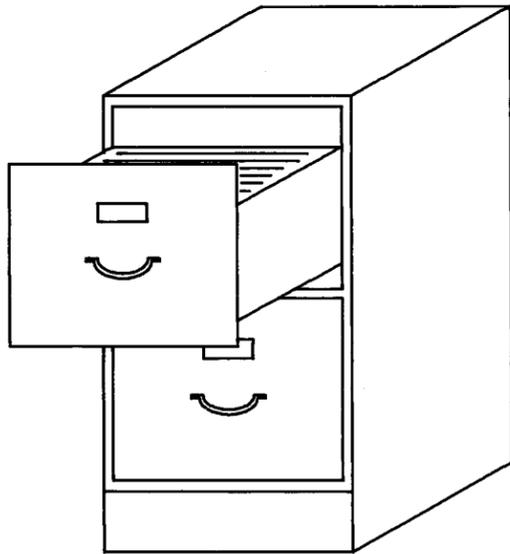
Fig. 5.5—SCC Monthly Time Summary (E-6840)



"IN PROGRESS" FILE



"PENDING WORK" FILE



"FUTURE WORK" FILE

Fig. 5.6—Work File System



SCC TELEPHONE LOG

E-6831  
(9/76)

WORK FORCE/OFFICE CARLTON

TICKET NUM.	REPT. CLASS	TEL. NUM., TRUNK OR ITEM REPORTED	LINE OR TRUNK EQUIPMENT	ASSOC. EQ/ CA & PR.	RECEIVED FROM	BY	TIME	DISPATCH TO/ WHERE	DISP. TIME	CLRD. TIME	CLRD. DATE	TO
1	J	222-3105	6-147		DSA ANAL	JBB	0834	MW	0840	0910	9/8	DR
DETAILS NO RING					CALL BACK NUM/LOC.			ACTION REPLACED CUT JUMPER VIDF C-137				
2	A	2-9566	41-104		LTD 19	WA	0900	LL	0903	0920	9/8	LTD REC
DETAILS DIALS 344-2106					CALL BACK NUM/LOC.			ACTION 394 #162A REL ADJ				
3	A	2-3468	16-116	80-438 E63032	LTD BD	MA	0955	MW	0957	1020	9/8	LTD REC
DETAILS NDT					CALL BACK NUM/LOC.			ACTION Snagged wiper conn 2 2-34 BD				
4	Memo				265	MA	1150	43 LTD	1200	-	-	
DETAILS Manhole water alarm #42 in and out					CALL BACK NUM/LOC.			ACTION ---				
5	J	369-34			ATCO 74	CB	1430	MW	1435	1445	9/8	74
DETAILS Reversal-released and holding					CALL BACK NUM/LOC.			ACTION No loop on 369-34 TOK				
6	A	6-5803	132-13		LTD BP	MA	1440	MW	1445	1520	9/8	LTD REC
DETAILS No ring-No busy					CALL BACK NUM/LOC.			ACTION Open sleeve jumper at mult on IDF				
DETAILS					CALL BACK NUM/LOC.			ACTION				

DATE SEPT. 8, 1976

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Fig. 5.8—SCC Telephone Log (E-6831)

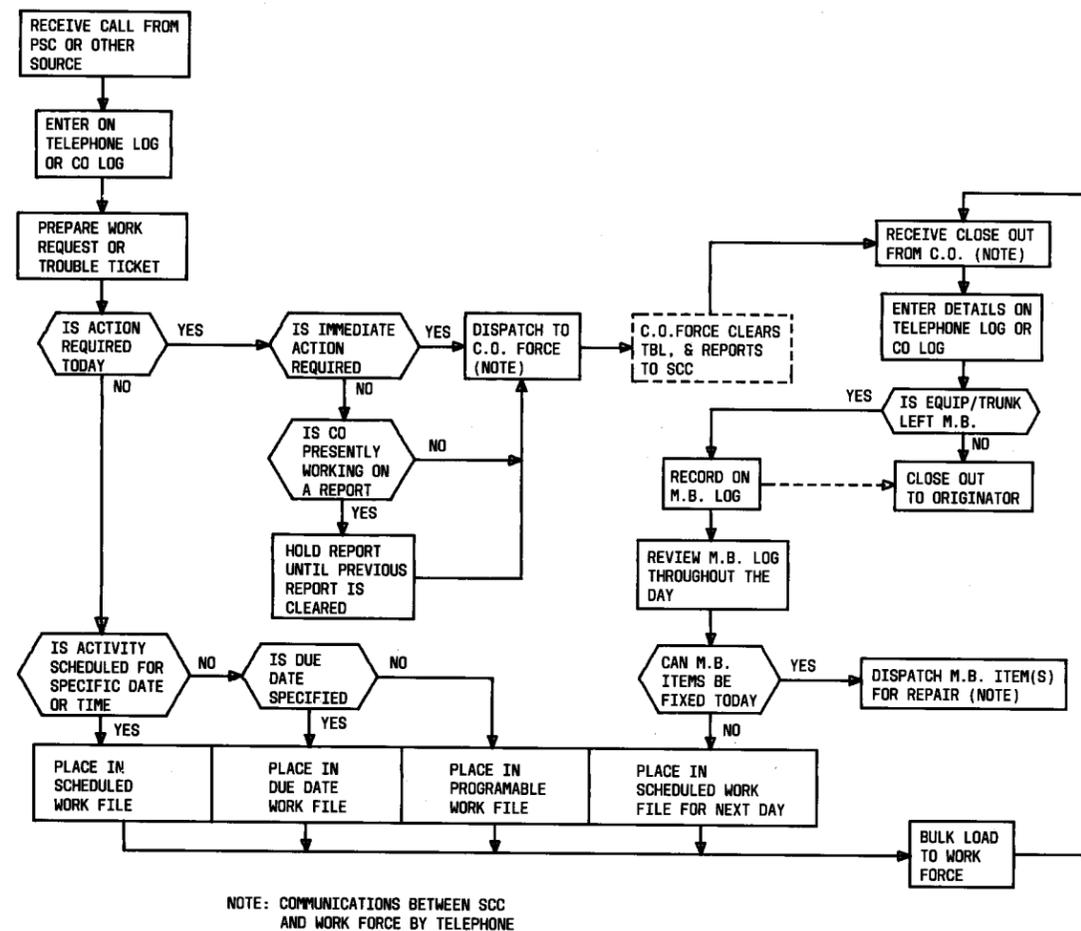


Fig. 5.9—Telephone Input Flow Chart

SCC WORK REQUEST

Work Force ALPHA Requested By RSB Date 10-6-76

Shift Preference (if any) D3 Estimated Hours 1 1/2, 2, 1 1/2

Earliest Start Date 11-4

Latest Start Date 11-15

Due Date 11-20

Est./Ord. No. 09-158 Area No. \_\_\_\_\_ Acct. Code \_\_\_\_\_

Description: Add two 2-way trunks to 4A1

Work Item	Estimated Work Time	Latest Start	Completion Required
TOFR	1 1/2	10-17	10-22
TOEQ	2	10-17	10-22
TOEQ	1 1/2	11-15	11-20

DATE	ITEM	EMPLOYEE	HOURS CHARGED	COMPLETION DATE
11-4	TOFR	R. J.	3/4	10-6
11-4	TOEQ	P. R.	2 1/4	10-6
11-4	TOEQ	H. J.	2 1/2	11-4

Return To:  Originator  File

Fig. 5.10—SCC Work Request (E-6838)



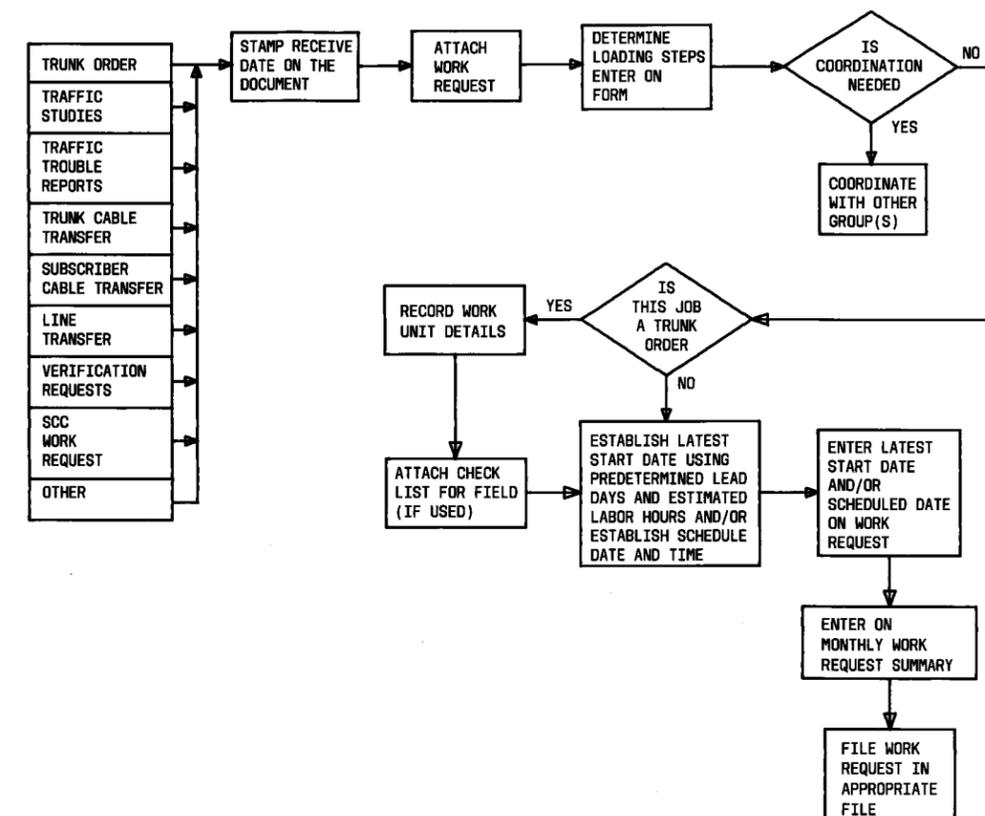


Fig. 5.12—Document Input Flow Chart



SCC MONTHLY T&I WORK LIST

WORK FORCE CARLTON

MONTH & YEAR OCT. 1976

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JOB NO.	TYPE WORK CODE	CLASS FREQ.	PRIOR	LOADED DATE/TO	EST TIME	ACTUAL TIME	COMPLETED DATE/BY	REMARKS
3	ERTN	MW3	2	10-6 CD	1 1/2	1	10-6 CD	
4		MW24	4		12			
9		MW6	3		4			
15		MW6	3		6			
16		MW12	3		10			
17	↓	MW12	3		10		10-6 CD	
32	TRTN	MW3	2	10-12 DB	3		10-12 DB	
33		MW3	2	10-12 DB	1			
34		MW3	2		4			
51	↓	MW3	2		8		10-12 DB	
70	PRTN	MW1	1	10-8 DB	1/4 WEEK (1 HR)	1/4 - 1/2	10-8 DB	
71		MW1	1	10-8 DB	1/2	3/4		
72		MW3	2	10-8 DB	2	2		
73		MW3	2		1			
74		MW12	2		6			
75	↓	MW12	3		5			
95	CRTN	MW12	3		2			
96	↓	MW12	3		2			
110	TRTN	MW12	3		4			REQUIRES COORD.
111		MW12	3		4			REQUIRES COORD.
112	↓	MW12	3		3		10-8 DB	REQUIRES COORD.
137	FRTN	MW12	3		8		10-8 CD	
138	↓	MW3	2	10-8 WM	2 1/2	3		
TOTAL PER PERIOD					106 1/2			

Fig. 5.14—SCC Monthly T&I Work List (E-6835)



DATE MARKER GROUP	NNX CODES	OUT OF SERVICE								LAST MONTH INDEX	INDEX COMPONENTS											REMARK
		COMP MKRS	DT MKRS	OUT SDRS	INC REGS	ORIG REGS	AMA	TRUNK	OTH		DTS	STUCK SDR	MKR 2TF	TRAN 2TF	CFF CFL	LINK RLS	IML	EQUIP IREG	AMA RCDR	CODE 5 EQUIP FRAME		
UPTOWN 00	555	0	0	3	1	1	0	6	1	95.79	97.00	87.00	96.50	98.00	97.50	91.50	100.00	95.50	NA	97.50	95.00	
DOWN TOWN 01	666	0	1	0	2	0	0	2	0	98.00	99.5	97.00	98.5	98.00	99.00	99.5	100.00	94.00	97.00	98.00	91.5	

Fig. 5.16—SCC Office Status Board

LOCATION	EFFICIENCY PERFORMANCE			TODAY'S LOAD				CODE 5s	REMARKS
	LAST MONTH	LAST WEEK	PERCENT DISCREPANCY	LOADING EFFICIENCY RATE	SERVICE ORDER HOURS	TOTAL AVAILABLE HOURS	LOADABLE HOURS		
BELL	52%	55%	21%	64%	47	64	9	6	B. SMITH LOANED TO NORTH
MAIN	54%	62%	18%	66%	22	24	2	3	
NORTH	55%	49%	24%	64%	38	32	0	3	50 LINE PBX CUT 5 <sup>30</sup> P 7-1-77

Fig. 5.17—SCC Frame Status Board

## PART 6

## 6. GENERAL ADMINISTRATIVE PROCEDURES

## A. General

6.01 This section describes several general administrative procedures that may be used by both SCC and field forces. These functions are:

- (a) Preparation of trick assignments
- (b) Preparation of SCC work request
- (c) Use of the SCC load and work time record
- (d) Administration of corrective maintenance.

