

NAVY BASE COMMUNICATIONS MANUAL

November 1998

COMMANDER, NAVAL COMPUTER AND TELECOMMUNICATIONS COMMAND

4401 MASSACHUSETTS AVENUE, N.W.

WASHINGTON, DC 20394-5460

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EXECUTIVE SUMMARY

1. The Chief of Naval Operations (CNO) has delegated the responsibility for this manual and worldwide management oversight of base-level communications services at naval shore installations to the Commander, Naval Computer and Telecommunications Command (COMNAVCOMTELCOM). Base-level communications addresses all areas of base communications as defined, in part, by the Department of Defense (DOD) Instruction 4640.13. This is defined as the facilities, equipment, and services used to support the electromagnetic/optical dissemination, transmission, or reception of information via voice, data, video, integrated telecommunications, wire or radio within the confines of a post, camp, station, base, installation, headquarters, or regional configuration.
2. This manual is the principal document providing Department of the Navy (DON) policy and procedures at shore installations for base communications project planning, contracting, management, and the operations and maintenance of base communications services, systems, and equipment. The manual is organized to provide guidance as it applies to each organizational level including responsibilities of other commands and organizations involved with base communications services. If provisions of this manual are in conflict with existing DON instructions pertaining to base communications, the policy in this manual shall take precedence.
3. Forward comments and inquiries to:

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Naval Computer and Telecommunications Command
4401 Massachusetts Avenue, N.W.
Attn: Code N32
Washington, DC 20394-5460
DSN: 764-0320, FTS 764-0320 or
Commercial: (202) 764-0320
E-Mail: n32@nctcgw.navy.mil.

CHAPTER 1

INTRODUCTION

PART 1

BASE COMMUNICATIONS TRANSFER BACKGROUND

1101. BACKGROUND

a. CNO approved transfer of responsibility for base communications facilities and services from Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM), to Commander, Naval Telecommunications Command (COMNAVTELCOM) on 2 December 1983. This transfer was instituted to form centralized support for shore base communications systems and services and realign the Navy command and management structure with a new competitive environment. CNO directed the functional transfer of base communications to COMNAVTELCOM in October 1984.

b. DON and other military departments are not authorized to acquire base communications facilities and services on a sole-source basis under established tariffs through local telecommunications operating companies. Procurement of base communications facilities and services must now be obtained through competitive acquisition.

c. Before divestiture of the public telephone system, the Navy leased the majority of all base communications facilities and services from the Local Exchange Carrier (LEC). Divestiture caused a split between ownership of existing base communications equipment, now known as Customer Premise Equipment (CPE). AT&T inherited the majority of the leased base communications switching systems and terminal equipment throughout the Navy. AT&T and other communications vendors are required to perform maintenance, minor moves, and changes to the existing leased equipment in order to maintain service; however, any upgrades, enhancements, or expansions are prohibited, unless done competitively.

d. Since deregulation, Base Communications Offices (BCO's) are responsible for Navy government-owned and government controlled outside base cable plants from the established government telephone company demarc point. Current ownership of on base cabling will vary between the telephone company and the government. New requirements for inside cable/outside cable plants must be competitively acquired.

e. Generic specifications have been devised which will standardize switching, station equipment, and cabling to effectively implement the procedures for competitive acquisition of base communications services and facilities. Until these types of contracts are competed and awarded, competitively awarded customer premise equipment contracts are being used.

1102. SCOPE

a. This instruction provides standard operational policy and procedures for management and acquisition of base communications services and facilities Navy-wide. Divestiture and deregulation of the telecommunications industry have increased the number of competitors providing dial tone, equipment, installation, and maintenance, in addition to long distance services. It has also created stringent requirements for competition that must be followed by all government agencies and military departments.

b. It is the objective of COMNAVCOMTELCOM to provide effective and reliable base communications services at minimal cost while maintaining mission essential requirements. In addition, it is important to consider future mission requirements and the changing trends in technology. These objectives can only be reached through the coordinated efforts of Navy user commands.

1103. APPLICATION

This manual is applicable to all of the following levels of management responsible for base communications services and facilities.

a. COMNAVCOMTELCOM elements:

(1) Long Haul Communications Directorate (N2).

(2) Operations and Readiness Directorate (N3).

(3) Requirements and Plans Directorate (N5)

(4) Echelon 3 Region Command Base Communications
Department (N2).

(5) Echelon 4 Base Communications Functions (N2).

b. Base Communications Office (BCO).

c. Other major claimants and users.

PART 2

ORGANIZATIONAL STRUCTURE AND OVERVIEW

1201. COMNAVCOMTELCOM RESPONSIBILITIES

a. References (j) and (v) of Appendix A and Chapter 2, Part 1, of this manual identify the duties and responsibilities of COMNAVCOMTELCOM.

b. These responsibilities include establishing policy and standards for local base communications systems; program planning; government purchase of base communications systems; and the Operation and Maintenance (O&M) of naval base communications as outlined in reference (e) of Appendix A. Figure 1-1 depicts the COMNAVCOMTELCOM BCO organizational structure.

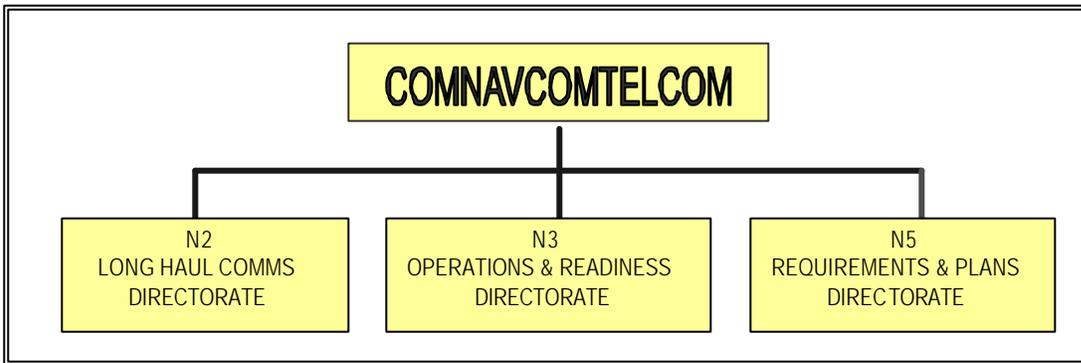


Figure 1.1 - COMNAVCOMTELCOM BCO Organizational Chart

1202. BASE COMMUNICATIONS SYSTEM MANAGEMENT HIERARCHY

In order to properly manage base communications, a management hierarchy was formed under COMNAVCOMTELCOM. This hierarchy is divided into various levels of management responsibility. The following briefly describes the responsibilities of each management level.

a. THE LONG HAUL COMMUNICATIONS DIRECTORATE (N2):

(1) Manages the Department of the Navy's use of DOD and other federal long-haul systems and networks, to include the Unclassified, but sensitive, Internet Protocol Router Network (NIPRNET) and the Secret Internet Protocol Router Network (SIPRNET), Federal Telecommunications System (FTS) 2000, Defense Switch Network (DSN), Defense Information Systems Network (DISN), and Automatic Digital Information Network (AUTODIN).

(2) Develops plans, policies and procedures to ensure timely and cost effective methods for providing Navy transmission systems communications requirements.

(3) Coordinates the biennial review and revalidation of leased communications services, facilities and equipment; participates in professional conferences/symposia, in professional groups or societies concerned with communications technical support.

(4) Presents and defends Navy views and interests, and identifies follow-on actions necessary to keep Navy personnel on a level with the "state-of-the-art" in this area.

b. THE OPERATIONS AND READINESS DIRECTORATE (N3):

(1) Monitors and resolves worldwide telecommunications operational issues pertaining to military communications and is responsible for overseeing the operations and maintenance (O&M) of assigned information systems.

(2) Provides guidance to regional commanders at the Naval Computer and Telecommunications Area Master Stations (NCTAMS) for the O&M of base communications equipment and services and issues technical criteria for the FTS 2000; DSN; Defense Red Switch Network (DRSN); DISN; and Private Branch Exchange (PBX) services.

c. THE REQUIREMENTS AND PLANS DIRECTORATE (N5):

(1) Provides base and systems restructuring planning as directed by higher authority in support of base level computing and long haul communications.

(2) Provides Navy policy and standardization guidance for base communications and recommends modernization and cost effective changes to the configuration baseline of the infrastructure.

(3) Monitors resource tracking for assigned Operations and Maintenance, Navy (O&M,N) programs.

(4) Identifies and POM's for O&M support provided by COMNAVCOMTELCOM, codifying requirements, developing and evaluating alternatives to fulfill those requirements, often creating or modifying existing programs/projects to fulfill those requirements.

(5) Coordinates with the Commander, Space and Naval Warfare Systems Command (COMSPAWARSSYSCOM) to extrapolate user requirements into integrated technical plans. These programs include: BCO's functional transfers; long haul communications; base cabling; base switching systems; and base communications modernization planning.

d. Regional coordinators (RC's), (the NCTAMS' N2 Department Heads), are responsible to assist BCO's in determining solutions to user requirements of Navy shore activities; engineering and technical support for all projects, to include military constructions (MILCON) and special projects; information technology (IT) acquisition management, procurement, and administrative support. Chapters 4 and 5 describe the responsibilities of each activity in more detail.

e. BCO's, operating within the confines of this manual, and other such delegated authority, as may be granted by COMNAVCOMTELCOM, are responsible for the day-to-day management and administration of base communications services and facilities. This function includes administration of the base inside and outside cable plant, station records, station equipment, off-line devices, and plant-in-place records. Other responsibilities include liaison with Navy shore activities; coordinate/consolidate requirements, to include MILCON and special projects; and establish budgetary guidelines for shore activities. Chapter 5 outlines BCO functions and responsibilities in more detail.

PART 3

POLICY

1301. POLICY

a. COMNAVCOMTELCOM provides management oversight for base communications services and facilities at Navy/Marine Corps shore installations throughout DON.

b. DON policy requires that shore activities competitively procure base communications services and facilities. DON can no longer acquire base communications equipment or service from the local communications company or any commercial company on a sole source lease or purchase basis except for tariff services, (e.g., "dial tone"). Each competitive procurement shall be analyzed closely to determine whether lease, purchase, or lease with option to purchase is the most economical and advantageous to DON, considering short term and long term requirements.

c. Exceptions to this policy shall be considered when DON activities outside the CONUS have use of U.S. owned equipment restricted by laws of the host nation in which they are located. In this situation, Connection Approval (CA) of U.S. furnished equipment must be approved by the foreign host nation prior to any connections of equipment to that nation's leased lines or Public Switch Network (PSN). COMNAVCOMTELCOM is the DON agent responsible for worldwide CA actions. CA procedures in Appendix B of this manual provide policy guidance for the connection of U.S. furnished equipment in foreign nations. CA is a lengthy process and must be pursued in the early stages of the acquisition cycle.

d. All new base communications services and facilities whether leased or purchased, which exceed the procurement authority of the BCO, shall be substantiated with a requirements study. The BCO will review and determine if a Technical Evaluation Study (TES) is required. Those exceeding validation authority of the BCO will be forwarded to COMNAVCOMTELCOM through the RC's. Chapter 6 provides detailed procurement information. Refer to Chapter 4, Part 3, for further guidance on TES.

CHAPTER 2

NAVAL COMPUTER AND TELECOMMUNICATIONS COMMAND

PART 1

BACKGROUND AND RESPONSIBILITIES

2101. GENERAL

COMNAVCOMTELCOM is tasked with management oversight of base communications throughout the DON shore establishment and is responsible for establishing policy and providing management and procedural guidance.

2102. COMNAVCOMTELCOM RESPONSIBILITIES

COMNAVCOMTELCOM is responsible for providing guidance to the RC's or via the RC's for interpreting and implementing DOD and DON policies, rules and regulations, excluding procurement, regarding base communications.

2103. SPECIFIC RESPONSIBILITIES ASSIGNED TO COMNAVCOMTELCOM

The responsibilities assigned to COMNAVCOMTELCOM include:

a. Collect, define, and refine Navy ashore communications requirements and oversee management of the Base Level Information Infrastructure (BLII) from a single point of presence in each area of responsibility (AOR).

b. Oversee management of DON leased, dedicated and common user telecommunications systems.

c. Coordinate the assignment and management of Program Designator Codes (PDC's) for DON activities.

d. Monitor circuit and hardware/systems performance and restoration of leased long-haul services.

e. Develop program data for backbone charges for the Defense Special Security Communications System (DSSCS).

f. Establish standards and procedures for management of local base communications systems (excluding local radio networks).

g. Review published standards and procedures for DSN and the Defense Commercial Telecommunications Network (DCTN); coordinate and implement DON position on technical requirements for interfacing with DSN and the DCTN.

h. Ensure O&M of base communications are equivalent to good commercial practices.

i. Oversee and supervise functions of the RC's, and conduct management evaluations of the RC's.

j. Represent DON regarding base communications matters in such organizations as the Defense Information Systems Agency (DISA), the Tri-Services Council, and the Base Level Information Infrastructure Working Group (BLII WG).

k. Provide assistance as requested to major claimants in establishing base communications requirements and formulating program and budget submissions.

l. Oversee intra-base transmission support for data and emergency services.

m. Approve information technology (IT) acquisition management documentation for base communications equipment and services exceeding the RC's authority.

n. Provide, manage and review the Naval Information Infrastructure Plan (NIIP) to ensure standardization of format and related data within the organization.

o. Manage the base communications Quality Assurance Program (QAP).

p. Assign authority and responsibilities for providing base communications service(s) to activities responsible for day-to-day management and administration.

q. Validate and approve long-distance service.

r. Provide policy guidance and coordination for obtaining CA in foreign nations.

s. Coordinate and provide input for BLII development (see Figure 2.1).

t. Coordinate requirements for transition to Integrated Systems Digital Network (ISDN) services.

u. Program and budget O&M,N funds for base communications projects.

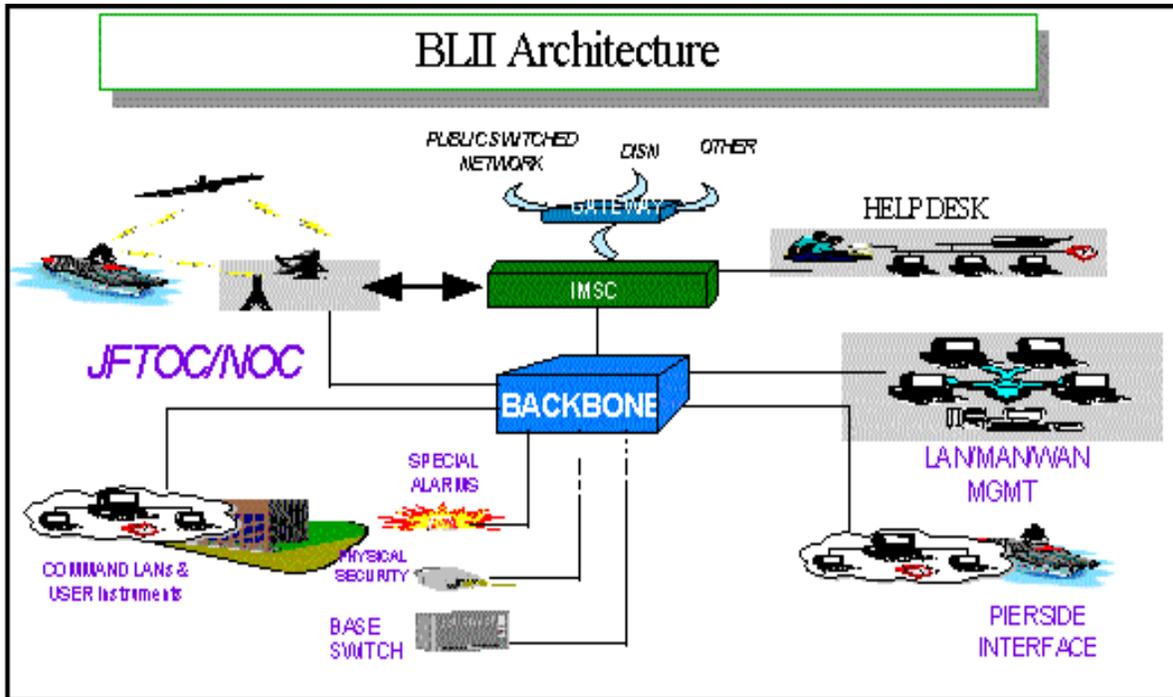


Figure 2.1 - BLII Configuration

PART 2

CORPORATE NETWORK MANAGEMENT PLAN (CNMP)

2201. INTRODUCTION

The Information Technology Management Reform Act of 8 August 1996 established a Chief Information Officer (CIO) within each executive agency. Before the CIO concept gained acceptance in industry and government, separate and independent systems and facilities were used to manage COMNAVCOMTELCOM's communications assets; the "telephone side" resided at the base communications level, and the "tactical side" at the Joint Fleet Telecommunications Operations Center (JFTOC) level. Technological advancements such as Asynchronous Transfer Mode (ATM), Synchronous Optical Network (SONET), and Integrated Services Digital Network (ISDN), have significantly changed information systems transmission technology by allowing for the integration of "tactical/afloat" and "non-tactical/ashore" communications requirements. As the primary manager of electronic information transfer, COMNAVCOMTELCOM has developed a Corporate Network Management Plan that defines a structure for network and systems management of Navy C4I and support and outlines in detail how this information can be transferred and managed quickly, accurately and reliably. For a detailed breakdown of functions, see reference (aq) of Appendix A.

PART 3

NAVAL INFORMATION INFRASTRUCTURE PLAN (NIIP)

2401. GENERAL

COMNAVCOMTELCOM will manage and monitor all aspects of the newly developed NIIP, which includes input of information from the RC's and analysis of the information available by Navy shore installations to flag problem areas for priority assistance. The NIIP will also assist in planning and scheduling of new base communications systems and facility acquisition projects. Ready access to NIIP will provide necessary information for coordination with other major commands and CNO staff activities. Refer to Chapter 4, Part 5.

CHAPTER 3

NAVAL INFORMATION SYSTEMS MANAGEMENT CENTER (NISMC)

3101. GENERAL

NISMC's role in the acquisition of base communications equipment and services was terminated 1 July 1997, and a new acquisition process is being developed. The new acquisition process will be featured in the next publication of this manual.

CHAPTER 4

REGIONAL COORDINATORS (RC's)

PART 1

OVERVIEW AND RESPONSIBILITIES

4101. GENERAL

RC's are established as echelon 3 management activities responsible for technical matters relating to management and operation of base communications services and facilities for DON.

4102. RESPONSIBILITIES

RC's are responsible for BCO management, administration, planning, and engineering support as follows:

a. Provide guidance to the BCO for interpreting and implementing DOD and DON policies, rules and regulations regarding base communications services and facilities.

b. Review management of the BCO within their area of responsibility, concerning procurement of base communications facilities and services under existing contracts. RC's review the cost reports submitted by each BCO.

c. Evaluate for approval requests for changes in base communications equipment, facilities, and services which exceed the BCO authority. All requests for base communications equipment, facilities, and services that exceed the predetermined funding authority of the RC's shall be forwarded to COMNAVCOMTELCOM.

d. Plan new base communications systems and facilities by assisting the BCO in developing requirements, providing engineering studies, and collecting and evaluating performance data in order to develop a conceptual system configuration.

e. Review military construction (MILCON) and special projects to develop supporting structures for the installation of base telecommunications systems, facilities and services. Each evaluation phase of construction shall be submitted to the appropriate RC for review. RC's are to incorporate references (aa), (ab), and (ac) of Appendix A for equipment and services. The RC's will also prepare a Government Cost Estimate (GCE) and provide a copy to the affected BCO for budget support.

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f. RC's will be familiar with reference (h) of Appendix A, and the information therein, as it applies to the funding of base communications services and facilities.

g. Provide assistance to BCO for long haul needs in accordance with reference (ai) of Appendix A.

h. Provide assistance to BCO in identifying base communications requirements and funding availability from the major claimant.

i. Assist BCO in the preparation of Life Cycle Management (LCM) documentation.

j. Prepare and develop management procurement packages for base communications.

k. Conduct Quality Assurance reviews at the BCO level. Refer to Part 4 of this chapter.

l. Act as area focal point for documentation, review, and justification of requirements and telecommunications management in concert with all claimants.

m. Act as Contracting Officer's Representative (COR) when nominated/assigned by the contracting officer.

n. Participate as a member of technical evaluation groups.

4103. CONTRACT SUPPORT

When necessary, the RC will utilize contract services to perform engineering studies and site surveys, and to develop requirements for Statements of Work (SOW's) and functional specifications in support of the acquisition of systems, facilities and service. The results of contracted services will be part of the solicitation package.

4104. REGIONAL COORDINATOR ORGANIZATIONAL STRUCTURE

a. Each RC shall be staffed with managerial, technical, and administrative personnel to perform required functions.

b. The RC office, in coordination with COMNAVCOMTELCOM, will develop an organizational and functional structure that best utilizes assigned skills to the benefit of the overall job requirement of the RC, with consideration to the geographical

areas to be provided support. Each RC is staffed with technical support specialists, who will perform required duties in order to accomplish the overall responsibilities of RC's in an efficient and effective manner.

4105. GEOGRAPHICAL AREAS OF RESPONSIBILITY.

Table 4-1 below shows geographical areas of responsibilities for each RC.

REGIONAL COORDINATOR:	GEOGRAPHICAL AREAS SUPPORTED:
Commanding Officer Naval Computer & Telecommunications Area Master Station, Pacific Wahiawa, HI COML: (808) 653-1111 DSN: (315) 453-1111 FAX: (808) 653-1112 DSN: (315) 453-1112	Australia, Guam, Japan, New Zealand, Hawaii, South Korea, Midway Island, Okinawa, Singapore, Diego Garcia, Alaska, California, Colorado, Idaho, Montana, Utah, Nevada, New Mexico, Oregon, Washington, Wyoming, North Dakota, South Dakota, Iowa, Nebraska, Minnesota
Commanding Officer ATTN: Code N2 Naval Computer & Telecommunications Area Master Station, Atlantic 9625 Moffett Avenue Norfolk, VA 23511-2784 COML: (757) 322-2020 DSN: 262-2020 FAX: (757) 445-2282 DSN: 262-2882	Remaining 37 states within CONUS, Cuba, Iceland, Panama, Puerto Rico
Commanding Officer U.S. Naval Computer & Telecommunications Area Master Station, Europe Central Naples, Italy PSC 822 Box 1000 FPO AE 09621-7000	Greece, Italy, Spain, United Kingdom, Bahrain, Cairo

Table 4-1 - Regional Coordinator Geographical Areas of Responsibility

PART 2

PROJECT REQUESTS AND SCHEDULING

4201. PROJECT REQUESTS

a. RC's have been delegated responsibility for program development of projects including systems, facility, and equipment replacements, expansions, and upgrades to meet user requirements at Navy shore installations throughout the world. These projects are critical to ensure user requirements are being satisfied on a continuous basis. The importance of program management warrants a standardized approach in the development process. Project development and documentation for the program must provide a complete audit trail from initial statement of requirement through test and acceptance. The supporting project files must be thoroughly developed and maintained to provide total insight of the projects from conception to completion.

b. The initial step of the process is development of user requirements. Initial requirements shall be developed by the BCO in close coordination with the activity requesting the project. Once the requirements have been identified, and are found to exceed the BCO delegation of procurement and commodity authority, the BCO shall forward a Technical Assistance Request (TAR) to the appropriate RC. A TAR is a formal letter requesting technical assistance from the RC for base communications services and facilities.

4202. RECEIPT OF TECHNICAL ASSISTANCE REQUEST AND PROJECT SCHEDULING

a. Upon receipt of the TAR, the RC will assess project requirements and funding availability. Depending on the complexity of the project, the RC will determine whether the equipment and services can be furnished with a minimum of technical and contractual effort; or if the project requires a Technical Evaluation Study (TES).

b. The RC will develop a Plan of Action and Milestones (POA&M) schedule of events that must take place from the beginning of the project, through the installation, test, and acceptance of the new facilities and services. This schedule will then be included in a return reply to the BCO along with a request for the amount and type of funds necessary to acquire either the actual facilities and services or a TES. It is then the responsibility

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of the requesting activity to provide the RC with the appropriate funds required for the project. The review of project requirements, development of the milestone schedule, and the request for funding should be completed and returned to the BCO with a copy to COMNAVCOMTELCOM.

PART 3

TECHNICAL EVALUATION STUDY (TES)

4301. PROCEDURES

a. At the determination of the RC, a TES will be performed for the requesting activity to verify user and system requirements and to gather all technical and operational data to be documented and incorporated into a solicitation package.

b. The RC will determine whether the TES will be performed in-house by RC technical staff or if a contractor is to be used. This determination may be based on current workload or the complexity of the requested project.

c. If a contractor is necessary to perform the study, the RC must develop a SOW and specifications outlining work to be performed. A customerfunding document will be included.

4302. BASE COMMUNICATION SPECIFICATION (BCS) AND SITE SPECIFIC STATEMENT OF WORK (SSSOW)

The BCS will include operational requirements and criteria for the systems, facilities, and equipment to be provided. The SSSOW will tailor the system/facilities and equipment configuration and quantities to meet customer validated and approved requirements. General configurations of the system, facility, and equipment including standard and optional features are covered in Appendix C of this manual. General DOD and other applicable standards and specifications applying to base communications switching systems, cable distribution plants, building wiring and telephone terminal equipment are contained in Appendix D. These specifications and reference standards should be reviewed and incorporated as needed into the solicitation package.

4303. EVALUATION PLAN

An evaluation plan, including the criteria and rating scheme, will be developed in support of the SSSOW and technical specifications for the acquisition of systems, facilities, and equipment to provide required base communications services. The evaluation plan will provide a systematic and standardized approach in the evaluation of each offeror's proposal. It will also provide a complete audit trail of the evaluation process and decisions made on technical issues in each proposal being evaluated. The evaluation plan will include evaluation sheets

to be used by the Technical Evaluation Group (TEG) performing the evaluation. These technical evaluation sheets, made out by each evaluator, will become a backup record of the evaluation process and rating given each offeror's proposal.

4304. SOLICITATION AND AWARD

The SSSOW and specifications package will be coordinated with the applicable BCO to ensure all allied Government support agreements will be accomplished and/or made available in the required timeframe. The completed technical specification package and funding document will be forwarded to the RC. The appropriate contracting officer will complete and issue the contract solicitation package. The TEG will consist of technical personnel who will participate in the technical evaluations of offeror proposals received in response to the solicitation and provide the evaluation results to the contracting officer. Contract specialists and technical personnel will participate as needed in contract negotiations in support of the contracting officer. The appropriate contracting officer will award the contract.

4305. CONTRACT MONITORING

The RC will continue to provide close coordination and technical assistance to the BCO during project implementation. This will include monitoring by the RC for completion of all project implementation milestones. All project milestones and performance problems will be documented, reviewed, and investigated by the RC with a copy to COMNAVCOMTELCOM when any such problems are of contractual significance.

PART 4

BASE COMMUNICATIONS QUALITY ASSURANCE PROGRAM (QAP)

4401. QAP VISITS

The base communications QAP is based on scheduled field visits to each BCO by its RC. The schedule of QAP visits will be developed and coordinated by each RC with the BCO. QAP schedules should be coordinated, published, and distributed by the first of August each year covering the next fiscal year. Changes and revisions to the schedule will be made as necessary and a copy forwarded to each affected BCO. In the event the RC is unable to perform the QAP visit to a specific activity, facility, or location, the QAP visit will be rescheduled within 90 days.

4402. QUALITY ASSURANCE AREAS

The following areas will be addressed and covered as a minimum during QAP on-site visits utilizing the QAP Checklist outlined in Appendix L.

a. Assessment of Base Communications Services. Perform a review and assessment of the quality of base communications services being provided to the customer. This includes a review of operational efficiency of systems, facilities, and equipment providing base communications services. A review of the system, facility and equipment failure reports and response times to correct the trouble will be performed. A random visit will be made to system customers to obtain their comments on quality of base communications service. A review and assessment of contract maintenance services will be made to include preventive maintenance and response times on routine and emergency trouble calls. Completion times on routine and priority service work orders will be reviewed. Findings in each of the above cited areas will be included in the QAP report. Any problems identified will be incorporated with recommended corrective actions.

b. Base Communications Service Requirements. A review of base communications service requirements will be conducted during the QAP visit. This will include any immediate or urgent requirements identified by the BCO or customers. Future requirements, including planned service expansions, upgrades, and military construction (MILCON) projects will be reviewed. All identified requirements will be documented and described in this section of the annual QAP report. An assessment of the impact of any new identified requirements on existing base communications services and associated costs will be incorporated into the QAP report.

c. In Progress Project Revision. All base communications projects in progress will be reviewed during the QAP visit. This includes verification of present status, as well as the identification of any problems being experienced in the projects' implementation. A comparison of actual progress versus progress projected in the implementation schedule will also be made. Any project delays or problems identified will be assessed as to their impact on the overall scheduled project completion. Each project in progress will be identified by type with a brief description of the present status and any delays or problems identified during the QAP visit.

d. Review of NIIP Information. In preparation for a QAP visit, a review of NIIP information will be performed. This includes data maintained on systems and facility configurations, capacities and fill rates, and subscriber terminal equipment installed and in service. System and facility configuration changes and subscriber station equipment inventory changes will be reviewed and checked for incorporation into the NIIP.

e. Validation of Invoices. Validate BCO's review and certification of toll call bills, equipment, facilities, service costs and proper payment.

4403. QAP REPORT CONTENTS

a. A QAP report will be generated by the RC's that incorporates review findings identified during the QAP visit. The areas outlined in previous paragraphs will be addressed and covered as a minimum. The QAP report will be coordinated with the BCO. Required actions will be identified and responsibility assigned. Within 90 days of the visit, a QAP visit report will be forwarded to COMNAVCOMTELCOM via the RC. If there are urgent or immediate actions required that include COMNAVCOMTELCOM actions, they will be addressed in separate correspondence to ensure timely responses.

b. The QAP report will be brief and concise and will cover findings, assessments, and recommended actions. The QAP report contents will be organized as follows:

(1) Subject: QAP report of BCO (citing base, station and/or consolidated service area).

(2) Section 1: INTRODUCTION - This section should include dates of the QAP visit, a brief overview of how base communications services are being provided, including the type of system(s) and facilities providing the services.

(3) Section 2: QUALITY ASSESSMENT OF BASE COMMUNICATIONS SERVICES - This section provides review findings and an assessment result of the quality of services being provided system customers. It includes an assessment of the systems, facilities, and equipment providing the services. An assessment of maintenance service shall be performed and will include a review of response times to the service orders. A complete assessment of overall base communications services and facilities should be detailed under this section reflecting the level and Grade-of-Service (GOS) being offered to customers. Any service problems identified should be noted and necessary corrective actions specified.

(4) Section 3: BASE COMMUNICATIONS SERVICE REQUIREMENTS - A review of service requirements will be performed by the RC with the BCO to include both near term and future requirements. Requirements identified will be documented in this section of the QAP visit report along with actions required and an assessment of impact on present services.

(5) Section 4: IN PROGRESS PROJECT REVIEW - An on-site review will be performed on projects in progress (i.e., replacements/upgrades/expansions). Findings and current status, as well as any identified problems, will be covered in this section of the QAP report.

(6) Section 5: REVIEW OF NIIP INFORMATION - A review will be performed with the BCO on the related NIIP information concerning their services and facilities. Inventories of subscriber communications terminal equipment will also be reviewed. This review will include a validation of capabilities and fill rates of the switching system(s) and facilities providing services. Findings and updates will be incorporated into this section of the QAP report.

(7) Section 6: SUMMARY - This section will contain any significant findings or problems that need to be highlighted with recommendations.

c. For BCO's under the NAVCOMTELCOM claimancy, all action items identified in the QAP report will become a suspense file that will be monitored by the RC on a monthly basis until the action is completed and/or the problem corrected. Status on open action items will be closely coordinated with the BCO and updated every 90 days to COMNAVCOMTELCOM. Urgent action items may require more frequent status reporting as determined at the discretion of COMNAVCOMTELCOM (e.g., weekly, monthly).

PART 5

THE NAVAL INFORMATION INFRASTRUCTURE PLAN (NIIP)

4501. GENERAL

COMNAVCOMTELCOM has developed a new management strategy to support implementation of the Navy's BLII. The NIIP is an on-line management tool that has replaced the Base Automated Telephone Management Information System (BATMIS). Elements incorporated into the NIIP involve customer base profiles, details of the telephone switching system, maintenance contract support details, and fiscal information to support base communications efforts. Some new elements have been added that will address short and long-term enhanced support to the BCO's. This involves the new base level communications prioritization scheme, the "ABCD" strategy that determines priorities for BLII modernization. The "ABCD" strategy represents four unique technical approaches that allow adjustments to be made to modernization plans based on mission and size considerations. Under previous modernization plans, all bases were required to meet the same technical specifications without regard to size or mission. The "ABCD" categories are:

a. Category A: Large bases which require a fully-compliant Defense Switched Network (DSN) end-office (EO) or multifunction switch (MFS) including a network management center (NMC). The NMC will also be used for managing local area networks (LAN's), line and trunk testing, and customer service functions, such as telecommunications service requests and customer billing.

b. Category B: Large fleet support bases which require a state-of-the-art integrated voice/data Private Branch exchange (PBX) which can accommodate DSN connectivity. These bases may or may not have a modified NMC. The PBX will support DSN priority access thresholds and meet multi-level precedence preemption.

c. Category C: Small naval installations which require only basic voice switching services with no anticipated transition to higher level service. These bases will use a state-of-the-art PBX, capable of being upgraded to meet future voice and data switching requirements. These bases do not require NMC functions.

d. Category D: Naval installations with no requirement for upgrade or modernization to telecommunications systems. Essentially a CENTREX-type service provided by the local exchange carrier. This category is used when locations are scheduled for closure or realignment and when purchase of telecommunications systems cannot be justified.

4502. RC RESPONSIBILITY FOR THE NIIP

a. The NIIP will be maintained by each of the RC's for systems, facilities, and equipment providing base communications services at Navy ashore installations. Each RC will be responsible for the accuracy of their geographical area. The RC will provide annual revalidation and quarterly updates of the NIIP data base for their AOR to COMNAVCOMTELCOM.

b. The NIIP will be derived and summarized from information provided by the BCO. A general review and update of the information contained in the NIIP will be conducted on a quarterly basis.

4503. SIGNIFICANT CHANGES

When any significant changes occur affecting the present status of individual Navy installations base communications services, NIIP will be updated. All changed information items, no matter how small, shall be forwarded to COMNAVCOMTELCOM via the RC for inclusion in the data base.

4504. DATA BASE INFORMATION SOURCES

The major source for data base information will be the BCO. Obtaining all the data base information on systems and facilities that have been installed and in operation for a long period of time may not be possible. A general review of NIIP information will be conducted annually; updates to be conducted quarterly.

4505. NIIP DATA BASE DESCRIPTION

The NIIP data base is contained in a spreadsheet format providing information relative to a BCO and its contracts, customer base, switch configuration and outside cable plant. The NIIP process and data base structure is depicted in Figures 4.1 and 4.2.

CHAPTER 5

BASE COMMUNICATIONS OFFICE (BCO)

PART 1

INTRODUCTION AND RESPONSIBILITIES

5101. GENERAL

The BCO is the organization at the Navy shore installation (base, station or consolidated service area) that acts as liaison between activities and any service or equipment contractor to ensure the base communications system maintains the highest possible level of efficiency and effectiveness.

5102. BCO RESPONSIBILITIES

The BCO is responsible for the day-to-day management, administration, operations and maintenance of existing base communications facilities and services, whether leased or government-owned, in accordance with the following paragraphs:

a. Manage and provide optimum base communications services and facilities efficiently, effectively, and economically to all activities within the limits of existing resources, while maintaining a level necessary to meet mission essential requirements.

b. Develop and maintain a complete and current inventory of all equipment directly controlled by the BCO (e.g., digital switching equipment, voice mail systems, information transport systems, etc.), to include services being provided to each activity under existing contracts.

c. Administer on-site cable requirements. Maintain all inside and outside cable plant records and configurations, if government-owned. When cable plants are leased and/or contractor maintained and the contractor is responsible for maintaining the cable records, it shall not be necessary to maintain duplicate records when access to these records is readily available.

d. Issue Communication Service Agreements (CSA) under existing DISA Basic Agreements and in accordance with the procedures of this manual. Acquisitions will not exceed the established delegation of commodity procurement authority for each BCO. Requests for equipment or services exceeding the local delegation of procurement authority shall be forwarded to the appropriate RC.

e. Inventory each line item on new or amended ordering documents to ensure information is complete and correct, and that all items have been installed or removed upon completion of work by the contractor. The BCO will also verify accuracy of billing on invoices against the ordering document.

f. Issue Telecommunications Service Requests (TSR's) to the DISA TCO for leased Defense Information Infrastructure (DII) services requested by its supported activities. Liaison with the TCO and affected activity to verify and validate the fulfillment of long-haul base communications requirements for all leased services.

g. Solicit base telephone directory input annually from all activities. Obtain and distribute adequate number of directories.

h. Maintain a log of trouble reports associated with leased or government-owned facilities and services. This includes costing data of materials and labor for contracted maintenance services, and materials for government-owned facilities.

i. Establish and maintain liaison with customers to meet periodically and discuss overall status of the base communications facilities and services. The meetings may be used to solve existing problems or to develop requirements for additional facilities and/or services.

j. Issue TAR's with all pertinent details and requirements for new base communications facilities and/or services to the RC.

k. Plan for new or additional services and facilities requirements for existing or new customers. In conjunction with the appropriate RC, participate in the initial planning of new facilities (under MILCON funding), special projects such as renovation of existing buildings, or major changes to existing buildings.

l. Ensure all activities justify requests for new or additional telecommunications services. Develop procedures to ensure abandoned lines and special equipment is reported to proper authority. Conduct lease versus purchase analysis for existing leases to identify candidates for termination in favor of purchasing the equipment, or obtaining new equipment. Refer to references (w) and (z) of Appendix A.

m. Monitor each base communications project from the planning stage to acceptance of the facilities and/or services.

n. Provide budgeting and funding guidance for base communications services and facilities for all customers and major claimants within their authority, in accordance with reference (g) of Appendix A.

o. Annually solicit user's review/revalidation of special base communications services equipment assemblies via a telephone usage survey.

p. Review and revalidate, on an annual basis, all leased or government-owned services and equipment.

q. Ensure all telephone bills are paid in a timely manner to prevent delayed payment charges.

r. Verify all bills before certification. If verification precludes timely payment of toll calls, 65 COMPT GEN 19, 21 Oct 1985, permits partial payments to avoid late charges.

NOTE: Telecommunications managers are subject to penalties under the Uniform Code of Military Justice or the Civilian Table of Penalties (whichever applies) for failure to comply with Bill Paying/Verification procedures.

s. Provide customers complete and accurate billing for common-user based communications services and equipment and provide up-to-date formulas for billing, using this manual, NAVCOMPT manuals, local exchange billing procedures, and local instructions.

t. Implement a telephone customer education program. As requested, conduct training for all base communications customers, including proper use of telephone directories and directory assistance.

u. Ensure customers are familiar with and in compliance with base level instructions.

v. Establish a Base Communications Control Board (BCCB) as identified in Part 6 of this chapter.

w. Submit Casualty Reports (CASREP's) for BCO telephone equipment failures that meet criteria outlined in NWP 10-1-10. Point of contact for BCO CASREP's is COMNAVCOMTELCOM (N61).

x. Review and revalidate, on an annual basis, the NIIP data base with the RC. Submit updates to the RC on a quarterly basis.

PART 2

PROJECT REQUIREMENTS

5201. DEVELOPMENT

a. The initial step in development of base communications systems is identification of user configuration requirements. The BCO shall liaison with the customer/major claimant initiating the project request, to establish user requirements and to coordinate planning and technical guidance.

b. Customer requirements must be as definitive and detailed as possible to convey the actual needs of the activity. The term "lines" shall apply to both subscriber and trunk requirements. The following are types of requirements to be considered.

5202. SYSTEM EQUIPMENT

a. Base communications systems are usually sized according to two parameters, which are the number of lines equipped and the number of lines wired. Both the line requirements for trunks and subscribers shall be identified by the type of configurations needed (e.g., trunks: DSN, DID, DOD, 2-Way; subscriber: analog voice, digital voice, data, FTS2000, etc.).

b. The "equipped-size" means there are a specific number of lines available for the immediate number of subscribers requiring service when the system is cut into full operation.

c. "Wired-size" means there are additional system connections available and installed for a specific number of subscribers for future expansion; however, additional base communications system equipment (i.e., circuit cards) are needed in order to provide circuits to new subscribers.

d. The number of immediate subscribers to be provided service and a projected subscriber expansion shall be stated in the requirements.

e. System trunking should be designed to provide an acceptable grade of service (GOS) for incoming and outgoing calls. The number of trunks should be based on available traffic data, or accepted traffic engineering practices as an interim, followed by a traffic study once a system is cut into operation. The BCO shall consult the appropriate RC for technical assistance pertaining to traffic engineering and trunking requirements.

f. Conference arrangements shall be identified by type and number of conferences. The type shall be between those related to routine management and administrative meetings and those associated with special missions and emergencies (i.e., Fire/Crash Net and Command Post Operations). An operational procedure should be established which will provide the BCO with information for selecting proper equipment.

g. The number of attendant systems consoles shall also be identified along with other customers requiring special instruments (e.g., multi-line appearance instruments, speaker phones, etc.).

h. Classes of Service (COS):

(1) Before the installation of new services and facilities, the BCO should develop and provide the customer with a survey sheet describing the type of line classes of services (LCOS) and other feature services.

(2) This survey sheet will be used to develop a data base that is used by the BCO to provide appropriate service to each customer. A record of the LCOS should be maintained and updated whenever changes are made.

5203. SUBSCRIBER REQUIREMENTS

a. When planning for new telephone installations or growth in the existing system, the single-line concept shall be used. The BCO shall clearly define all future subscriber requirements in new construction projects. All new building wire distribution systems are to be at least four-pair wired from the building entrance terminal or the telecommunications closet to the subscriber station equipment.

b. With assistance from the BCO, customers should first determine location and number of subscriber stations in all project related areas. For existing wiring, an inspection of all spares available in wall closets, the condition of the wiring and the termination at the subscriber location (i.e., modular jack or hard wired) will reveal necessary action to be taken for expanded growth or the interface of a new system and cabling.

c. Upon determination of these factors, planners shall develop an installation plan showing the layout of rooms and offices, and the cable routing between the wire closets, or the building or floor termination point, and the end instrument. This plan and others shall be integrated to produce details of the system configuration.

PART 3

TECHNICAL ASSISTANCE REQUESTS (TAR)

5301. PROCEDURES

a. Once the BCO has established a list of customer requirements, the next step is to prepare and submit a TAR to the appropriate RC for action. The TAR is a formal letter stating the name of the major claimant/activity that is requesting the project, name and quantity of buildings or locations involved and a brief justification for the request.

b. The TAR and attached requirements shall be submitted to the appropriate RC for review. The RC will determine if the requested project requires a TES. The RC shall develop a schedule, cost estimates and funding required from the requesting activity for the TES or the actual facilities and services required.

c. The project schedule and request for funding shall be returned to the BCO.

PART 4

FUNDING FOR ADMINISTRATIVE BASE COMMUNICATIONS SERVICES

5401. GENERAL

COMNAVCOMTELCOM, under CNO sponsorship, is striving to assume responsibility for all Navy base communications operations. Currently, there are two different types of funding prevalent throughout the Navy: appropriated funded operations (totally mission funded) and reimbursable funded operations (mission and customer activity funded). However, BCO's operating under the reimbursable funded operations are required to transition to total mission funding as soon as budget base transfers of funds can be negotiated. It is anticipated that this will be completed by 1 October 1998 (FY99).

5402. MISSION FUNDED BCO OPERATIONS

BCO's will provide basic telephone service on a totally mission funded basis. Generally, there will be no cost to the customer except long distance calls and customer unique equipment/service. Budgeting and funding guidelines for base communications services will be provided to the BCO in conjunction with the local and/or regional comptrollers. BCO's will continue to be responsible for receiving, auditing, and certifying commercial base communications services. BCO's will pay certified invoices for these services and obtain reimbursements from customer activities in accordance with CSA's and other reimbursable agreements.

5403. REIMBURSABLE FUNDED BCO ACTIVITIES

a. Current reimbursable funded BCO's activities are the result of the functional transfers from Public Works Centers to COMNAVCOMTELCOM activities. By Navy Comptroller (NAVCOMPT) direction, these functional transfers were accomplished without full transfer of resources. Only general and administrative overhead funding was transferred to COMNAVCOMTELCOM with direction from NAVCOMPT to collect all other customer funding on a reimbursable basis. Subsequently, NAVCOMPT determined this concept to be contrary to DOD and Navy regulations.

b. There is an initiative to negotiate functional transfers of funds for services that cannot be specifically identified to a customer (e.g., maintenance of a telephone

switch). Costs of this nature are currently paid by the customer as part of a line rate charge on each line. The line rate system of billing will only be permitted to continue until FY99, when functional transfers will have been made. After which, only long distance calls and customer unique equipment/service (i.e., equipment/ services that can specifically be identified to the customer) will be reimbursed by the customer.

PART 5

BILLING FOR UNOFFICIAL BASE COMMUNICATIONS SERVICES

5501. GENERAL

The authority for billing of base communications services is the Navy Comptroller Manual (NAVCOMPTMAN) and is outlined in reference (g) of Appendix A.

NOTE: This section is meant as a guide and is not intended to alter or amend any provisions of the Navy Regulations, Navy Department General Orders, or any other directives from higher authority. It is intended to provide guidance for day-to-day administration of local base communications systems and facilities.

5502. CERTIFICATION PROCEDURES FOR PAYMENT OF BASE COMMUNICATIONS SERVICES

a. Although billing practices may vary from base to base, all procedures must conform to the NAVCOMPTMAN, Volume 2. In general, all Class B unofficial lines will be billed on a monthly basis based on comparable commercial rates for internal station communications. Personal toll calls may either be restricted from Class B service or if resources and call accounting permit, may be placed through commercial public toll networks and be included in the monthly bill. A surcharge may be permitted for toll service access and may be imposed on all unauthorized calls as outlined in reference (ac) of Appendix A.

b. Customers of Class B service, on a recurring basis, may be required to provide the BCO with a security deposit (cash or check) based on an amount equal to 90 days estimated costs. Monthly billings for actual costs will require payment for those costs to be made within 30 days from billing date. Security deposits will be refunded upon termination of services, after deductions necessary to settle final bill.

c. Customers of Class B service, on a nonrecurring basis or for a short duration, will be required to provide the BCO with advance payment based on the cost estimated for the period. Upon completion or termination of service, underpayment will require additional funds and overpayment will be refunded.

d. Installation and relocation charges for Class B service will be on an actual time and materials basis.

5503. UNOFFICIAL TOLL CALL COLLECTION PROCEDURES

a. The officer responsible for base communications service at each activity is responsible for billing/collecting for unofficial telephone service as outlined in the NAVCOMPTMAN, Volume 4, paragraph 046386. Activity telephones are for official use only. Any unofficial toll calls should be identified and charged to the caller.

b. In some cases the unofficial toll call line item on the BCO monthly toll report may be handled appropriately by reversing the charge to the private telephone number of the caller. Reversing the charge may be done by the activity Base Communications Officer by writing "Transfer to XXX-XXXX" (private telephone number) to the right of the line item. As a result of this notation, the BCO will credit the activity for the amount, and the individual will be billed for the amount plus federal excise tax (FET) by the LEC.

c. Cash collection for unofficial toll calls may be required occasionally, particularly at activities with transient personnel. All toll charges and applicable federal excise tax (FET) would be collected by the activity concerned in compliance with the NAVCOMPTMAN, paragraph 032104-5. Collection of the toll charge and the FET is made on NAVCOMPT Form 2054(3C). Deposit of funds should be made by the activity directly to its disbursing officer in compliance with Volume III NAVCOMPTMAN 032104-6. The activity base communications officer will furnish the Disbursing Officer with a Cash Collection Voucher (DD Form 1131); FET amounts should be clearly noted. The collection procedure is carried out within the activity and does not involve the BCO. However, toll charges requiring investigation must be referred to the BCO.

PART 6

BASE COMMUNICATIONS CONTROL BOARD (BCCB)

5601. GENERAL

The BCO shall establish a BCCB to ensure efficient and economical use of all base communications services/equipment is maintained within their respective AOR. The BCCB should consist of the following members:

- a. BCO representative to serve as chairman.
- b. A representative from each customer activity being served by the BCO for base communications service.

5602. RESPONSIBILITIES OF THE BCCB

The responsibilities of the BCCB contained herein are to serve as guidelines and are not considered all-inclusive.

- a. The BCCB shall, as a minimum, convene on a quarterly basis to review the base telecommunications services and the usage of those services within each activity.
- b. The BCCB shall review and evaluate the annual telephone usage survey conducted by the BCO.
- c. BCCB members provide appropriate assistance to the BCO in implementing defined base communications goals.
- d. Ensure administrative controls are established and appropriate actions taken on unauthorized calls placed over commercial toll, FTS2000, or Defense Switch Network (DSN) circuits.
- e. Conduct annual reviews of reports of authorized telephone toll calls prepared and maintained by the BCO to ensure all calls were as follows:
 - (1) Annotated and verified as official.
 - (2) Approved as operationally necessary.
 - (3) Any suspected unauthorized calls made on an official telephone will be reported to the BCO for investigation.

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f. Advise customers of current on-going activity that may impact telecommunications operations on the base.

g. Update customers on changes to policy as it pertains to base communications.

h. Review MILCON and special projects.

i. Advise BCO of any MILCON's or special projects.

PART 7

COMMUNICATIONS SERVICE AUTHORIZATIONS (CSA)

5701. GENERAL

When an activity/major claimant has a base communications requirement, it shall be sent to the BCO on a service request, or in the form of a letter. To the extent that adequate delegated contracting and commodity authority exists at the BCO, the BCO shall then prepare the necessary ordering document and take the appropriate actions as specified below. CSA Form DD-Form 428 shall be used to order, amend or cancel telecommunications services, in accordance with Defense Federal Acquisition Regulation Supplement (DFARS) 237-7408-3. No typing errors, whiteouts, strikeovers, or handwritten corrections are acceptable.

5702. DEFINITIONS

a. Commodity Authority: is defined as the authority to purchase specific products or services; the acquisition of which is normally restricted to a specific organization(s) within the Navy. Delegation of commodity authority for base communications equipment and services does not constitute a delegation of contracting authority.

b. Contracting Authority: is defined as the authority to enter into, administer, and/or terminate contracts and make related determinations and findings, including authority to designate authorized representatives to act within the limits of their authority as delegated by the contracting officer. Such contracting officer authority derives from within command chains.

5703. PROCEDURES TO FOLLOW WHERE BCO HAS BEEN DELEGATED
COMMODITY AUTHORITY

a. The authorized individual(s) within the BCO shall prepare separate ordering documents for each contractor involved to successfully complete the requested work. Even though the goal is to have a single source contractor provide service and maintenance for all equipment and cabling, some locations will have separate contractors for equipment dial tone (local and long distance) and cabling.

b. The authorized individual shall thoroughly review each ordering document and verify all line items before execution by a warranted contracting officer. All pertinent information that

describes work to be performed or equipment to be ordered shall be provided on the appropriate document with detailed identification. All recurring and non-recurring costs for each item shall also be entered.

c. Refer to Table 5-1 for instructions on filling out a CSA (DD-428) and Table 5-2 for an Order for Supplies or Services Form (DD-1155). Refer to Figures 5-1 and 5-2 respectively for distribution and routing of both orders under delegation of commodity authority.

5704. PROCEDURE TO FOLLOW WHERE BCO HAS NOT BEEN DELEGATED
COMMODITY AUTHORITY

If the BCO does not have a warranted contracting officer or appropriate designated ordering officer at its disposal with delegated commodity authority for executing contracts, they must be submitted through their contractual chain of command for authorization. The BCO shall verify and approve the contract for completeness before forwarding to the contracting officer. Refer to Table 5-1 for instructions on filling out contracts and for processing and routing of contracts.

5705. CSA IDENTIFICATION SYSTEM

A uniform numbering and identification system has been adopted by DOD for contracting and procurement orders. Identification numbers will consist of letters at the beginning identifying particular activities issuing the order in accordance with the DOD Far SUPPL, reference (c) of Appendix A. Next appears the fiscal year in which the order was issued followed by a serial number for each order. Activities not assigned identifying letters in accordance with reference (c) of Appendix A, shall be assigned a block of numbers under COMNAVCOMTELCOM identifying numbers. Originating orders shall be numbered consecutively as issued for the fiscal year. Subsequent orders affecting the original ordering action will contain the basic serial number, an identifying subserial number beginning with the number "1", and the fiscal year of issuance.

Example:

Original Order: JR 86-0001
Subsequent Order: JR 86-0001-1-87

5706. CONSOLIDATION OF BILLING INVOICES

Contractor invoices will be consolidated to the maximum extent possible by using the existing account billing number for additional services ordered.

5707. PREPARING AND SUBMITTING CSA'S

Line by line preparation of CSA's is addressed in Table 5.1.

COMMUNICATIONS SERVICE AUTHORIZATION (CSA)		
BLK	TITLE	EXPLANATION
1	Authorization a. Number	This is the CSA number. This number consists of three parts: the two-digit call number, the fiscal year, and the sequential number beginning with 0001. Each modification affecting the original order will contain the original number with a sub-serial addition beginning with "1" and the fiscal year of issuance. EX: Orig. Order JR 90-0001 Modification JR 90-001-1-91
	b. Date	Current date CSA is forwarded to the vendor/contractor.
2	Authorization a. Number	The contract number for the vendor/contractor to whom the CSA is being issued. EX: DCA200-83-H-002 If contract number is not known, contact appropriate RC for the number.
	b. Date	The date the contract with the vendor became effective (EX: 17 June 1983).
3	Circuit or Bill Number	For new service type "Please Provide." For changes to existing service, or if only one billing is desired, type in the main billing number or account number. NOTE: With one main billing number, individual telephone numbers with their charges will be listed upon request. If you currently have multiple bills from the same vendor and would like to consolidate under one main billing number, submit a CSA to your vendor giving the current billing numbers and specify the main billing number desired.
4	From	Enter the proper BCO providing telephone service. Provide complete name and address
5	Submit Bills for Certification to	Provide the complete mailing address of where bills are to be sent for certification.
6	To	Provide name and complete mailing address of vendor/contractor. If possible, give a point of contact telephone number. If contractor is not known, contact appropriate RC for name.

Table 5.1 - CSA Preparation Instructions

COMMUNICATIONS SERVICE AUTHORIZATION (CSA)		
BLK	TITLE	EXPLANATION
7	Telephone Number to Contact for Details	Provide name and local telephone number including area code. Do NOT use DSN numbers.
8	Authority to Perform Service	Provide exact location of where work is to be done. Include activity, building number, room number, etc.
9	Description of Service a. Description	Give a complete description of work to be done (in plain English). Number each item starting with 0001. Following description, provide a reasonable desired completion date (4-6 weeks). When ordering dial tone (new line), provide name of the long distance carrier and appropriate directory listing if a listing is desired. Next, provide appropriation data or line of accounting. (Example: AA178497.1284.00 77777 08345 2D 600000 NP60123N) followed by authorizing signature if other than contracting officer. At the bottom of this block type the following statements: "No modifications will be made to this CSA. Government obligations under this contract will be subject to availability of funds. Upon acceptance please return signed original and one copy." NOTE: Any control numbers needed by the activity should go in this block.
	b. Number	Provide quantity of service requested.
	c. Non-recurring Charge	Provide installation fees or one-time charges. Give a total for non-recurring charges. (Be sure to check current charges with the vendor/contractor.)
	d. Rate Per Month (1) Per Unit	Provide price per unit. (Be sure to check current prices with vendor/contractor.)
	(2) Total	Price per unit times quantity. Give a total rate per month in this column.
10	Typed Name and Grade of Disbursing Officer Making Payment	Provide a complete name and address of disbursing or paying office.

Table 5.1 - CSA Preparation Instructions (Cont.)

COMMUNICATIONS SERVICE AUTHORIZATION (CSA)		
BLK	TITLE	EXPLANATION
11	Authorizing Official Signature	The person authorized by the Commanding Officer with a warrant should sign here. Leave blank if submitting through contractual chain of command.
	a. Title	Type title of authorizing official. Leave blank if submitting through contractual chain of command.
	b. Grade	Leave grade block blank.
12	Distribution	Provide the short title of activities needing copies. The following should be included on all CSA's issued at the BCO level. Regional Coordinator Activity certifying service (Block 4), Activity receiving service (Block 8), and Disbursing Office (Block 10).
13	Acceptance	Provide the name of the vendor or firm contractor (same as Block 7).
	a. Name of Contracting firm	
	b. Signature of Contractor's Representative	Leave blank. Contractor will sign upon acceptance .
	c. Date Signed	Contractor will date upon acceptance.

Table 5.1 - CSA Preparation Instructions (Cont.)