## B. Preparation of Trick Assignments

6.02 This part provides first-level supervisors with techniques to organize the jobs of craft employees in a force group to obtain maximum productivity. Figure 6.1 illustrates the procedures described in this section.

6.03 Terminology used in this part is defined as follows:

- (a) **Trick:** Identifies shift hours and an area of responsibility for assignment to a craft employee; eg, "Trick DI" would identify the 0700-1600 employee assigned specific maintenance tasks.
- (b) **Trick Assignment Hours:** An estimate of the time required for daily repetitive tasks for a specific trick.
- (c) **Corrective Maintenance Hours:** An estimate of the time required for corrective maintenance (trouble tickets) for a specific trick.
- (d) **Service Order Hours:** An estimate of the time required for service order work for a specific trick.
- (e) **Total Demand Estimate:** The total of trick assignment hours, corrective maintenance hours, and service order hours for a specific trick. The difference between the basic shift hours and the total demand estimate is the

time available for loading other work to that trick.

(f) **Work Assignment Preference:** A table showing preferences for various types of work.

(g) **Type Work:** An alpha coding of specific work operations. The glossary contains a list of suggested types of work codes.

**Work Assignment List**

6.04 Specific job functions and responsibilities for each functional craft job in the SCC organization must be listed. This list may further delineate distinctions between work that the SCC will normally load and that which the craft should complete on their own trick assignments. Form E-5848 may be used for this purpose. This form is prepared by each supervisor for his subordinates and distributed as follows:

- SCC—one copy
- Supervisor's file—one copy
- Posted in central office—one copy.

Examples of work assignment lists for a No. 5XB office are in Part 3.

6.05 The following method is used by the field supervisor in preparing the work assignment list, Form E-5848, for each trick in the work force.

- (a) List all daily repetitive tasks to be performed in the central office. Examples are:
  - (1) Respond to central office alarms
  - (2) Answer telephone
  - (3) Scan alarm remoting terminals
  - (4) Operate power plants.
- (b) Estimate the minimum time required for each of the listed tasks.
- (c) List the daily items, from (a) above, on work assignment lists, Form E-5848, in a

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manner which minimizes the number of tricks assigned these tasks. Demand work must be concentrated in as few trick assignments as possible to avoid interruptions to those doing work such as trunk orders and preventive maintenance. The supervisor must carefully select demand work items for the most productive trick assignments. Related tasks should be assigned on the same Form E-5848.

- (d) Total the minimum times required for each trick assignment's daily tasks for each day of the week.
- (e) Designate each completed Form E-5848 with a trick assignment code: eg, D1 (day shift, job number 1), E2 (evening shift, job number 2), F1 (frame job number 1), etc.
- (f) Enter on each Form E-5848 the designation of the work force, the shift hours, and the meal hours.

### SCC Loading Guide

**6.06** The SCC loading guide is prepared by each supervisor whose craft employees will be subject to these force management procedures. The information on the form prescribes the trick (shift and person) that will be loaded any given work item by the SCC. These forms are necessary only where the supervisor wishes to restrict the types of work assigned to different trick assignments. Form E-6836 may be used for the loading guide. The form is distributed as follows:

- SCC—one copy
- SCC manager—one copy
- Supervisor's file—one copy.

Figure 6.2 is an example of a completed Form E-6836 for a No. 5XB office.

**6.07** The form is prepared as follows:

- (a) Post the estimates of trick assignment hours for each trick, determined in 6.05(d), in the lower portion of Form E-6836.
- (b) In the type work column, list the type of work codes for corrective maintenance work in the central office.

(c) For each type of work code, determine the preferred trick(s) for assignment of the work operation. Enter the trick designation in the work assignment preference column(s). In most cases, it is best to assign corrective maintenance work to tricks with daily repetitive tasks rather than to tricks assigned longer duration jobs such as trunk orders or preventive maintenance. This method of assignment concentrates the short-duration work which can be interrupted to the least number of tricks.

- (d) Estimate the average time required by each trick for corrective maintenance work for each day of the week. Post these estimates in the lower portion of the form.
- (e) In the type work column, list the type of work codes for work in the central office.
- (f) In the trick preference columns, enter the trick designations preferred.
- (g) Estimate the corrective maintenance time required in each trick for each day of the week. Post these estimates in the lower portion of the form.
- (h) Total the trick assignment hours and corrective maintenance hours for each trick and day of the week in the total demand estimate columns of the form.

**Note:** All estimates should be reviewed to ensure that they are reasonable and that they are based on low daily averages.

- (i) List the remaining type of work codes applicable to the work force in the type work column and enter the trick designations preferred for these work items.

**6.08** It is usually not necessary to enter more than two or three trick codes under trick preference for one type of work code. As far as possible, limit items such as made busy equipment and trunks, and routines which can be interrupted to those tricks having trick assignments and demand duties. This will concentrate long duration work items into tricks that will not be interrupted. The SCC will enter the applicable work codes on the SCC loading guide so they can be entered on the central office work logs as work is loaded.

### SCC Work Schedule

- 6.09 The supervisor will prepare a work schedule and send a copy to the SCC before it is posted in the central office. Figure 6.3 is an illustration of a completed SCC work schedule, Form E-6837.
- 6.10 Under the column labeled "Reg. Shift", insert the trick designation; ie, D1, D3, E1, etc.
- 6.11 Tricks having a demand hours estimate must be covered each day in scheduling. If an employee with a demand trick assignment has a scheduled day off, the uncovered demand trick hours must be assigned to another employee.

**Note: All schedule changes must be coordinated with the SCC to ensure accurate loading of work items and payroll reporting.**

- 6.12 When unexpected absences of craft employees occur, reassignment of work loads may be necessary. Any preloaded demand or scheduled work assignments will be reassigned to other employees by the SCC supervisor and the field supervisor. Other work items must also be reviewed for possible reloading.

### Reviewing Trick Assignments

- 6.13 The SCC will load the central office work force with demand hours and specific work items in strict accordance with the work schedule and the loading guide. If the loading guide does not allow all work items to be loaded by the required dates, or if other questions in loading arise, the SCC administrative unit will contact the field supervisor to resolve the problem.
- 6.14 The efficiency of the central office work force depends on how well this procedure is followed. Concentrating the maximum number of people, **consistent with demand work requirements**, on items such as trunk order and preventive maintenance is a major key to this efficiency. Another key is the review of the load and the completed work on the central office work logs daily to see how well the loading process is working. Tricks should be restructured whenever it appears that the demand work estimate can be reduced to allow more time for loaded time.

Changes in the work assignment list and the loading guide improve efficiency considerably.

- 6.15 Periodic meetings must be held by the SCC manager with the field supervisors and the SCC supervisor(s) to review completed trick assignments for possible job structure improvements.

### C. Preparation of SCC Work Request

- 6.16 The SCC work request, Form E-6838 (Fig. 6.4), is used by the field and SCC supervisors as a written request for work to be loaded by the SCC. Typical requests are:

- (a) Pressure cleaning of dirt in the central office
- (b) Equipment installation job observations and equipment acceptance testing.

- 6.17 From the SCC work request, the SCC will prepare the appropriate document for loading the work.

- 6.18 When preparing the work request, it is essential to estimate labor hours as accurately as possible and to state a reasonable loading priority. The assignment of work should be to a trick preference rather than to an individual.

### D. Use of SCC Load and Work Time Record

#### General

- 6.19 The load and work time record is a combination load sheet, work completion report, and source document for reporting time and work codes for all central office work forces. Form E-6843 is a load and work time record form that can be used for this as follows:

- (a) The SCC preloads (lists) the work for each craft employee on a load and work time record.
- (b) Each craft employee receives a load and work time record daily. The craft employee chronologically lists the shift activities, identifies the type of work, and enters the amount of time spent on each activity.
- (c) The SCC prepares payroll reports and time summaries from the load and work time

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record returned by the craft employees at the end of each shift.

**Description of the Load and Work Time Record**

**6.20** Figure 6.5 is an example of a preloaded SCC load and work time record, front and back. The description of the form is as follows:

- (a) **Office:** Office designation or supervisor's name.
- (b) **Empl:** Employee's name.
- (c) **Trick:** Trick assignment designation.
- (d) **Date:** Date on which the central office employee performs the work.
- (e) **Shift Start:** The actual time the central office employee started the shift.
- (f) **End:** The actual time the central office employee ended the shift.

**Note:** All time entries are made according to the 24-hour clock.

- (g) **Hrs. Worked:** Total hours worked on the shift.
- (h) **Approval:** Initiated by the field supervisor after review.
- (i) **Type Work:** An alpha coding of assignments to work operations. The glossary section of this plan contains a list of suggested types of work codes.
- (j) **Item Ident:** An alpha/numeric identification of the work performed. The item identification is used to distinguish work assignments or operations; eg, trunk order number, T&I work order number, etc. It is also used by the central office employee to refer back to a specific line number for preloaded work or when an interrupted work item is started again.
- (k) **Start Time:** Used by the SCC to specify when a scheduled or coordinated work assignment must begin. Used by the central office employee to indicate the actual time that an assignment or work operation began.

(l) **End Time:** The actual time the central office employee stopped or completed the assignment or work operation. The end time is always the start time for the next work item.

(m) **Time:** The elapsed time between the start and end time.

(n) **Work Code:** A designation of work activity used for accounting and forecasting purposes. Work codes are listed on the matrix on the back of the load and work time record. The central office employee uses these in place of the conventional 47R, 47M, etc, account codes. When the matrix codes do not apply, the conventional accounting code may be entered in this column if it is known.

(o) **Disp. Code:** The status of the work operation performed by the central office employee. For corrective maintenance, the codes are:

- (1) **F:** Found trouble
- (2) **NTF:** No trouble found
- (3) **MB:** Equipment or trunk left busy
- (4) **T:** Call traced
- (5) **Ref:** Referred to other groups
- (6) **X, Y, or Z:** Special studies.

For preventive maintenance, orders (trunk or transfer, etc), and other activity the codes are:

- (7) **C:** When the item is completed
- (8) **XX%:** The central office employee's estimate of the percentage of the work completed on a work item at the end of the shift.

(p) **Est., RO, Remarks:** Used to record identification numbers for estimates and routine orders associated with a work item. This column is also used for clarifying remarks that will assist in identifying coding a work assignment. Examples are:

- (1) Working With EI: Enter the estimate number

(2) **Tagging Cables:** Enter the RO or EST number

(3) **When in Doubt About a Work Code:** Enter a brief description of the work

(4) **For Unusual Situations:** Enter a brief description of the situation including any problems encountered.

(q) The undesignated line on the front side at the bottom of the load and work time record is used by the central office employee to summarize the total time spent for each of the work codes used during the shift. For example, the left side of each box is used for entering the work code, 32: ; the right side is used for entering the total hours spent during the shift on this work code, 32:2-1/2

This summary line is used by the SCC for the preparation of payroll and time summary reports.

**6.21** When preloading the load and work time record, the SCC enters the necessary information for dispatching work items to the central office employees. Figure 6.5 illustrates an example of this information. The SCC will list the work assignments in the following order:

(a) **TRIK:** Work designated on Form E-5848, work assignment list, for that particular trick assignment. The work listed on Form E-5848 is performed by the assigned central office employee throughout the shift.

(b) **Scheduled Assignments:** Work that must be started by the central office employee at the time specified in the start time column.

(c) **Other Work:** Work items entered in the order that the central office employee must start them.

**Note:** The scheduled work is listed ahead of other nontrick work to highlight all scheduled assignments.

**6.22** The SCC will attach work documents such as trunk orders, T&I work orders, etc, to the hard copy of the load and work time record. The hard copy and the attached documents are delivered to the central office employee at the beginning of the shift.

### **Craft Employee Use of Preloaded Load and Work Time Record**

**6.23** Figure 6.6 illustrates a partially completed load and work time record used by a central office employee during the shift. Explanation of the entries made by the central office employee as the shift progresses are as follows:

(a) Shift start time (24-hour clock [top of form]).

(b) The central office employee's first work operation is entered on the first blank line after the preloaded work items (line 4).

(c) Line referrals are used in the "Item Ident" column where appropriate for each work operation rather than reentering type work and item identification each time.

(d) Nonscheduled work is interrupted to complete scheduled work (lines 7 and 8).

(e) Meal shows no elapsed time when the time used is not part of the work shift (line 9).

(f) Each end time is the start time for the next line.

(g) Disposition codes are entered for appropriate items (lines 4, 10, 11, 13).

(h) Remarks are entered to clarify specific tasks (lines 4, 5, 6, 12, 14).

**6.24** Figure 6.7 illustrates the additional entries made on the load and work time record by the central office employee at the end of the shift. These are:

(a) Actual shift end time (top of form)

(b) Actual hours worked during the shift (top of form)

(c) Summation of work codes used and time total for each work code on the summary line (bottom line of form).

### **Field Supervisor Review of Completed Load and Work Time Record**

**6.25** At the end of the shift, if the supervisor is accessible the craft employee submits the

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completed load and work time record, work documents completed, and closed-out trouble tickets to his supervisor. The supervisor will review the completed form to verify that:

- (a) The actual shift start and end times are entered.
- (b) The hours worked are entered.
- (c) The start and end time for each work item is entered and that the ***time is reasonable for the specific activity.***
- (d) The entries are chronological.
- (e) There is no grouping of time for work items other than service order activity or trick work reported to X1 work code.
- (f) All X2 work code entries have ticket numbers entered in the item identification column.
- (g) All trouble ticket entries have a disposition code and that other work activities, except trick items, have a disposition code on the entry for each specific activity.
- (h) Work codes are accurate.

After review, the field supervisor initials the approval space at the top of the load and work time record and forwards the completed form, trouble tickets, and T&I work orders to the SCC according to local instructions. Other documents will be filed in the central office according to local instructions.

### **E. Central Office Corrective Maintenance Administrative Procedures**

**6.26** Corrective action inputs may be received by the central office work force from four sources:

- (a) Internal indicators (alarms, test frames, etc)
- (b) Verbal communication from the SCC
- (c) Load and work time records from the SCC
- (d) After-hours trouble calls.

These inputs are all acted upon by the central office work force. The methods of operation vary slightly for each action input.

### **Internal Indicators**

**6.27** Internal indicators are audible or visual indications of a trouble condition in the central office. Some of the common indicators are:

- (a) Maintenance teletypewriter
- (b) Audible alarms
- (c) Visual alarms.

**6.28** One or more employees may have trick assignments that include responding to internal indicators, preparing trouble tickets as required by the controlled maintenance plan (CMP), and taking corrective action. If the trouble cannot be corrected within a reasonable time, a make busy operation may be made.

**6.29** The central office employee must call the SCC to advise if the equipment and/or trunk has been made busy. All necessary details should be passed to the SCC. If equipment or trunks were left made busy, a decision will be made by the SCC whether the central office employee will repair the equipment and/or trunk immediately or later as follows:

(a) ***Immediately:*** If the SCC determines that an equipment or trunk out-of-service condition to be imminently detrimental to good service, it will direct the central office employee to effect immediate repairs.

(b) ***Later:*** The SCC will direct the central office employee to another assignment and will place the information on the appropriate outage logs. The central office employee will be directed to place the ticket in the central office make busy file. Repair of these made busy items will be assigned as follows:

- (1) By work assignment lists
- (2) By telephone from the SCC later that day
- (3) By load and work time record as a scheduled assignment for the next work day.

**6.30** All tickets that have been received for corrective action should be filled out completely. The central office employee must record each activity associated with a trouble ticket on the load and work time record.

**6.31** At the end of the shift the field supervisor will:

- (a) Review all trouble tickets for completeness, accuracy and legibility, as well as for consistency of report to actual trouble found.
- (b) Verify the load and work time record against the trouble tickets for accuracy in reporting type of work, ticket number, time, work code, and disposition.
- (c) Forward the tickets to the SCC.

#### Telephone Inputs to the Central Office

**6.32** During the hours that the SCC is in operation, most telephone calls to the central office will be from the SCC. These calls will be directed to predetermined central office employees who will perform the necessary work operations. Most of the calls to the central office will be for immediate corrective action. They are handled as follows:

- (a) From the SCC loading guide, the SCC selects the proper central office employee for the assignment. The central office employee is given the following information:
  - (1) The trouble report
  - (2) The assigned trouble ticket number
  - (3) The trouble ticket class
  - (4) All other required details.
- (b) Then the central office employee:
  - (1) Fills out a trouble ticket
  - (2) Performs the necessary corrective action
  - (3) Reports status to the SCC, including equipment and/or trunk make busy information

(4) Closes out or files the trouble ticket as directed by the SCC

(5) Records the activity on the load and work time record.

#### Load and Work Time Record

**6.33** Corrective work assigned on the load and work time record normally will be on previously made busy equipment and/or trunks or as a result of pattern analysis. The following action will be taken:

- (a) The central office employee will perform any corrective work indicated on the load and work time record per the attached trouble ticket or from the ticket in the central office make busy file (indicated as TMBT or TMBE on the load and work time record).
- (b) When the corrective work is completed, the central office employee will complete the trouble ticket, record the necessary details on the load and work time record, and report completions to the SCC by telephone.

#### After-Hours Trouble Reports

**6.34** Certain central office employees in specific predesignated central offices will receive telephone inputs after hours when the SCC is not active. These reports may be handled at the location or relayed to other central offices. These responsibilities are preassigned as a part of the central office employee's normal after-hours duties and include the following:

- (a) Receive incoming calls.
- (b) Record all details on an after-hours SCC telephone log.

**Note:** The telephone number of the location originating the call will be entered on the telephone log for future reference.

- (c) Call the involved office for action (if it is not on-site), using established telephone numbers for these calls.
- (d) Relay all details of the report or request to the central office employee in attendance at

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the called central office, including the telephone number of the originator.

(e) The central office employee in the involved office will:

- (1) Prepare a trouble ticket
- (2) Perform the corrective work and restore the equipment and/or trunk to service

(3) Report action taken to the originator.

**6.35** The field supervisor must arrange to notify the SCC of all after-hours activity, including any make busy equipment or trunk information at the beginning of the next working day.

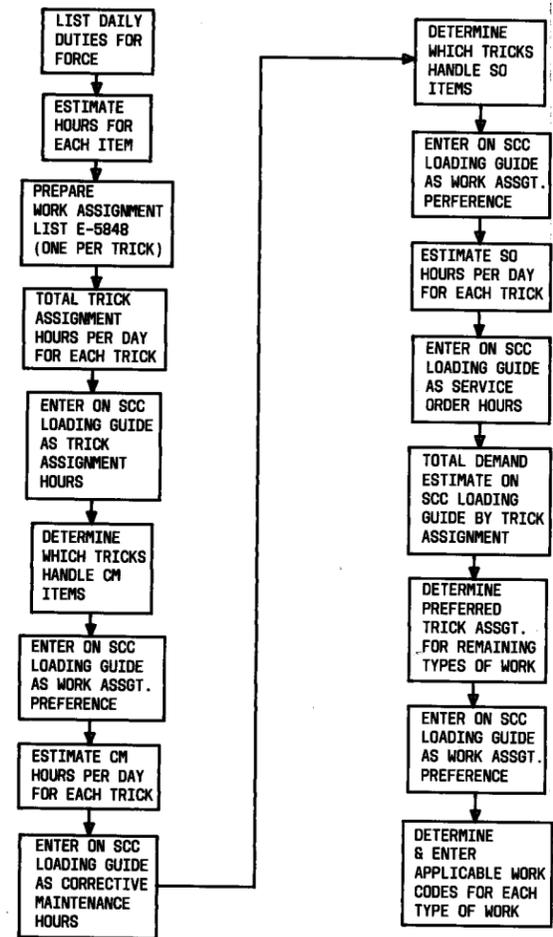


Fig. 6.1—Trick Assignment Procedure



PERIOD AUG. 29 - OCT. 4, 1976

POSTED TIME 2 PM  
DATE 8-18-76

SCC WORK SCHEDULE  
(SUNDAY TO SATURDAY WORKWEEK)

LOCATION CARLTON  
FORCE CENTRAL OFFICE

NAME	Date Reg Shift	29 30 31 1 2 3 4							Date Reg Shift	5 6 7 8 9 10 11							Date Reg Shift	12 13 14 15 16 17 18							Date Reg Shift	19 20 21 22 23 24 25							Date Reg Shift	26 27 28 29 30 1 2							Date Reg Shift	3 4	
		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.		Sun.	Mon.								
1 MASSON, E. T.	D1	0						0	D1	0	APX					0	D4	0						0	D4	0					0	D4	0	V	V	V	V	V	0	D4	0		
2 TAYLOR, G. L.	D3	0						0	D3	0	APX					0	D1	0	0					0	D1	0					0	D1	0						0	D1	0		
3 BELL, M. A.	D2	0	0					0	D2	0	APX					0	D2	0						0	D2	0					0	D2	0						0	D2	0		
4 WILLIAMS, S. M.	D4	0	V	V	V	V	V	0	D4	0	(D1)					0	D3	0						0	D3	0					0	D3	0						0	D3	0		
5 HUGHES, H.	D5	0						0	D5	0	APX					0	D5	0						0	D5	0					0	D5	0						0	D5	0		
6 SCHUSTER, P. L.	E2	0						0	E2	0	APX					0	E2	0						0	E2	0					0	E2	0						0	E2	0		
7 MORRIS, W. H.	E1	0						0	E1	0	APX					0	E1	0						0	E1	0					0	E1	0						0	E1	0		
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D = DAY SHIFT  
 E = EVENING SHIFT  
 N = NIGHT SHIFT  
 O = NO WORK SCHEDULED  
 X = CHANGED ENTRY  
 ○ = PREMIUM PAYMENT  
 — = WORK SCHEDULED 8 HRS

NOTES:

Fig. 6.3—SCC Work Schedule (E-6837)

SCC WORK REQUEST

Work Force ALPHA Requested By RSB Date 10-6-76

Shift Preference (if any) D3 Estimated Hours 1 1/2, 2, 1 1/2

Earliest Start Date 11-4

Latest Start Date 11-15

Due Date 11-20

Est./Ord. No. 09-158 Area No. \_\_\_\_\_ Acct. Code \_\_\_\_\_

Description: Add two 2-way trunks to 4A1

Work Item	Estimated Work Time	Latest Start	Completion Required
TDFR	1 1/2	10-17	10-22
TDEQ	2	10-17	10-22
TDEQ	1 1/2	11-15	11-20

DATE	ITEM	EMPLOYEE	HOURS CHARGED	COMPLETION DATE
11-4	TDFR	R. J.	3/4	10-6
11-4	TDEQ	P. R.	2 1/4	10-6
11-4	TDEQ	H. J.	2 1/2	11-4