COMMUNICATION SERVICE AUTHORIZATION				<i>Form Approved</i> <i>OMB No. 0704-0231</i> <i>Expires Dec 31, 1991</i>	
Public reporting for this collection of information is estimated to average 2 hours, 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operation and Reports, 1315 Jefferson Davis Highway, Suite 1204, Arlington, VA 23202-4302, and to the Office of Management and Budget, Paperwork Reduction Report (D 704-0231), Washington, DC 20309					
1. AUTHORIZATION		2. AUTHORIZATION		3. CIRCUIT OR BILL NUMBER	
a. NUMBER	b. DATE (YYMMDD)	a. NUMBER	b. DATE (YYMMDD)		
4. FROM (Include Zip Code)			5. SUBMIT BILLS FOR CERTIFICATION TO (Include Zip Code)		
6. TO (Communications Company Name and Address - Include Zip Code)			7. TELEPHONE NUMBER TO CONTACT FOR DETAILS (Include Area Code)		
			8 AUTHORIZATION: In accordance with provisions of the contract indicated above of which this authorization forms a part, authority is hereby given to the communications company indicated in Item 6, to establish or perform services for official use as prescribed below at:		
9. SERVICE(S)					
a. DESCRIPTION		b. NUMBER	c. NON-RECURRING CHARGE	d. RATE PER MONTH	
				(1) Per Unit	(2) Total
10. DISBURSING OFFICER MAKING PAYMENT			12. DISTRIBUTION		
a. TYPED NAME (Last, first, Middle Initial)		b. GRADE			
11. AUTHORIZING OFFICIAL					
a. SIGNATURE					
b. TITLE		c. GRADE			
13. ACCEPTANCE					
a. NAME OF CONTRACTING FIRM		b. SIGNATURE OF CONTRACTOR'S REPRESENTATIVE		c. DATE SIGNED (YYMMDD)	

PART 8

USE OF MEMORANDUMS OF AGREEMENT (MOA) AND
INTERSERVICE SUPPORT AGREEMENTS (ISSA)
IN PROVISIONING BASE LEVEL COMMUNICATIONS SERVICES

5801. GENERAL

a. Recurring services provided by the BCO and under what conditions these services are provided must be documented. A MOA should be used to define the general areas of conditional agreement between the BCO and its customers. MOA's that establish responsibilities for providing recurring support on a cost reimbursable basis should be supplemented with a support agreement.

b. The policy and procedures governing the establishment and execution of support agreements can be found in DODINST 4000.19, Interservice and Intraservice Support. The command designated Support Agreements Officer, is responsible for preparing support agreements, including MOA's, using information provided by functional (BCO) and financial managers, coordinating negotiations and approvals, and administering support agreement execution, reviews, and eventual termination, in accordance with DODINST 4000.19.

c. Interservice support is defined as support provided by one DOD activity to a DOD activity of another military service, defense agency, unified combatant command, Army Reserves, Navy Reserves, Air Force Reserves, Marine Corps Reserves, Air National Guard, or field activity.

d. Intragovernmental Support is support provided to or received from non-DOD Federal activities. All support agreements for supplies and services provided to or received from non-DOD Federal activities must comply with 31 U.S.C. 1535.

e. Recurring interservice and intragovernmental support that requires reimbursement should be documented on a DD Form 1144 - Support Agreement. No cost agreements with city, county, state and Federal government activities, or non-profit organizations should be executed with a MOA and a Memorandum of Understanding (MOU).

f. Interservice and intraservice support agreements should be reviewed when changing conditions or costs require substantial alterations to the agreement or development of a new agreement. At a minimum, interservice and intragovernmental support agreements should be reviewed on an annual basis. BCO support agreements should be reviewed prior to the beginning of the fiscal year to permit appropriate adjustments to budgeted funding by the receiving activity.

5802. FILLING OUT THE DD-1144 - SUPPORT AGREEMENT

Table 5.2 outlines general preparation instructions for filling out a Support Agreement. Recurring interservice and intragovernmental support that requires reimbursement should be documented on this form.

BLK	TITLE	EXPLANATION
1	Agreement Number	This number is assigned by the Supplier.
2	Superseded Agreement Number	If the new support agreement replaces an existing agreement, the existing support number is inserted.
3	Effective Date	Self-explanatory.
4	Expiration Date	Support agreements should be effective for an indefinite period of time unless there is a compelling reason to specify a specific expiration date.
5a	Supplying Activity/Name and Address	Self-explanatory.
5b	Supplying Activity/Major Command	The Supplying Activity's parent command.
6a	Receiving Activity/Name and Address	Self-explanatory.
6b	Receiving Activity/Major Command	The Receiving Activity's parent command or major claimant activity if the Receiving Activity is an echelon three command.
7	Support Provided by	Blocks 7a, 7b, and 7c should contain sufficient summary information to identify the types of support that will be provided (i.e., support categories, the cost per unit of reimbursable support (i.e., basis for reimbursement) , and an estimate of annual funding required for the specified support (i.e., estimated reimbursement). Additional details and information required to clearly define all requirements and expectations pertaining to the support for that will be provided and development of cost data for each category of support should be provided as an attachment to Block 12, "Specific Provisions".
7a	Support	Categories of support may be combined, subdivided into smaller categories, or otherwise modified as required to accurately define the agreed upon support in a way that incremental direct cost incurred to provide the support can be tracked by the supplier.

Table 5.2 - DD-1144 Preparation Instructions

BLK	TITLE	EXPLANATION
by the support measurable and When are must	7b Basis for Reimbursement	The basis for reimbursement shall be determined supplier's computation of incremental direct costs incurred by the supplier to provide each unit of provided to the receiver. Costs must be segregated on a reasonable and equitable basis. support services provided without reimbursement listed in block 7a, a "no reimbursement" notation be included in blocks 7b and 7c.
has approvals	8 Supplying Component 8c Approval Authority	Blocks 8a and 8b are self-explanatory. The activity commander, director or chief who authority over personnel and materials utilized in providing the specified support. Additional required for intragovernmental orders should be attached to the support agreement.
has intragovernmental agreement.	9 Receiving Component 9c Approval Authority	Blocks 9a and b are self-explanatory. The activity commander, director or chief who authority over the mission receiving the support. Additional approvals required for orders should be attached to the support
	10 Termination	10a, b, c, and d are self-explanatory. Block 10 is completed only when the support agreement is terminated prior to scheduled expiration date.
the the	11 General Provisions	This block should contain the names of parties to agreement not included in Block 6, documentation requirements, and general provisions essential to

documentation		execution of the support agreement. A
permit		process should be specified for billings and disbursements. It should be of sufficient detail to
billings.		support receivers to validate the accuracy of
changes		The degree to which support and cost basis
		(e.g., percent) may be made annually without submitting changes to the agreement approval authorities should be defined. Further instructions on appropriate information to be inserted in Block
11		are contained in DODINST 4000.19.
	12	Specific Provisions
		Specific details essential to a clear understanding of the support to be provided (categories of support), the methods used to determine the basis of reimbursement, and that the projected quantity of support used to calculate the estimated estimated annual reimbursement shall be recorded
in		recorded in Block 12.

Table 5.2 - DD-1144 Preparation Instructions (Cont.)

SUPPORT AGREEMENT

1. AGREEMENT NUMBER (Provided by Supplier)	2. SUPERSEDED AGREEMENT NO. (If this replaces another agreement)	3. EFFECTIVE DATE (YYMMDD)	4. EXPIRATION DATE (May be "Indefinite")
5. SUPPLYING ACTIVITY		6. RECEIVING ACTIVITY	
a. NAME AND ADDRESS		a. NAME AND ADDRESS	
b. MAJOR COMMAND		b. MAJOR COMMAND	
7. SUPPORT PROVIDED BY SUPPLIER			
a. SUPPORT (Specify what, when, where, and how much)		b. BASIS FOR REIMBURSEMENT	c. ESTIMATED REIMBURSEMENT
36 COMMUNICATIONS SERVICES (See Specific Provisions)		COMMUNICATION SERVICES ACTUAL COST	
ADDITIONAL SUPPORT REQUIREMENTS ATTACHED: <input type="checkbox"/> YES <input type="checkbox"/> NO			
8. SUPPLYING COMPONENT		9. RECEIVING COMPONENT	
a. COMPTROLLER SIGNATURE	b. DATE SIGNED	a. COMPTROLLER SIGNATURE	b. DATE SIGNED
c. APPROVING AUTHORITY		c. APPROVING AUTHORITY	
(1) Typed Name		(1) Typed Name	
(2) Organization	(3) Telephone Number	(2) Organization	(3) Telephone Number
(4) Signature	(5) Date Signed	(4) Signature	(5) Date Signed
10. TERMINATION (Complete only when agreement is terminated prior to scheduled expiration date.)			
a. APPROVING AUTHORITY SIGNATURE	b. DATE SIGNED	c. APPROVING AUTHORITY SIGNATURE	d. DATE SIGNED

PART 9

INVENTORY CONTROL POLICY AND PROCEDURES

5901. POLICY

The BCO is required to develop and maintain a complete and current inventory of the base communications equipment and services directly controlled by the BCO only. In developing the inventory data base for each BCO, location of the base communications equipment, including outside cable plant (leased and government-owned), long-haul circuits, and the type of services rendered by the contractor or provided by the BCO should be entered.

a. A physical record shall be maintained for each piece of base communications equipment or service provided by the BCO. This physical record should include, at a minimum, the following information:

- (1) Base location.
- (2) Command name, address, city, state and zip code.
- (3) Command Unit Identification Code (UIC).
- (4) Department name and office code to which the equipment or service is provided.
- (5) Building identification and room number where the equipment or service is located.
- (6) Station number and users' name.
- (7) Type of equipment (e.g., single line, digital, facsimile machine, modem, etc.).
- (8) Indicate whether equipment is leased or government-owned.
- (9) Point of contact for command and department's base communications service requests.
- (10) Copy of ordering documentation.
- (11) Contract number of contracting vehicle used to procure equipment or service.

(12) Copy of Telecommunications Service Request or similar document from the activity requesting the equipment or service.

(13) Copies of trouble and service calls related to the equipment or service.

(14) Copy of documentation indicating equipment or service was installed or cutover.

(15) For equipment, an identification number from a standard tagging system.

b. The BCO shall inventory on an annual basis all leased and government-owned base communications equipment and services, as well as review and revalidate all requirements for base communications equipment and services.

c. Periodically, but not less than once a year, the BCO should conduct market surveys to ensure that equipment and services are being acquired at the most economical cost available. As stated in Chapter 5, Part 1, paragraph 5101, the BCO should conduct lease-versus-purchase analysis for existing leases to identify candidates for termination in favor of purchasing the equipment, or obtaining new equipment. A lease-versus-purchase analysis should be conducted on existing equipment on an annual basis to coincide with lease renewal, this is a minimum requirement. Lease-versus-purchase analysis can be conducted on existing equipment periodically throughout the year as well to determine if it is economical to remain under a lease agreement for the entire leasing period. Uneconomical contracts should be terminated.

d. Action should be taken promptly to terminate the lease of any equipment or service that no longer meets a bona fide requirement. Government-owned equipment no longer required should be either maintained by the BCO for future use or reported to the Regional Coordinator for possible use at other BCO's. The BCO should promptly reconcile their base communications invoices to communications services inventories and authorized acquisition documents before authorizing payment to ensure that the DOD only pays for equipment and services received. Leased equipment and services identified on the established inventory, but can not be located or do not exist, should be reported to the equipment or service vendor for bill reconciliation. Government-owned equipment identified on the inventory but can not be located should be reported to Security.

5902. PROCEDURES

a. The following are suggested procedures for establishing and maintaining an inventory of base communications equipment and services:

(1) Identify all customers receiving BCO services and lines of accounting for those customers.

(2) Establish an electronic data base and a physical record of all base telecommunications equipment and services. If an inventory does not exist or has not been updated within the past two years, an inventory can be started using current vendor invoices.

(3) With customer's assistance, physically locate all telephone equipment and those services provided and identify the building, room number and name of user at a minimum. All equipment and service found, but not included on the existing inventory or vendor invoices, should be identified and included in future inventories.

(4) After locating equipment and services, determine if equipment or service satisfy a valid requirement. If not, promptly discontinue leasing that equipment or service if leased or remove if the equipment is government-owned.

(5) To determine if telephone lines are being used and meet valid requirements, using the base telephone book, call each telephone number. If there is no answer, continue to call the number at varying times of day and days of the week. If the number is still not being answered, report findings to the command to which the telephone number is associated and request the command validate the requirement for that telephone line. If the line is determined not to meet a valid requirement, disconnection procedures should be implemented immediately. An automated system has been provided to each RC to accomplish the above line utilization audit.

b. The base communications inventory should be the vehicle used to reconcile billings of specific equipment, services and lines of accounting.

CHAPTER 6

USERS OF BASE COMMUNICATIONS SERVICES AND FACILITIES

6101. GENERAL

Customers of base communications services and facilities are military departments, government and commercial agencies located and operating within DON shore installations. Customers in these areas will be provided base communications services and facilities in accordance with this manual and current DOD and DON policy, and will be dependent upon the designated BCO of the Navy installation for provisioning of communications services. The customers will program and fund for their base communications requirements, as required. Customers requiring a better understanding of base communications services and facilities should refer to Appendices C, E, F, and G.

6102. ACQUIRING BASE COMMUNICATIONS SERVICES AND FACILITIES

a. As requirements are generated for office or department moves, additions or deletions; it also follows that the requirements for base communications services and facilities will change. When the customer realizes that there is a future change in communications requirements, the first and foremost objective is to summarize or outline the scope of the change and the services needed to satisfy the requirement. These requirements must then be submitted and reviewed by the designated BCO serving the Navy installation or area. Soon after the submission of the requirements to the BCO, if necessary, a meeting will be scheduled to discuss and clarify any questions that may arise following the review. Once the requirements have been validated, the BCO will then provide the required services and facilities if within their delegation of authority or will submit the requirements to the appropriate RC for further action.

b. Customers at Navy installations are prohibited from acquiring base communications services, equipment, and facilities on their own. All requests shall be submitted to the BCO. In addition, the customer shall coordinate all additions, moves and changes in base communications services, equipment, and facilities with the BCO for the purposes of maintaining accurate records.

c. LAN designers should coordinate with the BCO prior to installation. The first transmission media to be considered is the base cable plant, when available. New buildings will be designed with cable provisions for voice, data, and alarm systems built in.

6103. BASE COMMUNICATIONS REQUIREMENTS FOR NEW PROJECTS

a. Base communications requirements for new projects involving several customers and extending beyond routine changes under existing contracts will be submitted to the BCO in a formal letter. The letter should contain the reason for the requested project and supporting data describing all locations, number of subscribers, types of services and any special requirements such as secure voice or emergency action requirements. The BCO will use this data to develop a TAR to be submitted to the RC for review and scheduling. A reply concerning the TAR shall be returned to the BCO. The reply will inform the customer that the requested services and facilities can be provided or that the project requires a TES.

b. The RC will advise the BCO of the necessary procedures and tasks to be performed to implement the project. If the project exceeds delegated contractual authority, the RC will advise the BCO how to proceed.

6104. ACQUIRING LOCAL DIAL TONE SERVICE AND CPE MOVES AND RELOCATIONS

A CSA may be used to obtain local regulated dial tone service under existing DISA basic agreements. Relocation of leased or government owned CPE requires the necessary ordering document as called for in the contract being used.

6105. REQUEST FOR SERVICE (RFS)

The customer will complete and submit an RFS to the BCO, in accordance with reference (ai) of Appendix A.

6106. CONNECTION APPROVAL (CA)

Customers located in foreign nations should refer to Appendix B and consult the appropriate BCO and RC when considering projects involving the installation of U.S. government-owned equipment. CA must be considered early in the project stages because of the time and procedures involved to receive approval. All requests for CA will be submitted to COMNAVCOMTELCOM.

CHAPTER 7

GENERAL INFORMATION CONCERNING BASE COMMUNICATION SERVICES AND FACILITIES

PART 1

TECHNICAL STANDARDS FOR CONNECTION OF SPECIALIZED CUSTOMER EQUIPMENT AND SYSTEMS

7101. POLICY

In accordance with DOD and DON policy, it is COMNAVCOMTELCOM policy that all telecommunications facilities will be standardized to the maximum extent possible. There are several networks with which Specialized User Equipment and Systems (SUES) may be inter-connected to accomplish inter-base information transfer. The most common are AUTODIN and DISN. The local base cable distribution system will be used as the primary means to accomplish intra-base information transfer. Expansions of the transmission media required to support the system requirement are programmed through normal procedures (i.e., requirement will be included in the program and budget cycle).

7102. INTERFACE STANDARDS

The standards to be cited for low-level digital communications interfaces between the data terminal equipment and the data circuit-terminating equipment are MIL-STD-188-144 (EIA Standard RS-449) for the functional and mechanical characteristics. If the use of FED-STD-1031 is not compatible with the customer's current equipment, the use of RS-232-C may be authorized. The customer must make a written request to justify the deviation during the planning stages of the SUES.

7103. INTERCONNECTION TO AUTODIN/DISN/DSN

Interconnection to AUTODIN/DISN/DSN requires certain protocols, codes, and formats depending on the mode of operation. There are five different modes of operation provided in AUTODIN (Mode I, II, III, IV, and V). These modes of operation, the protocols, codes, and formats are described in detail in DISA Circular 370-D175-1. When connected directly to AUTODIN, any of the five modes of operation are permitted. However, when interconnection to AUTODIN is accomplished via the Naval Communications Message Processing and Routing System (NAVCOMPARS), only Modes I and II operations are permitted.

NAVCOMPARS does not permit special modes of operation (Interim Remote Terminal) interface mode, MMCCS interface mode and the DPI interface mode) as is described in the AMME programmers' reference manual (this mode is then converted to Mode I for DCS transmission). These terminals must pass certain operational tests before interconnectivity is permitted to ensure that the correct protocols, codes, and formats are being used. See reference (z) of Appendix A.

7104. INTERCONNECTION TO DISN

Interconnection to DISN will be accomplished by using a DISN interface with the associated protocols, codes, and formats as specified in DISA Circulars.

7105. OTHER THAN DISN INTERFACE

The interface standards, protocols, codes and formats to be used when interconnecting with any other existing network other than the DISN must be compatible with the appropriate network parameters. If a new network is being established, the interface standards to be used are those listed in paragraph 7102. The code to be used will be ASCII, and the protocols and formats will be compatible with the data terminal equipment to be interconnected.

7106. TECHNICAL PARAMETERS

The technical parameters in the MIL-STD-188 series are mandatory for use within DOD. The technical parameters in the FED-STD series with Federal Supply Classification of Telecommunications (FED-STD-100 series) are mandatory for use within all Federal agencies to include DOD. Request for waiver or deviation will be submitted to COMNAVCOMTELCOM with supporting rationale.

7107. FILLING OUT THE DD FORM 1155

The following provides general information for filling out an Order for Supplies or Services DD Form 1155 (See Table 7.1). Products and service orders should be submitted separately. Partial shipments, when acceptable, should be noted in Block 18 with an asterisk (*). When partial shipments are allowed, Block 19 should include the statement "Only those CLINs/SLINs marked with an "*" are authorized for partial payment and delivery." Separate delivery orders are required for products, maintenance, training, replacement parts and documentation.

BLK	EXPLANATION
Block 1	Enter N66032-91-D-0002 (example).
Block 2	Enter appropriate four (4) characters code (per DFARS). Do not use "I" or "0" in the first two positions.
Block 3	Enter order date.
Block 4	Enter Requisition/Purchase Request Number.
Block 5	May or may not be filled in. It is dependent on what product or service is on the order.
Block 6	Enter complete address and code.
Block 7	<p>(1) Products: Enter the following address.</p> <p style="padding-left: 40px;">DCMAO-Baltimore 200 Towsontowne Boulevard, West Towson, MD 21204-5299 Code S2101A</p> <p>(2) Maintenance and Training and Invalid Fund Cite*:</p> <p style="padding-left: 40px;">Enter as appropriate.</p>
Block 8	Check "Destination."
Block 9	<p>Enter GTSI's address and code:</p> <p>Government Technology Services, Inc. 4100</p>

Table 7.1 - DD-1155 Preparation Instructions

ORDER FOR SUPPLIES OR SERVICES <i>(Contractor must submit four copies of invoice)</i>										<i>Form Approved OMB Bo. 0704-0187 Expires Aug 31, 1992</i>		PAGE 1 OF					
Public reporting for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information including suggestions for reducing the burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0187), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send your completed form to the procurement official identified in Item 6.																	
1. CONTRACT/PURCHASE ORDER NO.		2. DELIVERY ORDER NO.		3. DATE OF ORDER		4. REQUISITION-PURCH REQUEST NO.				5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1 DO							
6. ISSUED BY: CODE				7. ADMINISTERED BY (If other than 6) CODE				8. DELIVERED FOB <input type="checkbox"/> DEST <input type="checkbox"/> OTHER <i>(See Schedule if other)</i>									
9. CONTRACTOR CODE				FACILITY CODE		10. DELIVER TO FOB POINT BY (DATE)				11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMAN-OWNED							
NAME AND ADDRESS						12. DISCOUNT TERMS				13. MAIL INVOICES TO							
14. SHIP TO CODE				15. PAYMENT WILL BE MADE BY CODE				MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER									
16. TYPE OF ORDER	DELIVERY	This delivery order is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.															
	PURCHASE	Reference your _____ furnish the following on terms specified herein. ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED. SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.															
NAME OF CONTRACTOR				SIGNATURE				TYPED NAME AND TITLE				DATE SIGNED					
<input type="checkbox"/> If this box is marked, supplier must sign. Acceptance and return the following number of copies:																	
17. ACCOUNTING AND APPROPRIATION DATA																	
ITEM NO.	APPROPRIATION SYMBOL AND SUBHEAD	OBJECT CLASS	BUREAU CONTROL NO	SUB-ALLOT	AUTH ACCTG ACTY	TRANS TYPE	PROPERTY ACCTG ACTY	COUNTRY	COST CODE	AMOUNT							
18. ITEM NO.	19. SCHEDULE OF SUPPLIES/SERVICES				20. QUANTITY ORDERED ACCEPTED*		21. UNIT	22. UNIT PRICE		23. AMOUNT							
* If quantity accepted by Government as same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.												24. UNITED STATES OF AMERICA		25. TOTAL			
26. QUANTITY IN COLUMN 20 HAS BEEN <input type="checkbox"/> INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED												BY:		CONTRACTING/ORDERING OFFICER		29. DIFFERENCES	
DATE				SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE				27. SHIP NO		28. D.O. VOUCHER NO.		30. INITIALS					
								<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		33. AMOUNT VERIFIED CORRECT FOR							
36. I certify this account is correct and proper for payment.						31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		34. CHECK NUMBER									
DATE				SIGNATURE AND TITLE OF CERTIFYING OFFICER				35. BILL OF LADING NO.									
37. RECEIVED AT		38. RECEIVED BY		39. DATE RECEIVED		40. TOTAL CONTAINERS		41. S/R ACCOUNT NUMBER		42. S/R VOUCHER NO.							

ORDER FOR SUPPLIES OR SERVICES <small>(Contractor must submit four copies of invoice.)</small>							Form Approved OMB No. 0704-0187 Expires Aug 31, 1992	PAGE 1 OF #		
<small>Public reporting for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information including suggestions for reducing the burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0187), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send your completed form to the procurement official identified in Item 6.</small>										
1. CONTRACT/PURCHASE ORDER NO. N66032-91-D-0002		2. DELIVERY ORDER NO. (MUST BE 4 DIGITS)		3. DATE OF ORDER 10-08-2001		4. REQUISITION-PURCH REQUEST NO. (FILL IN)		5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG DO		
6. ISSUED BY: (PLACE) (#, STREET, SUITE) (CITY, STATE, ZIP CODE)			CODE (6 DIGITS)	7. ADMINISTERED BY (If other than 6) DCMAO-BALTIMORE * 200 TOWSONTOWN BLVD., WEST TOWSON, MD 21204-5299			CODE S2101A	8. DELIVERED FOB <input type="checkbox"/> DEST <input type="checkbox"/> OTHER <small>(See Schedule if other)</small>		
9. CONTRACTOR NAME AND ADDRESS GOVERNMENT TECHNOLOGY SERVICES, INC. 4100 LAYFETTE CENTER DRIVE CHANTILLY, VA 22021			CODE 8Y261	FACILITY CODE	10. DELIVER TO FOB POINT BY (DATE) LAW CONTRACT		11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMAN -OWNED	12. DISCOUNT TERMS NET 30 DAYS		
14. SHIP TO (ACTIVITY) (BUILDING #) (POC & PHONE NUMBER) (STREET) (CITY, STATE, ZIP CODE)			CODE	15. PAYMENT WILL BE MADE BY DFAS-PHILADELPHIA P.O. BOX PHILADELPHIA, PA 19101-7478			CODE S3910A	MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER		
16. TYPE OF ORDER	DELIVERY	PURCHASE	This delivery order is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract. Reference your _____ furnish the following on terms specified herein. ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED. SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.							
NAME OF CONTRACTOR		SIGNATURE		TYPED NAME AND TITLE		DATE SIGNED		<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:		
17. ACCOUNTING AND APPROPRIATION DATA										
ITEM NO.	APPROPRIATION SYMBOL AND SUBHEAD	OBJECT CLASS	BUREAU CONTROL NO	SUB-ALLOT	AUTH ACCTG ACTY	TRANS TYPE	PROPERTY ACCTG ACTY	COUNTRY	COST CODE	AMOUNT
	##	#	#	#	#	#				##
18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES				20. QUANTITY ORDERED ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT		
(CLIN #)	(DESCRIPTION)**									
* If quantity accepted by Government as same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.		24. UNITED STATES OF AMERICA					25. TOTAL		\$ #	
26. QUANTITY IN COLUMN 20 HAS BEEN <input type="checkbox"/> INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED		DATE		SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		27. SHIP NO.		28. D.O. VOUCHER NO.		
						<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		29. DIFFERENCES		
36. I certify this account is correct and proper for payment.		DATE		SIGNATURE AND TITLE OF CERTIFYING OFFICER		31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		30. INITIALS		
								33. AMOUNT VERIFIED CORRECT FOR		
								34. CHECK NUMBER		
								35. BILL OF LADING NO.		
37. RECEIVED AT		38. RECEIVED BY		39. DATE RECEIVED		40. TOTAL CONTAINERS		41. S/R ACCOUNT NUMBER		
								42. S/R VOUCHER NO.		

DD FORM 1155 (8PT), MAY 90

Previous editions are obsolete

S/N 0102-LF-011-4700

* EXCEPTIONS:

1. Non-Appropriated Fund Orders
2. Maintenance Orders
3. Training Orders

** If Issuing Office routinely adds an "Inspection & Acceptance" note to order, it must read Origin" Exceptions:

1. Training
2. Maintenance

PART 2

DETACHED TELECOMMUNICATIONS (DetTel) SYSTEMS

7201. GENERAL

a. Technology vs. Function. This area of telecommunications is such a burgeoning one that it must be dealt with in generic terms. It is vital that we not tie our definition to a particular technology, but rather to the function itself - as we are trying to do here. Function is at least fairly long-lived; technology, on the other hand, is fleeting and demands a whole new set of rules every time it changes.

b. Definition. DetTel includes many types of point-to-point telecommunications wherein the end-user utilizes a terminal or instrument to access or be accessed by a remote system using any technology as long as that terminal or instrument is without benefit of physical connection, (i.e., as long as it is DETACHED). It is not required, now, that there be no physical connection in any part of the link between the terminal or instrument and the remote system. Certainly, a ground leg of an otherwise satellite-oriented link between terminal and system would not disqualify the terminal from being DetTel. In like manner, just because there is a non-physical connection somewhere in an otherwise traditional 'hardwired' system (like a microwave link in a long distance network), doesn't mean that the system is DetTel. The key here is the end-terminal or end-instrument. Whether or not it is physically connected determines whether it is or is not Detached Telecommunications.

c. Future. At present, DetTel is practically all radio based. Someday, though, we may have DetTel that is based on LASER or other transmission media.

7202. ADMINISTRATION

a. Acquisition. Although DetTel facilities are not directly connected to a hardwired telecommunications network, they must be treated as if they were. Similar to other federal information processing (FIP) resources, they come under the purview of the Base Communications Office and are acquired only through that office. One particular feature of DetTel is the marriage (by vendors) of equipment and network access or service (e.g., where the equipment cost can vary depending on the type and duration of service). This should be kept in mind during

the acquisition process. DetTel is indeed a system – one that includes both equipment and service. Where possible, for economy of scale, one contractor in a given geographical area should be used for a given type or types of DetTel.

b. Official Use. DetTel is to be used for conducting official government business only and to fulfill specific, valid requirements. The government employee assigned the DetTel is responsible for safeguarding its use – for incoming as well as outgoing calls. The assignee must not give out for unofficial business any calling number for which incoming calls may incur a cost.

c. Costs. All expenses for DetTel will be the responsibility of the requesting activity; this includes purchase or lease costs and recurring charges.

7203. EXAMPLES

Some examples of DetTel available to the Navy today are:

TYPE OF DetTel	REMARKS
Mobile Telephones	Assigned individual frequencies
Cellular Telephones	Using multiple frequencies and stationary cells
Satellite Telecommunications	Using moving lobes
Portable Telecommunications	With base station -Limited range
Electronic Paging Systems	The dividing line between pagers and telephones is blurring. Some pagers now have 2-way capability.
In-building Wireless Systems	
Wireless LANs	

Personal Communications Systems (PCS)

Table 7.2 - Examples of DetTel

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7204. CONTROL OF HARDWARE

a. Basic. The end instruments/terminals (hereinafter referred to as DetTel devices) used in DetTel systems are the visibly and uniquely identifying characteristic of DetTel. They are what sets DetTel apart from the traditional telecommunications system. Because they are also valuable and pilferable, they deserve special attention in this directive. The guidelines that follow are provided for the proper control of these devices.

b. Custody. The requirements mentioned above are understood to be entirely temporary and upon expiration of the requirement, the device will be returned. The devices will not be assigned on even a semi-permanent basis such as installing in a user's automobile.

c. Security. Stolen and missing devices must be reported immediately.