Return To:  Originator  File

Fig. 6.4—SCC Work Request (E-6838)



E-6843  
(9-76)

**LOAD AND WORK TIME RECORD**

OFFICE CARLTON #5XB EMPL J. JONES TRICK D3 DATE 10-1-76  
 SHIFT: START 0800 END \_\_\_\_\_ HRS. WORKED \_\_\_\_\_ APPROVAL \_\_\_\_\_

TYPE WORK	ITEM IDENT.	START TIME	END TIME	TIME	WORK CODE	DISP. CODE	OFFICE	EST., R.O., REMARKS	EST. TIME
1	TRIK								
2	TDEQ 61-533	1100			37		EMERSON	CALL BENSON AT 345-9977	
3	TATN 77				43				
4	1	0800	0815	1/4	5R	C		AIR VOLUME	
5	1	0815	0900	3/4	31			RECORDS	
6	1	0900	0915	1/4	41			APTT	
7	3	0915	1100	1 3/4	43				
8	2	1100	1200	1	37				
9	MEAL	1200	1300						
10	2	1300	1400	1	37	C			
11	3	1400	1615	2 1/2	43	C			
12	1	1615	1630	1/4	41			APTT	
13	TA 7	1630	1645	1/4	32	F			
14	1	1645	1700	1/4	41			APTT	
15									
16									
17									
18									
19									
20									
	:	:	:	:	:	:	:	:	:

Entries by SCC

Entries by CO Employee

Loaded by SCC

Daily Activities  
Recorded by  
CO Employee

Fig. 6.6—SCC Load and Work Time Record (E-6843)  
(During Shift)



## PART 7

**7. FRAME FORCE ADMINISTRATION****A. General**

**7.01** The procedures in this section are intended to supplement those specified in the frame force management plan (FFMP) available as BSP Section 201-200-010 dated September 1976. The procedures for identifying the offered load, developing expected times for all frame tasks, and assigning the force to match the offered load are fully developed in the FFMP. Emphasis in this section will be in the area of melding this work as part of the total load controlled through the switching control center.

**B. Procedures for Managing Frame Operations**

**7.02** Frame work consists of demand work (customer initiated orders) and programmable work (company initiated orders). Both types of work may be routed to the switching control center where they are loaded to the frame forces based on the procedures outlined in the FFMP. In most cases, however, because of time constraints, service orders will be routed directly to the appropriate frame location. If this is being done, a designated person will call the switching control center, prior to the next working day, with the information on the number of orders received with a due date for the next day. Using this information and adjusting the forecast to allow for zero due date and late received orders, the daily frame forecast (Form E-6619) will be prepared by the switching

control center. To this forecast will be added other scheduled (trunk orders, cable transfers, etc) and programmed work to the extent that the available force permits.

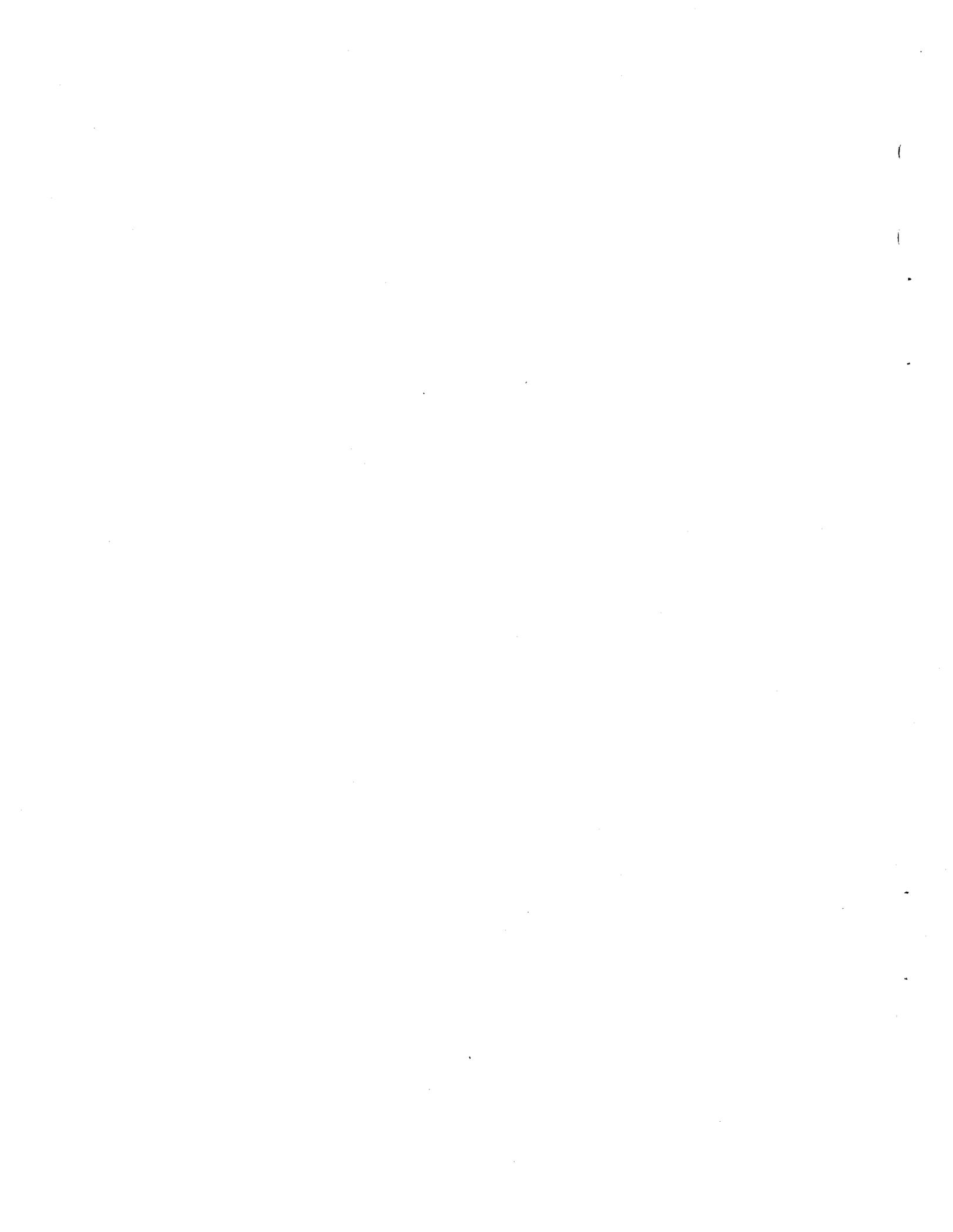
**7.03** The switching control center supervisor is in a position to evaluate the offered loads at each of the frames and adjust the force to meet the overall frame load for a particular day.

**7.04** The frame control center (FCC) functions referred to in paragraph 4 of the FFMP may be performed as part of the switching control center functions where one has been established. A supervisor at the SCC will assume responsibility of this function and the clerical support may be dedicated to all frame activities handled through the switching control center. If all clerical functions for a particular office are being handled by one clerk, that person assumes the responsibilities outlined in the FFMP.

**7.05** In metropolitan areas a multientity frame operation may warrant the establishment of a district FCC which operates in connection with the switching control center to coordinate all frame activity.

**C. Frame Force Management Plan**

**7.06** A copy of the FFMP should be filed in this section for reference to frame procedures as detailed in the plan.



## PART 8

**8. EVALUATION****A. Individual Performance****Management**

**8.01** The establishment of a SCC involves the creation of new work functions and the modification of some traditional central office assignments. The effective evaluation of the management personnel working as part of the SCC is important to the operation of the SCC and to the individual involved.

**8.02** Using the job descriptions presented in Part 3 as a basis, individual objectives can be established between the manager and each subordinate. It is important that the objectives be realistic ones, and that they concern items over which the individual has substantial control. The centralization and overlap of some responsibilities inherent in a SCC can introduce new problems in defining specific accountability. This fact, coupled with the greater interaction of forces, requires both the district and SCC managers to make closer observations of their organization. The centralization of reports and status board information at the SCC provides excellent performance indicators to the SCC manager. More feedback is generated internally in the SCC operation which can serve as an important source of information. The SCC manager should use these tools to closely observe the organization to determine each first-level supervisor's individual contribution to both good and bad results.

**SCC Manager**

**8.03** The SCC manager should be evaluated in two major areas. These are the ability to achieve specific objectives on the traditional measurements like indexes and productivity, and the ability to implement and direct a successful SCC. Because the SCC manager retains control of the activity concerning a group of offices (preventive and corrective maintenance, frames, SCC administration), it is not difficult to assign responsibility to this individual for the performance of a group of central offices. In multientity buildings, the frame activity is sometimes controlled by a separate manager; therefore, responsibility for results in this area may not be included.

**8.04** The SCC manager should establish objectives with the district manager on the implementation and improvement of the SCC. These can include such items as due dates for the establishment of craft teams, installation of operational support systems, or the consolidation of certain first level entities under one supervisor. The district manager should stay posted on the SCC and central office operations by monitoring certain key performance indicators. The investigation of variances from the objectives for these indicators can serve as one input to periodic appraisal sessions with the SCC manager.

**8.05** A list of suggested evaluation items for the manager can include:

- (a) Network Switching Performance Measurement Plan (NSPMP) for the combined central offices
- (b) Trunk Service Results Plan (TSRP) for the combined central offices
- (c) Trunk Transmission Maintenance Index (TTMI) for the combined offices
- (d) Customer Trouble Report Rate as measured on the area E2700 (code 5, 7, 8, total)
- (e) Productivity goals measured by estimated productive hours versus actual productive hours
- (f) First Level Development—evaluated by reviewing the documented objectives and appraisals the manager establishes with each subordinate
- (g) SCC Development—track whether new procedures and hardware are implemented as scheduled
- (h) Overtime—evaluate results in hours/employee/week and also in the effectiveness of the transfer of forces between central offices
- (i) Preventive maintenance backlog measured by estimated routine hours not completed.

**First-Level Supervisors**

**8.06** The evaluation of first-level supervisors by the SCC manager requires greater analysis of results and performance on the manager's part to accurately determine their effectiveness than is normally performed in the non-SCC environment. The team concept must be sold to each supervisor, while at the same time allowing each individual adequate decision-making authority to be able to appraise their performance. Because many of the traditional measurements such as office indexes are affected by more than one supervisor, it is necessary to establish some common objectives with all first-level supervisors. The field supervisors should feel responsible for the office indexes but cannot be held solely accountable for the results.

**8.07** The key to effective evaluation of first-level managers begins with a measurement system to appraise the quality and quantity of work for nonmanagement individuals. This can be used as building blocks to establish group performance standards for each first-level supervisor. Meaningful objectives can then be established to improve the performance of a supervisor's work group or that of a specific individual with respect to norms determined for the manager's area. Performance standards for central office craftspeople are being developed, but it will be some time before they are documented. Any criteria that has been developed in local operating areas can be used in the interim to provide a better means of evaluating how well the first-level supervisor is managing the work force.

**8.08** One recommended method of documenting the objective setting session between the SCC manager and the first-level supervisors is provided in Fig. 8.1 and 8.2. These are examples of the responsibilities and functions on which the SCC and field supervisors could be appraised. Additional items may be added to reflect local conditions, and similar work sheets should be prepared for all other supervisors working as part of the SCC. The purpose of the work sheet is to determine the functions that the supervisor performs and to define the measurement on which job performance will be evaluated. Each function should represent an output oriented work effort over which the supervisor has substantial control. The power to act defines the freedom to control that output that the supervisor is given. Direct control or autonomy is desirable and jobs should

be designed with that concept in mind whenever possible. The manager and supervisor should agree on the power to act for each function and, where shared responsibility exists, both subordinates must agree on their dual role. It is important that all appraisal activity be well documented by the manager. This includes both the objectives for each subordinate and the performance results obtained. When this is done, the year end appraisal becomes much easier to prepare.