7205. SPECIAL USE

Detached Telecommunications (DetTel) is especially useful in a crisis or disaster control atmosphere - where there may be little or no traditional communications. Elsewhere in this manual, that use of DetTel is addressed thoroughly - under the topic Alternative Communications.

7206. RATIONALE

There is indeed some rationale behind the title chosen for this field of telecommunications - mostly reasons for not using certain words and expressions. The Requirements and Plans Directorate (N5) of COMNAVCOMTELCOM played a large part in the choice, as did Reserve personnel with heavy, ongoing, day-to-day experience in the field. Suffice it to say the title was not chosen lightly, or on a whim, but with much consternation and with earnest consideration of the various possibilities. Details of this rationale may be obtained from headquarters.

CHAPTER 8

CABLE TELEVISION SERVICE

8101. USE OF NAVY REAL PROPERTY BY CABLE TV COMPANIES

This chapter contains the policy for use of Navy real property by cable television companies. In most cases, use of real property will be provided for within the terms of the franchise agreements. This will eliminate confusion regarding appropriate methods for providing the real property. It will also be consistent with the policy of the Assistant Secretary of the Navy (Shipbuilding and Logistics), wherein "all future requirements for use of real property in connection with supply of services contracts should be covered under the terms of the contract." The Navy Broadcasting Service (NBS), is responsible for cable television policies.

Use of Navy real property by cable television companies in conjunction with franchise agreements approved by the Director, NBS, and issued by base commands, shall be provided for within the terms and conditions of the franchise agreement without involvement of the COMNAVFACENGCOCOM Engineering Field Division (EFD), unless otherwise requested. The use of real property in which the real estate rights contemplated are in the nature of an easement, or other long-term use, or is costly, or controversial or requires major construction, must, however, be coordinated with the applicable EFD for the issuance, if appropriate, of a real estate instrument for incorporation within the franchise agreement. The BCO should be notified of cable installations associated with cable TV systems.

8102. TECHNICAL REQUIREMENTS

a. Military Specifications or Standards. There are no military specifications applicable to this exhibit.

b. Others. Federal: Federal Communications Commission (FCC) Rules and Regulations (R&R) parts 73, 76 and 78.
Industry: Electronic Industry Association (EIA) RS-170;
National Cable Television Association Standards; National Electrical Code; National Electrical Safety Code.

8103. REQUIREMENTS

a. Antennas. Antennas shall comply with all Navy and/or FAA safety requirements concerning lighting, marking and analogous features. Each antenna shall be of sufficient gain and directivity to provide adequate reserve signal-to-noise ratio and suppression of adjacent channel interference.

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b. Electricity. The franchisee will meet all National Electrical Safety Codes standards with regard to lightning, power surges, and proper grounding.

c. Subscriber Installation Material. Cable fittings, ground blocks, etc., will be of a quality that will provide secure and safe construction. Where grounding wire, rod, clamps, etc., are used, they shall be selected to conform to pertinent national electrical code and local electrical safety specifications.

d. Radiation Leakage. Incidental radiation from any part of the system or service outlets shall conform with part 15 of FCC Rules and Cumulative Leakage Index requirements, or such modifications thereof as may be adopted subsequently.

8104. REQUIREMENTS

a. Engineering. The system furnished in accordance with this exhibit shall distribute NTSC-TV signals with standard 6 MHz channel bandwidth, as designated by FCC R&R, part 73, Sections 73.6703 and 73.682 and/or as specified in supporting documentation.

b. General. All cabling will be of a size and construction that will assure that the system functions as specified herein. The BCO will ensure all installed cable and associated components are suitable for the climatic conditions under which they may be exposed.

NOTE: Where not required for initial operation, unused cable ends shall be sealed and protected from moisture and other possible damage. In addition, all unused cable outputs shall be electrically terminated by 75-ohm resistors.

8105. TERMINATION

In the event of termination, the franchisee shall continue to provide service until the effective date of the termination. All cable television contracts will include the following statement:

The government reserves the right to require the franchisee to remove from the base at the franchisee's expense, all equipment, facilities and materials of the CATV system, and to restore affected areas to their former condition, within 90 calendar-days after expiration or termination of this agreement. In the event the franchisee shall fail to remove the aforesaid, it shall be deemed to have been abandoned by the franchisee.

The franchisee shall reimburse the government for the cost, if any, incurred by the government in effecting removal or otherwise restoring its property to its former condition. Abandoned materials become the property of the government. The BCO shall be responsible for ensuring that the franchisee CATV equipment and facilities are removed without incurring damage to government property.

8106. CABLE INSTALLATION

a. Overhead. The installation shall conform to the requirements applicable to urban districts in the National Electrical Safety Code and shall apply to all streets, alleys, roads, and drives. All aerial coaxial cables shall be laced with lashing wire to messenger cable by means of a suitable lashing machine. Lashing wire shall be 0.045-inch stainless steel of the type used to lash aerial telephone cables. The pitch of lashing wire may be from 10 to 15 inches, but shall be consistent throughout the system. At a minimum, the system shall be grounded at every first, last, and tenth pole in a span.

b. Ground Clearance. The installation of all CATV cabling shall not conflict with or cause any other cabling (e.g., communications, power, etc.) to violate established ground clearance criteria (existing and/or future).

c. Underground. Cables shall be unrolled and placed at the bottom of the trench. Cables normally shall not be unrolled and pulled into the trench from one end. Cables shall be in one piece without splices between connections except where the distance exceeds the length in which the cable is manufactured.

d. Conduit. Under paved areas and roadways, the cable shall be installed in adequately sized conduit, not less than two inches in size. Conduit shall be extended not less than two feet beyond pavements and roadways, when such roadway is used for vehicular traffic.

e. Trenches. Trenches in which direct burial cables are placed shall have a minimum depth of 18 inches below grade, shall be not less than six inches wide, and shall generally be in straight lines between cable connections, except as otherwise necessary. Bends in trenches shall have a radius of not less than 36 inches.

f. Rock. Rock, where encountered, shall be removed to a depth of not less than three inches below the cable depth and the space filled with sand or clean earth, free from particles that would be retained on quarter inch sieve.

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g. Cathodic Protection. The installation will be so designed and constructed as not to interfere with existing government-owned cathodic protection systems. The design will include, but is not limited to, the installation of guy strain insulators on all down guys.

8107. NAVY BROADCASTING SERVICE (NBS) INFORMATION

The NBS is charged under OPNAVINST 5450.195A with establishing cable television policy, providing guidance and giving final approval of cable franchise agreements before signature by local commands. NBS advises approximately 150 commands on cable television issues and can provide renewal process. Point of contact is: Telecommunications Officer, Navy Broadcasting Service, NAVSTA Anacostia, Building 168, Washington, DC 20374-1682, or commercial (202) 433-6386, DSN 288-6388.

CHAPTER 9

SECTION I

NAVY MAINTAINED SWITCHES

PART 1

DISASTER

9101. DEFINITION

An EMERGENCY is defined as a partial loss (20 percent or greater) to a total loss of switching capability. Also included is a partial or a total loss of the ability to receive inbound trunk calls, or to make out-bound trunk calls. In general, loss of 20 percent or greater of the switch's call processing capability or a loss of trunking capability constitutes an emergency (or a disaster).

Some examples are:

- a. Catastrophic failure of single and/or multiple switching system(s).
- b. Catastrophic failure of single and/or multiple transmission facilities.
- c. Switching locations isolated due to equipment and/or facilities failures.
- d. Loss of system access to FTS2000.
- e. Loss of system access to DSN.
- f. Loss of system access to the Local Exchange Network.
- g. Disruption of service to users and/or circuits designated as critical by the government.
- h. Any situation under which service to a system, or twenty (20) percent of station lines at a single location is disrupted for more than four (4) hours including disruption caused by fire, flood, explosion, civil disturbance, work stoppage (strike) or other labor disputes, and backup power failure.
- i. Loss of the Network Management System.

PART 2

PLANNING GUIDE FOR DISASTER RECOVERY

9201. GENERAL

This is a planning guide for disaster recovery. The information presented in this guide is to serve as a tool to develop a Private Branch Exchange (PBX) Disaster Recovery Plan (DRP). It is NOT intended to be the all-encompassing solution for a DRP. The intention is to serve as a guide to seek the best solution for the mission and the switch servicing the installation. Review the entire guide and extract the information that applies to your situation. Many aspects may simply require a telephone call, while other severe actions may require additional planning, and possibly some sort of a provision in a fiscal budget. The level of involvement in this process is driven by this simple question: "How long can we afford to be out of service?" Do what is necessary to minimize the possibility of a switch failure, and the action to be taken in the event of a failure.

9202. MISSION REQUIREMENTS

The challenge of incorporating overseas sites is complex because mission requirements are unique from base to base and country to country. Another important consideration is the technical capability and responsiveness of the commercial carrier and contractors. Also, it should be noted that laws and regulations differ significantly from country to country. Although the DSN software is compatible on all switches, the switches in the U.K., Spain, Greece and Turkey are different from those installed in the Netherlands, Italy, and Germany. This presents unique technical and operational problems when interfacing with mobile tactical terminals and PBX's. It is important that any guide for disaster recovery consider these differences.

9203. SITE RECOVERY PLAN

a. Some basic assumptions should be made at the site level when preparing a site recovery plan from the Navy Planning Guide. The assumptions should be graded on a scale of 1 to 10 and should include the following items as a minimum:

(1) Switch reliability.

(2) Environmental control system reliability and maintenance responsiveness.

- (3) Commercial leased trunk capability.
- (4) Commercial power reliability.
- (5) Battery back-up or Uninterrupted Power Supply (UPS) estimated duration on full load.
- (6) DC power reliability.
- (7) Peripheral equipment reliability and power source (FCC-98/100's, IDNX, Microwave/PCM 30, T-1 repeater, etc; on DC power source).
- (8) Generator power back-up reliability.
- (9) Contractor rapport and responsiveness to after-hours call out.
- (10) Contractor knowledge (technical and troubleshooting).
- (11) Contractor external resources that can be called on.

b. Grading these items should provide good indicators of what a specific site's "most probable" areas of weakness are and hence, where the probable area of failure will occur. This or these areas should be concentrated on first to develop site specific disaster recovery plans. The second category the DRP should deal with, is "possible" failure situations regardless of how unlikely they may seem. This part of the recovery plan requires the most brainstorming, research, development, and testing. It is the most difficult because it deals with the infinite unknown.

c. With this planning guide as a construction tool, analyze the downtime and what it costs in real money, and apply it to the planning effort for recovery. Even more important than implementing a recovery plan is the need to "practice" the implementation of the recovery process. The DRP should satisfy the needs of the organization getting the switch back in service as quickly as possible. Work with the maintenance contractor to correct any problems with the plan.

d. Procedures to recover a down or partially inoperative switch should be requested from the contractor who is providing the maintenance service. The maintenance contractor, if not an authorized distributor of the manufacturer, should have access to the manufacturer's technical engineering support.

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The communications officer (COMMO), communication watch officer (CWO), and the BCO need to be aware of the escalation procedures that a contractor will use to restore a switch, especially when the manufacturer is called for assistance. At some point in a crisis the contractor will have a clear definition as to when the switch manufacturer is to be called. If the system fails and cannot be restored within 48 hours, site must report the casualty in accordance with NWP 1.03.1, CASREP Procedures.

9204. SUMMARY

In summary, surviving and recovering from a disaster is the goal of any recovery plan. The ability to survive and to quickly recover without an expenditure of large sums of money is also a goal to be considered.

a. A good planned maintenance program, following the recommendations of the equipment manufacturer, is the best way to eliminate failure of the operating equipment. The essential elements of a good Preventive Maintenance (PM) Program are also the key elements for an effective DRP.

b. The purpose of this document is to serve as a template for creating and testing a DRP for any switch (voice or data). It is not the all-encompassing solution for recovery planning, but it is intended to cover as many bases as possible to make the damage caused by a disaster as minimal as possible. This guidance is recognized as being the minimum acceptable effort required to recover from a disaster. Use it as a checklist for developing installation recovery plans, and then as practice to determine if the plan does in fact satisfy the needs for disaster recovery. The plan for a recovery may be as simple as a telephone call to the local contractor, but this action needs to be documented for the right people to know. Plan for the unexpected, and have it properly documented!

c. Once an emergency is declared, the plan for controlled escalation of assistance and disaster recovery is to be put in effect. The plan of controlled escalation is to be a pre-determined lapse of time since the emergency has been declared. The plan for controlled escalation will be submitted to the BCO and kept on file. It will be updated as necessary. An example of a flow chart for disaster recovery is found at the end of this document. Study it carefully, and note the time periods necessary to accomplish the recovery. It is the goal of all NAVCOMTELCOM personnel to provide the best uninterrupted service possible to our customers. Good reliable communications is taking nothing for granted. We must work at keeping it

reliable, and if it should fail, then we need to recover it as quickly as possible. This guide covers what generally must be considered for a good DRP.

9205. EMERGENCY RECOVERY TEAMS

Emergency Recovery Teams can be used to perform preassigned tasks during switch outages and disasters. It is suggested that the Emergency Recovery Team participate in recovery drills to ensure disaster plans are workable and practical. The disaster scenarios should cover the entire gamut of possible problems associated with switch outages and disasters. Training can be scheduled as deemed necessary.

9206. EMERGENCY RESTORATION LIST (ERL)

An ERL should be developed to establish communication priorities in times of disaster or switch outages. The list should be restricted to essential elements within the community, base, or command. Some examples may be hospital emergency rooms, Military Police's (MP), Command Duty Officer, police, fire, etc. The ERL should be typed, legible and placed in a binder along with the emergency recovery plan. The list should also include ports, cables, and cable pair numbers. In the instructions, it should be made clear that these activities will be the first to be reactivated in the event of an outage or disaster.

PART 3

ALTERNATE COMMUNICATIONS

9301. PAY TELEPHONES

Personnel involved with the operation of the site must know where at least one pay telephone is located near, but connected to the facility. To properly plan for a disaster recovery, all pay phone locations within a half-mile radius of the switching site must be identified. A suggestion is to have a map of the immediate area made up which would indicate the locations of all pay telephones, with the number of the pay telephone noted on the map. Besides the necessity of calling for assistance in an emergency, these pay telephone locations can also be used for receiving important incoming phone calls. A long distance credit card might be set aside as an alternate resource for long distance calling. The credit card could be a part of the disaster recovery packet for the individual sites. Identify all base communications capabilities and assets - do not forget remote sites. This list should include tactical radio nets, hotlines, command and control center capabilities, automatic switching centers, air terminals, etc.

9302. RADIO COMMUNICATIONS

It may be appropriate to have available hand-held two-way walkie-talkies as part of the DRP. These may be a part of a larger disaster plan, or the plan may be to call for assistance from a tactical unit that has FM radio communications. Not only are two-way radios quick and easy to implement, but they are also very useful in working those new or undefined situations which are typical of any disaster. If FM radios are used, the area should be checked ahead of time to be sure that the equipment will function properly. Take into account location, frequencies of operation, spare batteries, and any other factors which may interfere with FM radio as an alternate means of communication.

9303. MOBILE CELLULAR TELEPHONES

Another alternative means of communication is the use of mobile cellular telephones. If your area has cellular service, it may not be cost effective to have cellular phones available just for an emergency. A call to the local cellular service provider may be able to set up an agreement for emergency service. With an open purchase order, the local cellular

provider can supply the needed cellular service on short notice and the agreement would guarantee service in an emergency. If the use of FM radios or cellular telephones are a part of the DRP, then frequencies of operation, spare batteries, and the telephone numbers of the cellular units would be essential. Unless the equipment is used on a daily basis, it needs to be stored in a convenient location identified in the DRP and identified on a site map. If the equipment is stored, the personnel who account for the equipment need to be identified, and placed on the contact list for emergencies. Routine inspection and testing of the equipment is necessary to ensure that it will function fully when it is needed. The following comments are intended as additional "thought provokers" which may be considered by a site when preparing a site specific recovery plan:

a. Keep a current inventory of all mobile and cellular telephones, the same for offices, which have dedicated commercial lines and facsimile machines.

b. Compile a list of dedicated four-wire DSN subscribers and a list of E-Mail addresses for all DISA Global Operations and Security Centers (GOSCs), EUR Regional Operations and Security Center (ROSC), PAC ROSC, COMNAVCOMTELCOM, NCTAMS, JFTOC, etc.

9304. GOVERNMENT EMERGENCY TELECOMMUNICATIONS SYSTEM (GETS)

GETS is a DOD-funded emergency long distance calling capability enabling telephone call completion when normal means of communication are severely disrupted/congested. The system is specifically designed to support U.S. Government's National Security/Emergency Preparedness (NS/EP) requirements. A GETS user card is required for access via a universal access number 1-710-NCS-GETS, using common telephone equipment, (e.g., standard desk unit, STU-III, facsimile, model or cellular telephone). GETS user cards may be requested from your respective NCTAMS and are appropriate for use by the CO, N3, and JFTOC Watch Officers.

PART 4

CONTACT LIST

9401. GENERAL

This section is divided into several different categories that can be used for functions other than disaster recovery. Many of these categories are part of day-to-day operations, but need to be clearly defined in terms of disaster recovery. Prepare for the disaster by leaving enough detailed information available so that recovery can occur automatically. Key personnel need to know their function, their allotted time to perform their function, and the next level of escalation if the recovery is not completed at their level.

9402. INTERNAL CONTACT LIST

The internal (alert) list should already exist as part of the Standard Operating Procedure (SOP) for day-to-day operation of the switch. This list can be used for alerts, a change of shift due to a workload change, or for an emergency crisis. Use of the list needs to be practiced with some degree of frequency, and flaws or updates need to be corrected as they are observed. A suggestion is to segment the list into different functional categories, such as by department, job classification, or crisis responsibility.

As indicated above, this internal contact list should be developed and defined to fit the needs of the switching facility and the base or tenant that it supports. The list needs to be in the hands of the personnel who need to use it, and it should be practiced or tested on a regular basis.

9403. EMERGENCY CONTACTS

This is another document that must be defined and easy to understand. It may already be incorporated in the Internal Contact List mentioned above. Some of the items that it should contain are contact numbers for the Facility Engineer, Fire Department, Military Police, Poison Control, and the nearest Medical Facility, to name a few. This is the ideal section where internal numbers to the unit can be maintained for internal escalation. Also, those numbers external to the unit can be listed as a resource for disaster recovery. Key contacts with a vendor or contractor and their escalation procedure should be found in this section also; these should already be

generally available to all personnel, but for planning purposes, they need to be strategically maintained and available for an emergency.

9404. EXECUTIVE ESCALATION

It is strongly suggested that the recovery plan include an "executive escalation" list. The purpose of this list is to determine ahead of time the responsible parties authorized to make quick decisions and when to implement part or all of the DRP. This list must be maintained with stringent security guidelines to ensure that the proper steps and decisions are maintained throughout the disaster recovery effort. Security information concerning the switching site should only be distributed to those personnel who are directly responsible for the site and who obviously have the need to know. This includes passwords to the switch and its related equipment, as well as door combinations for access to the switching facility.

Figures 9.1 and 9.2 are two samples of typical emergency contact lists. The first is a general list and the second is a vendor specific list. Use these samples as guides for creating your switch or site specific emergency contact lists. Figures 9.3, 9.4, and 9.5 depict a typical disaster escalation process.

EMERGENCY CONTACTS*GENERAL*

Local Fire Department	_____
Local Police Number	_____
Military Police	_____
Poison Control	_____
Military Intelligence	_____
NIS	_____
Facility Engineer	_____
Local Utilities	_____
Power Company	_____
Water Company	_____
Natural Gas Company	_____

Remember to include the commercial area code and exchange for reaching military installations frequently called by DSN. With a system failure, the emergency call for assistance may be made from a pay telephone, and commercial access numbers are critical for getting help.

Figure 9.1 - Emergency Contacts (General)

EMERGENCY CONTACTS
TELEPHONE SPECIFIC

Vendor's Name _____

Telephone Number _____

Vendor's Address _____

Maintenance Officer Number _____

Telephone Officer Number _____

Vendor's Tech Support Number _____

Telephone System Manufacturer _____

System Model Number _____

System Software Release _____

POC for access to secure spaces _____

Auxiliary Systems Equipped _____

Manufacturer's Technical Support No. _____

Remember to include the commercial area code and exchange for reaching installations that are frequently called using DSN. With a system failure, the emergency call for assistance may be made from a pay telephone, and commercial access numbers are critical for getting a call through for help.

Figure 9.2 - Emergency Contacts (Telephone Specific)

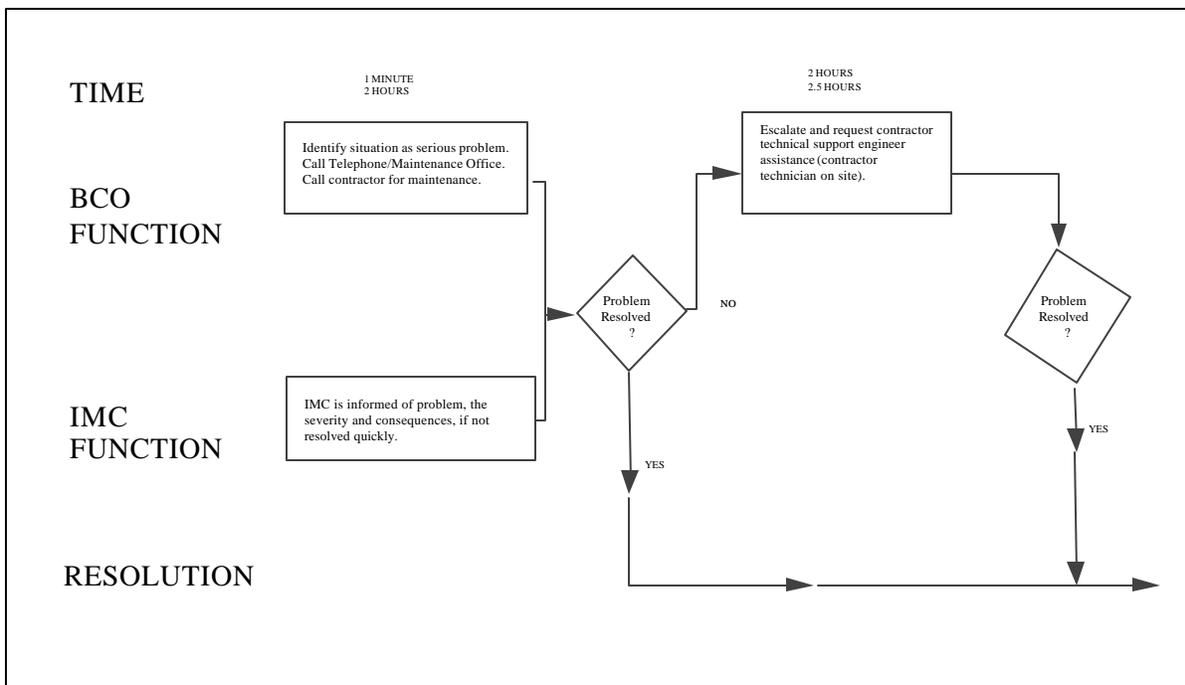


Figure 9.3 - Disaster Escalation

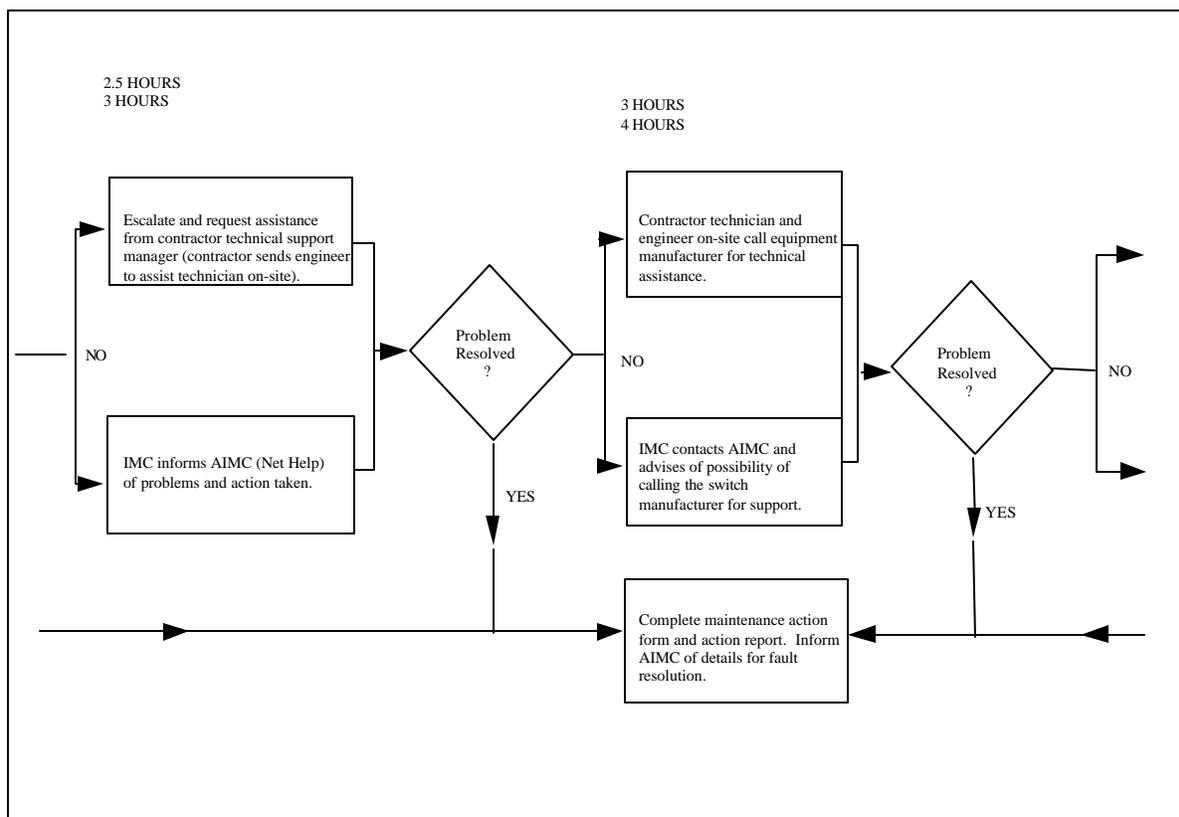


Figure 9.4 - Disaster Escalation (Cont.)

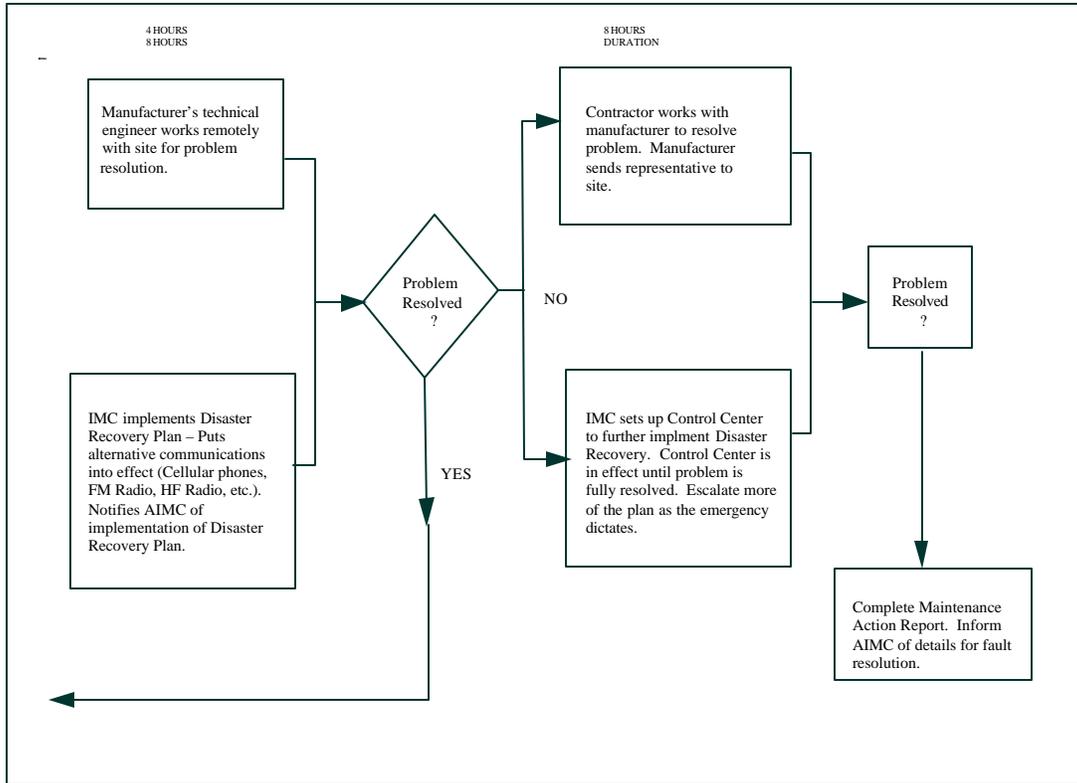


Figure 9.5 - Disaster Escalation (Cont.)