**8.09** To help the manager perform the evaluation function, a suggested list of key indicators is provided. Whenever one of these indicators falls below objective levels, the manager should investigate the possible reasons to determine where the problem exists. The results of these investigations, coupled with daily observations and the improved feedback mechanism of the SCC, should provide the manager with specific data on which to help formulate appraisals of the first-level supervisors.

**8.10** A list of key performance indicators follows with possible reasons why results may not be at objective levels.

(a) Index Results—This may include variations from expected results in any components of the major service indicators of central office performance.

(1) Analysis of ATA/TASC output at SCC is not effective because of poor trouble found rate, slow clearance of persistent troubles, etc.

(2) Central office forces are not taking proper response to ATA/TASC reports and/or office alarms.

(3) Effective long term analysis of trouble trends and external reports (EBAC, NOTIS, etc) is not being done and few troubles are being found from this analysis.

(4) Training of craft forces on trouble clearance needs improvement.

(5) Preventive maintenance is not being completed properly.

(b) Missed Due Dates—This area can include requirements for submission of reports, budgets and indexes; completion of trunk and

special service orders; clearance of troubles referred into the SCC.

- (1) Phone call procedures are not correct at the SCC as observed from logs, monitoring of calls, complaints from callers.
  - (2) Loading of work from SCC is causing problems in missed appointments, not enough lead time to central office, poor communication with central office.
  - (3) Reports are not prepared on time due to errors at the SCC or with lack of data required from field or external forces.
  - (4) Coordinated functions of the SCC are not effective in ensuring proper order flow, scheduling and correction of document errors.
- (c) Productivity Results—Measured by ratio of estimated hours to actual hours worked and in specific frame efficiency figures under the Frame Control Plan.
- (1) Pricing procedures at SCC are not effective because of improper use by clerks or because required adjustments have not been made.
  - (2) Loads given to craftspeople are frequently being broken because of poor supervision by the first-level field supervisor or inadequate feedback to the SCC to modify the loads.
  - (3) Craft work habits and training need improvements as seen in work evaluations prepared by the first-level supervisors.
  - (4) Ineffective use of the transfer of craft forces is being made by the SCC supervisor.
  - (5) A high percentage of service order errors is contributing to poor frame efficiency.
  - (6) The trick hours required for one office may be too high when compared to other offices of similar size.
- (d) Feedback—Verbal and written information should flow into the SCC manager from the first-level supervisors and from coordinators in other departments. It is recommended that the manager hold a weekly meeting with the first-level

supervisors to discuss common goals and problems. In addition, informal feedback is received from clerks and craftspeople observed at work.

- (1) Communication between field and SCC supervisors is not effective and results in poor scheduling and loading of work.
- (2) Communication between field craftspeople and those in the SCC is poor and contributes to ineffective trouble clearance and duplication of analysis effort.
- (3) Outside groups can indicate problems with trouble clearance, message handling, due dates of orders, etc.

#### **Craft and Clerical**

**8.11** Nonmanagement evaluations are important to determine the effectiveness of the personnel staffing the SCC and working in the central office. As was mentioned previously, work on developing individual standards has begun. Where possible, the management by objective philosophy used to evaluate management personnel should be carried down to the craft and clerical forces. Each supervisor should determine the long range goals of each employee and use this information to help plan the job assignments for the individual. Personnel and group objectives should be set with the supervisor and each employee should be evaluated with those objectives in mind. Wherever possible, while being consistent with the needs of the business, employees should be given the opportunity to progress as far as their ability and desire warrant.

**8.12** The closer interaction among work groups brought on by the SCC organization requires all supervisors to be sensitive to the efforts toward cooperation that each employee is making. This is particularly important for those individuals working in the SCC and processing work items for the on-site forces. The SCC operation provides each supervisor with the opportunity to feedback information to coordinators about the interaction of craftspeople and clerks. The supervisors should plan craft rotation together in conjunction with the manager. As an example, this would give the opportunity for a member of the PM team to work in the SCC at a period convenient to both supervisors.

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**8.13** The following measurement items are provided as suggestions to help first level supervisors appraise the individuals in their work force.

Evaluation Item	Measurement Criteria
(a) Absence and Safety	(1) Personal absence record.
	(2) Personal safety record.
	(3) Are safety glasses worn when required?
(b) Personal Development	(1) Establish individual goals on a job skill and track with evaluations.
	(2) Does employee work well independently?
	(3) Does employee meet productivity standards as measured by expected work items/day, etc?
(c) Load and Work Time Records	(1) Is record complete and accurate as measured by inspections?
	(2) Establish objectives on "% loaded items completed" and track.

**B. Overall SCC Performance**

**8.14** The establishment of a SCC makes it necessary for the SCC manager and higher level management to have some criteria for evaluating the effectiveness of the organization. Many of the traditional central office review guidelines no longer apply in the manner which they were intended. The manager must determine the overall effectiveness of the organization including central office performance, SCC performance, cost effectiveness, and the effect on people. At a future date, detailed review procedures will be a part of the Network Maintenance Management Plan.

**8.15** There are some basic areas of concern that the SCC manager should periodically review

to help determine the effectiveness of the SCC. Records on the pre-SCC performance of the central offices should be maintained and used for comparison purposes. Answers to the following questions will provide a broad indication of the SCC operating efficiencies.

- (a) What are force levels before and after SCC implementation?
- (b) What are force level forecasts for the next year?
- (c) What percentage of corrective maintenance is being preassigned from the SCC? (This assumes the use of operational support systems.)
- (d) Have trick hours changed since start of SCC?
- (e) Are preventive maintenance routines current?
- (f) Have office index results improved or remained at high levels?
- (g) Has frame productivity improved?
- (h) Are field supervisors doing a better job of training and development?
- (i) Is the SCC effectively coordinating the interaction of other work groups?
- (j) Are operational support systems being used effectively?
- (k) Do unsolved labor problems exist?
- (l) Is SCC related training adequate?
- (m) Is the clerical force performing effectively?
- (n) Is the physical environment of the SCC adequate?
- (o) Are SCC communications functioning adequately?
- (p) Have overtime hours decreased?

## SCC SUPERVISOR

RESPONSIBILITY	FUNCTION	MEASUREMENT	SOURCE	POWER TO ACT
I. Responsible for SCC administration	I. Supervises loading of programmable work	% missed due dates	SCC logs	a. Direct over SCC b. Coordinates with field supervisors
	II. Supervises issuance of reports	a. % missed due dates	Tally from outside groups	Direct
	III. Monitors work load to minimize backlog	hours of backlog/office	SCC work files	Direct
	IV. Supervises telephone answering	wait for answer time	a. Sample by SCC manager b. Complaints from other work groups	Direct
II. Coordinates CO interface	I. Direct force adjustment	"R" & "M" wu/hr for manager's area	E5300	Coordinates with field supervisors with escalation power to Management
III. Responsible for supervision and development of craft and clerical forces at SCC	I. Controls absence and safety	a. % absence b. number of safety meetings	Standard records	Direct
	II. Conducts training	Number of work evaluations	Standard records	Direct
IV. Directs corrective maintenance	I. Supervises surveillance functions at SCC		NSPMP	Shared with field supervisor
	II. Supervises use of CAROT data	% out of limits	TTMI	Shared with T & C supervisor

Fig. 8.1—SCC Supervisor's Responsibilities and Functions

## FIELD SUPERVISOR

RESPONSIBILITY	FUNCTION	MEASUREMENT	SOURCE	POWER TO ACT
I. Direct corrective maintenance activity at CO	I. Supervises troubles clearance	a. Equip outage component of index	NSPMP	Direct
		b. Code 5 equipment	NSPMP	Direct
	II. Supervises PM routines less than 30 days	Number routines backlogged	COMMS	Direct
II. Directs frame activity	I. Supervises frame work	a. Code 5 frame b. Frame efficiency	a. NSPMP component b. Frame control plan	Direct
III. Responsible for supervision and development of CO craft force	I. Controls absence	% absence	Standard records	Direct
	II. Controls safety	Number safety meetings	Documented records	Direct
	III. Conducts training	Number work evaluations	Documented records	Direct
IV. Directs security procedures at CO	I. Ensure building is secure	Number of discrepancies	Review by manager and or staff	Direct
V. Directs craft forces	I. Supervises craft forces	% broken load	SCC stroke record from CO work log	Direct over craft coordinates with SCC supervisor

Fig. 8.2—Field Supervisor's Responsibilities and Functions

## PART 9

## 9. FORECASTING

## A. General

9.01 This section defines the forecasting process and the procedure to be followed in preparing a "bottom-up" view of maintenance hours required for both short (monthly) and long range (annual) projections.

## B. Definition and Purpose of Forecasting

9.02 Force forecasting is defined as the process of determining future force needs based on as many predictable factors as possible, some of which are based on historical data, while others are made on assumptions. Experience and judgement will dictate what additional factors will influence future requirements.

9.03 The purpose of forecasting is to determine in advance the requirement for maintenance hours necessary to do the total job, then to match available resources to those requirements. The forecast is the basis for determining the number of maintenance personnel needed to meet those requirements. If required hours exceed available personnel, early identification can be made as to which aspect of the maintenance job may have to be deferred.

9.04 Predicting future requirements in terms of hours can also identify surplus force, particularly as modernization and improved productivity reduce required maintenance hours. Since the alternatives to reducing the force are limited, it is in the manager's best interest to have advance knowledge so he may pursue those alternatives available to him.

## C. Establishing Objectives

9.05 The objective of all network maintenance managers, regardless of level, is to maintain the designed switching capacity of the equipment at the lowest possible cost. The plant cost results plan provides a measurement of cost intended for large scale operations (district and above) and equates cost into work units per hour. ***The cost objective for the first- and second-level managers however, is in terms of how many hours are necessary, as a minimum,***

***to meet maintenance and growth requirements.***

## D. Collection of Data

9.06 The following forms are provided for the accumulation of actual time charges:

- E-6843, SCC Load and Work Time Record, described in paragraph 6.20
- E-6839, SCC Daily Time Summary, described in paragraph 5.79
- E-6840, SCC Monthly Time Summary, described in paragraph 5.81
- E-6841, SCC Monthly Forecast, described in paragraph 9.08
- E-6842, SCC Annual Forecast, described in paragraph 9.10.

9.07 Fig. 9.1 is a flow chart illustrating the procedures for handling actual time summaries and preparing forecasts.

## E. SCC Monthly Forecast

9.08 The SCC Monthly Forecast, Form E-6841 (Fig. 9.2), is an ***optional*** form that is intended to provide a short range view of maintenance hour requirements for a work force. Each supervisor having productive employees reporting to him would prepare this form in those areas applicable to his operation, ie, SCC, field, or frame. The summary of these forecasts can be used by the SCC manager to provide a close-up view of his force situation and provide additional insight into force requirements in the month ahead.

9.09 Some factors to consider in forecasting force requirements are:

- (a) Historical trends for corrective and preventive maintenance
- (b) Large change jobs
- (c) Large growth jobs
- (d) Seasonal adjustments.

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9.10 The form can be used to forecast weekly hours which can then be compiled for the monthly forecast. Experience gained in making these forecasts and comparing them to the actuals will be beneficial in providing more realistic forecast data on the annual forecast form (E-6842, Fig. 9.3). The sources of estimates and actuals are similar to those for the annual forecasts as illustrated in Fig. 9.4 and 9.5.

### F. SCC Annual Forecast

9.11 The SCC Annual Forecast, Form E-6842 (Fig. 9.3), is to be completed annually for each second-level or SCC manager's group. In addition, it is recommended that each work force in a district be combined into a composite summary for the district. Fig. 9.4 shows the source for each time. The steps for preparation of the forecast are as follows:

#### (a) *Corrective, Change, C&X*

- (1) Lines 1, 2 and 3—Enter estimates of trick assignment and corrective maintenance hours based on the loading guide which **must be current**.
- (2) Lines 4 and 5—The forecast of hours for SO and USSO frame and equipment work is based on trends for the same month in previous years adjusted by any factors that might affect the trend. The factors to be considered are: (1) current frame efficiency rates, (2) planned area transfers, (3) planned centrex activity, (4) information supplied by network administration or other groups.

The forecast should be compared with the installation force management (IFM) forecast which reflects the commercial forecast of main station growth. Any marked differences between these two forecasts should be analyzed and adjusted as necessary.