PART 5

FACILITY AND PHYSICAL PLANT

9501. GENERAL

This section is concerned with the facility and physical plant that is involved with the telephone system. A disaster could leave the physical plant vulnerable and seriously interrupt service. Careful planning would aid considerably in the recovery of telephone service should a physical disaster occur.

9502. DRAWINGS

a. As-built drawings should be included as an integral part of a DRP. Drawings should be maintained for all new facilities or for those existing telephone systems already installed and transferred to COMNAVCOMTELCOM with pre-existing drawings. Older facilities transferring to COMNAVCOMTELCOM may or may not possess these drawings, and therefore, this requirement is waived due to cost constraints.

b. There are a number of critical items identified on such drawings. In addition to locating the telephone switch room, it is recommended that various electrical utilities and type of telephone at each location be noted, along with its extension number and terminal assignment in the PBX. As-built drawings also identify location of the battery room, riser cables, distribution cable locations, cable runs for voice and data, and auxiliary equipment. Building construction type, including materials used, should also be identified to assist in the restoration process.

c. In a multiple building or campus environment, plant-in-place drawings can identify cable vault locations, cable routes, and entrances, which would be extremely helpful. These drawings should identify the cable size, access points, locations of all buried splice cases, and locations of all underground accessible splice points (manholes). Pay particular attention to the entrance cable and the path it follows to the local telephone company office. As-built drawings can also identify the location of emergency telephones and pay phones, as well as phone numbers for each instrument.

d. This is not an inclusive list of what needs to be included on the as-built drawings. Rather, it is a list of items

to consider when planning for a recovery operation. Some items may not apply to a specific site, whereas other items not mentioned here are definitely to be considered. Review those aspects of your system that are vulnerable to a disaster, items that would seriously impair the performance of the equipment as designed and installed. These vulnerabilities need to be addressed and incorporated into a workable and effective DRP. Plan for the unexpected.

e. As-built drawings should include, but are not limited to, the following:

- (1) Switch Room.
- (2) Mainframe and Intermediate Distribution Frame Locations.
- (3) Cable Head Locations.
- (4) Cable Building Entrance Locations.
- (5) Distribution Cable Type (to identify cable sheath type).
- (6) Battery Locations.
- (7) Emergency Locations.
- (8) Switch Peripheral Equipment Locations.

It is recommended that the following also be added:

- (1) Power Locations (Main Panel and Sub-Panel Locations).
- (2) Auxiliary Power Switches and Breakers.
- (3) Emergency Lighting Locations*.
- (4) Environmental Controls*.
- (5) Fire Alarms and Controls to Fire Protection Equipment (e.g., Halon or Water Sprinkler System)*.
- (6) Intrusion Alarm Controls.
- (7) Phone Locations/Extension Number.

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(8) Building Construction Type.

(9) Locations of Equipment Required for Basic Recovery.

* It is suggested at least two copies of the above be maintained. The first set should reside with the BCO and the second set with Public Works (PW). NOTE: See plant-in-place drawings.

PART 6

POWER

9601. GENERAL

In any disaster recovery, POWER is the key to keeping a running or restored system operating. Plan to keep power to the system.

a. There are several different types of alternative power sources. They are back-up battery systems and emergency generators.

b. As with any back-up power source, it needs to be maintained and preventive maintenance performed to ensure its reliability when needed. The back-up power system should be tested monthly (as part of a preventive maintenance program) to ensure performance reliability.

c. Switches equipped with reserve batteries need to have the maintenance person verify on a monthly basis that the cells in the battery are being floated properly. The length of time the switch will run on full load under batteries is essential. The proper float voltage for a battery depends on the battery manufacturer's specification. (NOTE: The 2.17 Volts DC per cell needed to float a typical lead acid battery would be disastrous for a gel cell battery which generally needs 2.25 to 2.28 Volts DC per cell).

d. In addition to having the site specific back-up power source, it is suggested that a MOU be developed with PW to provide an emergency generator in the event of a site generator failure or a local distributor who can provide an alternate source (e.g., a rentable generator) of power. With an open purchase order, the local vendor can supply the service on short notice and the agreement would ensure availability in an emergency.

e. If the main back-up power is a generator, ensure that a fuel source has been identified ahead of time, to provide addition fuel to run the equipment. Set up an agreement with a fuel supplier by establishing an open purchase order and a guaranteed delivery schedule. When there is a crisis, a telephone call to the supplier will ensure the timely delivery of fuel to keep the switching equipment functional. A well-planned and executed disaster recovery does not need to run out of fuel.

PART 7

TRUNKING

9701. GENERAL

If diverse routing is available and telephone service to your facility is severed, an alternative solution for receiving direct-in-dial or central office trunk calls should be identified as part of the recovery plan. A suggestion is to contact the local telephone company, which provides service to the PBX, and request a recorded announcement. The announcement should indicate loss of service, as well as, provide alternate telephone numbers to dial for emergency service. Coordination with the local telephone company needs to be initiated as part of the planning process, rather than during an actual emergency. Requesting a recorded announcement during a failure may hamper the recovery effort. Plan ahead.

a. If the PBX failure is imminent, due to loss of power, then the recovery plan should include the command activating Line Load Control (LLC). LLC will automatically reduce the availability of dial tone to all but critical users. Reducing the load on the switch should extend reserve power. Consult with the local telephone company and the contractor maintaining the PBX for further implementation details. This should be planned well in advance of a disaster so as to guarantee some form of service during a PBX outage. Identify other switches (military and civilian) that may be able to provide assistance. Establish an MOU to formalize requirements.

b. Each of the suppliers of service to the PBX should have a DRP. This trunking section of the DRP for the PBX should identify the vendor's plans to recover your service, such as 800, or T1 service. While the service is being restored, plans should be made to establish a recording stating the technical difficulty.

c. Critical circuits for the PBX need to be documented, as well as, provisions made with the operating companies to identify and ensure that these circuits will have priority restoration. As a minimum, the file must contain the following information:

- Circuit Number(s)
- Type of Circuit
- Origin and Destination of Circuit
- Service Center Telephone Number
- Vendor's Name
- Vendor's Telephone Number
- Vendor's Escalation Number

When calling a vendor for repair on a circuit, always log the name of the person taking the call, and stay on the line until a trouble report is generated. Log the vendor trouble ticket, as well as, the time reported. Use the trouble ticket as a reference when calling the vendor for a status or update. Do not hesitate to escalate if the problem is not resolved within the limits allowed for the repair of the circuit.

PART 8

PREVENTIVE MAINTENANCE

9801. GENERAL

As with any operating equipment, the best way to avoid a disaster is to prevent one. A good preventive maintenance program that follows the directives and recommendations of the equipment manufacturer is the best way to minimize equipment failure. The essential elements of a good preventive maintenance program are also the key elements for an effective DRP.

a. Any good preventive maintenance procedure includes keeping all copies of the switch software up to date by performing data dumps or creating back-ups on a regularly scheduled basis. Almost all hardware failures can be recovered if the software and data bases are kept current.

b. It should be a standard procedure for all switches to have an archival copy of the operating software and data base in a secure location away from the switching equipment. Provisions should be made on a routine basis every 60 to 90 days to have this archival copy updated.

c. With a digital PBX, there are many more items to be done during a routine preventive maintenance than just backing up software. The recommendations of the switch manufacturer should be followed and a log kept of the date and event. The best way to ensure that a proper preventive maintenance program is being conducted is to request that the contractor provide a copy of the PM checklist. The checklist will ensure conformance to manufacturer's specifications.

d. Procedures to recover a down or partially inoperative switch should be requested from the contractor who is providing the maintenance service. The maintenance contractor, if not an authorized distributor of the manufacturer, should have access to the manufacturer's technical engineering support.

The JFTOC Watch Officer, Operations Officer (N3), Communications Watch Officer (CWO), and the BCO need to be aware of escalation procedures that a contractor will use to restore a switch, especially when the manufacturer is called for assistance. At some point in a crisis, the contractor will have a clear definition as to when the switch manufacturer is to be called.

SECTION II

NAVY SWITCHES UNDER CONTRACTOR

PART 1

EMERGENCY SERVICE RESTORATION

9101. CONTRACT SERVICES

The contractor shall provide emergency service restoration at occurrence of any of the following:

- a. Catastrophic failure of single and/or multiple switching system(s).
- b. Catastrophic failure of single and/or multiple transmission facilities.
- c. Switching locations isolated due to equipment and/or facilities failures.
- d. Loss of system access to FTS2000.
- e. Loss of system access to DSN.
- f. Loss of system access to the Local Exchange Network.
- g. Disruption of service to users and/or circuits designated as critical by the government.
- h. Any situation under which service to a system, or 20 percent of station lines at a single location is disrupted for more than four (4) hours, including disruption caused by fire, flood, explosion, civil disturbance, work stoppage (strike) or other labor disputes, and back-up power failure.
- i. Loss of the Network Management System.

9102. NOTIFICATION

The Contractor shall notify the BCO immediately when any emergency restoration plan is implemented.

PART 2

EMERGENCY RESTORATION PLAN

9201. GENERAL

The contractor shall revise, update and submit to the Contracting Officer's Representative (COR), within 30 days of contract award date, an emergency restoration plan to ensure continuation of service in the event of a complete system failure. The COR will review the plan and either provide comments or accept the plan within 30 days of receipt of the plan. This plan shall include the following:

- a. How the contractor shall support the National Security Emergency Preparedness (NSEP) Plan.
- b. Alternative service arrangement for a switch location isolated due to equipment and/or facilities failures.
- c. Loss of system access to DSN or FTS.
- d. Loss of system access to the Local Exchange Carrier (LEC).
- e. Disruption of service to users and/or circuits designated as critical by the Government.
- f. Loss of system software.
- g. Major hardware failure.
- h. Interruption of service due to physical damage to a facility.
 - (1) Loss of software.
 - (2) Major hardware failure.
 - (3) Interoffice facility failure.
 - (4) Other (Specify).
- i. Escalation procedures including the name, home address and home telephone number of an authorized senior management person and two comparable level alternates who can make decisions resulting in corrective measures.

PART 3

SURVIVABILITY

9301. PRIORITY SERVICE RESTORATION

When outages occur, the contractor shall provide prioritized service restoration to station lines designated as critical by the government. The identity and location of critical station lines shall vary over the life of the contract and will be provided to the COR. Service restoration shall be in accordance with maintenance procedures.

9302. FEDERAL EMERGENCY SUPPORT

The contractor shall provide communications support to government agencies under conditions described in PL93-288, NSDD-97, NSDD-145, and other applicable laws, regulations, and directives. Executive Order 12472 shall also be considered in the design and operations of services to be provided under the contract.

9303. PROCEDURES

The procedures employed for emergency services restoration of any of the above shall be in accordance with the emergency restoration procedures approved by the Navy.

PART 4

MAINTENANCE

9401. MAINTENANCE RESPONSIBILITY

It shall be the responsibility of the contractor to coordinate all necessary maintenance activities with other providers of service. The COR shall be notified immediately if problems arise that cannot be resolved by the contractor. The contractor shall maintain the system(s) to meet the availability, reliability, and performance requirements.

9402. TYPES OF MAINTENANCE

a. Preventive Maintenance: Contractor shall provide preventive (scheduled) maintenance as required by the system manufacturers.

b. Emergency Maintenance:

(1) Emergency trouble calls shall be handled according to contract response times. The maximum allowable time to restore service shall be four consecutive hours unless a longer clearing time is mutually agreed upon by both contractor and government.

(2) Emergency restoration shall be instituted whenever there is a service interruption to a circuit or subscriber service designated by the government as critical. The contractor shall monitor the system(s) to identify outages requiring emergency maintenance and commence appropriate remedial action prior to the actual submission of a maintenance request.

(3) The contractor shall furnish on-site emergency technical maintenance personnel during periods of impending disaster, etc., as directed by the government.

PART 5

SERVICE INTERRUPTIONS

9501. SERVICE INTERRUPTION

There shall be no scheduled interruptions of service for system changes, upgrades, etc., without prior consent of the COR. A service interruption is defined as any discontinuance or impairment of any service and/or features assigned to a user or group of users.

9502. NOTIFICATION

The COR and using activities shall be notified as far in advance as possible of any scheduled interruptions by the contractor, but no less than ten (10) working days prior to the planned interruption.

a. Additionally, the contractor shall inform the Navy as soon as it is possible, of any occurrence, which may result in an interruption of service.

b. The contractor shall be responsible for the cost of service visits by outside telecommunications vendors when a system(s) malfunction under contract is determined to be in the contractor-provided system(s) and not in outside telecommunications vendor provided equipment, and/or the service visit was initiated by the contractor's representative.

c. When the contractor responds to a service call for an item of equipment and the cause of the malfunction is determined to be other than an item of equipment under the contractor provided system, the base will be responsible for the cost of the service visit.

PART 6

SYSTEM DOCUMENTATION

9601. DOCUMENTS AND DRAWINGS

The contractor shall have the specified system drawings, maintenance and operator manuals and practices available on-site for each location. These documents shall be stored in the designated equipment room for that location and updated as changes are made during the contract period.

a. Floor Plan. Exact dimensions and locations of each equipment frame or item shall be shown to a convenient scale. Future growth shall be shown via dotted line.

b. House Cable and Terminals (inside plant). Shall show cable runs, pair assignments, and terminal locations.

c. Switching and Transmission Diagrams. Schematic drawings shall show the various switching and transmission equipment components in the system, their interconnections, and their identifying circuit numbers.

d. Equipment Front Face Layout. Shall show major equipment items such as frames and shelves with the location of major component items of equipment shown therein.

e. Support Facilities. Documentation for environmental control, fire, and safety facilities shall include operation and maintenance manuals, and schematic drawings of professional engineering quality, showing exact placement of these facilities.

f. Cable Records (outside plant). Shall show pair assignment and termination location.

PART 7

APPLICABLE STANDARDS AND REGULATIONS

9701. REGULATIONS

The contractor shall comply with the standards, codes, regulations listed in this section, to the extent applicable to their use with switching systems, ancillary equipment, facilities, environment, protection, security, safety, human engineering, and other commonly related industry entities. The contractor shall conform to, and be compliant with the established Consultative Committee for International Telephony and Telegraphy (CCITT) standards, and the American National Standards Institute (ANSI) standards, which include, but are not limited to, those listed in this section.

9702. MILITARY SPECIFICATIONS

MIL-STD-188-124A Grounding, Bonding, and Shielding for Common Long-Haul/Tactical Communication Systems Including Ground Based Communications Electronics Facilities and Equipment, 2 February 1984.

9703. PUBLICATIONS

Department of Labor, Occupational Safety and Health Agency (OSHA) Code of Federal Occupational Safety and Health Standards Regulations, Title 29, Part 1910, Subpart Z.

Federal Communications Commission- Part 68.316 Rule.

PL 100-542 1988 Telecommunications Acts, Telecommunications Accessibility Enhancement Act.

PL 100-394 Hearing and Compatibility Act for procurement of telephone station equipment. (Application for copies should be addressed to Department of Labor, Occupational Safety and Health Agency (OSHA), Washington, D.C., 20210).

Defense Information Systems Agency (DISA) Near Term Transition Plan, 6 May 92.

DCEC R610-001 Defense Switched Network (DSN) Generic Switching Center Requirements, with Appendices A-1, A-2, A-3, B, C, C-2, and D, 30 January 1987.

DSN P/P FY 92-97 Defense Switched Network (DSN) Program Plan FY 92-97, April 1991. (Application for copies should be addressed to Deputy Director, DCSO, 8th and South Courthouse Road, Arlington, VA 22204).

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PL93-288, NSDD-97, NSDD-145, and Executive Order 12472.

FIPS 46-1 Data Encryption Standard (DES) FIPS 140 General Equipment Used to Implement DES.

NSDD & NTISSP No 1 Protection of Unclassified National Security Related (UNS-R) Information.

NSA Protection Requirements Package dated 25 November 1985. 5 USC 552a Privacy Act.

36 CFR Part 800 Secretary of Interior's Standards for Historic Preservation.

EIA/TIA-464-A Private Branch Exchange (PBX) Switching Equipment for Voice-band Application, 2 February 1989. (Applications for copies should be addressed to the Electronic Industries Association, 2001 Eye Street, N.W., Washington, D.C. 20006).

ANSI-C2-1987 National Electrical Safety Code.

ANSI T1.60x Series. (Applications for copies should be addressed to the Institute of Electrical and Electronic Engineers, Publications Sales Department, 445 Hoes Lane, Piscataway, N.J. 08854).

National Fire Protection Association (NFPA).

NFPA 70-1987 National Electrical Safety Code Consultative Committee for International Telephony and Telegraphy (CCITT).

I.100, I.200, CCITT Recommendations
I.300, I.400
& X.400 series

I.451 CCITT Recommendations
Q.931 CCITT Recommendations

G.703 CCITT Recommendations
G.711-G.714 CCITT Recommendations
G.721 CCITT Recommendations

I.430-I.431 ISDN Physical Layer, Layer 1

I.440-I.441 ISDN Data Link Layer, Layer 2

Q.920-Q.921
I.450-I.452 ISDN Network Layer, Layer 3

Q.930-Q.932
I.421 Primary Rate User Network Interface
NEC National Electrical Code, 1987.

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AT&T Pub 41451
& Bulletin 118

DS-1 Service, D3/D4 Channel Banks.

TR-NPL-000-275

OC Notes on the Intra-Lata Network, Issue
1, April 1986, Bell Communications

APPENDIX A

LIST OF REFERENCES

- a. OPNAVINST 2060.8, 29 Mar 85 - Management and Business Administration of DOD Telephone System and Base Telecommunications Services Within the DON
- b. OPNAVINST 2305.11, 23 Dec 87 - Use of Department of DOD Telephones
- c. OPNAVINST 2305.13A, 8 Apr 77 - Policy for DON Use of the Worldwide Automatic Voice Network
- d. OPNAVINST 2305.14A, 22 Feb 73 - Telephone Monitoring
- e. OPNAVINST 2800.2, 2 Jan 80 - Naval Telecommunications System (NTS) Operating Requirements
- f. OPNAVINST 2800.3, 6 Oct 88 - Navy Data Communications Program
- g. OPNAVINST 5215, 14 Mar 97 - Mission and Functions of Commander, Naval Computer and Telecommunications Command
- h. OPNAVINST 11010.20F, 7 Jun 96 - Facilities Projects Manual
- i. SECNAVINST 2060.1, 6 Mar 85 - Management of DOD Telephones Within the DON
- j. SECNAVINST 2305.11A, 17 Jan 86 - Use of DOD Telephones
- k. SECNAVINST 5000.2B, 6 Dec 96 - Life Cycle Management (LCM) Policy and Approval Requirements for Confirmation System Projects
- l. SECNAVINST 5215, 11 Apr 97 - Standards of Conduct and Government Ethics
- m. SECNAVINST 7000.14B, 18 Jun 75 - Economic Analysis and Program Evaluation for Navy Resource Management
- n. SECNAVINST 7000.23A, 13 Feb 86 - Funding of Morale, Welfare, and Recreation (MWR) Programs
- o. NAVCOMTELCOMINST 2880.1A, 30 Dec 92 - Naval Telecommunications System (NTS) Management - Telecommunications Service Request (TSR)

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p. NAVCOMTELCOMINST 3000.1, 30 Dec 96 - Naval Computer and Telecommunications Command (NAVCOMTELCOM) Claimancy Mission Readiness Management and Reporting

q. DOD Directive 7220.9-M, change 17, of 30 Jan 91- Standard Rates for Unofficial Telephone Service at DOD Installations

r. DOD Directive 4640.13, 5 Dec 91 - Management of Base and Long Haul, Telecommunications Equipment and Services

s. DODINST 4640.14, 6 Dec 91 - Base and Long Haul Telecommunications Equipment and Services.

t. DONIRM 155, 18 Dec 86 - Data Communication Planning

u. Federal Acquisition Regulation (FAR), Paragraph 7.4

v. Defense Federal Acquisition Regulation Supplement (DFAR) 207.401

w. DISA Circular 310-130-1, Jul 92 - Submission of Telecommunications Service Requests

x. DISA Europe Circular 310-140-2 - Connection Approval Procedures

y. DISA Circular 310-U175-2, 26 Jan 82 - Network Dial Service Criteria General Purpose DSN Standards

z. DISA Circular 370-D175-1, 29 Sep 88 - Defense Communications System (DCS) AUTODIN Interface and Control Criteria

aa. DISA Circular 370-U175-13, 5 Apr 80 - DSN System Interface Criteria

ab. DCEC R610-001, Jan 84 - DSN Generic Switching Center Requirements

ac. NAVCOMPT Manuals,

Volume 2 - Accounting Classifications

Volume 3 - Appropriation Cost and Property

Accounting

Volume 7 - Budgeting

ad. Prompt Payment Act, Public Law 100-496

ae. Director of Central Intelligence Directive - DCID 1/21, 30 Jan 94 - Physical Security Standards for Construction of Sensitive Compartmented Information Facilities (SCIF).

af. Joint Chiefs of Staff (JCS) Memorandum of Policy (MOP) 8 Policy for Defense Switch Network Service, 13 Feb 90

ag. USEUCOM Directive 100-18 - Connection Approval Procedures for Equipment

ah. USEUCOM, ED100-16, 13 Aug 84 - Host Nation Approval (HNA) Procedures for Communications-Electronics Equipment

ai. FCC Tariff No. 6

aj. 41 CFR PART 201-38 NOTAL

ak. DEPSECDEF Letter of 21 Jun 89 NOTAL

al. PUBLIC LAW 100-440-September 22 1988, Section 627

am. EIA/TIA 568A - Commercial Building Telecommunications Cabling Standard

an. EIA/TIA 569 - Commercial Building Standard for Telecommunications Pathways and Spaces

ao. SCN 3-2 2 May 94 - Navy Base Communications Specification

ap. NAVFACENGCOM Guide Specification (NFGS) 161710M - 27 Apr 95 - Structured Telecommunications Cabling and Pathway System

aq. COMNAVCOMTELCOM Corporate Network Management Plan of 2 Apr 97

ar. STU-III Electronic Key Management System Plan, Series 702

APPENDIX B

CONNECTION APPROVAL INSTRUCTIONS

CONNECTION APPROVAL (CA)

PROCEDURES FOR EQUIPMENT

B101. PURPOSE

To provide policy and guidance to commands/activities within DON for obtaining CA for connecting U.S. furnished equipment to commercial leased lines and/or public switched networks PSN's) in foreign nations.

a. Connection Approval (CA). The authorization by a host nation telecommunications agent (such as a Post Telephone and Telegraph (PTT) office) to connect equipment to a leased circuit or the PSN)).

b. Host Nation Approval (HNA). The approval given by a host nation for introduction of U.S.-owned equipment within host nation borders.

B102. BACKGROUND

a. CA is frequently confused with the formal term HNA. For major equipment, HNA is generally required before CA is requested. Within the European theater, HNA procedures are outlined in reference (k) of appendix A.

b. In accordance with reference (s) of Appendix A, CA is required for government-furnished equipment, including tactical equipment, to be connected to leased circuits in host nations. As a rule, the first item of equipment interfacing with a host nation facility or equipment must have a CA. Subsequent items behind the first may also require CA as individual items or as a system configuration, depending upon the host nation's criteria. Accordingly, sponsors should ensure that CA be pursued early on as an integral part of the acquisition cycle.

c. Within the European theater, detailed procedures for obtaining CA are published in reference (r) of Appendix A. These procedures comply with USEUCOM policy, reference (t) of Appendix A, and apply to equipment currently in theater or intended for introduction into theater. Requests for CA within other host nations will be submitted to COMNAVCOMTELCOM using reference (r) of Appendix A as a guide.

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d. COMNAVCOMTELCOM is the responsible DON agent for worldwide CA actions, and establishing procedures and guidance for submission of CA actions.

B103. POLICY

Pursuant to appropriate host nation policies and international agreements, communications-electronics systems and equipment being introduced into foreign nations must have CA when required for connection to commercial leased lines and/or the PSN.

B104. RESPONSIBILITY

a. CNO, in concert with Commandant Marine Corps, shall maintain CA policy guidance.

b. COMNAVCOMTELCOM will provide:

(1) Implementing directives in concert with higher authority for DON CA procedures.

(2) Funding for CA, PTT testing changes.

(3) Central coordination of all DON CA submissions.

c. COMSPAWARSYSCOM will provide technical documentation, as requested, to support DON CA submissions.

d. Requestors within the DON are responsible for:

(1) Submission of required CA applications to NAVCOMTELCOM via appropriate chain of command for communications-electronics systems that are planning to operate within foreign nations.

(2) Provisions of equipment for testing by the host nation PTT officials.

APPENDIX C

BASE COMMUNICATIONS SERVICES AND FACILITIES

PART 1

TELEPHONE EXCHANGE

C101. INTRODUCTION

A telephone exchange is a switching point or node in which telephone lines are connected in order to complete telephone calls. There are two types of telephone exchanges which managers and administrators of Navy base communications services and facilities will become familiar. These are illustrated in Figure C.1 below.

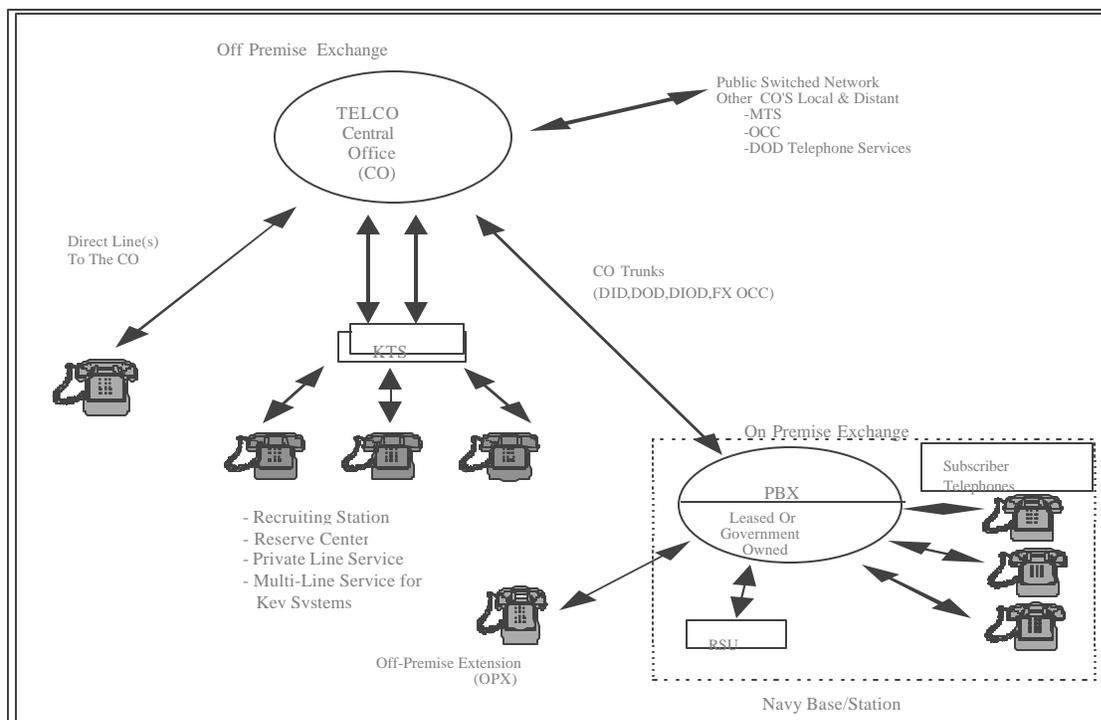


Figure C.1 - Types of Telephone Exchanges

C102. OFF-PREMISES EXCHANGE

The Off-Premise Exchange (OPX), usually the Central Office (CO) owned and operated by the LEC, provides connection into the Public Switched Telephone Network (PSTN) throughout the country. As shown in Figure C.1, off-premise Navy activities

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such as recruiting stations and small reserve units, can be provided dial tone from the LEC on a private line service basis to individual telephones, or multi-line service for key telephone systems. The LEC will provide, on a leased basis, a station line and dial tone which are common to the particular type of equipment within the CO. However, station equipment must be provided by the Navy and acquired in accordance with applicable DON and DOD policies. All connections for telephone calls are initiated at the CO, which provides the capability for local calls and long-distance calls using either DDD or OCC (e.g., WATS, MCI, FTS-2000).

C103. ON-PREMISE EXCHANGE

a. An on-premise exchange is a leased or government-owned base communications switching system installed on a DON facility that provides base communications service to all customers within the facility. In this application, as shown in Figure C-1, all subscriber telephones are individual station lines off the system which permit access to all other subscribers within the system by using station-to-station dialing. The base communications system interfaces to the PSTN by way of CO trunks, which allows subscribers to make local and long-distance calls outside of the Navy facility.

b. The following lists the various types of dedicated and CO trunks which are used to interface a base communications system with an OPX CO and to the PSTN or government-owned networks:

(1) Direct Inward Dial (DID) - This trunk is used for dialing into the on-premise exchange from the PSTN through the CO.

(2) Direct Outward Dial (DOD) - This is used for dialing outward from the on-premise exchange to the PSTN through the CO.

(3) Direct Inward/Outward Dial (DIOD) - A combination of DID and DOD allowing two-way dialing on a single trunk.

(4) Foreign Exchange (FX) - A service which uses a telephone or PBX in one city, via a dedicated line, that is directly connected to a CO in a distant city. The call appears as a local call in the distant city.

(5) Tie Lines - A direct access trunk to another PBX.

(6) OCC - Long distance services (e.g., MCI, WATS, etc.).

(7) Government owned telephone networks (i.e., DSN, FTS-2000).

C104. MODERN SWITCHING SYSTEMS

With today's technology, base communications systems are being reduced in physical size, while the capacity and capabilities have increased considerably. Today's base communications system may consist of large digital switching systems normally found in LEC central offices, or a Private Automatic Branch Exchange (PABX) for on-premise leased or owned facilities. These new telephone systems incorporate state-of-the-art digital switching techniques that are applicable for voice and data transmission and interface to both digital and analog transmission networks.

C105. REMOTE SWITCHING UNIT (RSU)

A RSU, as illustrated in Figure C-1, is a part of the PBX, which is physically separated from the main PBX. It operates independently from the main PBX for station-to-station calls which it serves, and may have the same system features of the main PBX. However, it is connected to the main PBX via special tie lines, fiber optic, etc.

C106. CENTREX TELEPHONE SERVICES

Most LEC's are presently capable of providing base communications services using CENTREX. The physical configuration of lines/trunks using CENTREX is similar to that used for comparable PBX service. DOD guidance requires telephone-switching systems be located on base facilities. The decision to use CENTREX will be made only when all reasonable alternatives have been exhausted. DOD policy and contractual issues in providing base communications service using CENTREX shall be addressed to COMNAVCOMTELCOM and, as appropriate, through the responsible RC.

C107. CIRCUIT SWITCHING

Circuit switching dedicates a network resource to a call or transaction on an exclusive basis, and thus handles calls on the basis of one line per call in progress. There is a delay associated with the establishment of the call, which can typically vary from a few seconds to about 15 seconds. This service is provided on twisted pair telephone wires to the user.

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The actual transmission of signals on these lines can be analog or digital. For digital signal transmission, the bandwidth provided by the twist wire pairs decreases with increasing distance. The bandwidth is 64 Kbps for distances over 12 miles and 1.5 Mbps at distances up to 2000 feet.

a. Circuit switching can be used to transmit digital data between computers. If the transmission is analog, the digital rate is converted to analog form using modems and then transmitted. At the receiving end, the signal is converted back to digital form. The speed of transmission is limited to 19.2 Kbps.

b. There are proprietary designs which permit end-to-end digital connectivity over circuit switched lines at a data rate of 56 to 64 Kbps. This makes it attractive to use circuit switched connections for data communications. One consideration in this regard is delay in call establishment. Since many data communications transactions are short and bursty, on the order of a few seconds, circuit switching is not economical for data communications. However, for long transmissions such as data base uploading, which may last from several minutes to hours, circuit switching can be economical.

C108. PACKET SWITCHING

The concept of packet switching is based on the ability of modern, high-speed digital computers to act on the transmitted information so as to divide the calls, messages, or transactions into pieces called packets. Packets move around, from one switching center to another, on a hold and forward basis. Each packet has its own identity and destination address and hence is unique. Packet switching is done on dedicated lines. Hence, it is possible to send a number of packets belonging to different entities on the same line.

a. The packet mode service is billed on the basis of length and number of packets transmitted, not on the basis of total duration of the communications. There is also no connect time involved because of the dedicated lines. Therefore, it becomes ideal for data communications transactions, which are short and bursty. The packet identity, destination address, etc., add to the overhead of each packet. The overhead for successive packets of a message is cumulative. For long transmissions such as large data base uploading/downloading, the packet switch is not economical.

b. Unlike the circuit switches, which are an integral part of the telephone network, the packet switches are part of the data network such as DISN. They lack some features such as universal addressing schemes and standardization.

C109. INTEGRATED CIRCUIT/PACKET SWITCHES

From the preceding discussion it is evident that no one type of technology is ideal. The optimum is a combination of the two (i.e., an integrated circuit/packet switch). The integrated switches are based on the telephone network and hence, have added the advantage of standardization and interoperability. It comprises a modular architecture with the following sub-systems:

- a. Switching.
- b. Common control.
- c. Device interface.
- d. Trunk interface.

The above supports both voice and data. Because of the modular architecture, it can provide interfaces to terminals and host computers with different protocols. Modern switches operate with stored programs and so offer great flexibility.

PART 2

BASE COMMUNICATIONS SYSTEM CONFIGURATION

C201. INTRODUCTION

The base communications system is divided into four main categories; inside plant, outside plant, customer premise equipment, and central office. The following paragraphs describe each category:

C202. INSIDE PLANT

a. The inside plant, Figures C.2 and C.3, consists of a switching system nucleus and all subscriber lines and trunks and miscellaneous circuits (e.g., alarms, modems, etc.) extending inward from the Main Distribution Frame (MDF) to the switching equipment. The switching equipment includes circuit interfaces to other PBX, terminal equipment and other communications networks and systems, such as DSN, FTS-2000, and other common carriers (OCC's).

b. Cables entering the MDF from the switching equipment are terminated on one side of the connector blocks. This side of the connector block is known as the equipment side. Cables extending from the other side of the connector blocks, the line side, are routed through circuit protection devices. These devices (either carbon or inert gas) are used to protect the equipment and user from severe transient voltage induced on the line from lightning. The lines/circuits usually requiring protection are those that are routed by way of inter-building outside cables.

c. Cables are extended from the protection device to a connector block known as the demarcation point. This is the point in which the subscriber lines, trunks, and miscellaneous circuits from the switching equipment are connected to the proper subscriber stations, TELCO trunks, and DSN trunks, and miscellaneous circuits to be distributed throughout the facility and to the CO.

d. Building wiring, Figure C.3, consists of the cable risers beginning on the building side of the entrance cable connector blocks, extending to each floor and throughout the building, and terminating on the connector blocks in the wire closets. This cabling includes all subscriber lines, miscellaneous circuits to be connected to all users, and spares for future expansion. It does not include the wiring to the

subscriber telephone. The installation of the building wiring allows each floor to be prewired for service, therefore, making any additions or changes to the locations of subscribers easily accessible.

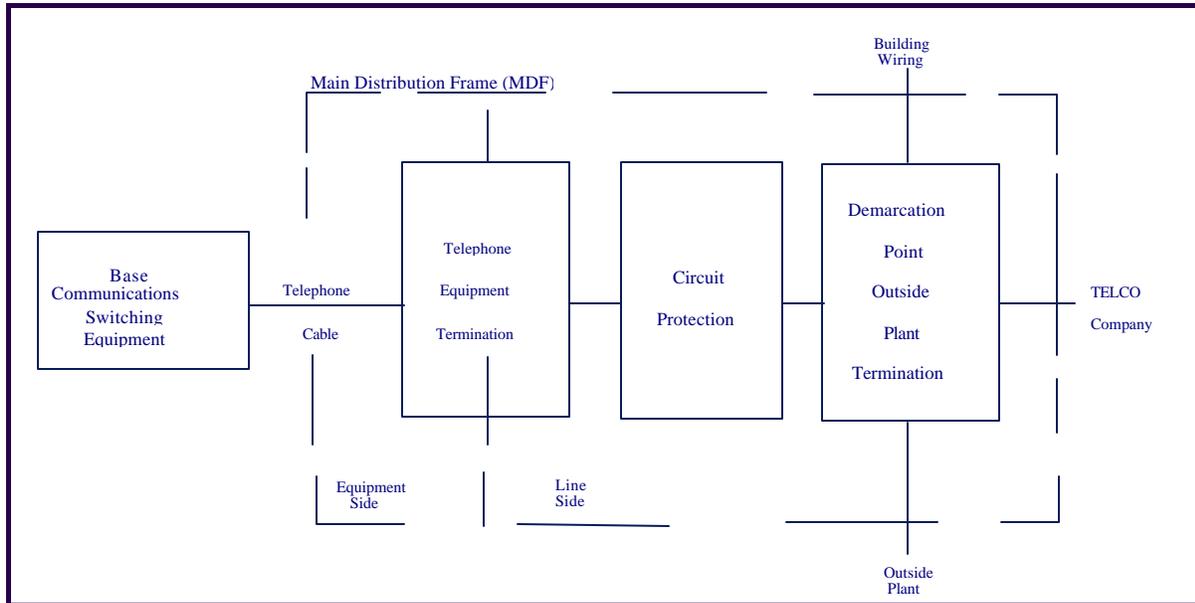


Figure C.2 - Inside Cable Plant and Main Distribution Frame (MDF) Layout

C203. OUTSIDE PLANT

The outside plant, Figure C.3, consists of the inter-building cabling, either buried underground or overhead, extending outward from the MDF. The outside plant also includes support structures (e.g., telephone poles, conduits, manholes, etc.) necessary to route and connect to the outside plant.

C204. CUSTOMER PREMISE EQUIPMENT

The subscriber station equipment and wiring, Figure C.3, is the individual telephone station wire extending from the termination at the wire closet and extending to the office termination for the connection to terminal equipment (e.g., subscriber telephone, facsimile machine, miscellaneous circuits), on each floor of the building.

C205. CENTRAL OFFICE

A central office is a switching system that performs two major functions. First, it makes telephone connections from one subscriber's line to another subscriber's line, either within a

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local switching center or through another local, tandem, or toll center. Second, it permits a larger number of lines, called subscriber loops, to access a lesser number of paths between switching centers, called trunks. The fact that, on average, a subscriber's line is only used about 10 percent of the time allows the facilities (trunks) between switching centers to be shared among subscribers. The subscriber's lines are capable of transporting voice, data, and video.

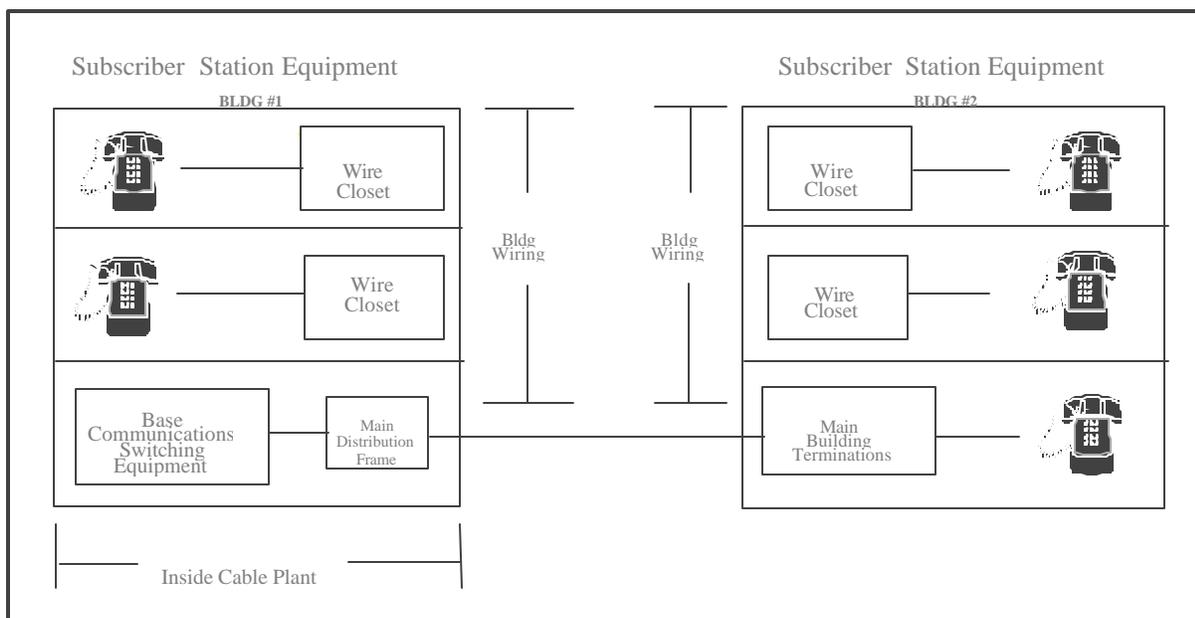


Figure C.3 - Base Communications System Configuration

PART 3

TELEPHONE STATION EQUIPMENT

C301. GENERAL

The change in technology over the past several years has promoted a growth in the types of station equipment being developed for telephone systems. The following paragraphs are intended to assist managers and administrators in understanding the terminology and types of equipment that are or will be associated with telephone systems.

C302. MAIN STATION LINE

a. A main station line is a direct connection from a telephone to a line circuit on a PBX, or to the CO in the case of private line service.

b. The older electromechanical telephone switching systems incorporated extensions from main lines mainly because of expansion limitations. Modern PBX's permit each subscriber to be an individual station with a dedicated circuit number and various user features.

C303. SINGLE-LINE TELEPHONE SET

This is the basic mount or desktop telephone set. It may incorporate either rotary dial pulse (DP) or push button, dual tone multi-frequency (DTMF) dialing.

C304. SPEAKER PHONES

Speakerphones are specially designed to work in place of using the telephone handset. It provides hands-free, two-way communications between a calling and called party. Speakerphones may be configured in various ways. They can be built into multi-button telephones, or can be a separate stand-alone device that interfaces into a standard multi-button telephone. Both the built-in and stand-alone speakerphones contain a two-way loudspeaker and the electronics necessary to interface and operate with the telephone in the speakerphone mode or normal telephone use.

C305. TWO-LINE TELEPHONE

This type of telephone, often called a one-button set, has access to two lines. Some two-line telephones provide a hold button, which allows the user to place one call on hold to answer or make another call.

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C306. KEY TELEPHONE SYSTEMS (KTS)

KTS permit a number of lines to be terminated to a single multi-button telephone. It also permits users to share the same lines. The following are examples of instruments and features that are associated with KTS:

a. Multi-button Telephone Sets and Features. Multi-button telephone sets are required for KTS in order to provide multiple line access to a single telephone set. The 1A key telephone sets are equipped with 6, 10, 20, or 30 buttons. The 6-button set, for example, can accommodate up to 5 lines and a hold feature; or 4 lines, an interoffice intercom and a hold feature.

b. The standard modern Electronic Key Telephone Systems (EKTS) are similar both physically and operationally, but are not limited to multi-line access and a few features such as hold, intercom, and call pickup. Many EKTS incorporate user functions that are normally incorporated in larger PBX's; features such as call forwarding, automatic callback, paging, and many others enhance the operation of the EKTS. Appendix G lists and describes many use features associated with PBX's and EKTS. EKTS will not normally be installed behind a digital switch because the digital switch can provide the same features and more.

C307. PUSH-TO-TALK HANDSETS

These handsets are found mainly in special telephone applications and in secure areas. The push-to-talk, as the name implies, allows the user to hear the distant end party, but not communicate to that party until the button on the handset is depressed. Once the user is finished talking and the button is released, the distant end party is again unable to hear the user. See reference (i) of Appendix A, for equipment permissible inside Sensitive Compartmented Information Facilities (SCIF).

C308. DIGITAL TELEPHONES

Instead of the usual voice transmission, digital telephones convert the analog voice signal to a digital code within the telephone and then transmit this signal to the PBX. This type of phone is mainly used by subscribers who have data terminals and have a requirement to access computer equipment, or are operating within a LAN. The digital phone will interface to data terminals at the subscriber locations and provide voice

and data transmission, either multiplexed or simultaneously, to the PBX where the digitized voice and data are rerouted to the appropriate destinations. However, because the transmitted signal is digital, there are limitations to the distance between the PBX and the digital telephone.

C309. ELECTRONIC TELEPHONE INSTRUMENT (ETI)

Hybrid ETI's are those multi-keyed instruments that are designed to operate only with specific manufacturer's PBX's. The functions of the ETI's are usually programmed into the PBX data base which provides the user a variety of functions that can be assigned to individual keys on the instruments; functions such as user station features, ring-down circuits, other subscriber station numbers, and various types of trunk circuits. ETI's may be selected with various quantities of keys and other options such as a speakerphone and/or a digital display.

C310. SECURE TELEPHONE UNIT THIRD GENERATION (STU-III)

a. There are two types of STU-III terminals: Type 1 and Type 2. Type 1 has been endorsed by the National Security Agency (NSA) for securing classified or sensitive unclassified U.S. Government information (DOD) and its contractors. Type 1 STU-III terminals are approved to secure all classification levels of information, when appropriately keyed. Type 2 has been endorsed by NSA for protecting sensitive unclassified U.S. Government information (Non-DOD). Type 1 Terminal is a dual-purpose telephone capable of transmitting voice, data, and video. This terminal can be used as an ordinary/secure telephone with interoperability to the public telephone network. Type 1 and Type 2 STU-III terminals are fully interoperable at the secure, unclassified level. In the secure mode, each STU-III terminal displays authentication information of the distant STU-III terminal. This is possible because of the cryptographic key loaded into each terminal. The STU-III terminal has a device called a crypto-ignition key (CIK) which locks and unlocks its secure mode. When the CIK is removed, the Type 1 terminal must be protected as an unclassified, controlled cryptographic item (CCI).

b. Key production, key management, and compromise recovery services for Type 1 and 2 terminals are provided by the STU-III Electronic Key Management System (EKMS) and appropriate Navy Communications Security (COMSEC) Manual. This STU-III Key Management Plan offers a variety of physical and electronic options for users to order and receive keys. These are discussed in detail in reference (ar) of Appendix A.

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C311. SECURE TERMINAL EQUIPMENT (STE)

a. The need for STE is clear as our nation's telecommunications infrastructure is being transformed from analog to digital, demand for faster transmission speeds, better reliability, and increased advanced services.

b. STE's are the next generation of secure voice and data equipment for advanced digital communications networks, such as Integrated Services Digital Network (ISDN). STE can operate for backward STU-III compatibility via Public Switched Telephone Network (PSTN) at 2.4/4.8/9.6 Kbps rates. STE was developed to augment and/or replace the STU-III.

c. The STE consists of a host terminal (telephone unit) and a removable security card commonly called Personal Computer Memory Card International Association (PCMCIA). The host terminal provides the application hardware and software. The security card is a FORTEZZA Plus cryptographic card, which provides all the encryption and other security services.

d. Three STE models are being considered, using the basic STE terminal architecture: Office Terminal (Office/STE), which encrypts both voice and data; Data Terminal (Data/STE), a data-only encryptor, and the Tactical Terminal (Tac/STE), which inter-operates with legacy TRI-TAC equipment while still providing basic ISDN and STU-III compatibility in a single unit.

PART 4

OFF-BASE TELEPHONE SERVICES

C401. GENERAL

In order to communicate with other government establishments and commercial agencies, Navy bases and stations must rely on other communications networks, whether commercial or government owned. This section is intended to familiarize Base Communication Managers and administrators with other types of base communications networks and services to assist them in selecting the proper service.

C402. EXCHANGE DISTRICT

a. Telephone companies divide their territories into exchange districts called Local Access and Transport Areas (LATAs). A LATA is a geographic area designated by the LEC for providing telephone service. LATA's are made up of serving offices and rate centers (or end offices). Serving offices provide communications across state and LATA boundaries and may provide many types of services. Serving offices and rate centers have specific geographic locations that are designated by Vertical and Horizontal (V&H) coordinates. The V&H coordinates are used to determine channel mileage between rate centers and serving offices.

b. Figure C.4 shows the three types of circuits used within and between LATA - Interoffice Channel (IOC), LATA Distribution Channel (LDC), and Terminating Channels (TCS).).

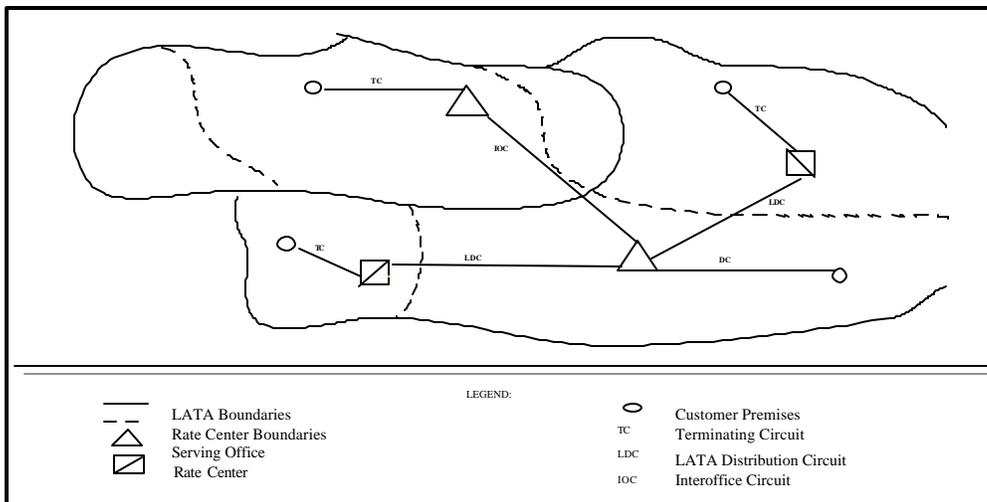


Figure C.4 - Types of Channels and Configuration for InterLATA Service

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c. IOC's are used between serving offices, either within or between LATA's. LCD's are used within a LATA between the customers nearest rate center and a serving office. A TC connects the customer's premise to the nearest rate center. Routing of the previously mentioned circuits between LATA's and states has produced four different types of circuits that determine costs. Figure C.5 illustrates routing of the following four circuits.

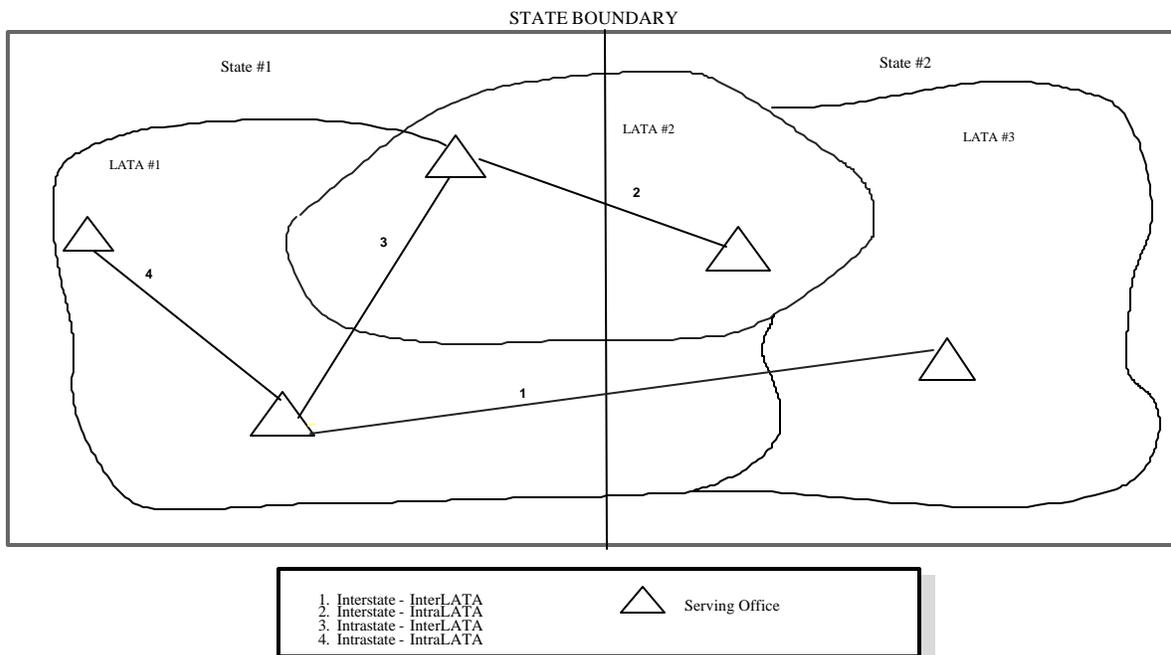


Figure C.5 - LATA/State Circuit Structure

(1) Circuit No. 1 is interstate-inter LATA which is a circuit between states and between LATA's.

(2) Circuit No. 2 is interstate-intra LATA which is a circuit between states, but within the same LATA.

(3) Circuit No. 3 is intrastate-inter LATA which is a circuit between LATA's, but within the same state.

(4) Circuit No. 4 is intrastate-intra LATA which is a circuit within both the same state and LATA.

The LEC and long distance services use four circuits in determining rate structures. Figure C.6 illustrates another way of visualizing local and long distance (toll) calls. If Naval Base No. 1 wishes to call a remotely located Naval Air Station, and the call is made within the same end-office, it is a local

call. If Naval Base No. 1 wishes to call a remote Naval Reserve Center, the call is still considered a local call, but due to the location of the reserve center, the call was routed to another end-office over interoffice trunks. However, when Naval Base No. 1 wishes to talk with Naval Base No. 2, which is located in another LATA and/or state, the call is routed through serving offices over intertoll trunks, resulting in a long-distance toll charge.

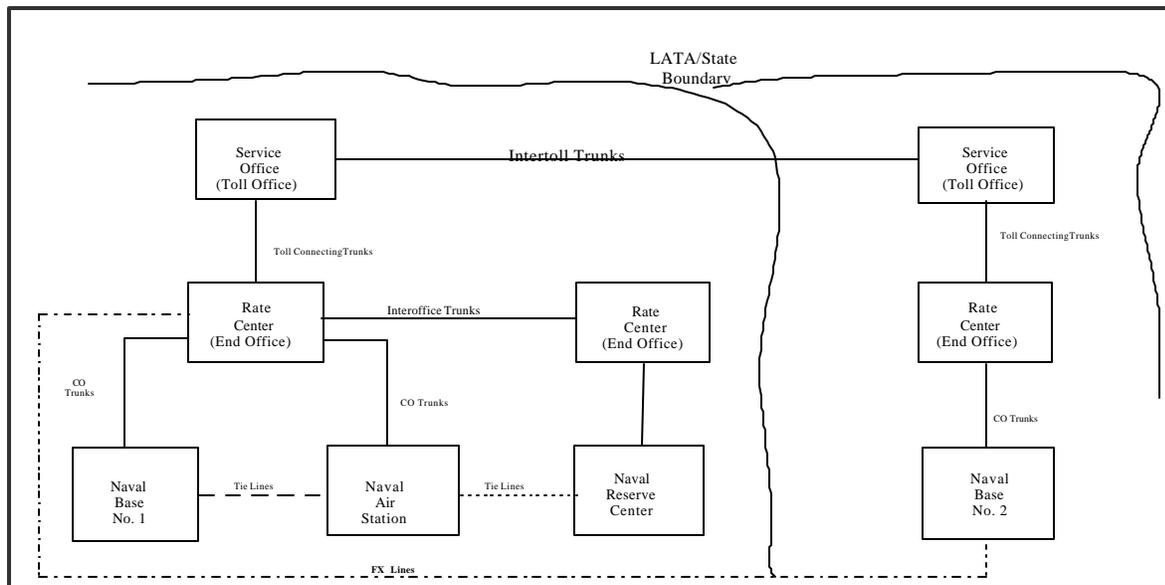


Figure C.6 - Typical Telephone System Network Configuration

C403. TIE LINES

Tie lines are a type of trunking that connects two or more PBX's in different locations. When there is a high demand for telephone service between two PBX's within the same naval facility or between two facilities, it may prove economical and convenient to handle service over tie lines rather than through the commercial CO. Tie lines enable subscribers of one PBX to appear as a station line to the other PBX. Intra-facility tie lines may be leased or government owned, whereas inter-facility tie lines are usually leased from the local LEC. Figure C.6 illustrates an application of the lines between Naval Base No. 1, the Naval Air Station, and the Naval Reserve Center.

C404. FX SERVICE

FX service is a commercial telephone service obtained through an exchange district other than the local area exchange. It may be authorized when there is a high demand for telephone

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service to the local calling area in an exchange district. Substantial savings can be realized through the use of FX service as opposed to normal long-distance service. Figure C.6 illustrates the FX lines between Naval Base No. 2 and the rate center near Naval Base No. 1.

C405. FEDERAL TELECOMMUNICATION SYSTEM (FTS-2000)

FTS-2000 is provided and managed by the Information Resource Management Office of the General Services Administration. FTS-2000 provides nationwide transmission for all types of data and voice communications, and is available to any federal government agency. See reference (a) of Appendix A.

C406. LEASED LONG-DISTANCE SERVICES AND OCC'S

Service alternatives are available to telecommunications managers for cost effective long distance services when government networks are unavailable or unauthorized. DOD policy and contractual issues in providing base communications long-distance service shall be addressed to COMNAVCOMTELCOM.

PART 5

OTHER SYSTEMS

C501. GENERAL

The following paragraphs describe other types of systems that may be interconnected to base telecommunications systems. The BCO, as necessary, is responsible for requesting assistance from the appropriate RC regarding standards for interface of each particular system.

C502. INTERCOMMUNICATIONS SYSTEMS

a. Intercommunications systems are various types of hard-wired and wireless systems that provide two-way voice communications between two or more locations. Intercommunication systems are used locally, not relying on outside trunking facilities to OCC,s.

b. Depending on the requirement, intercommunication systems can be incorporated into facilities in many ways. If dedicated circuits are a requirement, manual or dial-up intercom systems can be used between locations using the telephone cable plant only if switched through the PBX. PBX telephone switching systems can provide the capability for interface to intercom systems, and two-way wireless paging systems, which can be accessed from a regular station telephone.