- (3) Lines 6 and 7—Consult with the network facility and engineering groups to determine the expected amount and scheduling of trunk and facility order activity in relation to the current year. Enter estimates based upon the same month's load for the current year, adjusted by the expected differences.

- (4) Line 8—Consult with the outside plant engineers and construction to determine the amount and scheduling of cable activity which will reduce central office work. Enter these estimates by month.

**Note:** Hours for any large scale frame effort not usually performed, such as area transfers, will require individual forecasting and are added to the hours forecasted in steps (2) through (4).

- (5) Line 9—Enter the estimated travel hours based on the current year.
- (6) Line 10—Enter the estimated other productive hours (hours usually expended for other forces). Some of these items are: (1) reading and recording cable air volume usage, (2) subscriber line testing, (3) verification for other departments. This estimate can be based on the current year's trend.
- (7) Line 11—This line is provided for local use to identify a separate **other productive hour code** if the hours are significant enough to justify separate forecasting.
- (8) Line 12—Total lines 1 through 11.
- (9) Line 13—Enter the estimated C&X hours. The field supervisor or SCC manager must provide these hour estimates as defined in part 5 of this document. The initial establishment of hour requirements and time periods is an estimate. Precise predictions cannot be made until WECO forces begin the job. At that time, it is essential that scheduling and coordination meetings be held to assure that adequate hours are available when needed and are reflected in an updated forecast.
- (10) Line 14—Total of lines 12 and 13.

#### (b) *Force*

- (1) Line 15—Enter the basic number of employees in the work force.
- (2) Line 16—Enter the number of regular hours per employee in the month. (The number of working days in the month, including holidays, times 8.)

- (3) Line 17—Multiply line 15 by line 16 and enter the result on this line.

(c) **Non-Productive**

- (1) Line 18—Enter the estimated vacation and holiday time as a percent of line 17. For an initial annual forecast, the following should be considered: (1) total vacation hours for the existing force, (2) past vacation schedules for historic trend, (3) number of people that can be scheduled at any one time consistent with the demands of the service. Later, when vacation schedules have been completed, forecasted vacation hours become a stable figure.
- (2) Line 19—Enter the estimated paid absence as a percent of line 17 based on the current year.
- (3) Line 20—Enter estimated other undistributed time as a percent of line 17 based on the current year.
- (4) Line 21—Enter estimated unpaid absence as a percent of line 17 based on the current year.
- (5) Line 22—Enter the total of lines 18 through 21.
- (6) Line 23—This line is provided for local use if it is necessary to forecast a particular undistributed code individually.
- (7) Line 24—Enter the result after dividing the product of lines 22 and 17 by 100. Add line 23 if it is used.

(d) **Training Profile**

- (1) Line 25—Enter the result of subtracting line 24 from line 17.
- (2) Line 26—Enter the result of subtracting line 14 from line 25. This estimate of available programmable hours is used to schedule training to best fit the available force and the forecasted load.
- (3) Line 27—Enter the forecasted off-the-job training hours and locally administered, standard, self-paced, on-the-job training hours

from the training forecast. Other on-the-job training hours are considered to be productive hours.

(e) **Preventive**

- (1) Line 28—Enter the difference between line 26 and line 27. This is the estimate of hours available for preventive work. This figure is used to help schedule preventive maintenance to best fit the available work force and the forecasted work load.
- (2) Line 29—Enter all test and inspection hours except trunk testing hours as forecasted from the ETL schedules. These hours must allow for: (1) obtaining and reviewing BSPs, (2) obtaining and setting up test equipment, (3) performing the test, (4) average repair time, (5) recording test results, (6) returning BSPs, test sets, etc, to storage areas.
- (3) Line 30—Enter all test and inspection hours for overall trunk testing as forecasted from the T&I work schedules. The following tests must be included: (1) supervision, (2) noise, (3) transmission level. These hours must include time for the setup of automatic test frames as well as for items listed for line 29.
- (4) Line 31—This line is provided for separate forecasting of a specific type of preventive maintenance, if required.
- (5) Line 32—Enter the total of lines 29 through 31.

(f) **Balance**

- (1) Line 33—Enter the total of lines 14, 24, 27 and 32.
- (2) Line 34—Enter the difference between lines 17 and 33. If line 17 is larger, circle the entry as an indication of excess work force available for loan. If line 33 is larger, it may be necessary to borrow hours from another force group, or expend overtime.
- (3) Line 35—Enter the estimated demand overtime hours required for call-outs.

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(4) Lines 36 through 40—These blank lines are provided for any additional information required.

**Note:** Form E-6842 should be checked for balance after entry of estimates. The total of lines 17 and 34 should equal line 33. (Line 34 is negative if the entry is circled.)

**G. Forecast Adjustments and Revisions**

**9.12** Before final approval of the annual forecast is obtained, current objectives may require adjustment. After final approval of the SCC forecast, adjustments to individual force group forecasts may be necessary. Among the procedures for achieving a balance between available and required hours are:

(a) Shifting of central office employees between work forces

(b) Loading or borrowing of central office employees outside the SCC.

**9.13** If the above methods have not corrected a shortage of hours available, the SCC manager and first-level supervisors must work together to adjust the hours required. This may be accomplished by adjusting or rescheduling hours among periods, (1) rescheduling special projects, or (2) re-examination of forecasted hours to determine if any can be eliminated and objectives can still be met.

**9.14** Comparison of estimates to actuals and analysis of deferred preventive maintenance hours may indicate a need to revise the forecast. Significant changes in anticipated work load, such as special projects or revision of work scheduled by other groups, may also necessitate revision of the forecast. Annual forecasts should be reviewed monthly for possible revision requirements.

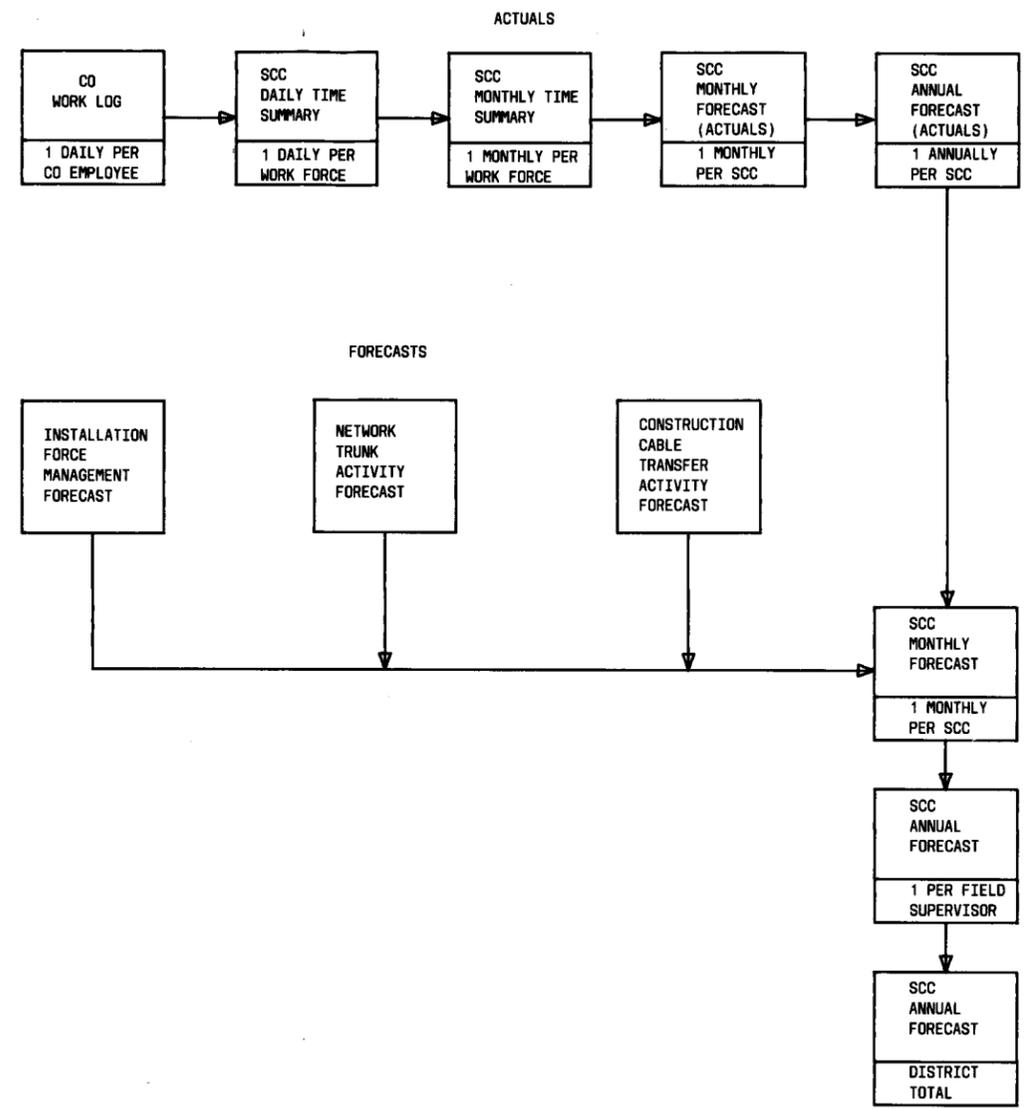


Fig. 9.1—Flowchart—Actual Time Summaries and Preparing Forecasts

SCC MONTHLY FORECAST

E-6841 (9/76)

WORK FORCE \_\_\_\_\_

MONTH \_\_\_\_\_

	ITEMS	FORECAST PERIODS								TOTAL FORECAST THIS MONTH	ACTUAL HOURS THIS MONTH
		1-7		8-14		15-21		22-			
		EST	ACT	EST	ACT	EST	ACT	EST	ACT		
SCC	1	R - CORRECTIVE									
	2	R - PREVENTIVE									
	3	R - OTHER									
	4	603-04 - TRUNK TESTING									
	5	77M - TRANSLATIONS									
	6										
	7										
FIELD	8	R - CORRECTIVE									
	9	R - PREVENTIVE									
	10	R - OTHER (TRICK)									
	11	603-04 - TRUNK TESTING									
	12	M - CHANGES									
	13										
	14										
	15	C & X									
	16										
	17										
FRAME	18	M - CHANGES									
	19	R - UPKEEP									
	20										
	21										
FORCE	22	TOTAL HOURS REQUIRED									
	23										
	24	NO. OF PROD. EMPLOYEES									
	25	BASIC HOURS/EMPLOYEE (8 X NO. OF WORK DAYS)									
	26	TOTAL BASIC HOURS (LINE 24 X LINE 25)									
	27	EXPECTED VACATION & HOLIDAY HOURS									
	28	EXPECTED TRAINING HOURS									
	29	EXPECTED SICKNESS OR DISABILITY HOURS									
	30	TOTAL NON-PRODUCTIVE HOURS									
	31	AVAILABLE PRODUCTIVE HOURS (LINE 26 MINUS LINE 30)									
BALANCE	32										
	33	HOURS BORROW OR LOAN CIRCLE LOAN									
	34	DEFERRED PREV. HOURS									
	35	OVERTIME HOURS									
	36										
	37										

Fig. 9.2—SCC Monthly Forecast (E-6841)

SCC ANNUAL FORECAST

E-6842  
(9/76)

WORK FORCE		YEAR																												
ITEM		EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	
CORRECTIVE, CHANGE, C & X	1	TRUCK ASSIGNMENT HOURS																												
	2	CORRECTIVE HOURS - TRUNK TESTING																												
	3	CORRECTIVE HOURS - OTHER																												
	4	SO & USSO FRAME HOURS																												
	5	SO & USSO EQUIP HOURS																												
	6	TRUNK/FACILITY ORDERS - FRAME HOURS																												
	7	TRUNK/FACILITY ORDERS - EQUIP HOURS																												
	8	FACILITY TRANSFER HOURS																												
	9	TRAVEL HOURS																												
	10	OTHER PRODUCTIVE HOURS																												
	11																													
	12	TOTAL CORRECTIVE AND CHANGE HOURS																												
	13	C & X HOURS																												
	14	TOTAL CORRECTIVE, CHANGE AND C & X HOURS																												
FORCE	15	NUMBER OF PRODUCTIVE HOURLY EMPLOYEES																												
	16	BASIC HOURS PER EMPLOYEE																												
	17	TOTAL BASIC HOURS FOR FORCE																												