C503. PUBLIC ADDRESS (PA) SYSTEMS

A PA system is a form of one-way communication for reaching one or several people in large indoor or outdoor areas, or a number of smaller areas. PA systems use telephone, microphone, and recording devices over amplifiers and speakers with a controllable amount of power to reproduce speech, music, and alarms in a clear and intelligible manner to these areas. PA systems can be used for sporting events, entertainment, public and military events, emergency warning, and paging. Activities can implement a PA system as a hardwired unit using telephone cabling, or interface into PBX systems or key systems for access from telephone or attendant positions. PA systems can be configured to provide coverage for the most complex facilities by using multi-zone techniques. Multiple zones provide coverage of several smaller indoor or outdoor areas for specific requirements, including overall access to all zones simultaneously when necessary. Stand-alone units do not fall within the purview of COMNAVCOMTELCOM nor this manual.

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C504. FIRE AND SECURITY REPORTING AND ENERGY MANAGEMENT

a. Fire, security, and energy management systems are becoming prevalent throughout the country on military, government, and commercial establishments. Sophisticated systems are providing remote centralized monitoring, control, and recording for emergency situations and for facilities operations. These systems can provide single and multi-terminal monitoring positions for fire, security, and public works personnel.

b. The systems utilize industry standard manuals and automatic devices, which tie back to a central control panel in the building or area being monitored. This control panel will communicate to a Central Processing Unit (CPU) over telephone cable, on either a dedicated circuit or dial-up circuit through a PBX to one or several monitoring terminals. Depending on the size of the activity, several control panels may be placed throughout for coverage of many individual areas. These systems provide features with immense flexibility for monitoring and control, including levels of security to restrict system access to authorized personnel only.

C505. FEDERAL INFORMATION PROCESSING (FIP) TRANSMISSION MEDIA

a. Federal Information Processing (FIP) transmission media can utilize several types of transmission media. For example, data can be transmitted over a single telephone cable pair; however, there are limitations on baud rates and accuracy of the transmission. If an existing telephone cable distribution system is to be used for data transmission, sufficient testing should be performed on the cabling to ensure its reliability.

b. Prior to selecting a transmission media and/or a switching system for ADP, a few considerations should be made. First, the number of terminal users and the transmission speed. Many telephone-switching systems provide voice and data transmission, both simultaneously and multiplexed, over telephone cable to data phones at the users location. This system can then be interfaced to a mainframe on or off premises. However, if the cable is not properly conditioned for digital transmission, a distance limitation of approximately 2000 feet can be expected if the baud rate exceeds 2400 bps.

c. As the number of users increases along with transmission speed and the distance between users, other methods of transmission (i.e., multi-channel coaxial cable and fiber optics) may be more feasible, depending on expected usage and growth of requirements.

d. The goal is to link as many users as possible over a common transmission medium and to increase the efficiency of the system and effectiveness of the operations being performed. Therefore, considerations for LAN techniques are not a requirement, but a solution to the encampment of ADP operations. Involve your BCO at project conception.

APPENDIX D

CLASSIFICATION AND TYPES OF TELEPHONE SERVICE

PART 1

CLASSES OF SERVICE (COS)

D101. GENERAL

a. In the past, Navy shore activities were provided with four telephone service classifications which enabled BCO's to efficiently control the use of telephone service. The classes of service are:

(1) Class A - Official/Non-restricted.

(2) Class B - Unofficial.

(3) Class C - Official/Restricted.

(4) Class D - Official; Fire Alarm, Guard Alarm, Crash Alert, and Intercom.

b. Technological advancements in the telecommunications industry have created a transition toward individualized COS for single line instruments. This transition has virtually eliminated the COS designation because state-of-the-art computerized telephone systems are able to designate and alter the class of service for each individual station line of a single telephone, to include access restrictions to government telephone systems (e.g., DSN, FTS-2000) for official use. Each telephone user is provided the appropriate service according to users needs and authorization. The alphabetical COS designations may continue to be used as an interim measure in order to identify each subscriber level of access to telephone services. It is the responsibility of the BCO, in coordination with activities requesting base communications services, to maintain COS records when converting to more modern facilities. The following paragraphs give more detailed explanation to the existing COS designations.

D102. OFFICIAL TELEPHONE SERVICE

Classes A, C, and D are designated official telephone COS. This service is furnished on a full-time basis for conducting official business of the government.

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a. Class A Telephone Service. This COS provides telephone lines which permit access to central office, toll trunks, and under the conditions of this manual, references (u) and (v) of Appendix A, and other DON and DOD governing directives, to government furnished telephone systems and services, (e.g., DSN, WATS, FTS-2000, FX) for government official business. For billing and accounting purposes, Class A service is subdivided as A-1, A-2, A-3, A-4 and A-5 for accommodating local requirements as specified below.

(1) A-1. Unrestricted service of the DOD.

(2) A-2. Telephone lines providing outgoing commercial toll service without access to commercial or other long-distance service.

(3) A-3. Telephone lines providing access to outgoing DSN without access to commercial toll or other long-distance services.

(4) A-4. Telephone lines providing incoming access from all long-distance connections with no outgoing access.

(5) A-5. Telephone lines providing access to DSN on a routine basis.

b. Class C Telephone Service. This COS provides telephone lines for the transaction of government official business on an installation, but it does not provide for out-dial access to the telephone company's central office or toll trunks. Telephones providing this service have in-dial capability for receiving long-distance calls from private lines. They may also have dial access to the switchboard operator.

c. Class D Telephone Service. This COS provides telephone lines at an installation for special services such as fire alarm, guard alarm, crash alarm, alert nets, and fully restricted dial service.

D103. UNOFFICIAL TELEPHONE SERVICE

Class B (unofficial) is defined as any service furnished through telephone facilities owned, maintained, or contracted by the DON and used by individuals or activities not authorized by law or regulation. Refer to reference (g) of Appendix A, Volume III. Class B service is not provided when commercial service is adequate, available and affordable. Class B telephone subscribers are authorized dial access to the telephone

company's CO and toll trunks automatic message accounting or toll restriction is available. Class B telephones are not authorized direct in or out access to DSN or FTS-2000.

a. The Act of 1972 (31 USC 679) prohibits the use of appropriated funds for telephone service in private living quarters. A residence or apartment set aside for the exclusive personal use of one person, or of such persons and family, is defined as private living quarters. This statute was enacted to stop public officers from obtaining personal telephone service at government expense. It was not intended as an impediment to effective command and control of military forces, nor was it intended that government employees should bear the cost of public business. Thus, while it is clear that such installations should be avoided if at all possible, the Comptroller General has held (B-1999793), dated 27 January 1982, that appropriated funds can be used to provide official telephones in the private residences of key government officials under certain limited circumstances and where the following conditions exist:

(1) The sole purpose of the telephone is for command and control and to assure 24-hour immediate communications with key officials.

(2) The intercommunications system is to be used only for emergency calls.

(3) The telephone and the related intercommunications system should not be connected with commercial telecommunications facilities.

(4) If the design of the on-base telephone system is such that it is impossible to prevent the connection of the command and control telephone to commercial facilities, then reasonable authentication procedures must be established to prevent abuse, which at a minimum, identifies the number called and the caller.

(5) The official maintains in his residence, at his own expense, a private telephone through which all of his personal calls must be made.

b. B-1. Telephone lines installed in government-owned and leased quarters assigned for family or personal use (in lieu of basic allowances for quarters) and located within or in the immediate vicinity of an installation. This includes telephone lines installed in government housing and for personal use in Bachelor Officers' Quarters (BOQ), Bachelor Enlisted Quarters

(BEQ) including dormitories, and Visiting Officer Quarters (VOQ) including VIP suites in hospitals.

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c. B-2. Telephone lines installed on installations for the use of public schools, federally sanctioned private organizations, and Federal government instrumentalities.

d. B-3. Telephone lines installed for commercial contractors, concessionaires, and other business firms operating within or in the immediate vicinity of an installation.

e. B-4. Telephone lines installed in private or rental housing located on or in the immediate vicinity of an installation. This type of service applies to private homes or privately owned rental housing in areas where commercial telephone service is not available or is inadequate. When such telephone lines are extended beyond base boundaries, mileage charges rendered according to the tariffs of the local telephone company for similar service will be charged to the user for the portion of the circuit that extends beyond the base boundary.

PART 2

TYPES OF TELEPHONE SERVICE

D201. PRIVATE TELEPHONE SERVICE FOR HOSPITAL PATIENTS

If a hospital patient requests private telephone service, an equivalent class B or commercial service will be provided, subject to availability of facilities. The total recurring cost of private telephone service to patients will be at the same rates as those specified for class B service. A service installation charge may be made. Collections will be handled as prescribed in reference (g) of Appendix A.

D202. TELEPHONE SERVICE FOR CONTRACTORS

When it is determined that the DON will furnish telephone service for use by contractors, the following provisions will apply. Telephone service provided to the contractors consists of:

a. Normal Services. Contractors are entitled to an equivalent class B base telephone service at the standard uniform rate or commercial service as authorized by the BCO. The provision of commercial service is desirable when available.

b. Supplemental Service. Telephone service other than that included in the standard rate will be furnished at the tariff rates used by the local telephone company in its billing for similar service to the general public. In the absence of such rates, the BCO may determine equitable charges based on the actual cost of providing the service.

c. Long-distance Toll Service. Will be furnished to contractors, except as covered below, on a reimbursable basis for the actual charge plus taxes. To minimize the collections for such charges, contractors should be encouraged to place their calls on a "collect" basis.

d. Official Telephone Service. Contractors may be provided official telephone service when they are operating under military contracts containing a base support or similar clause requiring the government to furnish telephone service. When the use of official telephone service by a contractor is essential and commercial service is not available, the following shall apply:

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(1) Contractors are not authorized DSN or FTS-2000 access except under the following conditions:

(a) When essential to the direct accomplishment of the contract and specifically approved by the base commanding officer.

(b) When there are no commercial facilities available.

(2) All requirements for contractors' DSN access will be forwarded via the chain of command to the base commanding officer for validation on a case-by-case basis.

(3) Under these arrangements and conditions, the agency funding the contract will reimburse the BCO for charges incurred.

D203. TELEPHONE SERVICE TO GOVERNMENT EMPLOYEE LABOR UNIONS

Official telephone service may be provided without cost to recognized government employee labor unions. Access to long-distance and DSN is not authorized. Class B service may be provided and charges made for local telephone services required by labor unions.

D204. TELEPHONE SERVICES FOR MORALE, WELFARE, AND RECREATION (MWR)

DSN may be used to place MWR calls from or to CONUS isolated or remote geographic locations due to the non-availability of acceptable commercial services. Commander in Chiefs (CINC's) shall establish policy for authorization, control, and duration of MWR calls to be compatible with operational requirements, local restrictions, and host-nation laws or agreements. The following conditions apply to MWR use of DSN:

a. Calls may be placed only through the local installation operator or, in the absence of an installation operator, from a telephone under a commander's supervision to ensure compliance with the controls described in subparagraphs 1b(4)(a)2 CJCS MOP 8, reference (j) of Appendix A and paragraphs B and C.

b. Calls should be placed only during normal non-duty hours at the originating location and where possible timed to avoid the normal duty period at the terminating location.

c. Calls must be placed only at the ROUTINE precedence and normally should not exceed 10 minutes. Off-netting at the distant end is at the discretion of local commanders, who are encouraged to permit MWR calls. No off-net MWR call will incur a toll charge to the government even if the intent is to reimburse the government. An off-net MWR call that would incur a toll charge may be placed if the called party agrees to accept the charges on a collect-call basis.

D205. TELEPHONE SERVICE FOR AMERICAN RED CROSS (ARC)

* (SEE NOTE)

D206. TELEPHONE SERVICE TO COMMISSARIES AND EXCHANGES

* (SEE NOTE)

*NOTE: NAVCOMPT Manual, Volume 7, chapter 48, 075500 provides a list of MWR activities and the types of service that can be provided appropriated and non-appropriated fund activities. NAVCOMPT manual, Volume 7, chapter 54, provides a list of private parties and organizations that must make reimbursement for any and all services or support if provided. See reference (ac) of Appendix A.

D207. BASE COMMUNICATIONS SERVICE FOR PRIVATE BUSINESS

The installation of an on-base personal or private telephone service directly from a commercial telephone exchange, instead of through the base communications system, requires advance approval by the BCO. Each request will be considered on its own merit. Locally unresolved requests will be sent to the major claimant and to the RC for resolution. Further guidance concerning this service is:

a. When approved for installation, the private user involved will make contractual arrangements for telephone service and the government will not be obligated for the payment of any charges incurred.

b. The use of government telephone communications or support facilities in connection with the installation of private telephone service will be covered by a revocable agreement, which provides compensation to the government. In cases where the use of government-owned communication facilities is temporary (90 days or less), a revocable agreement is not required. However, the government will be compensated on the same basis.

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c. When a LEC receives a request for service, it normally will apply to the BCO for the use of on-base facilities. The LEC will pay rental to the DON and the customer will pay the LEC the tariff rate. This foregoing applies primarily to the use of government-owned on-base communications facilities for private telephone service and for use of government communication facilities for other forms of commercial communications services.

D208. LEC SERVICE FOR OFFICIAL USE

a. The requirement for installation of an on-base official use telephone directly from the LEC must be fully justified and forwarded to the BCO in accordance with the delegation of commodity authority.

b. If installed, a means of controlling outgoing calls from this commercial telephone must be ensured. Special telephone control officers having this type of commercial telephone service will be appointed, and written procedures established outlining responsibilities for control and use of commercial telephones. Procedures will require listing and validating each toll call made on the commercial telephone.

c. All telephone service will normally be provided by the base communications telephone system.

D209. USE OF TELEPHONE SERVICE BY GOVERNMENT EMPLOYEES

a. The use of Government assets, including the use of DOD telephones, is limited by SECNAVINST 5215, to the conduct of official business. GSA has amended 41 CFR Part 201-38 NOTAL to authorize Federal agencies to permit Federal employees conducting official business, to make reasonable personal use of government base telecommunications systems for emergency calls or calls the agency determines are necessary in the interest of the government. 41 CFR Part 201-38 NOTAL, DEPSECDEF LTR of 21 June 1989 NOTAL are publications concerning use of DOD telephones for personal calls. See references (aj) and (ak) of Appendix A.

b. Official business calls include personal, local, and long-distance calls if they do not adversely affect performance of the employee's official duties or the mission of the employee's organization, are of reasonable duration and frequency, and reasonably cannot be made at another time. Personal calls cannot result in a charge to the government even

if the employee intends to reimburse the government. Thus, a personal long-distance call must be to an 800-TOLL free number,

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charged to an employee's home telephone number or another non-government number, collect, or charged to a personal telephone credit card. Additionally, calls for information assistance may not be made if a charge results to the government telephone.

NOTE: Reimbursing the government for an unauthorized call does not exempt violators from disciplinary action. Use of DOD Command and Control Networks (DSN, FTS-2000, etc.) is not authorized for personal calls.

c. Examples of permissible types of personal calls include: Checking on a family member, making or canceling personal appointments, checking on the status of home or auto repairs, and notifying family of overtime requirements or other changes in schedules.

d. If base operator intervention is required to complete the call, the local commander may use discretion of this policy and shall publish guidelines.

e. There have been no changes to existing policy regarding DOD employees making personal calls while on official travel to a temporary duty location. Any change regarding employees on official travel will be reflected in the joint travel regulations.

APPENDIX E

DEFENSE NETWORKS

E101. DEFENSE SWITCHED NETWORK (DSN)

a. The DSN is an interbase telecommunications system that provides enhanced services and performance, and interoperability within the DOD. DSN is the principal long-distance, voice communications network within the DISN providing worldwide switched telecommunications service to DOD and certain non-DOD subscribers. It provides military departments and defense agencies with direct dialing access to world wide networks and includes features such as multi-level preemption, preset conference and operator assistance. DSN is to be used for official U.S. government business only, and is to be the customer's first choice of service. See Figure F.1.

b. DSN is under the operational management of the Director, DISA. The DSN manager for DON is COMNAVCOMTELCOM. Requirements will be validated in accordance with reference (g), of Appendix A.

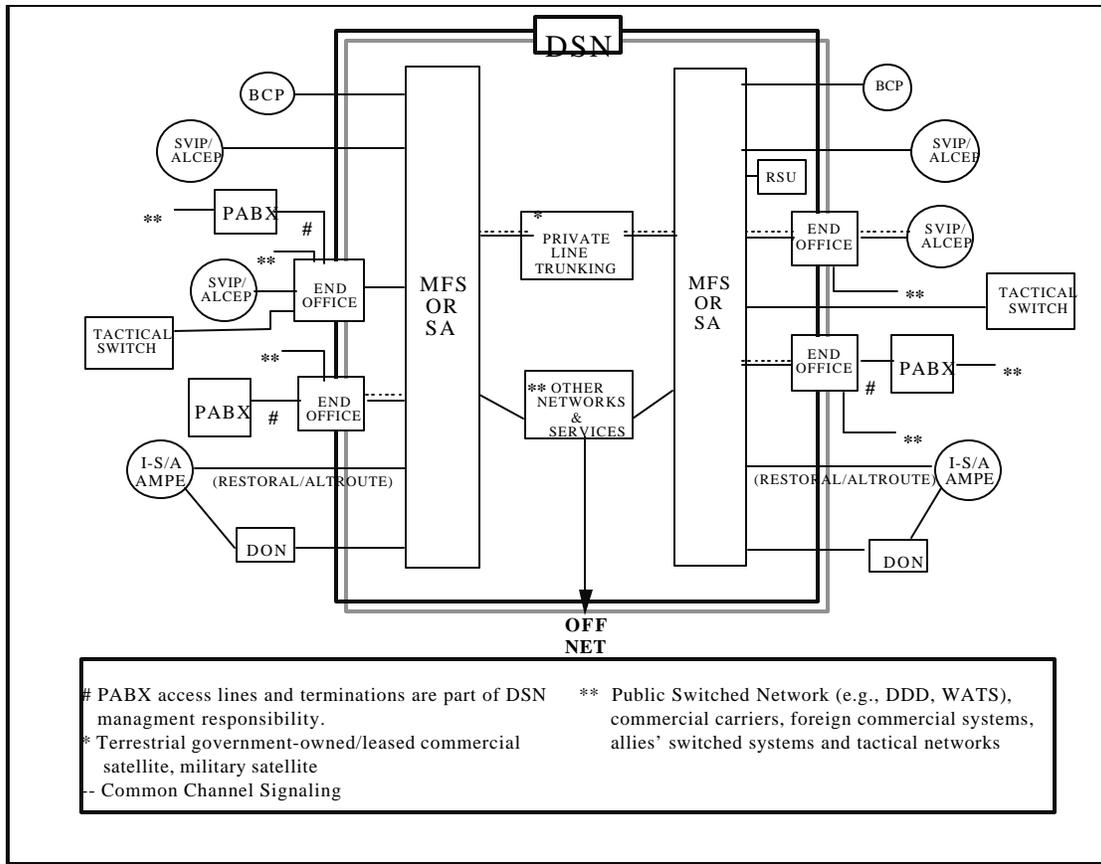


Figure E.1 - DSN General System Overview

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E102. DISN INTERNET PROTOCOL (IP) ROUTER NETWORKS

a. DISA operates two worldwide IP router networks; NIPRNET and SIPRNET. The service that was previously provided by the Terminal Access Controllers (TAC's) in the MILNET (DDN) will be replaced by Cisco 2511 Communication Servers (CS's) equipped with 16 asynchronous dial-in ports. CS's will be connected to a DISN router; the interface to the backbone network will be either a local Ethernet connection or a serial line at locations where router and CS cannot be connected via Ethernet.

b. NIPRNET offers three methods of accessing the CS: a 1-800 number (within the CONUS); a number of sites worldwide that can be reached using a local call; and dedicated connections at or to the local communications server sites. For overseas service and some local CONUS sites, the phone lines are accessible via DSN.

c. SIPRNET provides the same basic dial-in services as the NIPRNET with the exception being that phone access is via STU-III's equipped with the Secure Access Control System (SACS) capability. SIPRNET 1-800 service is provided in the CONUS at

two locations; DISA Operations Support Center (OSF) in Sterling, VA, and McClellan Air Force Base, Sacramento, CA. DSN access to these CS's will not be provided. Sixteen outside the Continental United States (OCONUS) local CS's will be provided on the SIPRNET.

d. A separate registration process has been instituted for NIPRNET and SIPRNET. Users are charged a \$50 registration fee and a \$27 a month recurring charge for either service. Registration procedures will ensure that user's credentials are entered into the correct (SIPRNET vs NIPRNET) Extended Terminal Access Controller Access System (XTACACS) server. XTACACS will be employed on both networks. Users will have one User ID and Access Code for NIPRNET and another User ID and Access Code for SIPRNET.

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APPENDIX F

DEFENSE MESSAGE SYSTEM (DMS)

F101. GENERAL

a. DMS is a result of a 1988 Assistant Secretary of Defense Command, Control, Communications and Intelligence (ASD C3I) initiative to determine the future of DOD electronic message systems. DMS is a DOD-wide program that will gradually transition all elements of the DOD messaging system to an X.400/X.500 based architecture for interoperability. DMS uses Commercial-Off-the-Shelf (COTS) software standardized interfaces and will support organizational and individual messaging services and is being deployed in a phased implementation.

b. The goals of DMS are:

- (1) To replace outdated equipment.
- (2) Further automate communications center functionality.

(3) Provide increased connectivity to users for messaging/E-Mail.

(4) Controlled phase-out of the Automatic Digital Network (AUTODIN).

(5) Expanded messaging capabilities at the user desktop (text, video, graphics, imagery, and voice).

c. The entire DOD DMS project falls under the oversight of the Major Automated Information Systems Review Council (MAISRC). The implementation phases are being translated to Milestones. The first Milestone of DMS has been completed. Milestone II is planned for 1995-2000 and will continue to transition classified and mobile user requirements.

d. International standards for messaging and Directory Services will replace the AUTODIN and E-Mail services we know now. Telecommunications Centers (TCC's) functions and responsibilities will shift to the user's desk and the phase out of manpower intensive TCC's will be accelerated. The final milestone will see the removal of AUTODIN, the closure of all TCC's and the ability of DOD users to securely exchange text, voice, video, graphics, and imagery from their desktop personal computers.

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APPENDIX G

MILITARY CONSTRUCTION, NAVY (MCON)

G101. GENERAL

This Appendix addresses the MOU between COMNAVCOMTELCOM and COMNAVFACENGCOM.

G102. PURPOSE

The MOU establishes a means of doing business that ensures cost-effective, efficient design, procurement, and installation of base communications systems in newly constructed or renovated buildings while avoiding building occupancy delays because of a lack of adequate communications.

G103. SCOPE

The MOU defines the responsibilities between COMNAVFACENGCOM, COMNAVCOMTELCOM, and their respective field

offices in providing base communications system installed as an integral part of MCON or Minor Construction Projects.

G104. RESPONSIBILITIES

COMNAVFACENGCOM has contracting responsibility beginning in FY96 for the installation of inside building cables (distribution and station wiring) in facilities constructed or refurbished by a MCON project or a Special Project using O&M,N funds. This includes:

a. Incorporating inside building wiring into MCON and Minor Construction projects.

b. Designing and contracting for the outside cable (copper and/or fiber optic) between the building and a point of connections into the outside cable plant where sufficient spare cable pair or bandwidth is available.

c. Ensuring that the appropriate fiber optic and channelization terminal equipment is included in the contract.

d. Funding for above items.

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APPENDIX H

BASE CABLE PLANT GUIDELINES

PART 1

H101. GENERAL

These guidelines are intended to form the basis for transition of Navy cable plant to the advanced systems currently required.

H102. PURPOSE

To provide broad planning and implementation guidance for base communications managers at U.S. Navy Installations addressing requirements for future development of Navy cable plant.

H103. REFERENCES

a. Navy Base Telecommunications Specifications; Statement of Work for BLII Outside/Inside Plant and Fiber Optic Transmission Facilities - NCTCIOP93A.

b. Naval Facilities and Engineering Command Guide Specification, NFGS-16710.

c. MOU between U.S. Naval Facilities Engineering Command and Naval Computer and Telecommunications Command.

H104. SCOPE

This guidance applies to all U.S. Navy shore installations within the Continental United States (CONUS) and overseas. It provides planning, engineering, and implementation guidelines in support of the Navy BLII and reflects Navy policy to promote maximum economical use of fiber optic transmission systems in Navy cable plants.

H105. BACKGROUND

There is an accelerating worldwide trend towards use of fiber optics and fiber optics-based broadband transmission technologies as the primary means for information transmission. Initially concentrated in the long-haul or wide area portions of networks, these technologies are rapidly moving into local and metropolitan area telecommunications as users demand wider bandwidth and faster speeds for end-to-end, high-speed

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connectivity. The advantages of these emerging technologies in alleviating deficiencies in communications, especially in the areas of capacity, reliability and security, have been recognized by the Navy. In June 1990, the CNO (N6) issued guidance entitled Navy-Wide Data and Network Protocol Standards, which established a policy that:

a. The BLII ashore will be the basis for all new/revised intrabase telecommunications networks architectures.

b. A family of protocols will be established to govern the graceful evolution of all fiber optic networks, currently fielded or under development, to the Integrated Interior Communications and Control (IC2) architecture afloat and the BLII topology. The CNO guidance contains four precepts governing the attainment of this policy. These are:

(1) That the IC2 and the BLII will evolve to a BISDN capable of using SONET protocols.

(2) Commercial industry standards and protocols will be adopted and specified unless excepted on a case-by-case basis.

(3) Networks will evolve to data, voice and video capability at multiple levels of security with packet routing and control totally independent of packet content.

(4) Full interoperability of the IC2 and the BLII will be maintained at all times along with a goal of evolution to full interoperability with DISN and commercial telephone systems as well.

Recognizing that this guidance must be refined for applicability to each component of the BLII, the CNO guidance directs implementation of cable plant topologies to "facilitate evolution to single transmission mode fiber necessary for implementation of high performance network technology." Therefore, ensuing broad policy guidance is intended to project the above precepts to Navy cable plant development and deployment.

H106. ORGANIZATION AND APPROACH

This guidance document is organized into three major policy areas: Introduction and Exploitation of Fiber Optics Technology, Utilization and Improvement of Existing Copper Wire Cables, and Use of Existing Facilities and Structures to Support Cable Plant. These policy statements cover:

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a. Introducing fiber optics into exterior cable plant with migration to building inside wiring with emphasis on use of single mode fiber to allow for future bandwidth expansion and selection of multiplex equipment to facilitate ISDN interfaces.

b. Upgrading current copper wire cable facilities to accommodate ISDN interfaces by exploiting emerging signal processing technologies.

c. Exploiting use of existing structures and facilities such as utility duct systems, plenums and pole lines to support cable plant in order to reduce/avoid construction costs.

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PART 2

POLICY ON USE OF OPTICAL FIBER IN NAVY CABLE PLANT

H201. PURPOSE

To provide broad policy guidelines for the introduction of optical fiber technology into Navy cable plant in a manner which achieves economy and efficient transition to broadband transmission systems. It implements CNO policy on using optical fiber as the medium of choice in achieving the BLII target architecture.

H202. SCOPE

This guideline covers use of optical fiber at shore installations for both exterior and interior applications.

H203. APPLICABILITY

This guideline is applicable to all U.S. Navy shore installations. It also provides planners for optical systems aboard ships with information necessary to coordinate interface planning for pierside interconnects.

H204. POLICY

The U.S. Navy is committed to the exploitation of optical fiber technology as the fundamental transmission medium for Navy base cable plant.

a. Single mode optical fiber will be used, as a minimum, for the backbone portion of the base cable plant and also will be installed to all buildings that have an existing or future requirement for high speed data. Any deviation to the installation of single mode fiber cable for the backbone cable plant will require a waiver from COMNAVCOMTELCOM.

b. Optical cables shall be engineered and installed to maximize use of existing structures and facilities as specified in the policy. Optical fiber cable for exterior installation shall be installed in existing utility, direct buried, or telecommunications duct systems or in new duct systems with a minimum diameter of four inches. Selection of cable sizes shall be such that a minimum of eight fibers shall be available to each building or facility after fan-out at pedestals. This rule does not apply to temporary facilities.

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c. Multi-Mode fiber shall be used in the outside base cable plant as the distribution cable between a single mode fiber node and a building. Multi-mode shall be installed for short distances, normally less than two miles, when the requirement for high-speed data and voice is not sufficient to justify the installation of single mode fiber. When multi-mode fiber cable is installed, four strands (two spare strands are for maintenance) is required for every 150 MHz of bandwidth required.

d. Appropriate portions of existing copper plant may be retained to provide redundancy and connectivity for existing alarm and special circuits that will not interface with fiber optic cable.

e. Refer to Section NCTC IOP90A of COMNAVCOMTELCOM's current Navy Base Communications Specifications, for specific guidance in the procurement and installation of outside plant base communication cables.

f. No installation of outside cable by activities other than the BCO is authorized without prior approval of the BCO. These "stove pipe" installations must either meet or exceed BCO standards or connection will not be permitted to the outside backbone cable plant. A standard is required so all activities on base can connect to the NIPRNET/SIPRNET and DMS at a reasonable cost. In addition, this will allow for central management and operation of a base Metropolitan Area Network (MAN), which will transport all information from a workstation and/or from the workstation to the DISN or the commercial demarc point.

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PART 3

POLICY ON UPGRADING EXISTING COPPER WIRE

TRANSMISSION PLANT TO SUPPORT DIGITAL SERVICES

H301. PURPOSE

To provide policy guidelines for the installation and replacement of copper cable.

H302. SCOPE

This guideline covers the installation of new copper cable at shore installations.

H303. APPLICABILITY

This policy guideline is applicable to all U.S. Navy shore installations.

H304. POLICY

The following criteria shall be used to identify the type and size of copper cable(s) required when gathering information to support base cable upgrades, base cable modernization, and base cable replacements of the existing copper cable on a naval installation.

a. Copper cable shall only be installed to buildings without a requirement for high-speed data and/or high voice density. Examples are: 1) a guard shack, 2) a warehouse, and 3) a storage shed.

b. Twenty-four American Wire Gauge (AWG) multi-pair copper cable is the preferred AWG size to be installed. Other gauges of cable are authorized to meet specific engineered circuits or when the resistance of the cable pairs is not within tolerance.

c. Copper cable to a building shall be sized to: 1) support the single-line concept, 2) provide spares for maintenance, 3) meet future requirement, and 4) provide for growth.

d. The following criteria is to be used to calculate the number of cable pairs required for an individual building:

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(1) One cable pair per 100 square feet of usable floor space.

(2) One cable pair for each special circuit installed or to be installed in the future.

(3) Add 50 percent of the sum of item (1) and (2) above for spare pairs to support growth and maintenance. This will give the size of cable required to be installed.

e. Refer to Section NCTC IOP90A of COMNAVCOMTELCOM's current Navy Base Communications Specifications, for specific guidance in the procurement and installation of outside plant base communication cables.

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PART 4

POLICY ON USE OF EXISTING STRUCTURES AND FACILITIES TO
SUPPORT BASE CABLE PLANT DEVELOPMENT

H401. PURPOSE

To provide guidance on use of existing facilities and the sharing of facilities to house and protect telecommunications cable plant.

H402. SCOPE

This policy guideline covers the installation of exterior and interior copper and fiber based cable plant on Navy shore installations.

H403. APPLICABILITY

This policy guideline is applicable to all U.S. Navy shore installations. It also provides guidance to those planning pierside interfaces.

H404. POLICY

Much of the cost in installing new cable plant or refurbishing existing plant is involved in providing appropriate facilities, such as duct and conduit to house the cable. Even when cable is direct-buried, considerable expense and disruption may be involved. The introduction of optical fiber cable technology offers opportunities to install the cable in existing facilities (ducts and conduits), thus avoiding major construction costs. Often these savings can readily amortize the additional cost of optical fiber over copper cables. Base communications managers and engineers at Navy installations should become aware of those facilities, which might be shared with other utilities, so as to avoid separate telecommunications construction.

The following policy guidance is provided to assist Navy base telecommunications managers in avoiding unnecessary construction or installation costs as the Navy transitions to optical fiber architectures.

a. Telecommunications managers at all levels must be consistently looking for opportunities to use existing facilities to house base cable plant, both exterior and interior. To accomplish this, managers must be aware of other

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utility housing facilities on each installation including the routings, spare capacities, and suitability for sharing telecommunications cables.

b. Telecommunications managers will coordinate with other base utility managers prior to undertaking construction of facilities to house telecommunications cables to ensure that no existing facilities can be made available for sharing.

c. When duct or conduit facilities must be constructed to support the base cable plant, telecommunications managers will coordinate with other utility managers on the feasibility of facility sharing from occupancy as well as cost standpoints.

d. When other utility housing facilities, such as those serving new or refurbished buildings, are planned on Navy bases, telecommunications managers will ensure that communications cable requirements can be accommodated by sharing the facilities.

e. The entire inventory of Navy base facilities for housing telecommunications and utility cables will be documented in the automated base cable plant data base to be developed and validated through the Model Base Program. This will facilitate economical planning for transitions to optical fiber cable systems.

f. When copper cables are removed from existing duct and conduit facilities, pull wires in future installation for optical fiber cables will be installed in the facilities.

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APPENDIX I

UNOFFICIAL TELEPHONE SERVICE

IN NAVY BACHELOR QUARTERS

I101. GENERAL

The Navy Exchange Service Command (NEXCOM) has been designated as the Program Manager for Unofficial Telecommunications with emphasis on Navy Bachelor Quarters (BQ's) in accordance with CNO message 032327Z OCT 94. NEXCOM has entered into a 10-year agreement with the American Telephone and Telegraph Company (AT&T) for a wide variety of personalized telecommunications services for authorized patrons effective December 1995.

The following outlines specific services and features covered by the agreement:

a. License Agreement Features:

(1) Rates charged to end users will be comparable to or lower than those available to the local community.

(2) Commissions for each platform are structured as a percent of total revenue, with a guaranteed minimum monthly payment overall (excluding prepaid debit cards).

(3) Detailed monthly reports for each service platform at each base will be provided to NEXCOM.

(4) Licensee will make all capital investment necessary to provide connectivity and service.

(5) Infrastructure reverts to the government upon contract termination.

(6) License agreement specifies standards for maintenance, training, service (local support).

(7) Advertising and marketing standards ensure maximum customer participation.

(8) Installations in CONUS and overseas locations will have service platforms as identified in the license agreement with flexibility to modify appropriately.

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b. Bachelor Quarters In-Room Phone Service:

(1) Permanent party personnel will be billed monthly directly by licensee.

(2) Instantaneous billing upon demand will be available for transient personnel.

(3) Transient rooms and designated common areas will be supplied phones.

(4) Voice mail, remote retrieval of message and automated attendant service with resident directory services will be provided at no additional charge.

(5) Personal Identification Numbers (PIN) will be provided to BQ residents.

(6) No connect/reconnect fees will be charged for service changes.

(7) Controls allow sailors to establish/maintain good payment records throughout careers.

c. Temporary Lodging Facility In-Room Phones:

(1) Initial list includes Navy Lodges and some Coast Guard Guest Houses.

(2) Other temporary lodging facilities (i.e., Marine Corps) identified during the performance of the License Agreement can be added, if desired.

(3) Voice mail, remote retrieval of messages, and automated attendant service with resident directory services will be provided.

(4) Instantaneous billing upon demand will be available for guests.

d. Pay Phone Service:

(1) Local and long-distance pay telephone service will be provided, installed, and maintained.

(2) Coin-operated and charge-a-call telephones will be furnished in appropriate quantities.

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(3) Transition from NEXCOM's current contract with MCI for pay phone service will commence within four weeks of award.

(4) Licensee shall restore service failures or provide replacement telephones within specified timeframes.

(5) Service members will have access to multiple interchange carriers for placing long-distance calls.

e. Long-distance Service Option (Private Residential Personal Use):

(1) Authorized exchange customers choosing this carrier to provide service for their home phones will receive discounted long-distance rates and calling card services.

(2) Authorized military exchange customers include active duty military members, reservists, Auxiliary and National

Guard members, retired military members, Exchange employees, and authorized family members of these individuals.

f. Prepaid Debit Card Service:

(1) Prepaid debit cards will be personalized to each service component.

(2) Over-the-counter prepaid debit cards will be available in five denominations; vended prepaid debit cards will be available in three.

(3) The Licensee will provide promotional events for each military service, including small dollar value thematic giveaway cards, at regular intervals.

(4) Vending machines will be provided by the Licensee on a no-cost basis, including shipment and installation, as required.

(5) Prepaid debit cards will retail for not more than \$.25 a minute/unit.

(6) Prepaid debit cards will be handled as "costs of goods" retail item (not included in the minimum monthly guarantee).

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g. Long-distance Phone Centers:

(1) The Licensee will operate this concession on specified installations.

(2) Phone Centers will be ordered under this agreement on a delivery order basis.

(3) As existing Phone Center contracts expire, delivery orders may be issued to replace the expiring contract if appropriate at that installation.

h. Subscriber/Non-Subscriber/Military Calling Card Services: The Licensee will provide and advertise both subscriber and non-subscriber (military) calling card services for Navy, Marine Corps, and Coast Guard personnel.

i. Brig/Confinement Facility Pay Phone Service:

(1) The Licensee will provide pay telephones for inmates for collect calls only.

(2) Policy on inmate phone use (i.e. access to phones and limits on call duration) is established by each brig/correctional facility.

(3) The Licensee's system will validate all calls to ensure the number dialed is a validated number to which a call can be billed.

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APPENDIX J

QUALITY ASSURANCE PROGRAM CHECKLIST		
Activity Name:	Location:	Date:
ADMINISTRATION:		
1. Base Major Claimant:		
2. Base Commanding Officer:		
3. Base Communications Office Name:		

*Are local instructions current? (Dates):

*What procedures do you use to ensure customer activities are in compliance with local policies and procedures?

2. Does each customer activity have a designated Telephone Control Officer (TCO)?

3. Do you maintain a Base Telephone Directory?

*Do you update and publish the Base Telephone Directory annually? Ask for copy of latest publication.

*How are updates collected and how often?

*What is distribution of the Base Telephone Directory – one per line/per instrument?

*Is there a charge? If so, who pays?

*What instructions are provided in the Base Telephone Directory?

4. Do you provide local directories?

*What is distribution of local directories – one per line/per instrument?

5. Do you have procedures in place to control use of long distance?

6. How do you discourage directory assistance calls?

*How much is spent on a monthly average for directory assistance calls?

*Approximately how many directory assistance calls are placed monthly?

*Are these calls identified/billed back to the user? How?

QUALITY ASSURANCE PROGRAM CHECKLIST		
Activity Name:	Location:	Date:
OPERATIONS:		

7. Explain your trouble reporting procedure.

*Who reports the trouble to whom? How/who is advised when trouble clears?

*What is the normal clear time on trouble calls?

*During a major outage, what provisions have been made to prioritize which lines are returned to service first?

8. Do you have a validated inventory of leased and government-owned services and equipment?

*How is inventory maintained?

*How often is inventory updated?

*What is date of last inventory?

*How often is a Review and Revalidation performed?

*Is inventory broken down by customer activity?

*Do you conduct annual usage surveys?

*Are procedures in place for reporting abandoned lines and equipment?

9. Do you maintain current records for the following:

*I/S and O/S cable plant and configuration

*Plant-in-place records of government-owned facilities

*Line classes of service (LCOS) and other feature services

*Equipment leased by customer activity

*Issuance of orders to vendors

QUALITY ASSURANCE PROGRAM CHECKLIST		
Activity Name:	Location:	Date:
OPERATIONS:		

*Trouble reports for both leased and government-owned equipment and services

10. Have you managed and provided optimum telephone service and facilities which is evidenced through the following:

- *Number of customer complaints? *System outages and total downtime?
- *Maintenance/service calls?

11. Do you provide operator services? How many?

- *What services do the operator(s) provide?
- *Do the operators provide weekend services?
- *Do you have an automated attendant?

12. Answer the following concerning a leased switch environment:

- *Do you request traffic studies? How often are studies performed?
- *How often are preventive maintenance inspections performed?

13. Do you have a point of contact list providing names and telephone numbers of key personnel from the vendors for emergency purposes?

14. Do you provide budgeting and funding for base communications services and facilities for all your customer activities and major claimants within your authority?

- *What do you define as common user costs?
- *Who determines common user costs?
- *How are these costs equitably distributed among host and customer accounts?

15. How many telephone orders are processed for action on a monthly basis?

QUALITY ASSURANCE PROGRAM CHECKLIST		
Activity Name:	Location:	Date:
OPERATIONS:		

*Is justification from tenant activities requiring service review and returned if not acceptable?

*Are lease vs. purchase analyses being performed?

*Are they retained in file?

*Are data requirements addressed?

16. How many separate invoices are received on a monthly basis?

*Has any bill consolidation occurred?

*Are data requirements addressed?

*Are STU-III requirements addressed?

*Explain verification process of telephone invoices – services, equipment and long distance.

*How are overcharges/erroneous billings resolved?

*How are “special assemblies” billed/identified?

*What is average verification time for invoices?

*Do you ever perform spot checks on work said to be accomplished?

*Who determines late charges and what criteria is used?

*Explain billing procedures back to tenant activities.

17. Do you provide any type of unofficial service?

*BEQ-BOQ Housing Others

*Navy Exchange

18. What classes of dial tone service do you provide?

QUALITY ASSURANCE PROGRAM CHECKLIST		
Activity Name:	Location:	Date:

LIST OF DEFINITIONS

A

ANALOG---Information represented by continuous and smoothly varying signal amplitude or frequency over a certain range, such as in human speech or music.

ASYNCHRONOUS---Data without an accompanying timing signal. Timing predicated on built-in start and stop bits. Refers to circuitry and operating without common timing (clock) signals.

ATTENUATION---The decrease in power that occurs when any signal is transmitted.

AUDIO FREQUENCY---Frequencies detectable by the human ear, usually between 20 and 15,000 Hz.

B

BANDWIDTH---The range signal frequencies that a circuit or network will respond to or pass.

BASE LEVEL INFORMATION INFRASTRUCTURE (BLII)---The communications infrastructure at the base-deployable-shipboard level for information technology (IT) assets to include: 1) inside and outside cable plants (wire-fiber optic), and any equipment connected that is installed as an integral part of the base infrastructure, such as, telephone switch, network concentrators, routers, servers; 2) all voice, video, and data resources that meet the above definition; 3) BLII does not include: security resources installed as part of the infrastructure, and any infrastructure that supports a single system (e.g., C2IP's, CMOS, etc.).

BELOW THRESHOLD TELECOMMUNICATIONS REQUIREMENTS---A need for new or increased capabilities costing less than the threshold for major telecommunications requirements as specified in reference (d) of Appendix A, but in excess of the annual cost limitations set forth by CNO (whether government furnished, leased, or a combination of both).

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BORSCHT---An acronym for the functions that must be performed in the central office when digital voice transmission occurs;

battery, overvoltage, ringing, supervision, coding, hybrid, and test.

C

CABLE---An assembly of one or more conductors insulated from each other and from the outside by a protective sheath.

CENTRAL OFFICE---Switching equipment that provides local exchange telephone service for a given geographical area, designated by the first three digits (NNX or NXX) of phone number.

CHANNEL---An electronic communications path, usually of 4,000hz (voice) bandwidth.

CIRCUIT---An interconnected group of electronic devices, or the path connecting two or more communication terminals.

COMMON BATTERY---A system of supplying direct current for the telephone set from the central office.

CROSSBAR SWITCH---An electromechanical switching machine utilizing a relay mechanism with horizontal and vertical input lines (usually 10 by 20), using a contact matrix to connect any vertical to any horizontal.

CROSSTALK---Undesired voice-band energy transfer from one circuit to another (usually adjacent).

CURRENT---The flow of electrical charge, measured in amperes.

D

DATA---In telephone systems, any information other than human speech.

DATA SET---Telephone company term for modem.

DECODER---Any device, which modifies transmitted information to a form that can be understood by the receiver.

DEFENSE INFORMATION INFRASTRUCTURE (DII)---A seamless web of communications networks, computers, software, data bases,

applications, data, and other capabilities that meets the information processing and transport needs of DOD users in peace and in all crises, conflict, humanitarian support, and wartime roles. It includes: The physical facilities used to collect, distribute, store, process, and display voice, data and imagery; applications and data engineering practices (tools, methods, and processes) to build and maintain the software that allows C2, intelligence, and mission support users to access and manipulate, organize, and digest proliferating quantities of information; standards and protocols that facilitates interconnection and interoperation among networks and systems and that provide security for the information carried; the people and assets which provide the integrating design, management and operation of the DII, develop the applications and services, construct the facilities and train others in DII capabilities and use.

DIGITAL---Information in discrete or quantized form; not continuous.

DTMF (DUAL-TONE MULTI-FREQUENCY)---Use of two simultaneous voice band tones for dialing.

E

ELECTRONIC SWITCHING SYSTEM (ESS)---A telephone switching machine using electronics, often combined with electro-mechanical cross-points, and usually with a stored program computer as the control elements.

EXCHANGE AREA---The territory within which telephone service is provided without extra charge. Also called the calling area.

EMBEDDED BASE EQUIPMENT---Telephone equipment acquired and installed non-competitively prior to 1 January 1984.

F

FEDERAL COMMUNICATIONS COMMISSION (FCC)---A government agency that regulates and monitors domestic use of the electromagnetic spectrum for communications.

FIBER OPTICS---The process of transmitting infrared and visible light frequencies through a low loss glass fiber with a transmitting laser or Light Emitting Diode (LED).

G

GROUND---An electrical connection to the earth or to a common conductor, which is connected to the earth at some point.

GROUND START---A method of signaling between two machines where one machine grounds one side of the line and the other machine detects the presence of the ground.

L

LINESIDE---Refers to the portion of the central office that connects to the local loop.

LOADING COIL---Lumped inductance placed in series on copper telephone pair to flatten frequency response network.

LOCAL LOOP---The voice band channel connecting the subscriber to the central office

LOOP START---The usual method of signaling an off-hook or line seizure, where one end closes the loop and the resulting current flow is detected by the switch at the other end.

LOSS---Attenuation of a signal from any cause.

M

MAIN DISTRIBUTION FRAME (MDF)---The central termination point for all switching system circuits for distribution throughout the entire area being provided service. Entrance cable facilities from the commercial networks are also terminated on the MDF.

MAJOR TELECOMMUNICATIONS REQUIREMENTS---A need for new or increased capabilities that are within the cost of reference (aa) of Appendix A.

MESSAGE TELECOMMUNICATIONS SERVICE (MTS)---The official name for long-distance or toll service. AT&T trade name for this service is Direct Distant Dialing (DDD).

MICRON---One-millionth (10E-6) meters

MULTIMODE---Fiber which allows wave propagation in multiple modes.

O

OFF-HOOK---The condition that indicates the active state of a customer telephone circuit. The opposite condition is On-Hook.

OFF-LINE DEVICES---Off-line devices include all electronic devices connected directly to or placed in the proximity of telephone terminal equipment for sending or receiving data or graphic information.

OPTRONIC---Optical to Electronics

OPX---Telephones served by the on-base telephone system are sometimes located beyond base boundaries. OPX may receive the same services available to on-base telephones. Normally a commercial line chargeable on a mileage basis is required to reach off-premise telephones.

P

PABX OR PBX---A private (automatic) branch telephone exchange system providing telephone switching in an office or building.

PARALLEL DATA---The transfer of data simultaneously over two or more wires or transmission links.

POTS---Purchase of Telephone Systems.

R

RING---The alerting signal to the subscriber or terminal equipment; the name for one conductor of a wire pair, designated by R. (see TIP)

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S

SIDETONE---That portion of the talker's voice which is fed back to his receiver.

SINGLE MODE---Optical fiber which propagates in one mode pronounced.

SLIC (SUBSCRIBER LINE INTERFACE CIRCUIT)---In digital transmission of voice, the circuit which performs some or all of the interface functions at the central office. See BORSCHT.

STEP-BY-STEP (SxS) SYSTEM---An electromechanical telephone switching system in which the switches are controlled directly by digits dialed by calling party.

SUBSCRIBER---The telephone customer.

SUBSCRIBER LOOP---Another term for local loop.

T

TIP---One conductor of a wire pair, designated by T; usually the more positive of the two. (see RING)

TOLL CENTER---A major telephone distribution center that distributes calls from one major metropolitan area to another.

TRANSMISSION---Passing information, using electromagnetic energy, from one point to another.

TRANSMISSION LINK---The path over which information flows from sender to receiver.

TRUNK---A transmission channel connecting two switching machines.

TRUNKSIDE---The portion of the central office that connects to trunks going to other switching offices.

U

U-Law---Pronounced "mu-law." A type of sampling used in North American Pulse Code Modulation, whereby low amplitude signals are sampled more frequently than amplitude signals to improve dynamic range and signal to noise ratio.

V

VOICE-GRADE LINE---A local loop, or trunk, having a bandpass of approximately 300 to 3,000hz.

VOLTAGE---A measure of the electrical force that causes current flow in a circuit.

W

WIDEBAND CIRCUIT---A transmission facility having a bandwidth greater than that of a voice-grade line.

APPENDIX L

LIST OF ACRONYMS

A

AC	Alternating Current
ACO	Administrative Contracting Officer
ADP	Automatic Data Processing
ADNX	Automated Digital Network Exchange
AIMC	Automated Information Management Center
ANSI	American National Standards Institute
AON	Automatic Off-Net
AOR	Area of Responsibility
ARC	American Red Cross
AT&T	American Telephone and Telegraph
AT&TIS	AT&T Information System
AUTODIN	Automatic Digital Network

B

BCCB	Base Communications Control Board
BCO	Base Communications Office
BEQ	Bachelor Enlisted Quarters
BISDN	Broadband Integrated Services Digital Network
BITS	Base Information Transfer System
BOC	Bell Operating Company
BOQ	Bachelor Officers Quarters
BPS	Bits Per Second
BTL	Basic Termination Liability

C

CAIRS	Cable Assignment & Information Retrieval System
CAD/CAE	Computer Aided Design/Computer Aided Engineering
CCITT	Consultative Committee International Telegraph and Telephone
CBD	Commerce Business Daily
CCS	Common Signal Channeling
CDC	Common Distributable Charge
CENTREX-CO	CENTREX-Central Office
CENTREX-CU	CENTREX-Customer Unit (Obsolete Term)
CMC	Commandant of the Marine Corps

CNO	Chief of Naval Operations
CO	Central Office
COR	Contracting Officer Representative
COMNAVCOMTELCOM	Commander, Naval Computer and Telecommunications Command
COMNAVSUPSYSCOM	Commander, Naval Supply Systems Command
CONUS	Continental United States
COS	Class of Service
CPE	Customer Premise Equipment
CPU	Central Processing Unit
CS	Communications Server
CSA	Communications Service Authorization
CSR	Customer Station Rearrangement

D

DCEC	Defense Communications Engineering Center
DCTE	Data Circuit-Terminating Equipment
DEPSECDEF	Deputy, Secretary of Defense
DDD	Direct Distance Dialing
DFARS	Defense Federal Acquisition Regulation Supplement
DIA	Defense Intelligence Agency
DID	Direct Inward Dialing
DII	Defense Information Infrastructure
DIOD	Direct Inward/Outward Dialing
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DITCO	Defense Information Technology Contracting Office
DIW	D-Inside Wiring
DMS	Defense Message System
DOD	Department of Defense
DOD	Direct Outward Dial
DON	Department of the Navy
DP	Dial Pulse
DS-1	North American Designator for 1.544 Mb/s Data Stream with up 1.536 Mb/s of user Data
DSN	Defense Switches Network
DSSCS	Defense Special Security Communications System
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency Signaling

E

EFD	Engineering Field Division
EKTS	Electronic Key Telephone System
EPS	Equipment Performance Specification
ETI	Electronic Telephone Instrument

F

FAA	Federal Aviation Association
FAADCLANT	Fleet Accounting and Disbursing Atlantic Fleet
FAR	Federal Acquisition Regulation
FBL	Flat Business Line
FCC	Federal Communications Commission
FDDI	Fiber Distributed Data Interface
FET	Federal Excise Tax
FIP	Federal Information Processing
FIRMR	Federal Information Resources Management Regulations
FLA	Full Load Amperes
FTP	Functional Transfer Plan
FTS	Federal Telecommunications System
FTSR	Federal Telecommunications Service Request
FX	Foreign Exchange

G

GCE	Government Cost Estimate
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GFM	Government Furnished Material
GFP	Government Furnished Property
GOS	Grade-of-Service
GSA	Government Services Administration

H

HCA	Head of Contracting Activity
HNA	Host Nation Approval
HQ	Headquarters

I

ICEA	Insulated Cable Engineers Association
IC2	Integrated Interior Communications and Control
IDF	Intermediate Distribution Frame
IDNX	Integrated Digital Network Exchange
IES	Illuminating Engineers Society
IFB	Invitation for Bid
I/O	Input/Output
IOC	Interoffice Circuits
IOS	International Organization for Standardization
IP	Internet Protocol
IRT	Interim Remote Terminal
IS	International Standard
ISDN	Integrated Services Digital Network
IST	Inter-Switch Trunking
IVN	Inter-city Voice Network

J

JCS	Joint Chiefs of Staff
JFTOC	Joint Fleet Telecommunications Operations Center

K

KO	Contracting Officer
KTS	Key Telephone System

L

LAN	Local Area Network
LATA	Local Access and Transport Area
LCC	Life-Cycle Cost
LCM	Life-Cycle Management
LCOS	Line Class Of Service
LDC	LATA Distribution Channels Requirements
LEC	Local Exchange Carrier
LED	Light Emitting Diode
LUS	Line Utilization Summary
LSSGR	Local Switching System General Requirements
LWOP	Lease With Option to Purchase

M

MCI	MCI Telecommunications Corporation
MCON	Military Construction, Navy
MCRP	Main Cable Routing Plan
MDF	Main Distribution Frame
MILCON	Military Construction
MILNET	Military Network
MILSPEC	Military Specification
MILSTD	Military Standard
MOA	Memorandum of Agreement
MOP	Memorandum of Policy
MOU	Memorandum of Understanding
MTS	Message Telecommunications Service
MWR	Morale, Welfare, and Recreation

N

NATO	North Atlantic Treaty Organization
NACOMPT	Navy Comptroller
NAVCOMPARS	Naval Communications Messge Processing and Routing System
NAVFACENCOM	Naval Facilities Engineering Command
NAVSUPSYSCOM	Naval Supply Systems Command
NCTAMS PAC	Naval Computer & Telecommunications Area Master Station Pacific
NCTAMS LANT	Naval Computer & Telecommunications Area Master Station Atlantic
NCTAMS EURCENT	Naval Computer & Telecommunications Area Master Station Europe Central
NDCCA	Navy Data Communications Control Architecture
NEC	National Electric Code
NESC	National Electric Safety Code
NFPA	National Fire Protection Agency
NIC	Network Information Center
NIIP	Naval Information Infrastructure Plan
NIPRNET	Unclassified Internet Protocol Router Network
NM	Nanometer - One-Billionth (10E-9) meters
NOC	Network Operating Center
NSA	National Security Agency

O

OC	Optical Carrier
OCC	Other Common Carriers

OCONUS	Outside Continental United States
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OIRM	Office of Information Resource Management
O&M	Operations and Maintenance
O&M,N	Operations and Maintenance, Navy
OPN	Other Procurement Navy
OPS	Outside Plant Schematic
OPX	Off Premise Extension
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
OTS	Oahu Telephone System

P

PA	Public Address
PBX	Private Branch Exchange
PCM	Pulse Code Modulation
PDC	Program Designator Code
PDN	Public Data Network
PIC	Plastic Insulated Cable
PMO	Program Management Office
PM	Program Manager
PM	Preventive Maintenance
POC	Point of Contact
POTS	Plain Old Telephone Service
PSN	Public Switched Network
PSTN	Public Switched Telephone Network
PTT	Post Telegraph and Telephone
PWC	Public Works Center
PWD	Public Works Department

Q

QA	Quality Assurance
QAP	Quality Assurance Program

R

RC	Regional Coordinator
REA	Rural Electrification Administration
RFP	Request For Proposal
RFS	Request for Service
RFQ	Request for Quotation
RJ-8	Designator for 4 Pin miniature telephone jack
RJ-11	Designator for 6 Pin miniature telephone jack
RJ-45	Designator for 8 Pin miniature telephone jack

S

SAC	Secure Access Control System
SCIF	Sensitive Compartmented Information Facility
SEB	Selection Evaluation Board
SIPRNET	Secret Internet Protocol Router Network
SONET	Synchronous Optical Network
SOP	Standard Operating Procedure
SOW	Statement of Work
SSEB	Source Selection Evaluation Board
STEL	Secure Telephone
STS	Synchronous Transport Signal
STU II	Secure Telephone Unit Number 2
STU III	Secure Telephone Unit Number 3
SUES	Specialized User Equipment and System

T

T-1	Designator (from AT&T) for a digital carrier and Multiplex system operating at 1.544 Mb/s and carrying 24 - 64 Kb/s channels
TAC	Terminal Access Controller
TAR	Technical Assistance Request
TC	Terminating Channel
TCB	Telephone Control Board
TCO	Telecommunications Certification Office
TCR	Telephone Cost Report
TELCO	Telephone Company
TELSUM	Telephone Summary
TES	Technical Evaluation Study
TMD	Telephone Management Department
TMS	Telephone Management System
TSO	Telecommunications Service Order
TSR	Telecommunications Service Request

U

UPS	Uninterrupted Power Supply
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V

V&H	Vertical & Horizontal
VOQ	Visiting Officers Quarters
VSAT	Very Small Aperture

W

WAN

Wide Area Network

X

XTACACS

Extended TAC Access Control System