FRONT

WORK FORCE

YEAR

E-6842  
(9/76)

WORK FORCE		YEAR																											
ITEM		EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT
NON-PRODUCTIVE	18	VACATION & HOLIDAY - % OR HOURS																											
	19	PAID ABSENCE - % OR HOURS																											
	20	OTHER UN-DISTRIBUTED - % OR HOURS																											
	21	UNPAID ABSENCE - % OR HOURS																											
	22	TOTAL NON-PRODUCTIVE %																											
	23																												
	NON-PRODUCTIVE	24	TOTAL NON-PRODUCTIVE HOURS																										
25		AVAILABLE PRODUCTIVE HOURS																											
26		AVAILABLE PROGRAMMABLE HOURS																											
27		TRAINING HOURS																											
28		AVAILABLE PREVENTIVE HOURS																											
29		PREVENTIVE HOURS - EQUIPMENT																											
30		PREVENTIVE HOURS - TRUNK TESTING																											
PREVENTIVE	31																												
	32	TOTAL PREVENTIVE HOURS																											
	33	TOTAL HOURS REQUIRED																											
	34	HOURS BORROW OR LOAN CIRCLE LOAN																											
	35	OVERTIME HOURS																											
	36																												
	37																												
BALANCE	38																												
	39																												
	40																												

BACK

Fig. 9.3—SCC Annual Forecast (E-6842)

SOURCE OF ACTUAL HOURS

		ITEM	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	
CORRECTIVE, CHANGE, C & X	1	TRICK ASSIGNMENT HOURS	*	Total of X1 Work Codes									
	2	CORRECTIVE HOURS — TRUNK TESTING	*	42 Work Code									
	3	CORRECTIVE HOURS — OTHER	*	Total of X2 Work Codes Less Work Code 42									
	4	SO & USSO FRAME HOURS	*	Total of X4 Work Codes									
	5	SO & USSO EQUIP. HOURS	*	Total of X5 Work Codes									
	6	TRUNK/FACILITY ORDERS — FRAME HOURS	*	Total of X6 Work Codes									
	7	TRUNK/FACILITY ORDERS — EQUIP. HOURS	*	Total of X7 Work Codes									
	8	FACILITY TRANSFER HOURS	*	Total of X8 Work Codes									
	9	TRAVEL HOURS	*	Total of X9 Work Codes									
	10	OTHER PRODUCTIVE HOURS	*	Total of 5R, 19X, etc.									
	11		—	Local Use									
	12	TOTAL CORRECTIVE AND CHANGE HOURS	—	Total of Lines 1 through 11									
	13	C & X HOURS	*	Total of C & X Codes									
	14	TOTAL CORRECTIVE CHANGE AND C & X HOURS	—	Total of Lines 12 and 13									
FORCE	15	NUMBER OF PRODUCTIVE HOURLY EMPLOYEES	Basic Number of Employees in Work Force										
	16	BASIC HOURS PER EMPLOYEE	Number of Regular Hours/Employee in Period										
	17	TOTAL BASIC HOURS FOR FORCE	Line 15 Multiplied by Line 16										
NON-PRODUCTIVE	18	VACATION & HOLIDAY — % OR HOURS	*	Total UTV & UTS Hours									
	19	PAID ABSENCE — % OR HOURS	*	Total UTI & UTT Hours									
	20	OTHER UNDISTRIBUTED — % OR HOURS	*	Total UTC & UTO Hours									
	21	UNPAID ABSENCE — % OR HOURS	*	Total Unpaid Absence Hours									
	22	TOTAL NON-PRODUCTIVE %	—	Not Used For Actuals									
	23		—	Local Use									
	24	TOTAL NON-PRODUCTIVE HOURS	Total of Lines 18 through 21										
	25	AVAILABLE PRODUCTIVE HOURS	Line 17 Minus Line 24										
	26	AVAILABLE PROGRAMMABLE HOURS	Not Used For Actuals										
	27	TRAINING HOURS	*	Total of Standard Training Course Hours									
PREVENTIVE	28	AVAILABLE PREVENTIVE HOURS	Not Used For Actuals										
	29	PREVENTIVE HOURS — EQUIPMENT	*	Total of X3 Work Codes Less Work Code 43									
	30	PREVENTIVE HOURS — TRUNK TESTING	*	Work Code 43									
	31		—	Local Use									
	32	TOTAL PREVENTIVE HOURS —	Total of Lines 29 through 31										
BALANCE	33	TOTAL HOURS REQUIRED	Total of Lines 14, 24, 27 and 32										
	34	HOURS BORROW OR LOAN CIRCLE LOAN	Borrowed or Loaned From/To Other Force Groups										
	35	OVERTIME HOURS	*	Total Extra Hours Worked									
	36												
	37		Local Use										
	38												
	39												
	40												

Balance Check

Total Lines 17, 34 and 35  
Equals Line 33. (Line 34  
is Negative if Circled.)

\*Form E-6843

Fig. 9.4—Source of Actual Hours

		SOURCE OF FORECAST HOURS											
		ITEM	EST	ACT									
CORRECTIVE, CHANGE, C & X	1	TRICK ASSIGNMENT HOURS											
	2	CORRECTIVE HOURS - TRUNK TESTING											
	3	CORRECTIVE HOURS - OTHER											
	4	SO & USSO FRAME HOURS											
	5	SO & USSO EQUIP HOURS											
	6	TRUNK/FACILITY ORDERS - FRAME HOURS											
	7	TRUNK/FACILITY ORDERS - EQUIP. HOURS											
	8	FACILITY TRANSFER HOURS											
	9	TRAVEL HOURS											
	10	OTHER PRODUCTIVE HOURS											
	11												
	12	TOTAL CORRECTIVE AND CHANGE HOURS											
	13	C & X HOURS											
	14	TOTAL CORRECTIVE, CHANGE, AND C & X HOURS											
FORCE	15	NUMBER OF PRODUCTIVE HOURLY EMPLOYEES											
	16	BASIC HOURS PER EMPLOYEE											
	17	TOTAL BASIC HOURS FOR FORCE											
NON-PRODUCTIVE	18	VACATION & HOLIDAY - % OR HOURS											
	19	PAID ABSENCE - % OR HOURS											
	20	OTHER UNDISTRIBUTED - % OR HOURS											
	21	UNPAID ABSENCE - % OR HOURS											
	22	TOTAL NON-PRODUCTIVE %											
	23												
	24	TOTAL NON-PRODUCTIVE HOURS											
25	AVAILABLE PRODUCTIVE HOURS												
26	AVAILABLE PROGRAMMABLE HOURS												
27	TRAINING HOURS												
PREVENTIVE	28	AVAILABLE PREVENTIVE HOURS											
	29	PREVENTIVE HOURS - EQUIPMENT											
	30	PREVENTIVE HOURS - TRUNK TESTING											
	31												
32	TOTAL PREVENTIVE HOURS												
BALANCE	33	TOTAL HOURS REQUIRED											
	34	HOURS BORROW OR LOAN CIRCLE LOAN											
	35	OVERTIME HOURS											
	36												
	37												
	38												
	39												
	40												

Requirements Based on Current Loading Guide

Previous Years Trends and IFM Forecast

Previous Years Trends and Trunk/Facility Forecast

Based on Construction Forecast

Based on Previous Year

Trend From Previous Year

Local Use

Total of Lines 1 through 11

Based on COE Schedule of WE Jobs

Total of Lines 12 and 13

Basic Number of Employees in Work Force

Number of Hours (Regular) Per Employee in Period

Line 15 Multiplied by Line 16

Based On Previous Year

Total of Lines 18 through 21

Local Use

Line 17 Multiplied by Line 22 and Divided by 100

Line 17 Minus Line 24

Line 25 Minus Line 14

Training Forecast

Line 26 Minus Line 27

Scheduled PM Hours

Local Use

Total of Lines 29 through 31

Total of Lines 14, 24, 27 and 32

Difference Between Lines 17 and 33, Less Line 35

Demand Overtime Estimate (Callouts)

Balance Check

Total of Lines 17 and 34 Equals Line 33. (Line 34 is Negative if Circled.)

Fig. 9.5—Source of Forecast Hours

## GLOSSARY

## A. Standard Abbreviations

The following list contains standard abbreviations and their definitions as used throughout this section.

ABBREVIATION	DEFINITION
AMA	Automatic message accounting
BSP	Bell System Practice
CAROT	Centralized Automatic Reporting On Trunks: Processor-controlled trunk testing system
CID	Critical indicator display that can be used with TASC
CM	Corrective maintenance
CMP	Controlled Maintenance Plan
CO	Central office
COMMS-PM	Central Office Maintenance Management System—Preventive Maintenance: A mechanized administration of preventive maintenance routines
CRT	Cathode ray tube
EADAS	Engineering Administration Data Acquisition System: A computerized system for mechanization of traffic and plant registers
EBAC	Equipment billing accuracy control
ESS	Electronic Switching System
ETL	Equipment test list
FX	Foreign exchange
Loading	The assignment of work to craft forces
LTD	Local test desk
MB	Make-busy or made-busy
MCTRAP	Mechanized customer trouble report analysis plan
MDF	Main distributing frame
MR	Mandatory review
MW	Mandatory work
NSC	Network service center (DDD service bureau)

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<b>PSC</b>	Plant service center
<b>PM</b>	Preventive maintenance
<b>PMI</b>	Plant management instructions
<b>Pricing</b>	The estimating of craft hours on work items
<b>ROTL</b>	Remote office test line (CAROT)
<b>RSB</b>	Repair service bureau
<b>SCCS</b>	Switching Control Center System (Stored program control systems)
<b>SCC</b>	Switching control center
<b>SPCS</b>	Stored program control system
<b>SSO</b>	Special service order
<b>SSC</b>	Special service center
<b>Supervisor</b>	Used to denote first-level management person
<b>STTP</b>	Supplemental trunk test panel
<b>T MDF</b>	Trunk main distributing frame
<b>Team</b>	A craft force performing functionalized duties at one or more central office locations
<b>TLTP</b>	Trunk-line test panel
<b>Trunk</b>	A circuit between two central office entities
<b>TO</b>	Trunk order
<b>TTMI</b>	Trunk transmission maintenance index
<b>WEC<sub>o</sub></b>	Western Electric Company

**B. Work Codes and Disposition Codes**

The following list contains suggested work codes for use on central office work logs and other SCC forms.

<b>WORK CODE</b>	<b>DEFINITION</b>
<b>CRTN</b>	Carrier routine
<b>ENGR</b>	Engineering department request
<b>ERTN</b>	Equipment routine
<b>FRTN</b>	Frame routine

LXFR	Line equipment transfer
MEAL	Lunch or dinner break
MEET	Safety or other meeting
PRTN	Power routine
SOEQ	Service order—equipment work
SOFR	Service order—frame work
SXFR	Subscriber cable transfer
TA	Ticket from plant service center, subscriber, or testboard
TB	Ticket from network administration (TUR, etc)
TC	Ticket from sender or register indication
TD	Ticket from alarm indication
TE	Ticket initiated in central office from trouble analysis, trouble indicator, trouble ticketer, or maintenance teletypewriter
TJ	Ticket on trouble referred from another central office or other source
TCFL	T-carrier fault locating
TMBE	Ticket on made-busy equipment
TMBT	Ticket on made-busy trunk
TOEQ	Trunk/facility order—equipment work
TOFR	Trunk/facility order—frame work
TRFC	Dial administration (traffic) request
TRIK	Specific job assignment duties on a specific shift listed on work assignment list in central office and other maintenance work not associated with a trouble ticket or test and inspection work order
TRNG	Plant school, or standard self-paced on-the-job training
TRTN	Trunk routine
TRVL	Travel time
TXFR	Trunk cable transfer
WEC <sub>o</sub>	C&X time on central office engineering jobs

**Note:** Other codes may be developed as deemed necessary.

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The following disposition codes are to be used by central office employees in reporting corrective maintenance activity on the load and work time record.

DISPOSITION CODE	DEFINITION
F	Found trouble
NTF	No trouble found
MB	Equipment or trunk made-busy
T	Call traced
REF	Referred to other groups

### C. Definition of Terms

Listed below are some of the terms used in this section and their definitions.

<b>Corrective maintenance</b>	Central office work on trouble tickets: eg, customer reports, made-busy equipment, traces, work done from indicators in the central office such as alarms or trouble recorded analysis.
<b>Demand work</b>	Total of trick work, corrective maintenance, and service order work.
<b>Due date work</b>	Central office work items which must be completed before a certain date; eg, trunk orders.
<b>Latest start date</b>	The latest date that due-date work can be started and ensure meeting the due date. Computed using due date, estimated hours of work, and preestablished lead days.
<b>Lead days</b>	The number of work days used in establishing the latest start date to allow for demand peaks without missing due dates.
<b>Preventive maintenance</b>	Central office work on test and inspection work orders.
<b>Programmable work</b>	Central office work which must be performed but not on or by a specific date.
<b>SCC work request</b>	Form used primarily by the field supervisor to input a work request into the SCC; eg, pressure cleaning, EI testing.
<b>Scheduled work</b>	Central office work items to be started at a specific date and time: eg, trunk cuts and test and inspection work orders which have been coordinated with another office.
<b>Trick</b>	Specific job assignment duties on a specific shift listed on work assignment list in central office and other maintenance work not associated with a trouble ticket or test and inspection work order.

### D. Miscellaneous Documentation

The following documentation contains additional information on the subjects and systems mentioned in this section.

(a) *Electromechanical Systems:*

SECTION	TITLE
GL 75-11-061	SCC Planning,
GL 76-08-181	Buildings and Spaces,
GL 76-XX-XXX	Communications,
	Training
	Job Administration (First Level)
	Craft
	Clerical

(b) *ATA:*

190-105-101	General Description
190-105-310 through 190-105-313	Computer,
190-105-301 through 190-105-302	Operating Procedures,
190-106-101 and 190-106-301	Maintenance Data Transmitter—No. 5 Crossbar,
190-106-111 and 190-106-311	Maintenance Data Transmitter—No. 1 Crossbar,
816-621-150	Originating Trouble Indicator,
816-622-150 and 816-622-160	Terminating Trouble Indicator,
816-620-150	Controller Trouble Indicator,
816-026-150	Alarm Transfer,
816-601-150	Trunk Scan Control,
816-603-150	Sender Test Connector Control,
816-027-150	MDT Circuit,
816-206-150	ANI Trouble Ticketer,
816-551-150	Code Compressor,
810-100-152	Programmable Scanner Distributor (PSD),
824-100-112	Work Stations
801-823-150	Program Controller

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<b>SECTION</b>	<b>TITLE</b>
(c) <b>CAROT:</b>	
GL 75-06-001, 190-102-100	CAROT 2 Description,
010-410-300 through 010-410-315	Central Operation,
660-401-011	Transmission Tests,
660-402-300	Transmission Maintenance,
660-450-300 and 660-450-301	Trunk Order Tests,
(d) <b>COMMS:</b>	
GL 74-12-147	Planning Letter,
190-305-101 and 190-305-102	Description,
190-305-301 through 190-305-307	Operations,
(e) <b>EADAS:</b>	
GL 73-05-048	Planning Letter,
GL 73-05-084	Phase One,
Division D, Section 4a through 4j, Division D, Section 5a	Dial Facilities Management Practices,
252-115-101 through 252-115-103	EADAS Central,
252-115-511 through 252-115-516	Testing,
252-115-521 through 252-115-523	PDT Tests,
252-115-301 and 252-115-302	EADAS CU
(f) <b>TASC:</b>	
190-210-101	System Description,
190-210-102	Central Description,
190-210-300 through 190-210-303	Operations,
190-210-500	Central Maintenance,
314-410-500	Private Line Data,
824-101-115	Design Requirements

# SCC TELEPHONE LOG

E-6831  
(9/76)

WORK FORCE/OFFICE \_\_\_\_\_

TICKET NUM.	REPT. CLASS	TEL. NUM., TRUNK OR ITEM REPORTED	LINE OR TRUNK EQUIPMENT	ASSOC. EQ/ CA & PR.	RECEIVED FROM	BY	TIME	DISPATCH TO/ WHERE	DISP. TIME	CLRD. TIME	CLRD. DATE	TO
/	DETAILS				CALL BACK NUM/LOC.			ACTION				
/	DETAILS				CALL BACK NUM/LOC.			ACTION				
/	DETAILS				CALL BACK NUM/LOC.			ACTION				
/	DETAILS				CALL BACK NUM/LOC.			ACTION				
/	DETAILS				CALL BACK NUM/LOC.			ACTION				
/	DETAILS				CALL BACK NUM/LOC.			ACTION				

DATE \_\_\_\_\_

PAGE \_\_\_\_\_ OF \_\_\_\_\_

SCC WEEKLY FORCE PERFORMANCE REPORT

8-6832(9/76)

FORCE \_\_\_\_\_  
FROM \_\_\_\_\_ TO \_\_\_\_\_

DATE	EMPLOYEE HOURS WORKED	MERRILL		LYNCH		FENNER		MERRILL		LYNCH		FENNER		MERRILL		LYNCH		FENNER			
		EST. HOURS	ACT. HOURS																		
	MONDAY																				
	TUESDAY																				
	WEDNESDAY																				
	THURSDAY																				
	FRIDAY																				
	SATURDAY																				
	SUNDAY																				
	TOTAL																			ACTUAL	OBJECTIVE
% EFFICIENCY = (EST HRS ÷ ACT HRS) × 100																					

TOTAL  
FORCE

FORCE \_\_\_\_\_  
FROM \_\_\_\_\_ TO \_\_\_\_\_

DATE	EMPLOYEE HOURS WORKED	MERRILL		LYNCH		FENNER		MERRILL		LYNCH		FENNER		MERRILL		LYNCH		FENNER			
		EST. HOURS	ACT. HOURS																		
	MONDAY																				
	TUESDAY																				
	WEDNESDAY																				
	THURSDAY																				
	FRIDAY																				
	SATURDAY																				
	SUNDAY																				
	TOTAL																			ACTUAL	OBJECTIVE
% EFFICIENCY = (EST HRS ÷ ACT HRS) × 100																					

TOTAL  
FORCE











SCC ANNUAL FORECAST

E-6842  
(9/76)

WORK FORCE \_\_\_\_\_

YEAR \_\_\_\_\_

	ITEM	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	
CORRECTIVE, CHANGE, C & X	1	TRICK ASSIGNMENT HOURS																								
	2	CORRECTIVE HOURS - TRUNK TESTING																								
	3	CORRECTIVE HOURS - OTHER																								
	4	SO & USSO FRAME HOURS																								
	5	SO & USSO EQUIP HOURS																								
	6	TRUNK/FACILITY ORDERS - FRAME HOURS																								
	7	TRUNK/FACILITY ORDERS - EQUIP HOURS																								
	8	FACILITY TRANSFER HOURS																								
	9	TRAVEL HOURS																								
	10	OTHER PRODUCTIVE HOURS																								
	11																									
	12	TOTAL CORRECTIVE AND CHANGE HOURS																								
	13	C & X HOURS																								
	14	TOTAL CORRECTIVE, CHANGE AND C & X HOURS																								
FORCE	15	NUMBER OF PRODUCTIVE HOURLY EMPLOYEES																								
	16	BASIC HOURS PER EMPLOYEE																								
	17	TOTAL BASIC HOURS FOR FORCE																								

WORK FORCE \_\_\_\_\_

YEAR \_\_\_\_\_

E-6842  
(9/76)

	ITEM	EST	ACT																								
NON-PRODUCTIVE	18 VACATION & HOLIDAY - % OR HOURS																										
	19 PAID ABSENCE - % OR HOURS																										
	20 OTHER UN-DISTRIBUTED - % OR HOURS																										
	21 UNPAID ABSENCE - % OR HOURS																										
	22 TOTAL NON-PRODUCTIVE %																										
	23																										
NON-PRODUCTIVE	24 TOTAL NON-PRODUCTIVE HOURS																										
	25 AVAILABLE PRODUCTIVE HOURS																										
	26 AVAILABLE PROGRAMMABLE HOURS																										
	27 TRAINING HOURS																										
PREVENTIVE	28 AVAILABLE PREVENTIVE HOURS																										
	29 PREVENTIVE HOURS - EQUIPMENT																										
	30 PREVENTIVE HOURS - TRUNK TESTING																										
	31																										
	32 TOTAL PREVENTIVE HOURS																										
BALANCE	33 TOTAL HOURS REQUIRED																										
	34 HOURS BORROW OR LOAN CIRCLE LOAN																										
	35 OVERTIME HOURS																										
	36																										
	37																										
	38																										
	39																										
	40																										

SCC WORK REQUEST

Work Force \_\_\_\_\_ Requested By \_\_\_\_\_ Date \_\_\_\_\_

Shift Preference (if any) \_\_\_\_\_ Estimated Hours \_\_\_\_\_

Earliest Start Date \_\_\_\_\_

Latest Start Date \_\_\_\_\_

Due Date \_\_\_\_\_

Est./Ord. No. \_\_\_\_\_ Area No. \_\_\_\_\_ Acct. Code \_\_\_\_\_

Description:

\_\_\_\_\_

Work Item                      Estimated Work Time                      Latest Start                      Completion Required

DATE	ITEM	EMPLOYEE	HOURS CHARGED	COMPLETION DATE

Return To:  Originator                       File





SCC MONTHLY FORECAST

E-6841 (9/76)

WORK FORCE \_\_\_\_\_

MONTH \_\_\_\_\_

	ITEMS	FORECAST PERIODS								TOTAL FORECAST THIS MONTH	ACTUAL HOURS THIS MONTH
		1-7		8-14		15-21		22-			
		EST	ACT	EST	ACT	EST	ACT	EST	ACT		
SCC	1	R - CORRECTIVE									
	2	R - PREVENTIVE									
	3	R - OTHER									
	4	603-04 - TRUNK TESTING									
	5	77M - TRANSLATIONS									
	6										
	7										
FIELD	8	R - CORRECTIVE									
	9	R - PREVENTIVE									
	10	R - OTHER (TRICK)									
	11	603-04 - TRUNK TESTING									
	12	M - CHANGES									
	13										
	14										
	15	C & X									
	16										
	17										
FRAME	18	M - CHANGES									
	19	R - UPKEEP									
	20										
	21										
	22	TOTAL HOURS REQUIRED									
	23										
FORCE	24	NO. OF PROD. EMPLOYEES									
	25	BASIC HOURS/EMPLOYEE (8 X NO. OF WORK DAYS)									
	26	TOTAL BASIC HOURS (LINE 24 X LINE 25)									
	27	EXPECTED VACATION & HOLIDAY HOURS									
	28	EXPECTED TRAINING HOURS									
	29	EXPECTED SICKNESS OR DISABILITY HOURS									
	30	TOTAL NON-PRODUCTIVE HOURS									
	31	AVAILABLE PRODUCTIVE HOURS (LINE 26 MINUS LINE 30)									
	32										
BALANCE	33	HOURS BORROW OR LOAN CIRCLE LOAN									
	34	DEFERRED PREV. HOURS									
	35	OVERTIME HOURS									
	36										
	37										

**LOAD AND WORK TIME RECORD**

OFFICE \_\_\_\_\_ EMPL \_\_\_\_\_ TRICK \_\_\_\_\_ DATE \_\_\_\_\_

SHIFT: START \_\_\_\_\_ END \_\_\_\_\_ HRS. WORKED \_\_\_\_\_ APPROVAL \_\_\_\_\_

	TYPE WORK	ITEM IDENT.	START TIME	END TIME	TIME	WORK CODE	DISP. CODE	OFFICE	EST., R.O., REMARKS	EST. TIME
1										
2										
3										
4										
5										
6										
7										
8										
9										

10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	:	:	:	:	:	:	:	:	:	: