AD-A130 726 STANDARD ENGINEERING INSTALLATION PACKAGE GROUND CONTROL APPROACH RADAR S..(U) ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION

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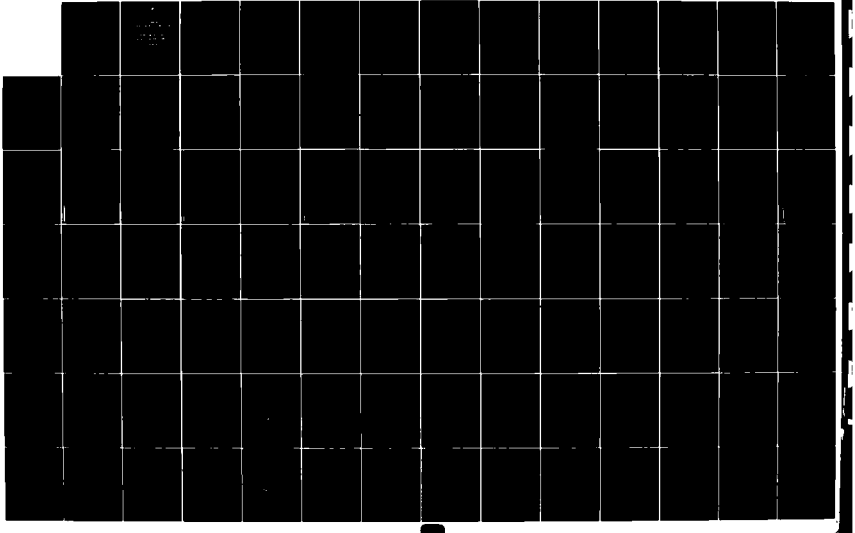

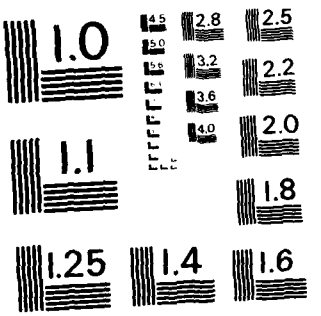

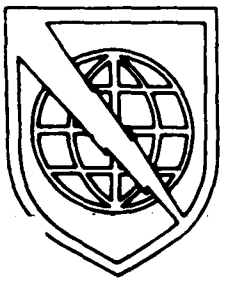

SEIP 011

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STANDARD ENGINEERING INSTALLATION PACKAGE

GROUND CONTROL APPROACH RADAR SYSTEMS AND RADOME (S)

17 Jan 83

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Superseded AD-A101 557

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THIS SEIP SUPERSEDES USACC SEIP 011, ~~20 FEBRUARY 1976~~, GROUND CONTROL APPROACH RADAR SYSTEMS.

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DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS COMMAND
Fort Huachuca, Arizona 85613

Change 1
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No 011

17 January 1983

Standard Engineering Installation Package
GROUND CONTROL APPROACH
RADAR SYSTEM AND RADOME(S)

1. SEIP 011, 30 June 1981, is changed as follows:

a. Remove pages:

4-1
4-2
4-3
4-4

b. Replace with the following change pages:

4-1 (17 Jan 83)
4-2 (17 Jan 83)
4-3 (17 Jan 83)
4-4 (17 Jan 83)

c. Remove drawing sheets:

STD-AF-0501, 1 of 1
STD-AF-0505, 1 of 2
STD-AF-0505, 2 of 2

d. Replace with the following drawing sheets:

STD-AF-0511, 1 of 7 (rev A 7 Dec 82)
STD-AF-0511, 2 of 7 (rev A 7 Dec 82)
STD-AF-0511, 3 of 7 (rev A 7 Dec 82)
STD-AF-0511, 4 of 7 (rev A 7 Dec 82)
STD-AF-0511, 5 of 7 (rev A 7 Dec 82)
STD-AF-0511, 6 of 7 (rev A 7 Dec 82)
STD-AF-0511, 7 of 7 (rev A 7 Dec 82)

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Ground control approach radar systems, AN/FPN-40 radar set, AN/FSQ-84 radar system, site surveys at Army airfields, quality assurance.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This standard engineering installation package (SEIP) is one in a series for upgrading air traffic control and navigational and landing aids at Army airfields and heliports worldwide. It provides the guidance involved in selecting, acquiring, and installing ground control approach radar systems. It gives a system description along with the technical aspects of the equipment and installation areas. It contains a list of applicable documents, descrives a comprehensive checklist for site surveys, tells how to install equipment, the manpower required to do it and gives a bill of materials to accomplish it all. (See reverse)

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20. Abstract--continued

The SEIP describes quality assurance inspections and gives sample forms to ascertain areas of responsibility, checklists, and certification. One section gives a detailed test plan and checkout procedure while the system is in operation and suggests the form for a technical acceptance certificate. The SEIP also contains sample coordination documents of all agencies involved in the upgrading process and a completion certification that the project has met all of the test criteria.

30 June 1981

STANDARD ENGINEERING INSTALLATION PACKAGE
GROUND CONTROL APPROACH (GCA) RADAR SYSTEMS AND RADOME(S)

TABLE OF CONTENTS

RE: RADOME (S)
The (S) at the end of the word Radome means it can be singular or plural per Mr. Rosenblatt, USACEEIA/Standards Branch

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TABLE OF CONTENTS (Cont)

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SECTION 1. GENERAL

1.1 Background. The U.S. Army Communications-Electronics Engineering Installation Agency (USACEEIA) is responsible for engineering and installation Communications-Electronics (C-E) equipment for Air Traffic Control (ATC) and Navigational Landing Aids (NAVAIDS) at new, and existing U.S. Army Airfields and Heliports (AAF/AHP) worldwide. This Standard Engineering Installation Package (SEIP) will provide engineering and installation data, site survey criteria, quality assurance provisions, and test plan guidance in preparing an Engineering Installation Package (EIP) for the initial installation or reconfiguration of an existing AN/FSQ-84 Radar System, the installation of an AN/FPN-40 GCA Radar only with Radome, or installation of a Radome only at all categories of AAF/AHP.

1.2 General System Description. The AN/FSQ-84 Radar System consists of an AN/FPN-40 Ground Control Approach (GCA) Radar Set with Radome, an AN/TPX-41 Interrogator Set, and Demultiplexer TD-992/G mounted in a modified S-70 Shelter (located at the receiver-transmitter (R/T) Site), an OA-2664A/FPN-40 Control-Indicator Group, and Power Supply Group, OA-2032/FPN-33 Video Amplifier Group, TD-991/G Multiplexer, KY-593/TPX-44 Video Decoder (part of AN/TPX-41), C-7014/TPX-44 Remote Switching Control (part of AN/TPX-41), and C-1271A/TPX-22 Remote Switching Control (part of AN/TPX-41) located in the GCA Operations room. Figure 1-1 depicts a typical U.S. Army Airfield layout and a suggested location for the AN/FPN-40, S-70 Shelter, and the Radome equipment. Location specifications for this equipment is contained in Field Manual FM 11-486-23, Chapter 3.

1.2.1 GCA Operations. The GCA Operations is normally in the Control Tower, but may be located in another building that affords protection against inclement weather and provides a suitable environment for the air traffic control operators. Figure 1-2 depicts a typical location in the Control Tower of the GCA Operations, and its GCA functional configuration. Drawing STD-AF-0502 depicts a four-sided control tower GCA Operations room equipment layout with a single, and a dual GCA Radar installation. Drawing STD-AF-0202, Sheet 8, depicts a six-sided control tower GCA Operations room equipment layout for a single GCA Radar installation. If a dual GCA Radar installation is required, for a six-sided control tower, the GCA Operations room equipment should be located as shown on Drawing STD-AF-0502. If sufficient space is not available, the Remote Equipment Cabinets may be placed in a location other than the one shown. As shown on Drawing STD-AF-0502, there will be two Control-Indicator Groups and two Remote Equipment Cabinets when two GCA Radars are used. Normally, only one GCA Radar, one Control-Indicator Group, and one Remote Equipment Cabinet will be installed.

1.2.1.1 Remote Equipment Cabinet. This cabinet contains the Video Amplifier Group OA-2032/FPN-33, Multiplexer TD-991/G, and Video Decoder KY-593/TPX-44. This equipment accepts radar and IFF video from the R/T Site and amplifies and restores it for use by the GCA Control-Indicator Console and transfers control signals from the GCA Control-Indicator Console to the R/T Site.

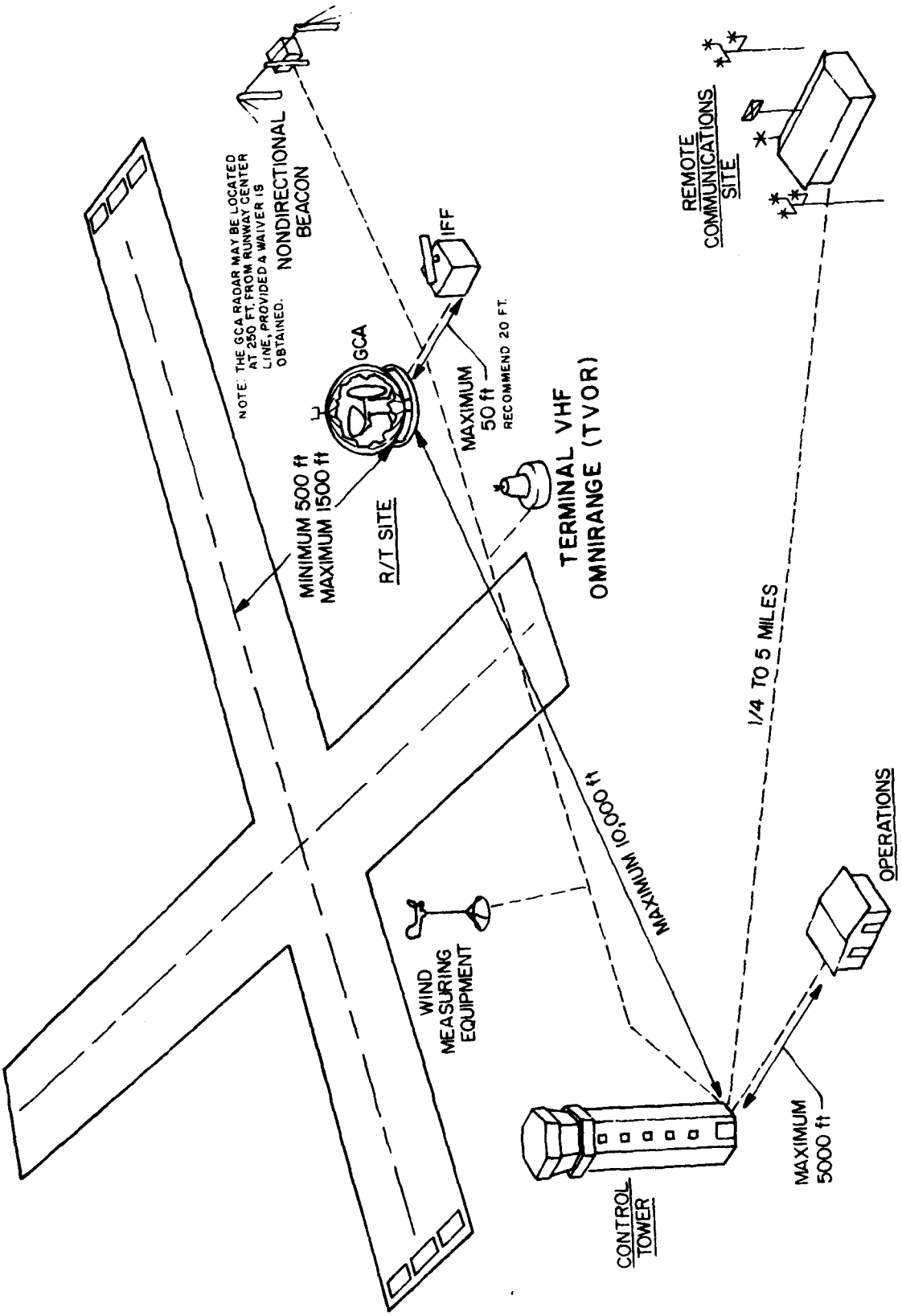


FIGURE 1-1 TYPICAL ARMY AIRFIELD LAYOUT.

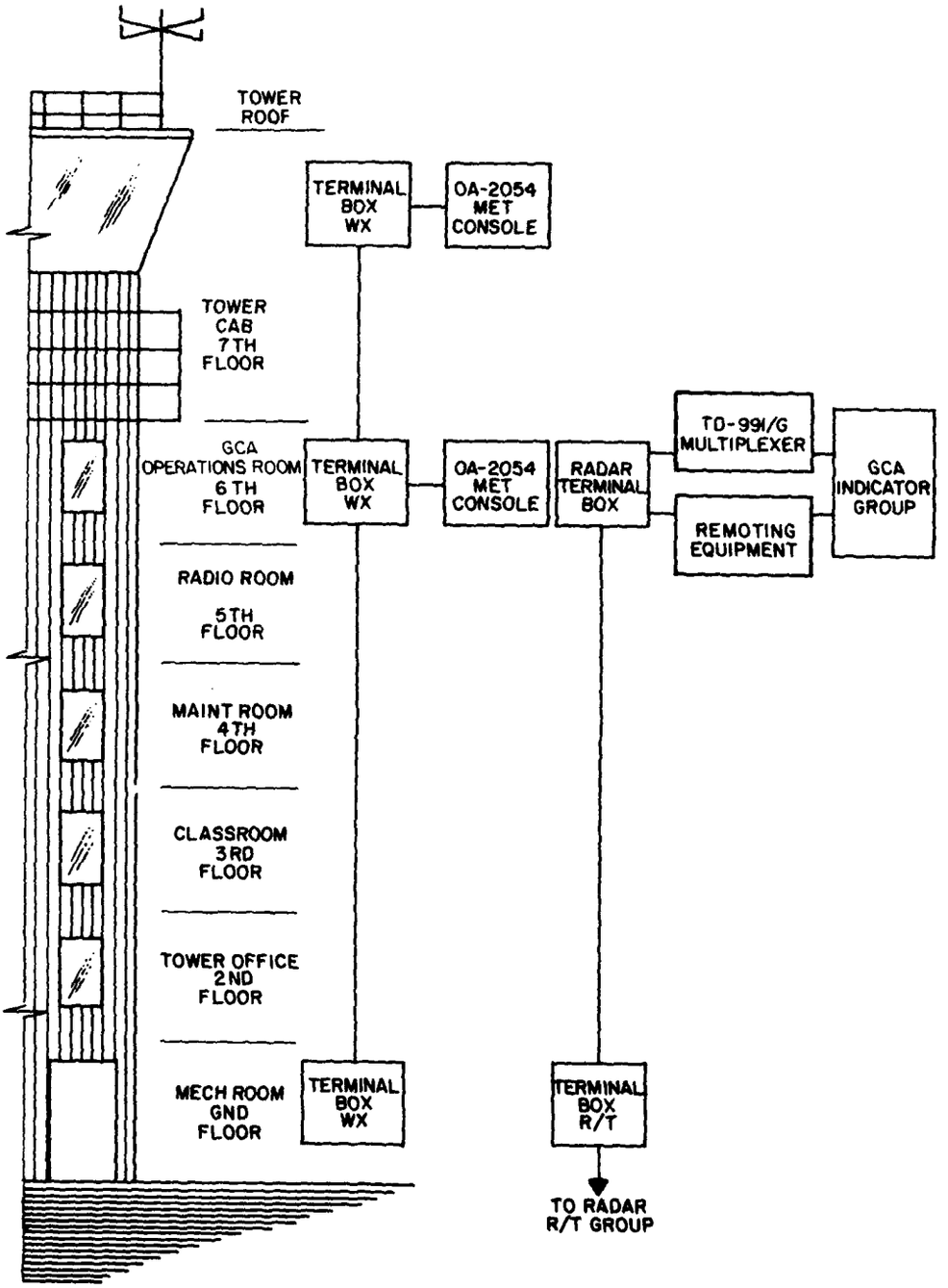


FIGURE 1-2. TYPICAL CONTROL TOWER GCA OPERATIONS ROOM LOCATION WITH FUNCTIONAL GCA CONFIGURATION.

1.2.1.2 GCA Control-Indicator Console. The Control-Indicator Group OA-2664A/FPN-40 is normally mounted on top of the Power Supply Group but may be remotely located. Additionally, Remote Switching Controls C-1271A/TPX-22 and C-7014/TPX-44 are mounted on top of the Control-Indicator Group cabinet. The Control-Indicator Console displays the radar and IFF video, and provides operational control of the GCA Radar Set.

1.2.1.3 GCA Communications Control Console. The Communications Control Console OA-2055/FSW-8 and/or OA-2056/FSW-8 controls the radio and telephone communications to and from the GCA operations room. The installation of this console is not covered in this SEIP. Additional information is provided in TM 11-5895-241-35 Communications Control Set AN/FSW-8(V).

1.2.1.4 Meteorological Console. The Meteorological Console OA-2054/FSW-8 provides field meteorological conditions, barometric pressure, wind direction and speed, time of day, flight progress data, and the crash alarm switch. The installation of this console is not covered in this SEIP. Additional information is provided in TM 11-5895-241-35 Communications Control Set AN/FSW-8(V).

1.2.1.5 Simulator Group, Radar Target OH-36/GPN. The Radar Target Simulator Group, OH-36/GPN, may be located in the GCA Operations room, as shown on Drawing STD-AF-0502, or in a separate room in the Control Tower as shown on Drawing STD-AF-0202, Sheet 10. Drawing STD-AF-0515, Sheet 1, shows the cabling diagram for the OH-36/GPN, and Drawing STD-AF-0516 shows the cable routing diagram for the OH-36/GPN. This target generating system is used as a training device for the radar operators.

1.2.2 Receiver-Transmitter (R/T) Site. The R/T Site location will be in accordance with the specifications outlined in TM 11-5840-293-12, Chapter 2, and FM 11-486-23, Chapter 3. Figure 1-3 depicts the location for the radar set when used for multiple runway operation. Figure 1-4 depicts the location limits for the radar set. Drawing STD-AF-0503, Sheet 1, shows a typical R/T Site plan for an AN/FSQ-84 Radar System, and Sheet 2 shows a typical R/T Site plan for an AN/FPN-40 GCA Radar Set for installation only.

1.2.2.1 GCA Radar Set. The GCA Radar Set AN/FPN-40 provides surveillance, height finding, precision approach, and taxi functions, and is mounted on a concrete pad as illustrated on Drawing STD-AF-0505, Sheet 1, Figure 1, and Detail A. The surveillance function locates aircraft within 40 miles, or within 25 miles for small aircraft. The precision approach function provides height, azimuth, and range location for guiding aircraft during final approach and during taxi. Additionally, the Essco Metal Space Frame Radome, Model M22-83-6000, is installed on the same concrete pad as illustrated on Drawing STD-AF-0505, Sheet 1, Figure 1, and STD-AF-0503. The installation instructions and specifications are outlined in the Essco TM 80-3, Section II. The radome is an electromagnetically transparent, spherical, fully enclosed shelter for protection of the radar set during adverse weather conditions. There are several accessories, as listed in the Bill of Materials (BOM) in Section 5 of this SEIP, that are included with the radome.

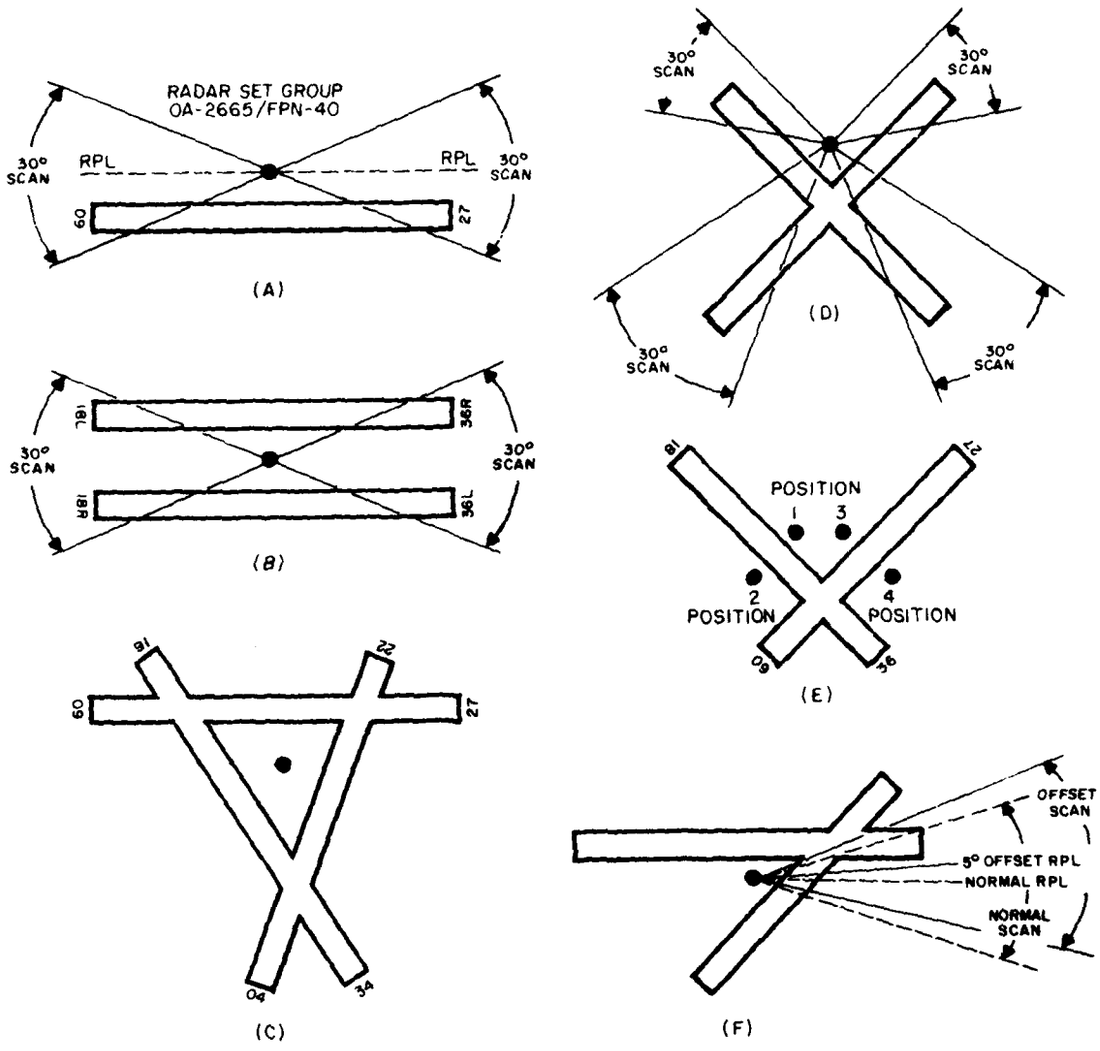


FIGURE 1-3. LOCATIONS FOR MULTIPLE RUNWAY OPERATION.

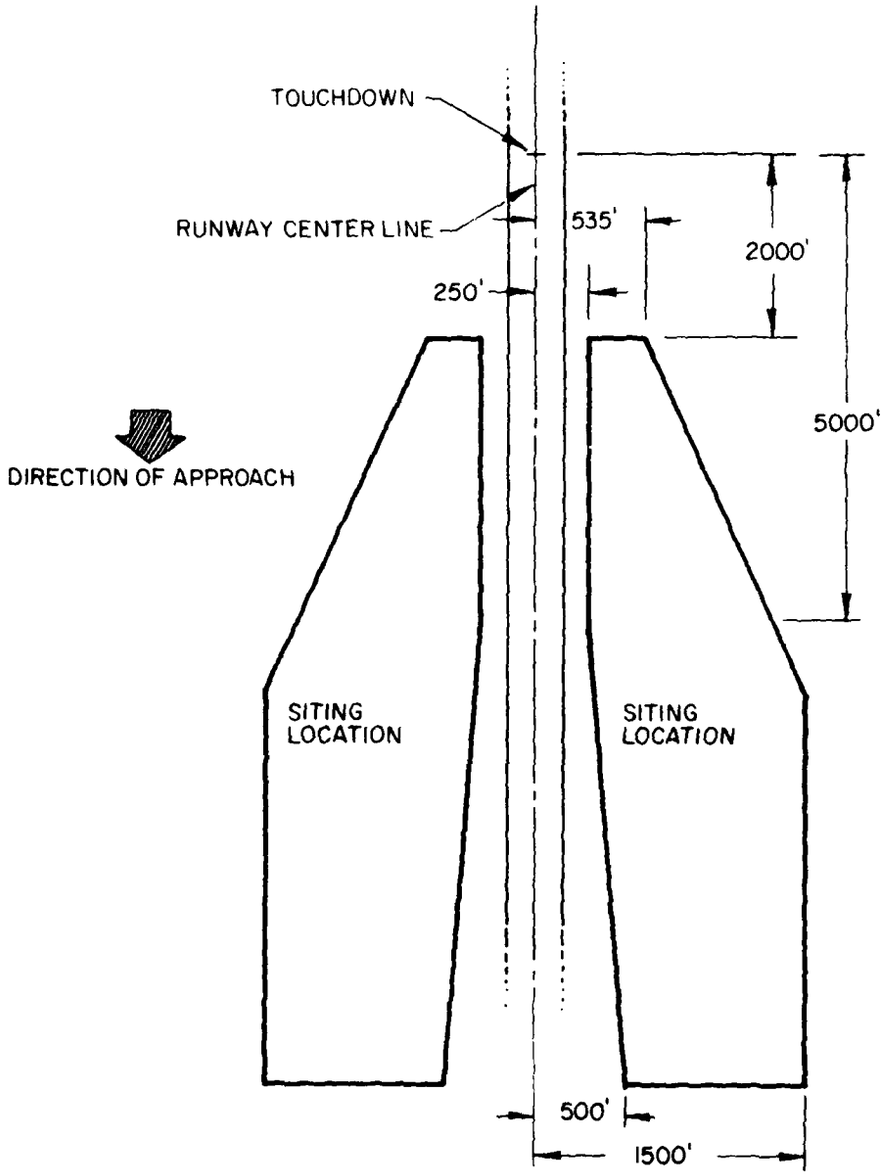


FIGURE 1-4. LOCATION LIMITS FOR RADAR RECEIVER-TRANSMITTER GROUP, OA-2665/FPN-40.

1.2.2.2 S-70/G Shelter (Modified). The S-70/G Shelter contains the AN/TPX-41 Interrogator Set components, Radio Receiver-Transmitter RT-264D/UPX-6, Radar Signal Simulator SM-472/TPX-44, Coder-Control KY-97C/TPX, Interference Blanker MX-8795/TPX-41, Pulse Modulator MD-638/TPX-41, Interconnecting Box T-2945/TPX-41 (located inside the shelter), Antenna Pedestal AB-1158/GPA-119, and Antenna AS-1796/GPA-119 (located on top of the shelter). Demultiplexer TD-992/G is also located inside the shelter. The shelter is mounted on a 11 foot by 17 foot concrete pad as illustrated on Drawing STD-AF-0505, Sheet 1, Figure 1. The Interrogator Set equipment provides Identification Friend or Foe (IFF) information of aircraft within 200 miles, and presents the resulting video and trigger signal to the Demultiplexer which combines the IFF video and trigger with the GCA Radar Set video and trigger, and transmits them to the Multiplexer located in the GCA Operations room. Drawing STD-AF-0515, Sheet 1, shows the interconnecting cables between the GCA Radar Set, S-70/G Shelter, and the GCA Operations room.

1.2.2.3 Radar Target Simulators. The Radar Target Simulators SM-104/GP are located in accordance with specifications outlined in TM 11-5840-293-12, Chapter 2, Paragraph 2-30, and FM 11-486-23, Chapter 3. These simulators are issued as part of the AN/FPN-40 Radar Set and are used to reflect the radar beam from certain positions on the airfield. These reflections are displayed on the Cathode Ray Tube (CRT) of the IP-800/FPN-40, which is part of the Control-Indicator Group OA-2664A/FPN-40, and are used as permanent references for initial alignment of the AN/FPN-40, and for periodic alignment verification. Drawing STD-AF-0508 displays the simulator locations and the formulas for determining their location.

1.3 List of Applicable Documents.

1.3.1 Government Documents.

a. Standards

MIL-STD-12C	15 June 1968	Abbreviations for Use on Drawings, Specifications, Standards, and in Technical Documents

b. Regulations

AR 105-22	1 July 1978	Telecommunications Requirements, Planning, Developing, and Processing
AR 310-50	November 1975	Authorized Abbreviations and Brevity Codes
CCCR 34-2	31 January 1977	Preparation of Engineering Installation Packages and Standard Engineering Installation Packages

c. Military Manuals

TM 11-5840-293-12	24 October 1966	Organizational Maintenance Manual: Radar Set AN/FPN-40 (with IFF capability)
FM 11-486-23	15 October 1979	Telecommunications Engineering Air Traffic Control Facilities and Systems
T.O. 31-10-2 through T.O. 31-10-29	Date N/A	Air Force Standard Installation Practices (SIPTO)

d. Bulletins

TB 95-1	15 September 1979	U.S. Army Air Traffic Control and NAVAID Facility Standards

e. Memorandum

USACEEIA Memorandum 34-3		USACEEIA Modification to Air Force Technical Manuals, Technical Order 31-10 Series

f. Circulars

DCAC 370-160-3	November 1971	Site Survey Data Book for Communications Facilities

g. Standard Engineering Installation Packages

SEIP 010	23 January 1976	U.S. Army Airfield/Heliport, Air/Ground Communications

1.3.2 Non-Government Documents

ESSCO TM 80-3	14 October 1980	ESSCO Model M22-83-6000 Radome Assembly Instructions

1.4 Comments on Publication. Users of this publication are invited to submit recommendations for its improvement. Comments should be keyed to the page, paragraph, and line of the text for which the change is recommended. Comments should be sent directly to Commander, U.S. Army Communications-Electronics Engineering Installation Agency (USACEEIA), ATTN: CCC-CED-STD, Fort Huachuca, Arizona 85613. For convenience, a mailing card is provided.

SECTION 2. SITE SURVEY DATA AND CHECKLIST

2.1 General. The site survey is conducted by the detail engineer, site personnel, and/or by a USACEEIA designee before any attempt to reconfigure an existing facility or to install a new facility. The information collected during the survey is necessary to accomplish preliminary engineering, and to determine the related support requirements. The survey information will provide base line data which defines the existing facility and its capabilities. An analysis of the base line data will be used to determine the approach in the design of an engineering installation package for a particular AAF/AHP.

2.2 Site Survey Criteria. The site survey should be conducted in accordance with guidelines and criteria set forth in Defense Communications Agency (DCA) Circular 370-160-3, Site Survey Data Book for Communications Facilities, AR 105-22, Chapter A, Telecommunications Requirements, Planning, Developing, and Processing, and Field Manual FM 11-486-23, Telecommunications Engineering Air Traffic Control Facilities and Systems. The Project Coordination Letter (PCL) will be developed as Section 2 of the Engineering Installation Package (EIP) in accordance with USACEEIA Regulation 34-2, Appendix A.

2.2.1 Site Survey Checklist. The Sample Site Survey Checklist, Figure 2-1, may be used. Written material must be legible; abbreviations should be in accordance with AR 310-50, and MIL-STD-12C, or a glossary of terms and definitions should be included.

2.2.2 Use of Site Survey Checklist. The checklist, when completed, will aid in preparing an official site survey report with equipment layout drawings. The following items, as applicable, are to be included with the site survey checklist.

2.2.2.1 Floor plan of the GCA Operations room showing actual dimensions.

2.2.2.2 R/T Site plan of existing, and proposed site showing actual dimensions.

2.2.3.3 Single-line drawings of existing electrical distribution system(s) and power supply(s). If possible, show required changes or additions to meet the new requirements.

2.2.2.4 The existing environmental equipment capabilities (i.e., heater BTU, air conditioner CFM) and changes or additions needed to meet new requirements.

2.2.2.5 Copy of DA Form 2701, Job Order Request (repairs and utilities) or Military Construction, Army (MCA) project(s) previously submitted, if any.

2.2.2.6 Comments on anticipated difficulties or hinderances to the flow of materials, work, or personnel in the operations area.

2.2.2.7 Host country requirements or restrictions concerning site location or radome installations, if applicable.

2.2.2.8 U.S. Army Security Agency comments, if any.

2.2.2.9 Validation of Plant-in-Place Records.

2.2.2.10 Memorandum of Understanding between the Operation and Maintenance (O&M) activity, District Engineer, and District Space Coordinator.

2.3 Equipment Characteristics. The physical and electrical characteristics of the applicable equipment are listed in Table 2-1. This table should be used to determine the site's physical size, AC power requirements, and floor loading criteria.

SITE SURVEY CHECKLIST

1. GENERAL. _____

a. Date: _____

b. Site Location: _____
Installation

_____
City State Country

c. Project Number: ___ _____

d. Project Authority: _____

e. Project Engineer: _____
Name

_____
Organization Office Symbol

_____
Installation

_____
AUTOVON Commercial Telephone No.

f. Classification: _____

g. Brief Task Description: _____

_____

_____

n. Period of Survey: From day: ____ month: ____ year: ____
To day: ____ month: ____ year: ____

2. COMMAND RELATIONSHIPS.

a. Major Area Command: _____

_____

_____

b. Local Command: _____

_____

c. Operating Command: _____

_____

d. Cognizant Construction Agency: _____

_____

e. Cognizant Engineering Agency: _____

_____

Figure 2-1. Sample Site Survey Checklist (Sheet 1 of 7).

3. LOCAL POST ENGINEERING (R&U RESPONSIBILITY).

a. Point of Contact Name: _____

b. Command Identify: _____

c. Address: _____

d. Telephone No. COML _____ VON _____ MIL _____

4. COMPOSITION OF SURVEY TEAM.

Name, Title	Organization	Telephone No.
Team Chief		
Member		
Member		
Member		

5. KEY LOCAL PERSONNEL CONTACTED.

Name, Title	Organization	Telephone No.

6. BACKGROUND DATA ON RATIONALE FOR SITE SURVEY. _____

7. DESCRIPTION OF THE MISSION AND FUNCTION OF THE FACILITY. _____

Figure 2-1. Sample Site Survey Checklist (Sheet 2 of 7).

8. DEVIATIONS FROM SITE SURVEY CRITERIA IN DCAC 370-160-3.

9. ACCESS SECURITY CLEARANCE REQUIREMENTS FOR ENGINEERING/INSTALLATION PERSONNEL.

10. EQUIPMENT TO BE INSTALLED.

a. Contractor furnished and installed.

b. Government furnished and installed.

c. Government furnished, contractor installed.

d. Equipment physical description chart.

		Overall Dimensions (In)			
Qty	Nomenclature	Height	Width	Depth	Weight (lbs)

Figure 2-1. Sample Site Survey Checklist (Sheet 3 of 7).

e. Equipment characteristic chart.

Nomenclature	Operating Conditions		Input Power		Power
	Temperature	Relative Humidity	Voltage	Frequency	Consumption

11. LIST OF ATTACHMENTS.

12. ELECTROMAGNETIC CONSIDERATIONS AND OTHER PERTINENT OR GENERAL INFORMATION WHICH WILL REFLECT ON ENGINEERING.

Figure 2-1. Sample Site Survey Checklist (Sheet 4 of 7).

13. LIST COMPLETED FORMS AND DRAWINGS THAT HAVE BEEN CLASSIFIED AND PROCESSED UNDER SEPARATE COVER BY FORM NUMBER OR DRAWING TITLE.

Figure 2-1. Sample Site Survey Checklist (Sheet 5 of 7).

14. PROFILES.

a. Location: _____

b. Site Marker Coordinates:

(1) Latitude: ____ degrees: ____ minutes: ____ seconds: ____

(2) Longitude: ____ degrees: ____ minutes: ____ seconds: ____

c. Date: _____ temperature: _____ visibility: _____

d. Site Soil Composition: _____

Prevailing Winds: _____ Average Annual Rainfall: _____

Type of Foilage: (i.e., Brush, Trees) _____

e. Recorder: _____ Instrument man: _____

15. MAPS AND PHOTOGRAPHS OBTAINED BY THE SURVEY TEAM.

a. Maps:

(1) Title: _____

(2) Map Series: _____

(3) Type: _____

(4) Territory: _____

(5) Scale and Date: _____

(6) Special Data: _____

Figure 2-1. Sample Site Survey Checklist (Sheet 6 of 7).

b. Photographs:

Roll_____Title_____

PIC_____(1) Source_____

(2) Date_____

(3) Shows_____

_____

_____

Roll_____Title_____

PIC_____(1) Source_____

(2) Date_____

(3) Shows_____

_____

_____

Figure 2-1. Sample Site Survey Checklist (Sheet 7 of 7).

Table 2-1. Equipment Characteristics

Equipment Type	Power Input 105/129 VAC; 48/62 Hz	Physical Measurements Width (inches)	Depth (inches)	Height (inches)	Weight (lbs)
Radar Set, AN/FPN-40:					
Control-Indicator Group OA-2664A/FPN-40		22	24	43.5	451
Power Supply Group		22	24	15.5	242
Receiver-Transmitter Group OA-2667/FPN-40		29.5	31	76	729
Antenna Group OA-2666/FPN-40		102.5	56	120	1048
Video Amplifier Group OA-2032/FPN-33		22	24	15.5	100
Electrical Equipment Cabinet CY-2093/FPN-33		22	24	15.5	42
Video Amplifier AM-1577A/FPN-33		19.5	21	9	56
Video Amplifier AM-1578/FPN-33		19.5	21	9	58
Interrogator Set AN/TPX-41:					
Radio Receiver-Transmitter RT-2640/UPX-6		15	21	11	77
Coder-Control KY-97C/TPX		5.25	15	10	16
Remote Switching Control C-7014/TPX-44		5.5	4	10	16
Video Decoder KY-593/TPX-44		10.5	18	9.25	14
Remote Switching Control C-1271A/TPX-22		9	3	3	2
Radar Signal Simulator SM-472/TPX-44		6.5	4.5	12	4
Interconnecting Box J-2945/TPX-41		3.5	18	9.2	12
Interference Blanker MX-8795/TPX-41		10.5	18	9.2	16
Pulse Modulator MD-638/TPX-41		3.4	18	9.5	25
Antenna AS-1796/GPA-119		119	42	24	130
Antenna Pedestal AB-1158/GPA-119		14	11.3	21	76
Multiplxer TD-991/G		13.8	24.4	10.9	43
Demultiplexer TD-992/G		13.8	25.4	10.9	43
Shelter S-70/G (modified)		78.55	142.5	81	2650
Radome M22-83-6000		22 ft	16 ft 5 in Base Dia	18 ft	1767

SECTION 3. INSTALLATION INSTRUCTIONS

PART I. GENERAL

3.1 General. The installation specifications and instructions outlined in this section are standardized engineering guidance for use by responsible activities during the initial engineering and installation or reconfiguration of the AN/FSQ-84 Radar System and Radome(s). The installations will be performed in compliance with the listed installation specifications. Installation supervisors and the quality assurance representative must become thoroughly familiar with the installation effort and inspect all work. The applicable documents are listed in Paragraph 1.3 of this SEIP.

3.2 Installation Personnel. An adequate number of personnel should be provided for the timely installation or reconfiguration of the AN/FSQ-84, and radome equipment.

3.2.1 Manpower Requirement. The recommended quantity and type of personnel required for the installation or reconfiguration of the AN/FSQ-84 and radome equipment is given below.

Quantity	Type
1	Installation Team Chief
2	Avionic Radar Equipment Repairman
4	Radome Installer

3.3 Installation Criteria. The AN/FSQ-84 and Radome shall be installed in accordance with the criteria established in this document, the enclosed engineering drawings, and the drawings and publications referenced herein. Installation personnel must be familiar with TO 31-10 Series, Standard Installation Practices, USACEEIA Memorandum 34-3, USACEEIA Modification to Air Force TO 31-10 Series, and General Installation publications to insure that the facility conforms to, and is installed in accordance with, standard installation procedures. The operating command will determine the sequence of installation operation and supply this information to the project engineer during the site survey.

3.3.1 Referenced Drawings. The drawings listed and provided in Section 4 of this SEIP should be used as engineering and installation guidelines. These drawings depict typical equipment floor plans, layouts, cable/wire distribution, ducting, interconnect schematics, etc. A set of the current issue of these drawings on microfilm (35 millimeter aperture cards) or hardcopy may be obtained from the U.S. Army Communications-Electronics Engineering Installation Agency, ATTN: CCC-CED-STD, Fort Huachuca, Arizona 85613.

SECTION 3. INSTALLATION INSTRUCTIONS

PART II. COMPLETE AN/FSQ-84 INSTALLATION

3.4 Installation Steps and Instructions for a Complete AN/FSQ-84 Radar System and Radome Installation. The procedures required for installation of the equipment and facilities should be accomplished in a predefined order. The order or sequence of installation procedures are necessary to insure compliance with the installation drawings. Minor changes may be made to the sequence in consideration of available manpower, material, equipment, and facilities. The following order of installation is recommended:

3.4.1 Installation Steps. The following paragraphs provide general installation steps for the initial installation of the AN/FSQ-84 and Radome. Referenced drawings are contained in Section 4 of this publication.

3.4.1.1 Lay out the floor plan of the GCA Operations room and the site plan of the R/T Site. Establish reference working lines and equipment location points in accordance with facility drawings.

3.4.1.2 Install terminal and junction boxes, signal and AC cable duct, and/or conduit systems in the GCA Operations room, in accordance with SEIP 010, Air/Ground Communications.

3.4.1.3 Install the equipment cabinets, consoles, and racks in the GCA Operations room in accordance with SEIP 010, Air/Ground Communications and details contained in this SEIP.

3.4.1.4 Lay out the Radar and S-70 Shelter pad foundations including the reinforcement bars (REBAR), "J" and "I" bolts, Radome mounting template, grounding rods and wires, and all conduit, before pouring the foundations as required, at the R/T Site and the GCA operations room.

3.4.1.5 After assuring that the concrete pads at the R/T Site are completed, install the AN/FPN-40 and the S-70 Shelter on their respective pads.

3.4.1.6 Install the Duct Distribution System at the R/T Site in accordance with applicable drawings.

3.4.1.7 Cut holes for cable entrances/exits, as required, at the R/T Site, and the GCA Operations room.

3.4.1.8 Install the AC power distribution cables for the R/T Site. Do not terminate the cables.

3.4.1.9 Install and terminate the equipment, signal, and power ground cables/conductors at the R/T Site in accordance with applicable drawings.

3.4.1.10 Install the signal, AC power, and the Communications/Control cables between the GCA Operations room, main power source, and the R/T Site in accordance with applicable drawings.

3.4.1.11 Install the AC power distribution cables for the GCA Operations room, if required, in accordance with applicable drawings. Do not terminate the cables.

3.4.1.12 Install and terminate the equipment, signal, and power ground cables/conductors in the GCA Operations room in accordance with applicable drawings.

3.4.1.13 Terminate the signal and communications/control cables at the R/T Site and the GCA Operations room in accordance with applicable drawings. The proper routing and sequence should be verified before cables are terminated.

3.4.1.14 Install all equipment/chassis, that were removed, into their respective racks, cabinets, or consoles, as required.

3.4.1.15 Terminate all AC wiring at the R/T Site and GCA Operations room. The AC wiring is terminated in the equipment, AC outlet boxes, then the power distribution panels. Check for proper breaker assignment and phase loading.

3.4.1.16 Install the Radar Target Simulators, SM-104/GP, in accordance with applicable references and drawings.

3.4.1.17 Install the Essco Radome(s) and associated equipment in accordance with manufacturer's specifications and instructions contained herein.

3.4.2 *Installation Instructions.* This paragraph provides specific installation instructions for the initial installation of the AN/FSQ-84 and Radome. Use the following procedures and drawings listed in Section 4, Paragraph 4.3, for equipment installation:

3.4.2.1 Verify physical dimensions of equipment layouts.

3.4.2.1.1 The AN/FPN-40 is installed on a 17 foot 2-inch diameter, circular concrete pad, 10 inches thick. Drawing STD-AF-0505, Sheet 1, Figure 1, provides construction details for this pad. The 3 foot walkway around the AN/FPN-40 pad is recommended, but not required.

3.4.2.1.2 Drawing STD-AF-0507 shows the location of junction boxes which will be installed at the AN/FPN-40's pad, and the S-70 Shelter's pad. These junction boxes provide power distribution. Drawing STD-AF-0506, Sheets 1 and 2, display the duct system at the S-70 Shelter pad that is used for cable distribution.

3.4.2.1.3 The S-70 Shelter is installed on a 17 foot x 11 foot rectangular concrete pad. Drawing STD-AF-0505, Sheet 1, Section A-A, provides construction details for this pad.

3.4.2.1.4 The Control-Indicator Group is installed in the GCA Operations room and is colocated near other control and meteorological consoles. Refer to Drawings STD-AF-0502 and STD-AF-0202, Sheet 8, for equipment layouts. The installation of the Communications Control Console and the Meteorological Console is outlined in SEIP 010, Air/Ground Communications.

3.4.2.2 Unpack, inspect, and clean the equipment, equipment cabinets, and racks. Special care must be taken so as not to damage or scratch the equipment during installation. Equipment racks can be protected with wrapping paper, masking tape, and packing materials while being handled and positioned. Cover items in which a great deal of cable termination work will be performed to prevent scratching.

3.4.2.3 Install terminal and junction boxes, signal and AC cable duct, and/or conduit systems in the GCA Operations room, in accordance with SEIP 010, Air/Ground Communications.

3.4.2.4 Lay out the equipment locations on the floor of the GCA Operations room by establishing a reference line from which all measurements will be made in accordance with TO 31-10-9. Mark the placement of the equipment in accordance with Drawing STD-AF-0502, Sheet 8, and instructions contained in SEIP 010. Establish a baseline and install the console, cabinet, or rack designated for the end of that row. Install the next console, cabinet, or rack against the first. By mounting one piece of equipment at a time, it is assured that each one is installed flush with the other.

3.4.2.5 Lay out the Radar and S-70 Shelter pad foundations including the reinforcement bars (REBAR), "J" and "I" bolts, and the Radome mounting bolt template, in accordance with Drawing STD-AF-0505.

3.4.2.6 Install the grounding network at the R/T Site in accordance with Drawing STD-AF-0504.

3.4.2.7 Install all signal and power conduit at the R/T Site in accordance with Drawing STD-AF-0503.

3.4.2.8 Pour the Radar and S-70 Shelter foundations. The finished pad surface of the Radar pad shall be level to within plus or minus 1/8 of an inch from side to side. If necessary, a non-shrink cement (EVR-TITE pourable) may be used between the base panels of the Radome and the pad surface for leveling. This cement is listed in the BOM, Section 5, of this SEIP.

3.4.2.9 After assuring that the concrete pads at the R/T Site are completed, install the AN/FPN-40, and the S-70 Shelter on their respective pads as illustrated by Drawing STD-AF-0505.

3.4.2.10 Install the Duct Distribution System at the R/T Site in accordance with Drawing STD-AF-0506, Sheets 1 and 2.

3.4.2.11 Cut holes for cable entrances/exits, as required, at the R/T Site and GCA Operations room.

3.4.2.12 Ensure that all cable duct/conduit is installed and securely connected and that all equipment consoles and racks are positioned and bolted down, if applicable, before running the cable.

3.4.2.12.1 Prior to installing any cable, it is important to thoroughly clean the cabinets, signal duct, and false floor area to remove metal chips and other foreign material.

3.4.2.12.2 Carefully handle all cables so as not to damage the sheath or the conductors.

3.4.2.12.3 Provide protection to the cable at sharp corners. This can be accomplished by using insulating paper between the cable and metal surface.

3.4.2.12.4 Before cable installation, a number of factors should be considered, including such items as the first cables to be installed, cabinets to be equipped, and the cable routing. Proper sequence is important. To avoid errors, install the cables in a neat and orderly fashion. To minimize crossovers and pile-up, it is necessary for the installation supervisor to study applicable installation drawings, and the cable routing plan. As a rule, cable is installed from the most congested areas to the areas that are less congested. If routing or sequence changes are required, they should be made before any cable is terminated.

3.4.2.12.5 The front and rear doors should be removed, when possible, from all consoles and racks and stored in an out-of-the-way place to avoid damage.

3.4.2.12.6 The cables should be carefully dressed, particularly at turns and risers, to avoid twisting and crossovers.

3.4.2.12.7 Attach cable tags to each end of the cable to be installed. The cable tags shall contain the following information:

3.4.2.12.7.1 Equipment identification numbers.

3.4.2.12.7.2 Cable run numbers or group numbers.

3.4.2.12.7.3 Connector designation (both ends).

3.4.2.12.7.4 Number of pairs in the cable.

In the control tower at all AAF's, all cabling in the main cabling duct is to be clearly marked by a banding device at each floor access. Outside plant cable (USACEEIA installed) will be banded at all manholes.

3.4.2.12.8 Securely lace or strap cables in the cabinets to relieve the cable weight from the terminations. Group the cables to the panel or chassis on which they terminate, or to the locations where the cable is dressed, such as the front, back, left, or right side of the cabinet.

3.4.2.12.9 Signal cables shall be routed into the cabinets, dressed, and tied to the cable brackets. Butt the cables at or immediately above a cable support bracket, just below the first fan-off level of cable pairs. Insulate the butt with heat-shrinkable tubing. Fan individual pairs, or groups of pairs into termination locations, dress out and loosely secure into a bundle. Place the paired conductors in the general location or terminal points. Terminate or cut back the shield drain wires as specified in TO 31-10 Series.

3.4.2.13 Install the AC conductors in the duct and/or conduit at the R/T Site, with sufficient slack at each end for termination at a later time. Refer to Drawings STD-AF-0515 and STD-AF-0507 for the proper cable, connectors, and distribution. Tag each conductor with the designated equipment name and circuit breaker number.

3.4.2.14 Install and terminate the equipment, signal, and power ground cables/conductors at the R/T Site in accordance with Drawings STD-AF-0504 for equipment ground, STD-AF-0507 for power, and STD-AF-0515, Sheets 2 and 3, for signal ground.

3.4.2.15 Install the signal, AC power, and the communications/control cables between the R/T Site, GCA Operations room, and the main power source.

3.4.2.15.1 The signal cable is installed from the R/T Site Duct Distribution System to the GCA Operations room as shown on Drawing STD-AF-0506, Sheet 3.

3.4.2.15.2 The communications/control cable is installed from the R/T Site Duct Distribution System to the Control Tower Terminal box, when the GCA Operations is located in a Control Tower, as illustrated by Drawing STD-AF-0506, Sheet 3.

3.4.2.15.3 The AC power cable is installed from the R/T Site to the main power source, normally located at the Control Tower, as shown on Drawings STD-AF-0507 and STD-AF-0503.

3.4.2.16 Install the AC power distribution cables for the GCA Operations room in accordance with Drawing STD-AF-0515 for the GCA Control-Indicator Group and Remote Equipment cabinet, and SEIP 010 for the Communications/ Control and Meteorological Consoles. Do not terminate the cables.

3.4.2.17 Install and terminate the equipment, signal, and power ground cables/conductors in the GCA Operations room in accordance with Drawings STD-AF-0515, STD-AF-0516, and SEIP 010.

3.4.2.18 Terminate the signal and communications/control cables at the R/T Site Duct Distribution System in accordance with Drawing STD-AF-0506, Sheets 1 and 2.

3.4.2.19 Install and terminate all interconnecting signal and communications/control cables, at the R/T Site, between the Radar and S-70 Shelter in accordance with Drawing STD-AF-0515.

3.4.2.20 Terminate the communications/control cable at the Control Tower terminal box, then from the terminal box to the equipment in the GCA Operations room, in accordance with Drawings STD-AF-0515 and STD-AF-0506, Sheet 3; also terminate the signal cable in the GCA Operations room.

3.4.2.21 When a cable has been terminated, it should be tested for continuity to ensure proper connection.

3.4.2.22 The finished installation shall be neat in appearance with all cables placed to avoid damage. All connections shall be electrically and mechanically sound with cable routing, dressing, and lacing in compliance with TO 31-10 Series.

3.4.2.23 Install all chassis and removable equipment in their racks and/or consoles as required.

3.4.2.24 Terminate the AC wiring at the R/T Site, AC power distribution panel in accordance with Drawing STD-AF-0507.

WARNING: DO NOT CONNECT AC WIRING UNTIL ALL CIRCUIT BREAKERS, SWITCHES, ETC., ARE IN THE OFF POSITION.

3.4.2.25 Terminate the AC wiring at the GCA Operations room in accordance with Drawing STD-AF-0515, and SEIP 010.

3.4.2.26 Terminate the AC wiring in each power panel in accordance with the method prescribed by the panel manufacturer. A termination strip and the required wire lugs have been provided for termination of the green AC protective ground wires. Adhere to color code, using black for the phase conductor, white for neutral, and green for protective ground.

3.4.2.26.1 Make circuit breaker assignments. Assign each circuit breaker by equipment name and cross-reference it to applicable drawings.

3.4.2.26.2 A card is affixed to each power panel. Type the proper breaker assignment on this card. All necessary information can be obtained from the installation drawings.

3.4.2.26.3 Before a power distribution panel installation can be considered complete, the following must be checked:

3.4.2.26.3.1 Panel designations are correct and a red designator (tape or paint) will be applied where required.

3.4.2.26.3.2 Circuit wiring and breakers are the proper size.

3.4.2.26.3.3 Wiring is properly terminated.

3.4.2.26.3.4 Circuits are tested for continuity.

3.4.2.26.3.5 Circuit breaker assignment card is correct.

3.4.2.26.3.6 Circuit wiring must be approved by the installation supervisor before any circuit breakers are closed.

3.4.2.27 Grounding and Lightning Protection. Grounding and lightning protection for the Control Tower is shown on Drawing STD-AF-0191, Sheets 1, 3, 4, 5, and 6. The grounding protection for the R/T Site GCA Radar Set and S-70 Shelter are shown on Drawing STD-AF-0504. The lightning protection for the Radome is explained in the Essco TM 80-3, Section IV, Accessory No. 21, and depicted in Section IV, Drawing 705-82 of Essco TM 80-3.

3.4.28 Install Radar Target simulators, SM-104/GP, per Drawing STD-AF-0508, and TM 11-5840-293-12, Chapter 2. After accurately locating target positions, assemble and install the targets assuring proper alignment. Target simulator mounting poles shall be placed at least 24 inches deep. The requirement for concrete foundations for the target simulators shall be at the discretion of the local Facility Engineer.

3.4.2.29 Install the Essco Radome and accessories in accordance with instructions contained in the Essco Technical Manual TM 80-3, Sections II and IV.

3.4.2.30 Cutover Information. When a cutover plan is required, the project engineer, in coordination with the installation supervisor, shall prepare the plan or guidance to include the following:

3.4.2.30.1 Connection of cables.

3.4.2.30.2 Continuity test of all wiring.

3.4.2.30.3 Test of the complete system within the station.

3.4.2.31 Equipment Removal Instructions.

3.4.2.31.1 Equipment no longer needed after accomplishment of the new installation should be removed as soon as possible after the local operating command and test director is satisfied the new system is operable.

3.4.2.31.2 Instructions for the removal of any unique equipment should be resolved by the project engineer, installation supervisors, and O&M command.

3.4.2.31.3 Unused cable and installation hardware shall be removed from the AAF/AHP.

3.4.2.32 Miscellaneous Instructions. The following items, which do not normally fall in the area of responsibility of the GCA installation team, must be considered by the project engineer:

3.4.2.32.1 Termination of outside cable.

3.4.2.32.2 Installation of telephone instruments.

3.4.2.32.3 Rehabilitation or adjustment of existing equipment.

3.4.2.32.4 Other requirements as necessary.

3.4.2.33 Responsibilities of O&M Command. The O&M Commander should provide the following support during the site survey, and during and after the installation effort, in close coordination with the project engineer:

3.4.2.33.1 Technical support by the local command including special instructions and materials for special support, such as earthquake protection, facilities record cards, cable records, and other technical data.

3.4.2.33.2 Site preparation by the local command in support of the equipment installation, as specified in the memorandum of understanding, such as installation of particular conduits, provision and installation of lightning equipment, installation of environmental systems, station ground, and building alterations.

3.4.2.33.3 Personnel support by the local command for installation personnel, such as transportation, mess facilities, quarters, and logistic support.

SECTION 3. INSTALLATION INSTRUCTIONS

PART III. RELOCATION OF THE AN/FPN-40 ONLY

3.5 Installation Steps and Instructions for the Relocation of an Existing AN/FPN-40 GCA Radar Set and Radome Installation. The procedures required for installation of the equipment and facilities should be accomplished in a pre-defined order. The order or sequence of installation procedures are necessary to insure compliance with the installation drawings. Minor changes may be made to the sequence in consideration of available manpower, material, equipment, and facilities. The following order of installation is recommended:

3.5.1 Installation Steps. The following paragrapns provide general installation steps for the relocation of an existing AN/FPN-40, and initial installation of the Radome using the existing S-70 Shelter pad. As much of the existing cables and equipment will be reused as possible. Referenced drawings are contained in Section 4 of this publication.

3.5.1.1 Lay out the R/T Site Plan. Establish reference working lines and equipment location points in accordance with facility drawings.

3.5.1.2 Lay out the Radar and Power pad foundations including the reinforcement bars (REBAR), "J" bolts and template, grounding rods and wires, and all conduit, before pouring the foundations.

3.5.1.3 Assure that the radar and power pads are completed before installing the AN/FPN-40 and the AC power equipment.

3.5.1.4 Install the Duct Distribution System at the S-70 Shelter pad in accordance with applicable drawings.

3.5.1.5 Cut holes for cable entrances/exits, as required.

3.5.1.6 Install the AC power distribution cables for the R/T Site. Do not terminate the cables.

3.5.1.7 Install and terminate the equipment, signal, and power ground cables/conductors in accordance with applicable drawings.

3.5.1.8 Install and terminate the signal and communications/control cables, from the GCA Operations room, to the junction box of the Duct Distribution System at the R/T Site.

3.5.1.9 Install the AC power cable from the main power source to the power equipment at the R/T Site in accordance with applicable drawings. Do not terminate this cable.

3.5.1.10 Install and terminate all signal and control cables between the radar and the S-70 Shelter in accordance with applicable drawings.

NOTE: These signal and control cables are not critical in length. The connectors may be removed and reinstalled, and should be reused when possible.

3.5.1.11 Terminate all AC wiring at the R/T Site. The AC wiring is terminated in the equipment, AC outlet boxes, then the power distribution panels. Check for proper breaker assignment and phase loading.

3.5.1.12 Install the Radar Target Simulators, SM-104/GP, in accordance with applicable references and drawings.

3.5.1.13 Install the Essco Radome(s) and associated equipment in accordance with manufacturer's specifications and instructions contained herein.

3.5.2 Installation Instructions. This paragraph provides specific installation instructions for the relocation of an existing AN/FPN-40, and initial installation of the Radome.

3.5.2.1 Verify physical dimensions of equipment layouts.

3.5.2.1.1 The AN/FPN-40 is installed on a 17 foot 2 inch diameter, circular concrete pad, 10 inches thick. Drawing STD-AF-0505, Sheet 1, Figure 1, provides construction details for this pad. The 3 foot walkway around the AN/FPN-40 pad is recommended, but not required.

3.5.2.1.2 Drawing STD-AF-0507 shows the location of junction boxes which will be installed at the AN/FPN-40 pad and the S-70 Shelter's pad. These junction boxes provide power distribution. Drawing STD-AF-0506, Sheets 1 and 2, display the duct system, at the S-70 shelter, that is used for cable distribution.

3.5.2.2 Lay out the Radar and power pad foundations including the reinforcement bars (REBAR), "J" bolts, and the Radome mounting bolt template, in accordance with Drawing STD-AF-0505.

3.5.2.3 Install the grounding network for the radar pad in accordance with Drawing STD-AF-0504.

3.5.2.4 Install all signal and power conduit for the radar, power, and S-70 Shelter pads in accordance with Drawing STD-AF-0503.

3.5.2.5 Pour the radar and power pad foundations. The finished pad surface of the radar pad shall be level to within plus or minus 1/8 of an inch from side to side. If necessary, a non-shrink cement (EVR-TITE pourable) may be used between the base panels of the radome and the pad surface for leveling. This cement is listed in the BOM, Section 5, of this SEIP.

3.5.2.6 After assuring that the concrete pads are completed, install the AN/FPN-40 and the power equipment on their respective pads as illustrated on Drawing STD-AF-0505.

3.5.2.7 Install the Duct Distribution System on the S-70 Shelter pad in accordance with Drawing STD-AF-0506, Sheets 1 and 2.

3.5.2.8 Cut holes for cable entrances/exits, as required.

3.5.2.9 Ensure that all cable duct/conduit is installed and securely connected, and that all equipment is positioned and bolted down, if applicable, before running the cable.

3.5.2.10 Prior to installing any cable it is important to thoroughly clean the duct or conduit, and remove metal chips and other foreign material.

3.5.2.11 Carefully handle all cables so as not to damage the sheath or the conductors.

3.5.2.12 Provide protection to the cable at sharp corners. This can be accomplished by using insulating paper between the cable and metal surfaces.

3.5.2.13 Before cable installation, a number of factors should be considered, including such items as the first cables to be installed, cabinets to be equipped, and the cable routing. Proper sequence is important. To avoid errors, install the cables in a neat and orderly fashion. To minimize crossovers and pile-up, it is necessary for the installation supervisor to study applicable installation drawings and the cable running plan. As a rule, cable is installed from the most congested areas to the areas that are less congested. If routing or sequence changes are required, they should be made before any cable is terminated.

3.5.2.14 Install the AC cable/conductors in the conduit at the R/T Site with sufficient slack at each end for termination at a later time. Refer to Drawing STD-AF-0507 for the proper cable, connectors, and distribution. Tag each conductor with the designated equipment name and circuit breaker number.

3.5.2.15 Install and terminate the equipment, signal, and power ground cables/conductors in accordance with Drawings STD-AF-0504 for equipment ground, STD-AF-0507 for power, and STD-AF-0515, Sheets 2 and 3, for signal ground.

3.5.2.16 Install and terminate the signal and communications/control cables, from the GCA Operations room, to the junction box of the Duct Distribution System at the R/T Site, as shown on Drawing STD-AF-0506.

3.5.2.17 Install the AC power cable from the main power source to the power equipment at the R/T Site in accordance with Drawings STD-AF-0507 and STD-AF-0503. Do not terminate this cable.

3.5.2.18 Install and terminate all signal and control cables between the radar and the S-70 Shelter in accordance with Drawing STD-AF-0515.

3.5.2.19 When a cable has been terminated, it should be tested for continuity to ensure proper connection.

3.5.2.20 The finished installation shall be neat in appearance, with all cables placed to avoid damage. All connections shall be electrically and mechanically sound with cable routing, dressing, and lacing in compliance with TO 31-10 Series.

3.5.2.21 Terminate all AC wiring at the R/T Site, AC power distribution panel, in accordance with Drawing STD-AF-0507.

WARNING: DO NOT CONNECT AC WIRING UNTIL ALL CIRCUIT BREAKERS, SWITCHES, ETC., ARE IN THE OFF POSITION.

3.5.2.22 Terminate the AC wiring in each power panel in accordance with the method prescribed by the panel manufacturer. A termination strip, and the required wire lugs have been provided for termination of the green AC protective ground conductors. Adhere to color code, using black for the phase conductor, white for neutral, and green for the AC protective ground.

3.5.2.22.1 Make circuit breaker assignments. Assign each circuit breaker by equipment name and cross-reference them to applicable drawings.

3.5.2.22.2 A card is affixed to each power panel. Type the proper breaker assignment on this card. All necessary information can be obtained from the installation drawings.

3.5.2.22.3 Before a power distributing panel installation can be considered complete, the following must be checked:

3.5.2.22.3.1 When panel designations are correct a red designator (tape or paint) will be applied where required.

3.5.2.22.3.2 Circuit wiring and breakers are the proper size.

3.5.2.22.3.3 Wiring is properly terminated.

3.5.2.22.3.4 Circuits are tested for continuity.

3.5.2.22.3.5 Circuit breaker assignment card is correct.

3.5.2.22.3.6 All ciruit wiring must be approved by the installation supervisor before any circuit breakers are closed.

3.5.2.23 Grounding and Lightning Protection. Grounding protection for the R/T Site GCA Radar Set and S-70 Shelter are shown on Drawing STD-AF-0504. The lightning protection for the Radome is explained in the Essco TM 80-3, Section IV, Accessory No. 21, and depicted in Section IV, Drawing 705-82 of Essco TM 80-3.

3.5.2.24 Install Radar Target simulators, SM-104/GP, per Drawing STD-AF-0508 and TM 11-5840-293-12, Chapter 2. After accurately locating target positions, assemble and install the targets assuring proper alignment. Target simulator mounting poles shall be placed at least 24 inches deep. The requirement for concrete foundations for the target simulators shall be at the discretion of the local Facility Engineer.

3.5.2.25 Install the Essco Radome and accessories in accordance with instructions contained in Essco Technical Manual TM 80-3, Sections II and IV.

3.5.2.26 Cutover Information. When a cutover plan is required, the project engineer, in coordination with the installation supervisor, shall prepare the plan or guidance to include the following:

3.5.2.26.1 Connection of cables.

3.5.2.26.2 Continuity test of all wiring.

3.5.2.26.3 Test of the complete system within the station.

3.5.2.27 *Equipment Removal Instructions.*

3.5.2.27.1 Equipment no longer needed after accomplishment of the new installation should be removed as soon as possible after the local operating command and test director is satisfied the new system is operable.

3.5.2.27.2 Instructions for the removal of any unique equipment should be resolved by the project engineer, installation supervisors, and the O&M command.

3.5.2.27.3 Unused cable and installation hardware shall be removed from the AAF/AHP.

3.5.2.28 Miscellaneous Instructions. The following items, which do not normally fall in the area of responsibility of the GCA installation team, must be considered by the project engineer:

3.5.2.28.1 Termination of outside cable.

3.5.2.28.2 Installation of telephone instruments.

3.5.2.28.3 Rehabilitation or adjustment of existing equipment.

3.5.2.28.4 Other requirements as necessary.

3.5.2.29 Responsibilities of O&M Command. The O&M Commander should provide the following support during the site survey, and during and after the installation effort, in close coordination with the project engineer.

3.5.2.29.1 Technical support by the local command including special instructions and materials for special support, such as earthquake protection, facilities record cards, cable records, and other technical data.

3.5.2.29.2 Site preparation by the local command in support of the equipment installation, as specified in the memorandum of understanding, such as installation of particular conduits, provision and installation of lightning equipment, installation of environmental systems, station ground, and building alterations.

3.5.2.29.3 Personnel support by the local command for the installation personnel, such as transportation, mess facilities, quarters, and logistic support.

SECTION 3. INSTALLATION INSTRUCTIONS

PART IV. RADOME INSTALLATION ON EXISTING PAD

3.6 Installation Steps and Instructions for a Radome on an Existing Pad. Specific installation instructions, for the assembly of the radome and accessories, are contained in Section II of the Essco Technical Manual TM 80-3, inclosed with each radome. The following paragraphs will give specific instructions for the activities that must be accomplished prior to assembly and installation of the radome.

3.6.1 Because of the many different site configurations, the exact methods of construction and installation of supporting cables, conduit, power equipment, etc., must be determined by the project engineer, and coordinated with the local facilities engineer.

3.6.1.1 Install conduit or duct to the AN/FPN-40 Radar location or to a cable pit, from the Duct Distribution System for the interconnecting signal and control cables. Drawing STD-AF-0503 shows a typical configuration of this duct.

3.6.1.2 Install conduit or duct to the radome pad from the power pad for the radar power and the radome power as shown on Drawing STD-AF-0507, Figure 1, and Detail A.

3.6.1.3 Install conduit or duct for the air conditioner and S-70 Shelter as shown on Drawing STD-AF-0507, Figure 1, and Detail A.

3.6.1.4 Install the radome mounting bolts using the template (see Note 10) of Drawing STD-AF-0505) as depicted on Drawing STD-AF-0505, Figure 1, and Detail G. These mounting bolts must meet the requirements specified in ESSCO TM 80-3, Chapter IV, Drawing B931-1.

3.6.1.5 Upon completion, the pad surface should be level to within 1/8 of an inch from side to side. If this level cannot be obtained, a non-shrink cement (EVR-TITE pourable) may be used between the base panels of the radome, and the pad surface for leveling. This cement is listed in the BOM, Section 5, of this SEIP.

3.6.1.6 Install the three radar mounting bolts as illustrated on Drawing STD-AF-0505, Figure 1, and Details A and B.

3.6.1.7 Install the ground rods and wire for the radome pad as illustrated on Drawing STD-AF-0504. If this grounding system cannot be installed, the radome structure must have at least four ground wires connected from the radome base to ground rods that are interconnected and connected to station ground.

3.6.1.8 Construct the foundation, if necessary, around the existing pad so that the pad is a minmum of 17 feet 2 inches in diameter as illustrated on Drawing STD-AF-0505, Figure 1.

3.6.1.9 After assuring the pad construction and/or modifications are completed, install the radar on the pad as shown on Drawing STD-AF-0505, Figure 1.

3.6.1.10 Install and terminate all equipment, signal, and power ground cables/conductors as listed on Drawing STD-AF-0504.

3.6.1.11 Install and terminate the signal and control cables between the radar and S-70 Shelter pads as shown by Drawing STD-AF-0515.

3.6.1.12 Install the Essco Radome and accessories in accordance with instructions in Sections II and IV of Essco Technical Manual, TM 80-3.

3.6.1.13 Install and terminate all AC power cables. The AC power cables should be terminated from the equipment to the distribution panel.

WARNING: Assure that all circuit breakers, switches, etc., are in the OFF position before terminating any conductors.

SECTION 4. ENGINEERING INSTALLATION DRAWINGS

4.1 General. The engineering installation drawings contained in this section provide typical equipment placement, wiring schedules, electrical connections, and instructions for the arrangement and mounting of equipment, and furnish guidance and standard engineering data to be used in the development of an Engineering Installation Package (EIP). When required, it may be necessary to modify a typical drawing, or delete portions, in order to meet unique site requirements of configurations. If SEIP drawings are modified, a new title block is required.

4.1.1 Drawings will be prepared in accordance with MIL-STD-100 and MIL-D-1000. Abbreviations will be in accordance with MIL-STD-12C. If abbreviations used are not contained in MIL-STD-12C, they will be spelled out the first time used, and the abbreviation will follow in parentheses. For detailed information on engineering drawings, refer to CCCR 34-3.

4.2 US Army Communications-Electronics Engineering Installation Agency Drawings. Three separate and distinct lists of drawings to be used for different installation configurations are provided as follows:

a. Paragraph 4.3: Drawings to be used for a complete AN/FSQ-84 and Radome installation.

b. Paragraph 4.4: Drawings to be used for relocation of an existing AN/FPN-40, and the initial installation of a Radome.

c. Paragraph 4.5: Drawings to be used for the installation of a Radome on existing pad.

4.3 Drawing List for a Complete AN/FSQ-84 and Radome Installation. The following list of drawings are to be used in conjunction with the BOM and paragraph 3.4, section 3, of this SEIP.

Title	Drawing No.	No. of Sheets
Installation Drawing List	STD-AF-0501	1*
Typical GCA Operation Room Floor Plan	STD-AF-0502	1
ATC Control Tower Type II	STD-AF-0202	4
Typical Protective Ground System for ATC Towers	STD-AF-0191	5

Title	Drawing No.	No. of Sheets
GCA Radar AN/FSQ-84 With OH-36/ GPN Simulator Cabling Diagram	STD-AF-0515	3
AN/FSQ-84 Radar Operations Room Cable Routing Diagram	STD-AF-0516	1
AN/FSW-8 Console Separator/Counter	STD-AF-0604	1
Typical GCA Radar Receiver-Transmitter Site	STD-AF-0503	2
Typical GCA Radar Receiver-Transmitter Site Grounding Network	STD-AF-0504	2
Typical Radome and IFF Shelter Pad Construction	STD-AF-0505	2*
Typical R/T Site Duct Distribution System and Control Tower Terminal Box	STD-AF-0506	3
Typical R/T Site AC Power Distribution	STD-AF-0507	1
Typical Radar Target Simulator Locations	STD-AF-0508	1
Typical GCA Radome Installation Details	ATD-SF-0511	7*

*Drawing revised or added 7 Dec 82.

4.4 Drawing List for the Relocation of an Existing AN/FPN-40 and Installation of a Radome. The following list of drawings are to be used in conjunction with the BOM paragraph 3.5, section 3, of this SEIP.

Title	Drawing No.	No. of Sheets
Installation Drawing List	STD-AF-0501	1*
GCA Radar AN/FSQ-84 With OH-36/ GPN Simulator Cabling Diagram	STD-AF-0515	3

Title	Drawing No.	No. of Sheets
Typical GCA Radar Receiver-Transmitter Site	STD-AF-0503	2
Typical GCA Radar Receiver-Transmitter Site Grounding Network	STD-AF-0504	2
Typical Radome and IFF Shelter Pad Construction	STD-AF-0505	2*
Typical R/T Site Duct Distribution System and Control Tower Terminal Box	STD-AF-0506	3
Typical R/T Site AC Power Distribution	STD-AF-0507	1
Typical Radar Target Simulator Locations	STD-AF-0508	1
Typical GCA Radome Installation Details	ATD-SF-0511	7*

*Drawing revised or added 7 Dec 82.

4.5 Drawing List for the Installation of a Radome on Existing Pad. The following list of drawings are to be used in conjunction with the BOM and paragraph 3.6, section 3, of this SEIP.

Title	Drawing No.	No. of Sheets
Installation Drawing List	STD-AF-0501	1*
GCA Radar AN/FSQ-84 With OH-36/GPN Simulator Cabling Diagram	STD-AF-0515	3
Typical GCA Radar Receiver-Transmitter Site	STD-AF-0503	2
Typical GCA Radar Receiver-Transmitter Site Grounding Network	STD-AF-0504	2

Title	Drawing No.	No. of Sheets
Typical Radome and IFF Shelter Pad Construction	STD-AF-0505	2*
Typical R/T Site AC Power Distribution	STD-AF-0507	1
Typical GCA Radome Installation Details	ATD-SF-0511	7*

*Drawing revised or added 7 Dec 82.

DRAWING TITLE	USACEEIA DWG NO	NO OF SHEETS
INSTALLATION DRAWING LIST	STD-AF-0501	1 OF 1
TYPICAL GCA OPERATIONS ROOM FLOOR PLAN	STD-AF-0502	1 OF 1
ATC CONTROL TOWER TYPE II	STD-AF-0202	8, 9, 10 AND 11 OF 1
TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS	STD-AF-0191	1, 3, 4, 5 AND 6 OF 7
GCA RADAR AN/FSQ-84 WITH OH-36/GPN SIMULATOR CABLING DIAGRAM	STD-AF-0515	1, 2 AND 3 OF 3
AN/FSQ-84 RADAR OPERATIONS ROOM CABLE ROUTING DIAGRAM	STD-AF-0516	1 OF 1
AN/FSW-8 CONSOLE SEPARATOR/COUNTER	STD-AF-0604	1 OF 1
TYPICAL GCA RADAR RECEIVER-TRANSMITTER SITE	STD-AF-0503	1 AND 2 OF 2
TYPICAL GCA RADAR RECEIVER-TRANSMITTER SITE GROUNDING NETWORK	STD-AF-0504	1 AND 2 OF 2
TYPICAL RADOME AND IFF SHELTER PAD CONSTRUCTION	STD-AF-0505	1 AND 2 OF 2
TYPICAL R/T SITE DUCT DISTRIBUTION SYSTEM AND CONTROL TOWER TERMINAL BOX	STD-AF-0506	1, 2 AND 3 OF 3
TYPICAL R/T SITE AC POWER DISTRIBUTION	STD-AF-0507	1 OF 1
TYPICAL RADAR TARGET SIMULATOR LOCATIONS	STD-AF-0508	1 OF 1
TYPICAL GCA RADOME INSTALLATION DETAILS	STD-AF-0511	7 OF 7

REVISION			
LTR	DESCRIPTION	DATE	APPROVED
A	ADDED DRAWING STD AF 0501	7 Dec 81	

NOTES:

101 THESE DRAWING SHEETS ARE PART OF AN EXISTING STANDARD DRAWING PACKAGE AND ARE NOT IN SHEET NUMBER SEQUENCE SHEET NUMBERS NOT INCLUDED DO NOT PERTAIN TO THIS PROJECT

102 THE LIST OF MATERIAL (LOM) SHOWN ON SHEET 1 IS FOR REFERENCE ONLY AND IS NOT LISTED IN THE BILL OF MATERIALS (BOM) OF THIS SEIP

NO OF SHEETS	
1 OF 1	
1 OF 1	
8, 9, 10 AND 11 OF 15	NOTE 101
1, 3, 4, 5 AND 6 OF 7	NOTE 101 AND 102
1, 2 AND 3 OF 3	
1 OF 1	
1 OF 1	
1 AND 2 OF 2	
1 AND 2 OF 2	
1 AND 2 OF 2	
1, 2 AND 3 OF 3	
1 OF 1	
1 OF 1	
7 OF 7	

FIND NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
PARTS LIST					

IDENT NO STD-AF-0501	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	GROUND CONTROL APPROACH (GCA) RADAR SYSTEMS AND RADOME(S) INSTALLATION DRAWING LIST
DESIGNED BY M DICKENS 14 JAN 81	
DRAWN BY R FABING 14 JAN 81	
CHK BY C BROWN 14 JAN 81	
APPROVED BY	SIZE D FSCM NO DRAWING NO
DESIGN AGY	SCALE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO	

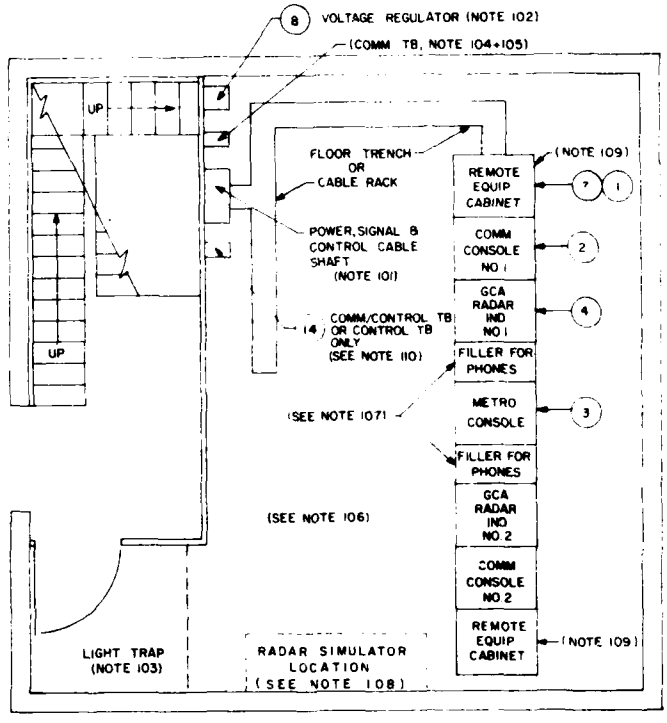


FIGURE 1

DUAL GCA RADAR-OPERATIONS ROOM FLOOR PLAN

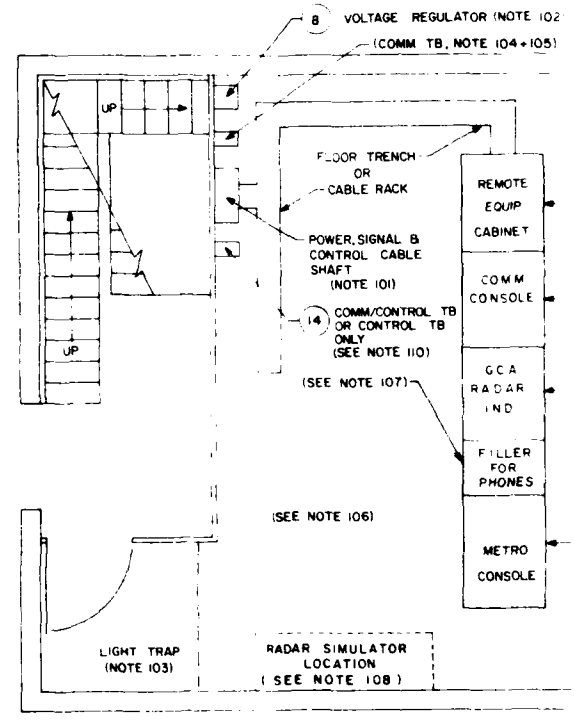


FIGURE 2

SINGLE GCA RADAR-OPERATIONS ROOM FLOOR PLAN

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED

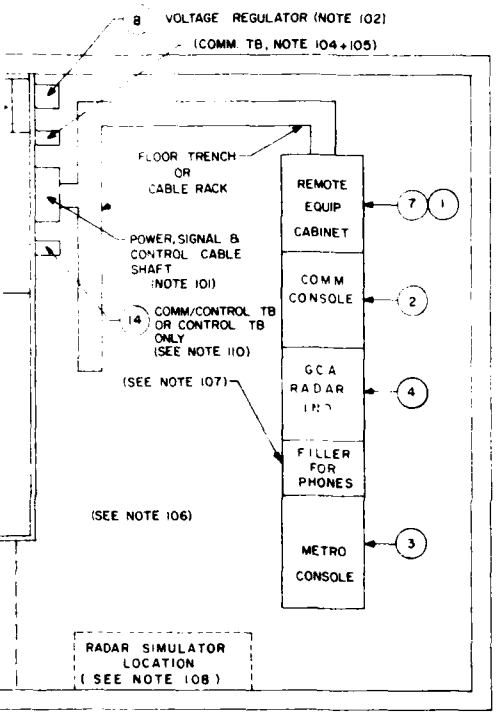


FIGURE 2

GLE GCA RADAR-OPERATIONS ROOM FLOOR PLAN

NOTES:

101 EACH EQUIPMENT CABINET TO BE CONNECTED TO A SEPARATE AC CIRCUIT BREAKER

102 ONE VOLTAGE REGULATOR PER RADAR INDICATOR INSTALLATION RADAR REMOTE EQUIPMENT AND RADAR INDICATOR GROUP INPUT VOLTAGE TO BE REGULATED ±2.0 VOLTS RMS

103 OPTIONAL, LOCALLY FABRICATED BY HANGING OPAQUE CURTAIN FROM CEILING.

104 COMMUNICATION TB IS USED FOR COMMERCIAL TELEPHONE, INTERCOM, AND OTHER SUCH CIRCUITS AS REQUIRED.

105 WALL MOUNTING HARDWARE TO BE DECIDED AT TIME OF SITE SURVEY

106 THE GCA RADAR INDICATOR, REMOTE EQUIPMENT CABINET, RADAR SIMULATOR, AND COMM/CONTROL TERMINAL BOARD CABLING IS ADDRESSED IN THIS SEIP ALL OTHER EQUIPMENT CABLING IS ADDRESSED IN SEIP 010, AIR/GROUND COMMUNICATIONS

107 OPTIONAL FILLER FOR PHONES RECOMMEND THAT THE FILLER/SEPARATOR SHOWN ON DRAWING STD-AF-0604 BE USED

108 THE LOCATION OF THIS EQUIPMENT IS OPTIONAL AND MAY VARY FROM SITE TO SITE, BUT IT SHOULD BE LOCATED AS CLOSE TO THE GCA RADAR INDICATOR AS POSSIBLE FOR EASE OF CABLE INSTALLATION.

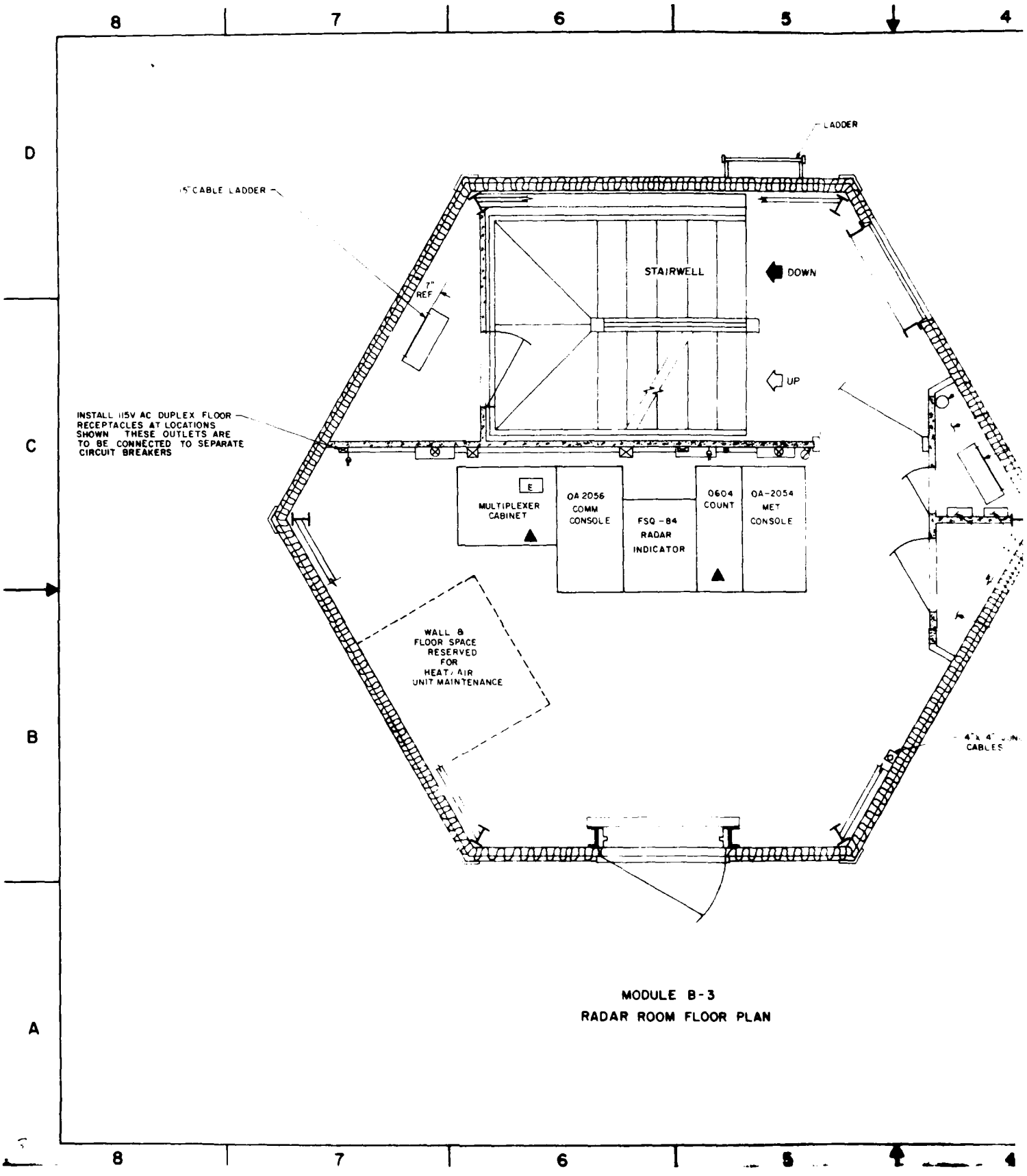
109 TWO REMOTE EQUIPMENT CABINETS ARE REQUIRED WHEN TWO RADARS ARE USED THE LOCATION OF THESE CABINETS ARE OPTIONAL

110 THIS TB, AND THE COMMUNICATIONS TB, MAY BE COMBINED INTO ONE TB BOX TO FORM THE COMM/CONTROL TB. THE CONTROL TB SHOWN IS A 26 PAIR TB, THEREFORE IF THE COMM TB AND THE CONTROL TB ARE COMBINED, ANOTHER TYPE TB SHOULD BE SPECIFIED

ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
8	280741R	VOLTAGE REGULATOR 115 VAC, SP, 6.6 KVA 50/60 HZ SUPERIOR ELEC, STABILINE, EMT - 4106 C	5805-00-J04-4075	EA	1
7	14503E	VIDEO AMPLIFIER, AM-1577 A/FPN-40	5840-00-406-3438	EA	AR
4	08428C	CONTROL-INDICATOR GROUP OA-2664/FPN-40	5840-00-775-3783	EA	1
3	07196R	CONSOLE, METRO, OA-2054/FSW-8	6660-00-788-7477	EA	1
2	07195X	CONSOLE, COMM, OA-2056/FSW-8	5895-00-752-5850	EA	1
1	08428B	AMPLIFIER, GROUP, VIDO, OA-2032/FPN-33	5840-00-646-4418	EA	1

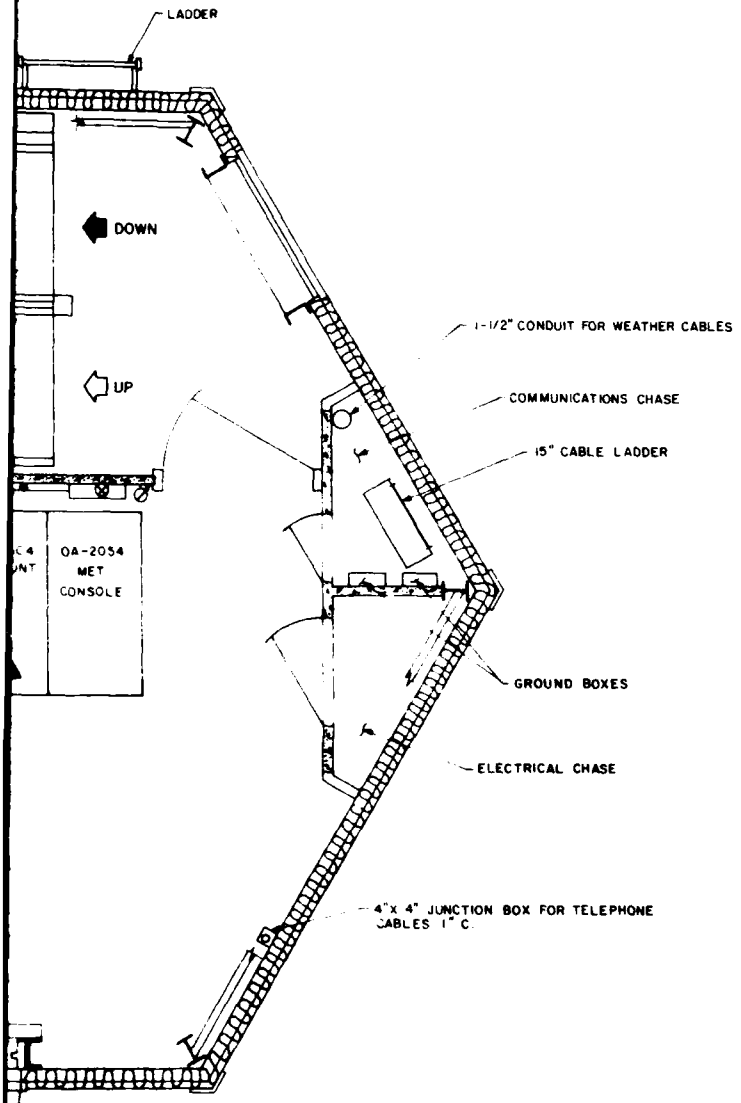
PARTS LIST

DWG NO STD-AF-0502	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
DRAWN BY M DICKENS 7 JAN 81	TYPICAL GCA OPERATIONS ROOMS FLOOR PLAN
DESIGN BY M SANCHEZ 7 JAN 81	
CHECKED BY J PHELPS 7 JAN 81	
APPROVED BY	SIZE D FSCM NO 50470 DRAWING NO
NEXT ASSEMBLY USED ON	SCALE NONE SHEET 1 OF 1
DWG INDEX NO	



MODULE B-3
RADAR ROOM FLOOR PLAN

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	WAS MATCOT II	1 MAR 79	
	D	MAJOR REVISIONS, REPLACED DWG XS000AF-FP90001 SHT 8 WAS SHT 7	15 AUG 79	
	E	REVISED FLOOR PLAN IAW USAATCA INSTRUCTIONS	19 NOV 79	



12" 6" 0 1' 2' 3' 4' 5' 6' 7' 8'

GRAPHIC SCALE 3/4" = 1'-0"

R PLAN

ITEM	AEL	DESCRIPTION	NSN	UI	QTY

LIST OF MATERIALS

NEXT ASSEMBLY	USED ON
GSIS INDEX NO.	

IDENT NO: STD-AF-0202 SHEET 8 OF 15

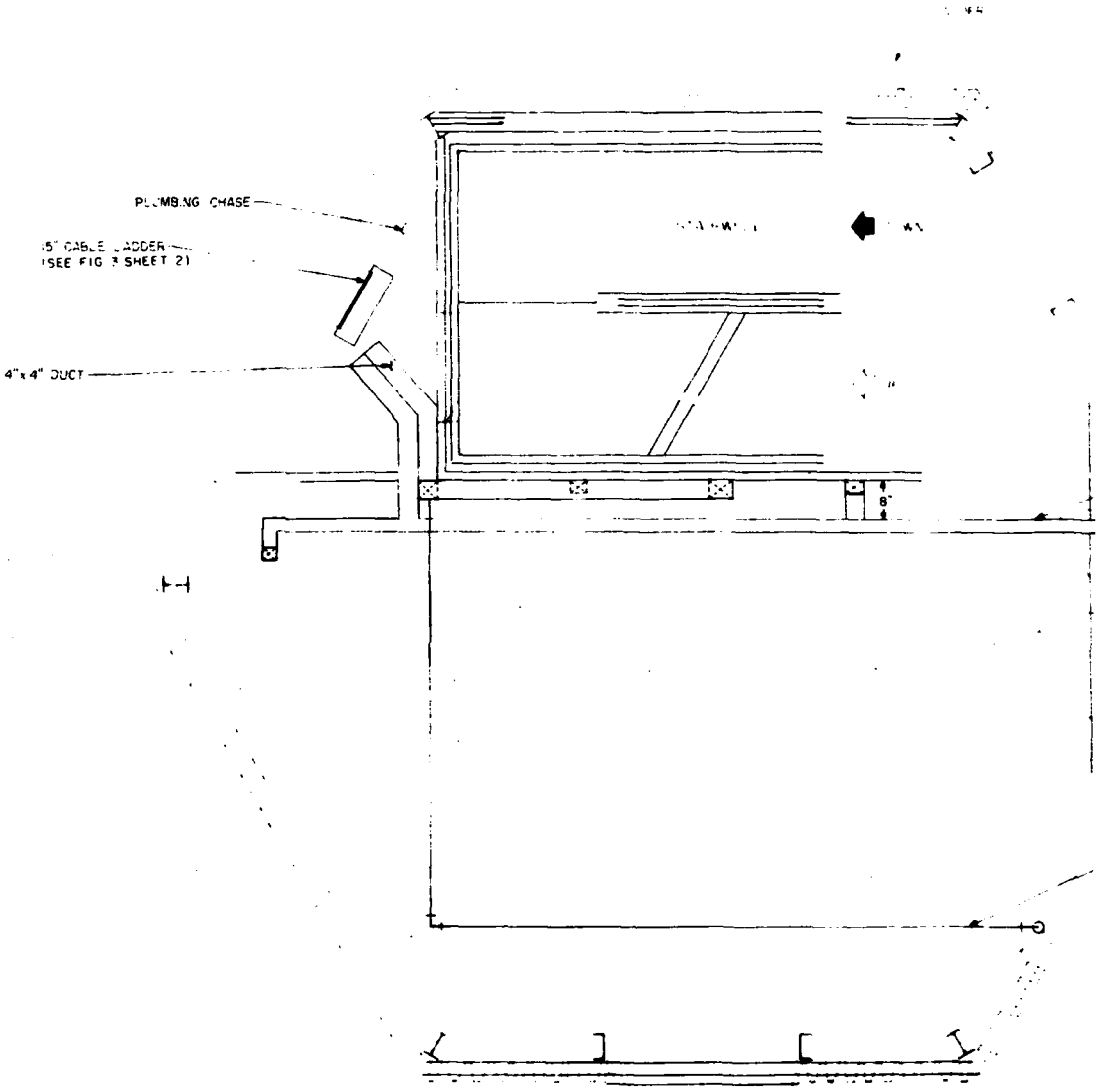
ORGANIZATION: U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

		DATE
DESIGNED BY	Q MILLER	JANUARY 79
DRAWN BY	R J LEAL	19 MAY 79
CHECKED BY		
APPROVED BY		
DESIGN ACTIVITY	CCC-CED-SWA	

ATC CONTROL TOWER
TYPE II

SIZE: D | FSCM NO: 50470 | DRAWING NO:

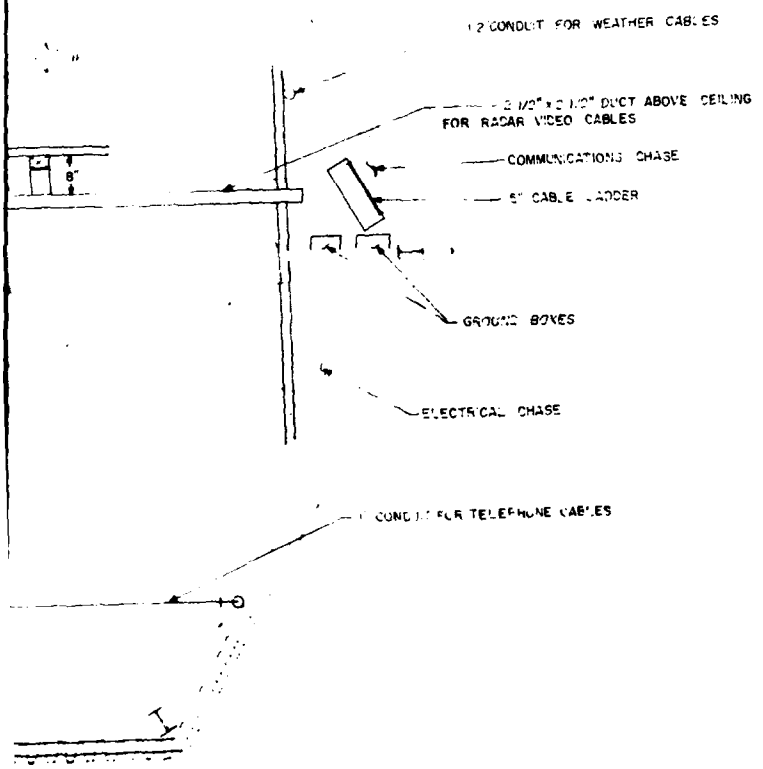
SCALE: 3/4" = 1'-0" | SHEET OF

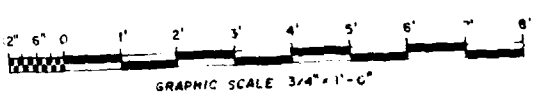


MODULE B-3

RADAR ROOM DUCT & CONDUIT RUNS

ZONE	REV	DESCRIPTION	DATE	APPROVED
4C	A	MOVED 4" CONDUIT	27 SEP 78	
	D	MAJOR REVISION WAS SH 7 REPL DWG XS000AF-FP90001 SH 5	15AUG 79	



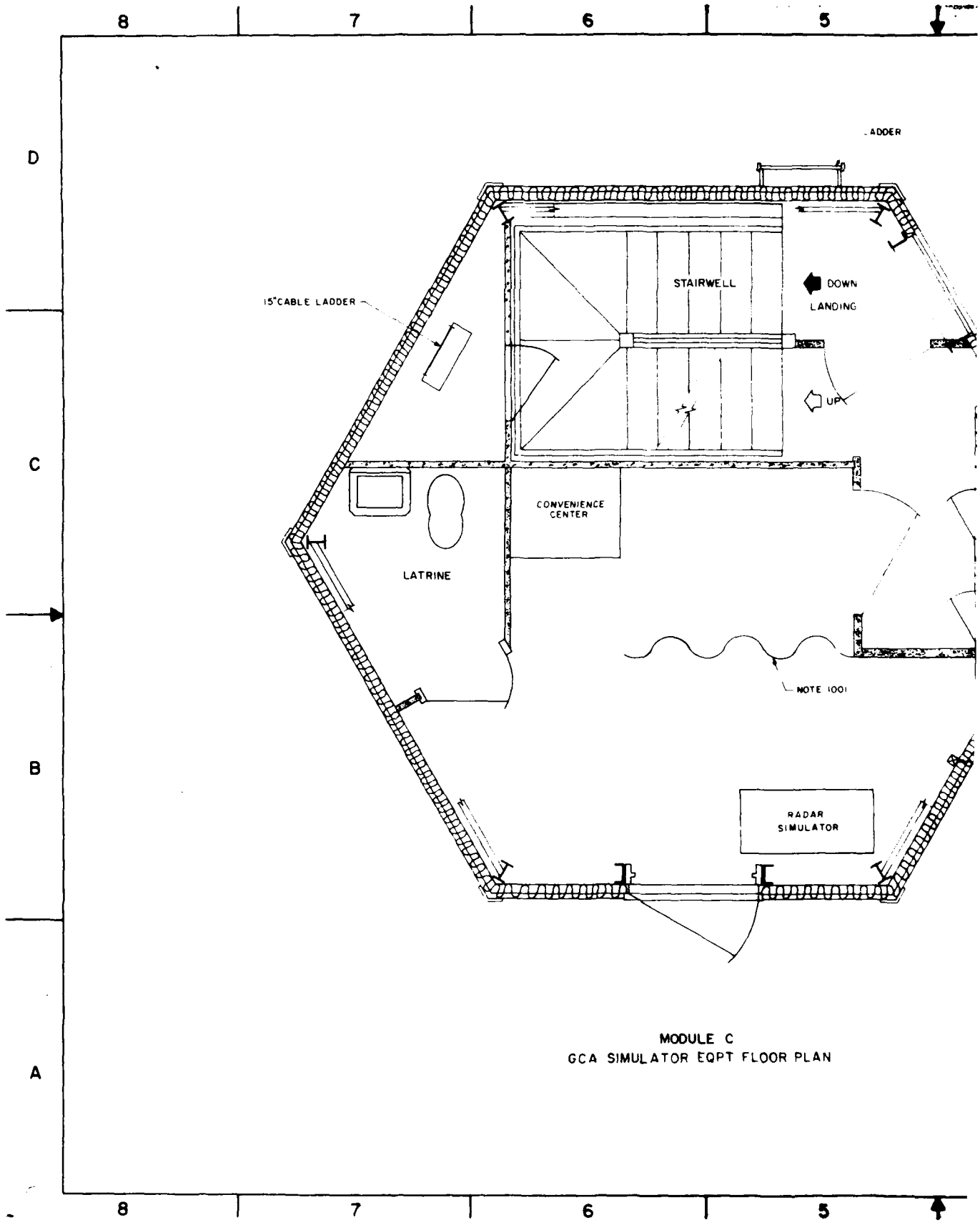


GRAPHIC SCALE 3/4" = 1'-0"

IT RUNS

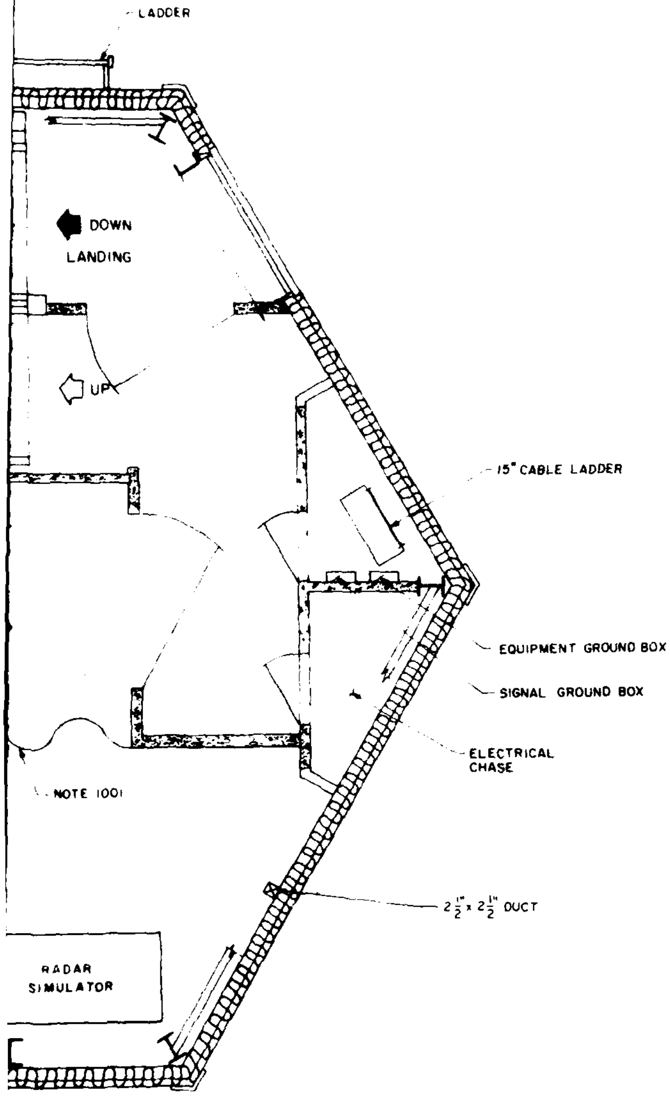
STD-AF-0202

ATC NTROL TOWER
TYPE II



MODULE C
GCA SIMULATOR EQPT FLOOR PLAN

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	WAS MATCOT II	1 MAR 79	
	B	ADDED RADAR SIMULATOR & CONVEN CENTER	16 APR 79	
	C	RELOCATED SIMULATOR, ADDED CURTAINS	21 MAY 79	
	D	WAS SHEET 8, RELOCATED SIMULATOR, ADDED WALL AND DOORS	13 AUG 79	



OOR PLAN

NOTES:

1001 CURTAIN OR FOLDING DIVIDER TO BE PROVIDED BY LOCAL COMMAND

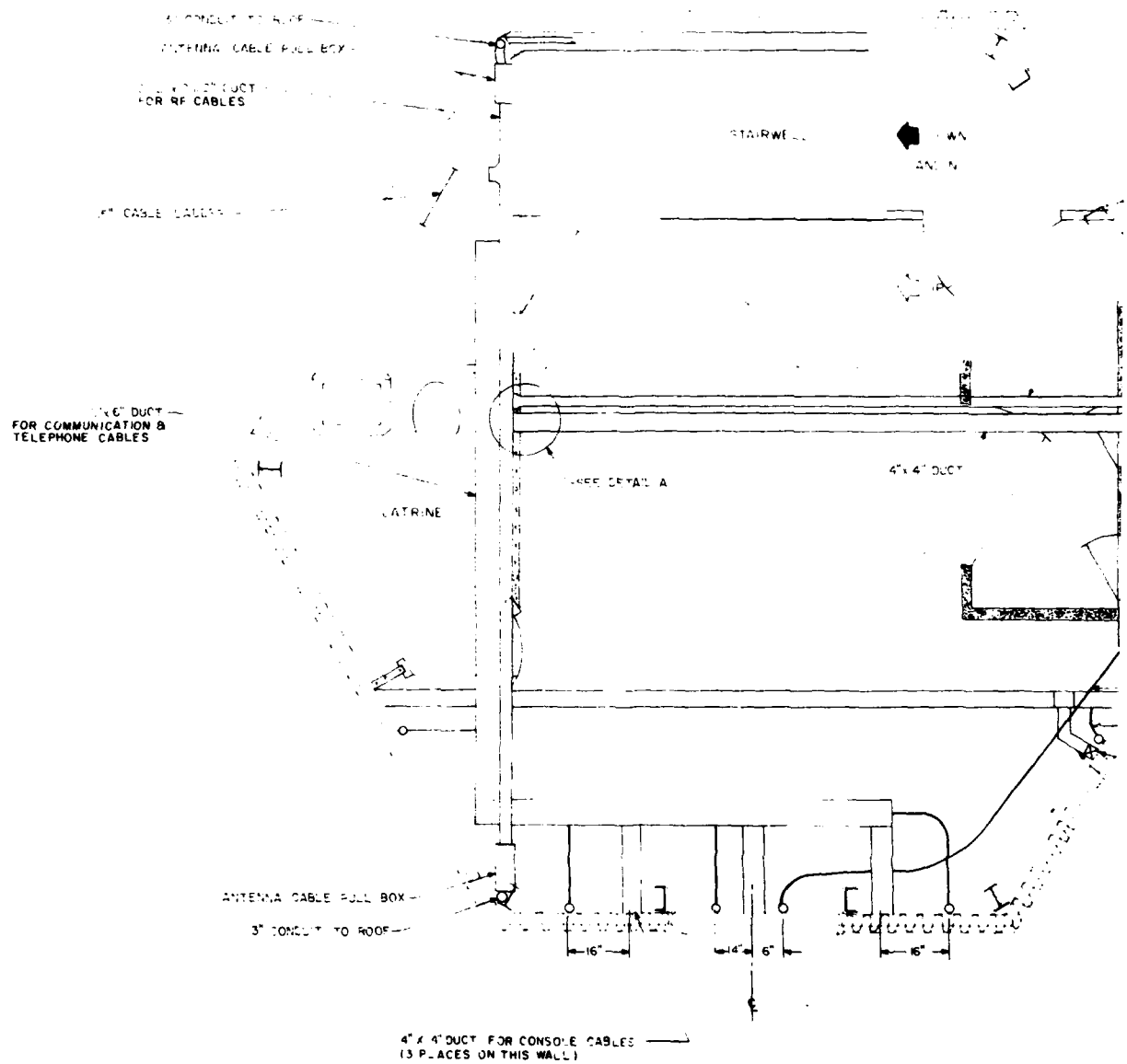
GRAPHIC SCALE 3/4" = 1'-0"

ITEM	AEL	DESCRIPTION	NSN	UI	QTY

LIST OF MATERIALS

IDENT NO: STD-AF-0202 SHEET 10 OF 15	ORGANIZATION: US ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
DESIGNED BY: Q. MILLER, DATE 18 MAY 78	ATC CONTROL TOWER TYPE II
DRAWN BY: R. J. LEAL, 19 MAY 78	
CHECKED BY:	
APPROVED BY:	
DESIGN ACTIVITY: CCC CED-SWA	SIZE D, FSCM NO 50470, DRAWING NO
SCALE 3/4"	SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO	



MODULE C
GCA SIMULATOR EQPT ROOM CONDUIT &
DUCT RUNS

4C	A	MOVED WEATHER TERMINAL BOX	27 SEP 78
	D	MAJOR REVISIONS REPLACED DWG XS0000AF - FP90001 SHEET 11	15 AUG 79

2 1/2" X 2-1/2" DUCT FOR ANTENNA CABLES

WEATHER CABLE CONDUIT

15" CABLE LADDER

COMMUNICATIONS CHASE

ANTENNA CABLE PULL BOX

3" CONDUIT TO ROOF

4"x 4" DUCT

EQUIPMENT GROUND BOX

SIGNAL GROUND BOX

ELECTRICAL CHASE

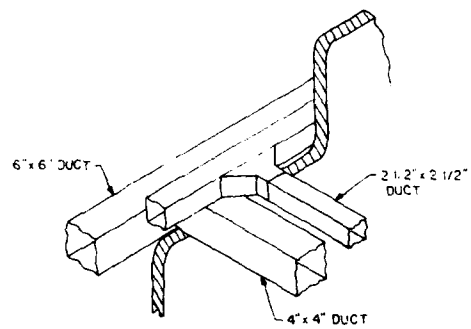
2" CONDUIT FROM WEATHER TERMINAL BOX

2" CONDUIT FOR TELEPHONE CABLES (4 PLACES)

1" CONDUIT FOR RADAR SIMULATOR CABLE

2-1/2" X 2-1/2" DUCT

16"



DETAIL A
NOT TO SCALE

CONDUIT B

STD AF 0202
SHEET 5

ATC CONTROL TOWER
TYPE II

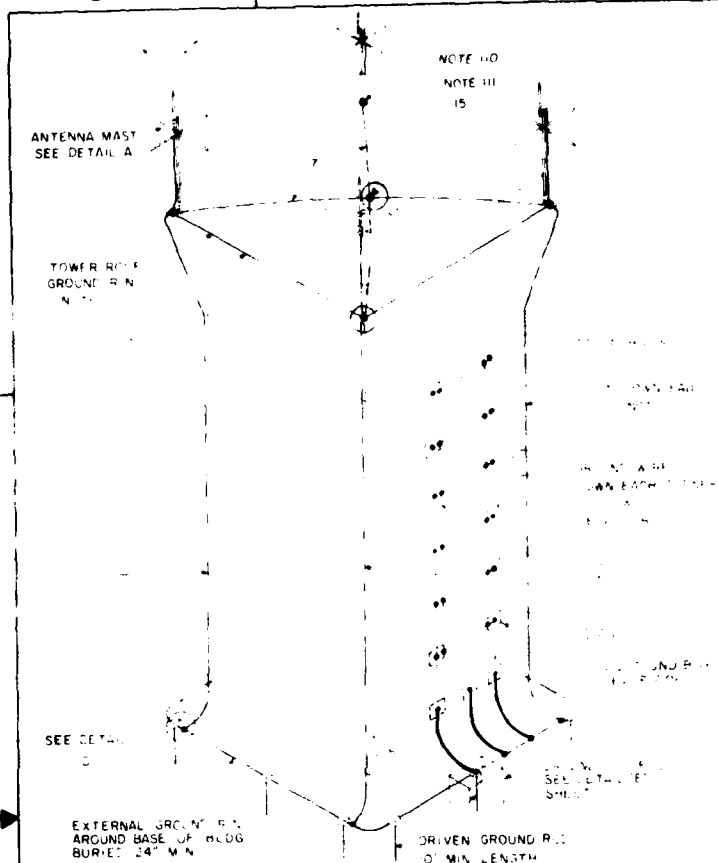


FIGURE 1

ISOMETRIC VIEW
TYPICAL CONTROL TOWER
GROUNDING SYSTEM

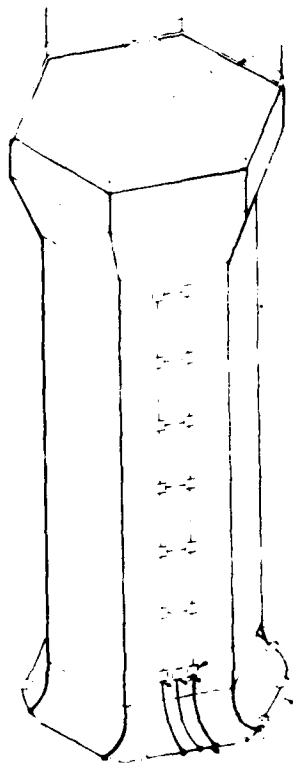


FIGURE 3

ISOMETRIC VIEW
TOWER GROUNDING SYSTEM

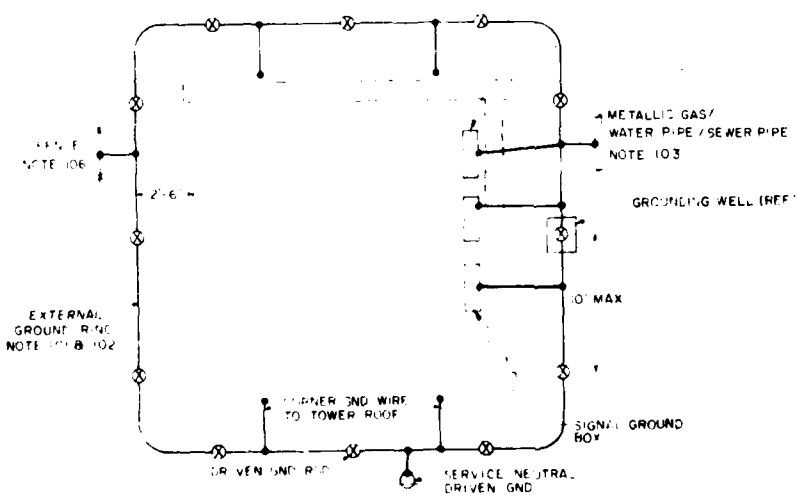


FIGURE 2

PLAN VIEW
TYPICAL CONTROL TOWER
GROUNDING SYSTEM

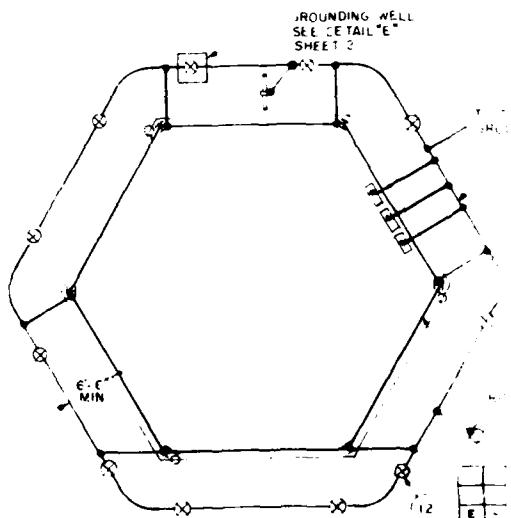


FIGURE 4

TOP VIEW
TOWER GROUNDING SYSTEM

B&C	E	CHANGED FROM COMMON GROUND TO INDEPENDANT GROUND PROJ. NO. F80-F00-144 DFTSM B.B CHKR	31 DEC 80	

LEGEND

- GND BOX
- ⊗ GND ROD
- SERVICE
- ○ AIR TERMINAL
- WATER [illegible]

NOTE:

1. ROOF RING SHALL BE BONDED TO THE DOWN [illegible] AND [illegible] STEEL [illegible] EACH CORNER AND SHALL [illegible] OUTSIDE OF THE ROOF.
2. [illegible] ENTRANCES [illegible]
3. SPRING TYPE [illegible] FOR CONNECT[illegible] SINCE PERIODIC MAINTENANCE [illegible] ENSURE A [illegible] CONNECTION.
4. [illegible] TOWER.

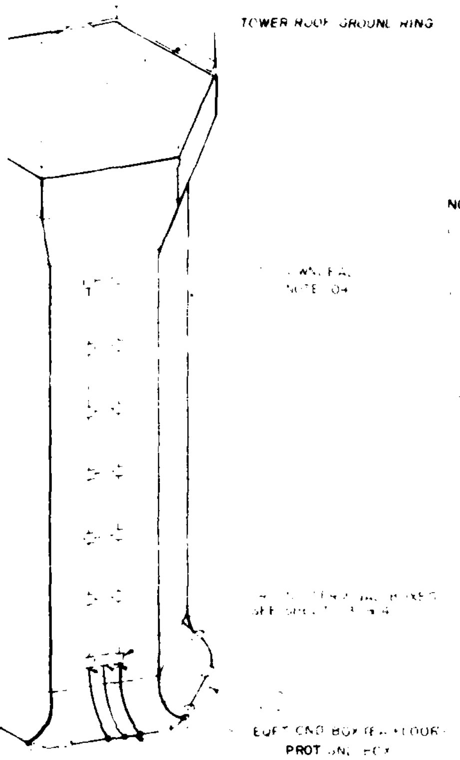


FIGURE 3

ISOMETRIC VIEW
TOWER GROUNDING SYSTEM

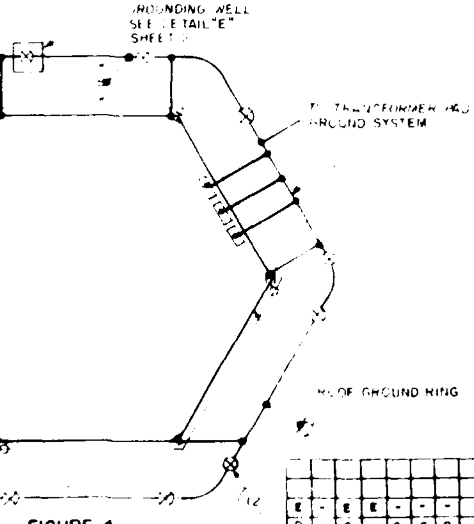


FIGURE 4

TOP VIEW
TOWER GROUNDING SYSTEM

ITEM	AEC	DESCRIPTION	NSN	U/I	QTY
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	WASHER, LOCK, EXT TEETH #[illegible]	[illegible]	HD	[illegible]
[illegible]	[illegible]	NUT, PLAIN, HEX #[illegible]	[illegible]	EA	[illegible]
[illegible]	[illegible]	[illegible] FLAT HEAD [illegible]	[illegible]	EA	[illegible]
[illegible]	[illegible]	SIGNALITE G350 SURGE PROTECTION DEVICE SEE NOTE [illegible]	NONE	EA	[illegible]
[illegible]	[illegible]	SIGNALITE [illegible] SURGE PROTECTION DEVICE CLIP SEE NOTE [illegible]	NONE	EA	[illegible]
[illegible]	[illegible]	BRACKET, STEEL [illegible]	FABR [illegible]	EA	[illegible]
[illegible]	[illegible]	INSULATOR, SHEET, PLASTIC [illegible]	[illegible]	EA	[illegible]
[illegible]	[illegible]	GROMMET, RUBBER, [illegible] FLAT INK PLATE	[illegible]	EA	[illegible]
[illegible]	[illegible]	ROD, RUBBER, [illegible]	[illegible]	EA	[illegible]
[illegible]	[illegible]	[illegible]	FABRICATE	EA	[illegible]
[illegible]	[illegible]	[illegible] BOX [illegible] COVER AND [illegible] GRAY BAR [illegible]	NONE	EA	[illegible]
[illegible]	[illegible]	WASHER, LOCK, INT & EXT TOOTH #[illegible]	[illegible]	HD	[illegible]
[illegible]	[illegible]	WIRE, #[illegible] AWG, COPPER, INSULATED	[illegible]	FT	[illegible]
[illegible]	[illegible]	WIRE, #[illegible]AWG, COPPER, INSULATED	[illegible]	FT	AR
[illegible]	[illegible]	LUG, TERMINAL, COPPER, F/# [illegible] AWG, SOLDER TYPE, PG 25	[illegible]	PG	[illegible]
[illegible]	[illegible]	NUT, PLAIN, HEX #8-32, BRASS	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	WASHER, FLAT, RD, BRASS #8	[illegible]	HD	[illegible]
[illegible]	[illegible]	SCREW, MACHINE, PAN HD, #8-[illegible] LG, BRASS	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	NUT, HEX, [illegible]	[illegible]-285-[illegible]650	HD	2
[illegible]	[illegible]	LUG, TERMINAL [illegible] TYPE, #2-#8AWG, PG [illegible]	5940-00-549-8075	PG	80
[illegible]	[illegible]	WASHER, FLAT, RD, STL, 0.266"IDX0.50"OD	5310-00-8[illegible]	EA	200
[illegible]		WASHER, LOCK, INT & EXT TOOTH, 1/4"	5310-00-[illegible]89-[illegible]	EA	400
[illegible]	[illegible]	BOLT, MACHINE, HEX HD, 1/4"-20X7/8"LG, THREADED	5306-00-834-3934	HD	2
[illegible]		PLATE, COPPER, 6"X4"X1/4" (SEE NOTE 5/6)	8535-00-240-5120	SH	12
[illegible]	00488D	WASHER, FLAT, RD, STL, CAD PL, #10	5310-00-[illegible]-0834	HD	1
[illegible]	[illegible]103K	SCREW, SELF-TAPPING, 10X1/2"LG, PH C/R DR	5305-00-[illegible]	HD	[illegible]
[illegible]	[illegible]	CLAMP, LOOP, 0.250" ID, NYLON	5340-00-988-[illegible]	EA	[illegible]
[illegible]	[illegible]	BOLT, TOGGLE, 1/4"-20X3"LG, SPRING WING-TYPE	5306-00-279-42[illegible]	EA	100
[illegible]	[illegible]	WASHER, FLAT, RD, STL, 20/64"IDX3/4"OD	5310-00-809-30[illegible]	HD	[illegible]
[illegible]	[illegible]	WIRE, BARE, #[illegible]AWG, SOLID SOFT COPPER, UNCOATED	[illegible]-00-[illegible]9-9320	FT	AR
[illegible]	00106G	PIPE STEEL, 2-1/2" DIA, 16" to 22" LENGTHS	4710-00-[illegible]	FT	[illegible]32
[illegible]	[illegible]0536W	ROD, GROUND, [illegible]/2"X10' COPPERWELD #9430	[illegible]-00-876-9702	EA	12
~~[illegible]~~	~~[illegible]~~	~~WIRE, ELEC BARE, #2AWG SOLID SOFT COPPER, TINNED, GRAY BAR #100~~	~~[illegible]-00-229-9832~~	~~FT~~	~~500~~
[illegible]	[illegible]1053K	CLAMP, ELEC [illegible]/2" BURNDY #1126	5999-00-824-061[illegible]	EA	[illegible]2
[illegible]	14668E	SPLICE, CONDUCTOR, #2-6 AWG BURNDY #QPX2C2C	5940-00-08[illegible]-3994	EA	24
6	10012B	STRAPPING KIT & CEILING KIT, PN SS[illegible]	5340-00-[illegible]40-3996	EA	1
[illegible]	[illegible]4677C	WIRE, ELEC BARE, #2AWG, MED HARD DRAWN COPPER	[illegible]-00-[illegible]29-9832	AT	500
[illegible]		CAP, PIPE, STEEL F [illegible]-1/2" PIPE	4730-00-[illegible]-2430	EA	[illegible]
	07583P	SPLICE, CONDUCTOR, SPLIT BOLT, BURNDY #KS23FC/23 PG 25	594[illegible]-00-[illegible]-3030	PG	2
[illegible]	[illegible]	COUPLING, ELEC CONDUIT, 2-1/2" THICKWALL THREADED	[illegible]	EA	[illegible]
[illegible]	08069P	CLAMP, MOUNTING, ANDREW TYPE 20898	[illegible]-00-84[illegible]	EA	
[illegible]	02392Y	CLAMP, ELEC, 2-10AWG, [illegible]/2" ROD, HUBBARD #6591	[illegible]	EA	
	09198R	ROD, GND, [illegible] COPPERCLAD STEEL [illegible]	[illegible]	EA	

LIST OF MATERIALS

E	-	E	E	-	-	-				
D	C	C	-	C	C	B				
C	C	C	-	C	C	B				
[illegible]	B	-	-	-	B	B				
	A	-	-	-	A	A				
1	2	3	4	5	6	7	8	9	10	

SHEET NUMBER

REVISION STATUS OF SHEETS

NEXT ASSEMBLY

DWG INDEX NO.

STD-AF-0191

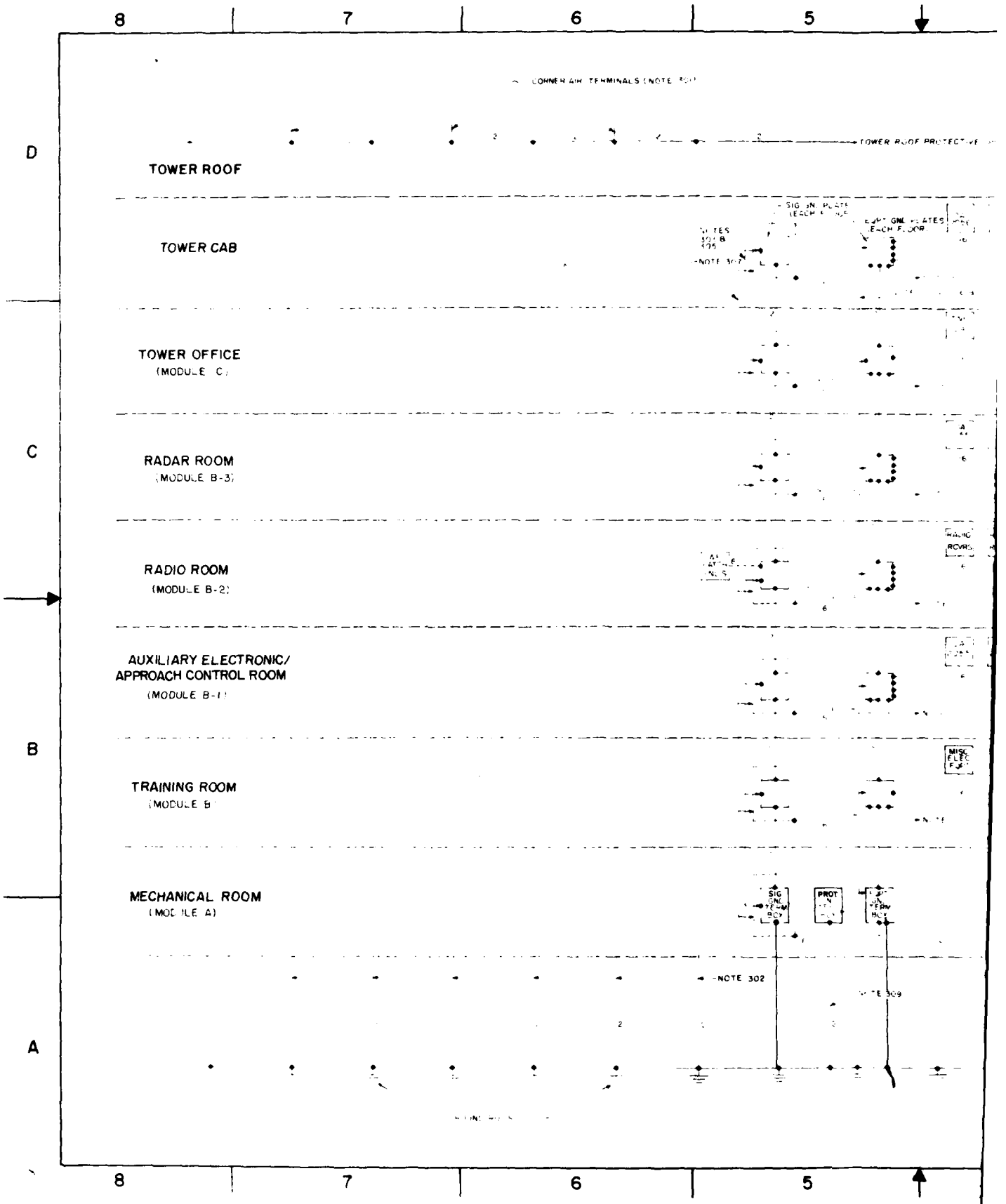
SHEET [illegible] OF [illegible]

U.S. ARMY COMMUNICATIONS ELECTRONICS ENGINEERING INSTALLATION AGENCY

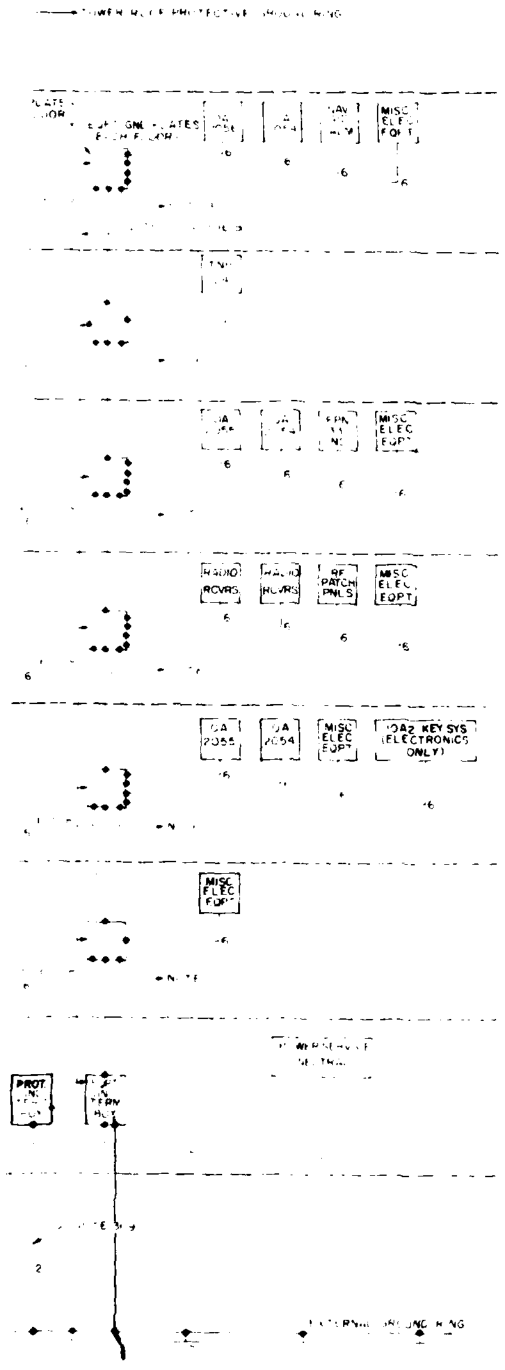
TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS LIST OF MAT'L & GROUNDING SYSTEM

M. YAMAMOTO [illegible]

D 50430


8
7
6
5
D
C
B
A
TOWER ROOF
TOWER CAB
TOWER OFFICE
(MODULE C)
RADAR ROOM
(MODULE B-3)
RADIO ROOM
(MODULE B-2)
AUXILIARY ELECTRONIC/
APPROACH CONTROL ROOM
(MODULE B-1)
TRAINING ROOM
(MODULE B)
MECHANICAL ROOM
(MODULE A)
NOTE 302
8
7
6
5

ZONE	LTR	DESCRIPTION	DATE	APPROVED
	C	REVISED AND REDRAWN CHANGED DWG FROM STD-AF-121 2/4 TO STD-AF-0191 3/7	5 MAY 78	G.M.M.
A	E	CHANGED FROM COMMON GROUND TO INDEPENDANT GROUND. PROJ. NO. F 80-F00-144	31 DEC 80	
		DFTSMN RR CHKR		



NOTES

... ON ALTERNATE CORNERS AS PER SH 1

... ALONG TOWER STRUCTURE ... (SEE FIG 3 SH 1 AND DETAIL B SH 2)

303 SIGNAL GROUND TERMINAL PLATE (SEE SH 6)

304 EQUIPMENT GROUND TERMINAL BOX AND PLATE (SEE SH 5)

... SIGNAL CABLES SHIELD CONNECTION (ONE END OF EACH SHIELD ONLY)

306 ELECTRONIC EQUIPMENT CHASSIS / POWER SUPPLY GROUND CONNECTION

1 ... EQUIPMENT AND SIGNAL GROUND CONDUCTORS SHALL BE INSULATED TO 400 V MINIMUM PROTECTIVE GROUND CONDUCTORS SHALL NOT BE INSULATED

2 ALL GROUND TERMINAL BOXES CONFIGURED AS PER SHEETS 5 & 6

3 FIGURE NEXT TO WIRE ($\frac{2}{}$) INDICATES AWG

307 SIGNAL GROUND TERMINAL BOX AS PER SHEET 5

308 RESISTANCE BETWEEN EQUIPMENT GROUND AND SIGNAL GROUND TERMINAL BOX SHALL BE LESS THAN 0.1 OHM

309 SHORTEST DISTANCE POSSIBLE NOT TO EXCEED 0.1 OHM TO EXTERNAL GROUND RING CONNECTION POINT

310 EQUIPMENT GROUND BOX AND PLATE ARE CONNECTED TO BUILDING STRUCTURAL METAL SUPPORTING MEMBERS BY WELDING, BRAZING, OR VIA 2 AWG INSULATED COPPER CABLE WHERE BOX CANNOT BE MOUNTED DIRECTLY ON SUCH STRUCTURAL MEMBERS

311 EQUIPMENT GROUND TERMINAL BOX SHALL BE CONNECTED DIRECTLY TO STRUCTURAL METAL WHERE POSSIBLE OTHERWISE CONNECTION SHALL BE MADE BY 2 AWG COPPER CABLE (WELDED, BRAZED OR CLAMPED)

ITEM	AEL	DESCRIPTION	NSN		QTY

LIST OF MATERIALS

STD-AF-0191

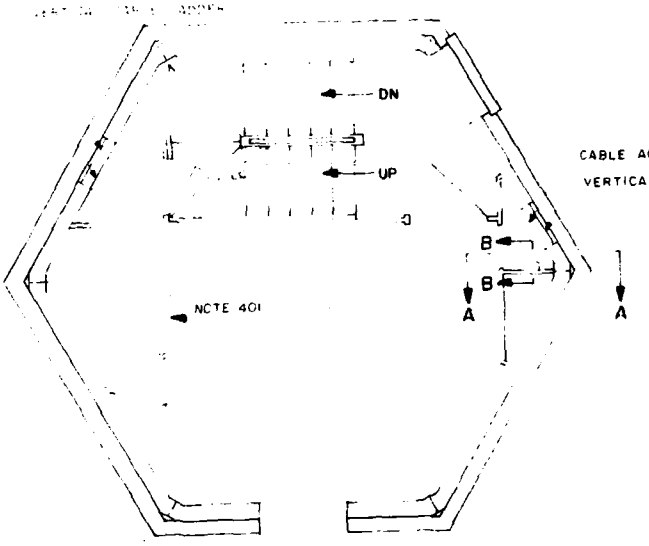
U.S. ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS METAL STRUCTURE

NEXT ASSEMBLY

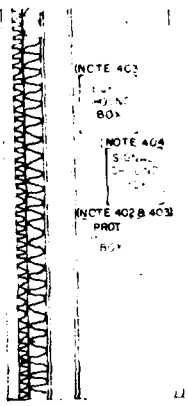
DWG INDEX NO

D 50470

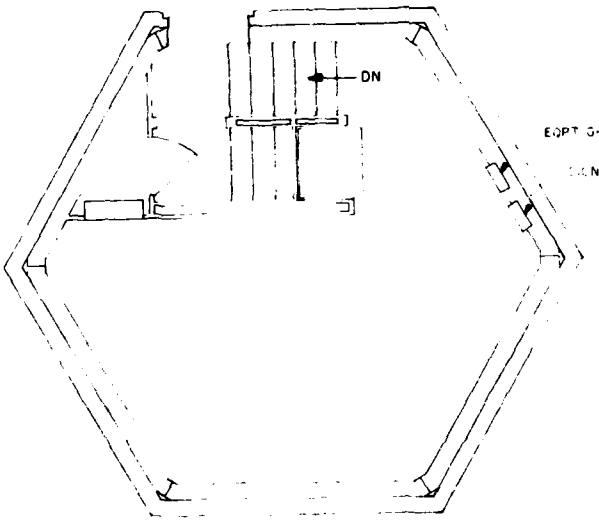


CABLE ACCESS HOLE
VERTICAL CABLE LADDER

TYPICAL FLOOR PLAN
MODULES A THRU C
SCALE
FIGURE 401



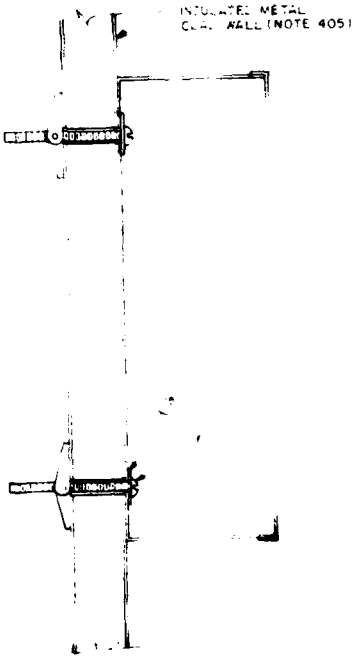
SECTION
SCALE



EQPT GROUND BOX

GROUND BOX

CAB FLOOR PLAN
SCALE
FIGURE 402



SECTION "B-B"
SCALE

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	ADDED NOTE 405		Q M M
C	B	CHANGED "MAIN" TO "PROT" GROUND BOX PROJ NO B 80 - F 00 - 144 DFTSMN RR CHKR	31 DEC 80	

(NOTE 403)
MAIN
BOX

(NOTE 404)

(NOTE 402 & 403)
PROT
BOX

SECTION "A-A"
SCALE 3/4" = 1'-0"

INSULATED METAL
CLAD WALL (NOTE 405)

SECTION "B-B"
SCALE 3/4" = 1'-0"

NOTES

401 THIS PARTITION FOUND IN MODULE A AND C ONLY

402 PROT GROUND BOX TO BE INSTALLED IN MODULE A ONLY

403 SEE SHEET 5 FOR PROT AND EQUIPMENT GROUND BOX FABRICATION DETAILS

404 SEE SHEET 6 FOR SIGNAL GROUND BOX FABRICATION DETAILS

405 IF NON-METAL SHEATHED INTERIOR WALLS ARE CONSTRUCTED, EXTRA SUPPORT FOR MOUNTING TOGGLE SCREWS WILL BE REQUIRED, e.g., 1/2" TO 3/4" PLYWOOD MOUNTING BOARDS

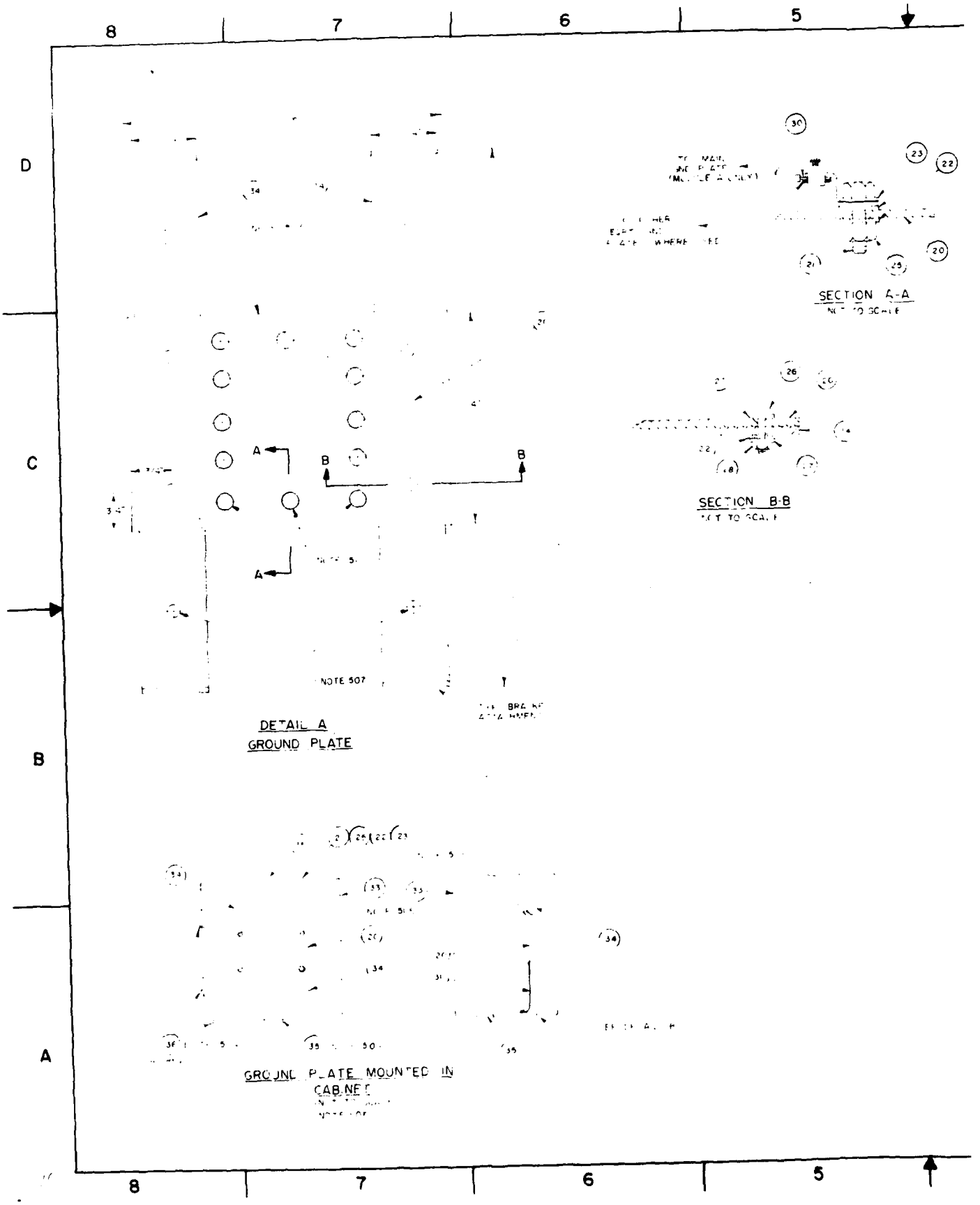
ITEM	AEL	DESCRIPTION	NSN		QTY

LIST OF MATERIALS

STD-AF-0191 SHEET 4 OF 7	US ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
E. MIYAMOTO 14 APR '81 J.W. JOHNSTON 15 MAY '81	TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS GND BOX INSTL & LOCATION DETAILS
NEXT ASSEMBLY / USED ON / SCALE	D 50470 / SHEET
DWG INDEX NO	

5 4 3 2 1

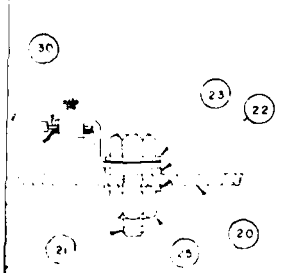
C B A



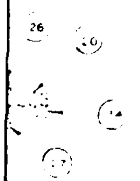
DETAIL A
GROUND PLATE

GROUND PLATE MOUNTED IN CABINET

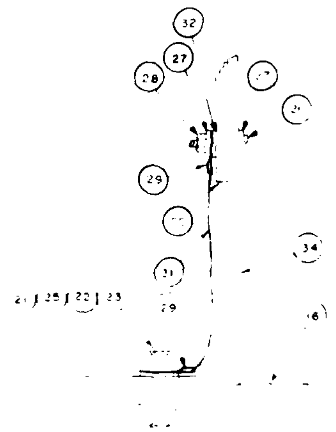
REVISED AND REDRAWN CHANGED DWG NO FROM COM-AF [illegible] TO STD-AF-0191 — 5 MAY 78



SECTION A-A
NOT TO SCALE



B-B



DETAIL B
NOT TO SCALE

NOTES

501 ALL HOLES IN GROUND PLATE USED FOR GROUND TERMINAL LUGS ARE 5/16" DIAMETER

502 GROUND PLATE-COPPER 1/4"x4"x6" MOUNTED WITH SUFFICIENT CLEARANCE TO [illegible] 2" MINIMUM BETWEEN [illegible] OR SCREW-ON HEAD OF GROUND [illegible] BACK OF TERMINAL BOX THIS CONFIGURATION [illegible] FOR SIGNAL EQUIPMENT OR MAIN GROUND [illegible]

503 HOLES [illegible] CONNECTION OF [illegible] GROUNDS

504 ALL [illegible] GROMMETS (ITEM [illegible])

505 [illegible] BETWEEN COPPER PLATE AND METAL CABINET SHALL BE LESS THAN .001 OHM

506 BRASS PLATE MAY BE SUBSTITUTED IF THICKNESS OF 1/4" IS MAINTAINED

507 ALL HOLES TO MOUNT GROUND PLATE TO BRACKET ARE 3/16" DIA

EQUIPMENT GROUND
TERMINAL BOX
DETAILS

ITEM	AFL	SEE SHEET 1 FOR LIST OF MATERIAL [illegible]	NSN	[illegible]	QTY

LIST OF MATERIALS

STD-AF-0191
SHEET 5 OF 7

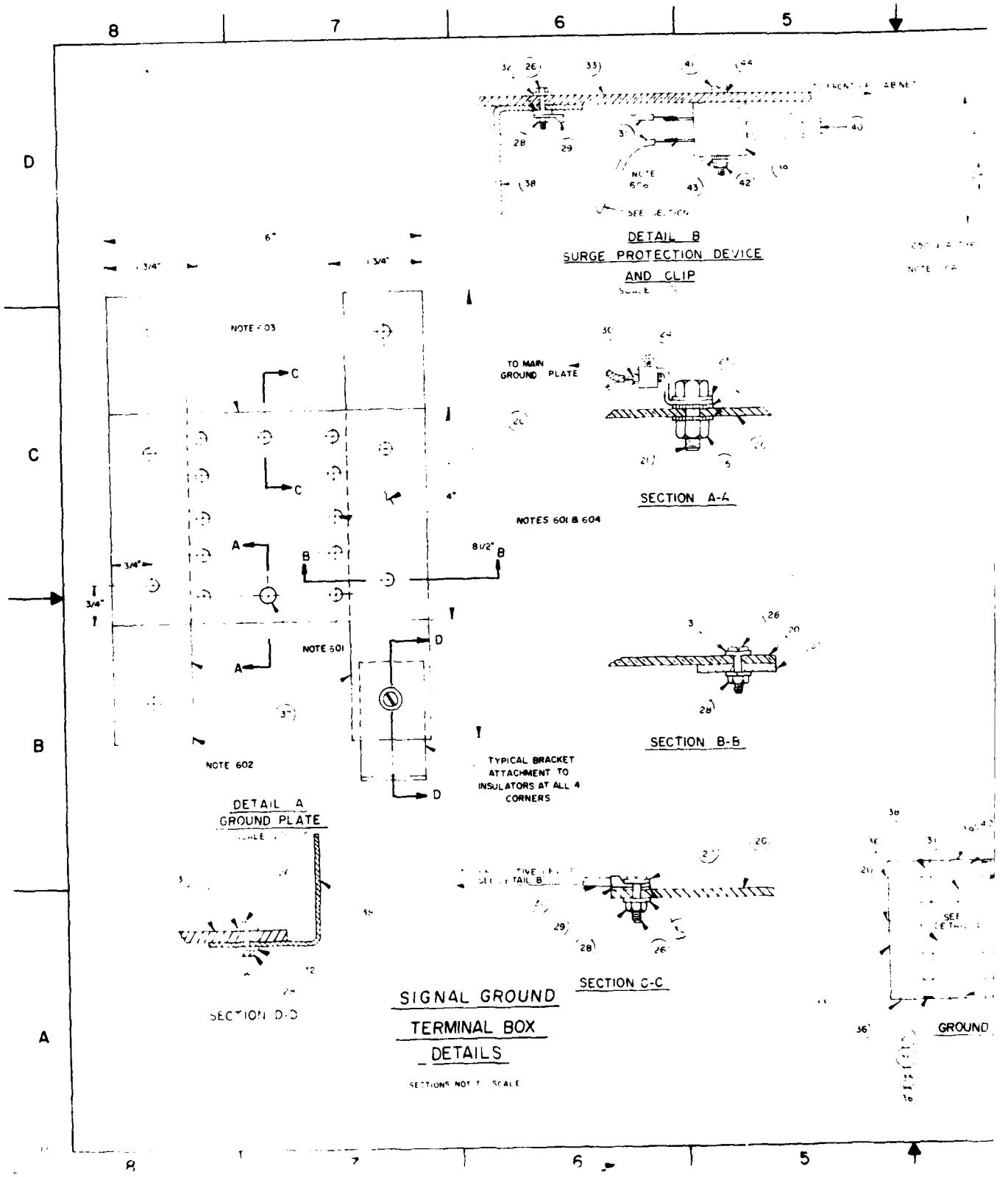
U.S. ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

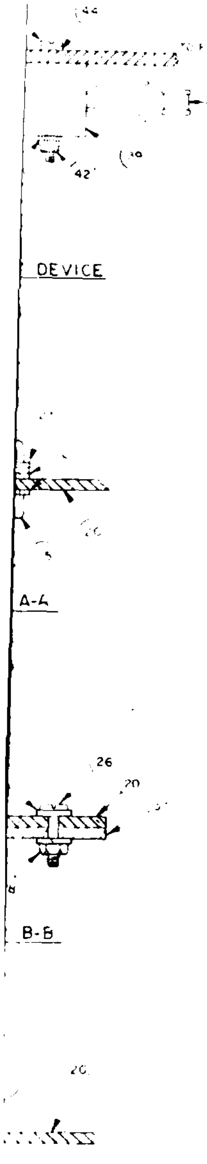
D. MIYAMOTO [illegible]
DRAWN BY J.W. JOHN[illegible] 5 MAY 78

TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS
TERMINAL BOX DETAILS

NEXT ASSEMBLY | USED ON
DWG INDEX NO
[illegible] SWG

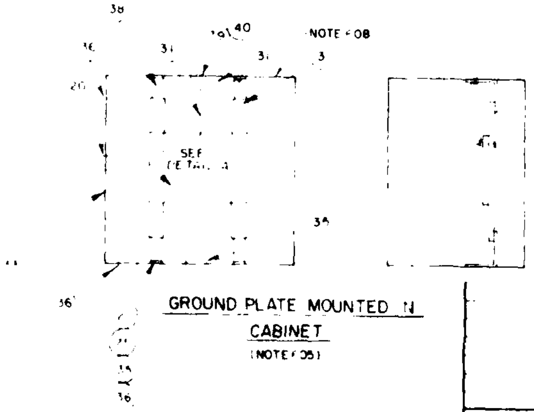
D 50470


8
7
6
5
D
C
B
A
DETAIL B
SURGE PROTECTION DEVICE
AND CLIP
NOTE 603
NOTE 601
NOTE 602
NOTES 601 & 604
TO MAIN
GROUND PLATE
SECTION A-A
SECTION B-B
TYPICAL BRACKET
ATTACHMENT TO
INSULATORS AT ALL 4
CORNERS
DETAIL A
GROUND PLATE
SECTION C-C
SECTION D-D
SIGNAL GROUND
TERMINAL BOX
DETAILS
SECTIONS NOT TO SCALE
GROUND



DETAIL C

SURGE PROTECTION DEVICE MOUNTING DETAILS



GROUND PLATE MOUNTED IN CABINET

(NOTE 605)

NOTES

601 ALL HOLES IN GROUND PLATE EXCEPT BUS LUG HOLE ARE ¼" DIA, BUS HOLE IS 5/16" DIA

602 PLASTIC, PHENOLIC OR OTHER RIGID INSULATING MATERIAL SUFFICIENTLY STRONG TO REMAIN IN PLACE WHEN ALL GROUND CONNECTIONS ARE MADE

603 GROUND PLATE – COPPER 1/4" x 4" x 6" MOUNTED WITH SUFFICIENT CLEARANCE TO ALLOW 2" MINIMUM BETWEEN BOLTS OR SCREWS ON REAR OF GROUND PLATE AND BACK OF TERMINAL BOX THIS CONFIGURATION SHALL BE USED FOR SIGNAL EQUIPMENT OR MAIN GROUND PLATE

604 HOLES AS REQUIRED FOR CONNECTION OF SIGNAL OR EQUIPMENT GROUNDS

605 ALL HOLES IN CABINET FOR GROUND WIRES REQUIRE GROMMETS (ITEM 35 & 36)

606 WRAP # [illegible] AWG WIRE AROUND TERMINAL TO INSURE [illegible] METAL TO METAL [illegible]

607 SIGNAL [illegible]

608 SIGNAL GROUND BOX IS CONNECTED TO EQUIPMENT GROUND PLATE ON EACH FLOOR SEE SHEET [illegible]

	REVISED NOTE 608	20 OCT 75	
	DWG NO WAS COM-AF-6 SHEET 3 OF 4	27 MAY 77	
	DWG NO WAS [illegible]	[illegible] MAY 76	

SEE SHEET [illegible] FOR MATERIAL

LIST OF MATERIALS

STD-AF-0191

SHEET 6 OF [illegible]

US ARMY COMMUNICATIONS ELECTRONICS ENGINEERING INSTALLATION AGENCY

D. MIYAMOTO

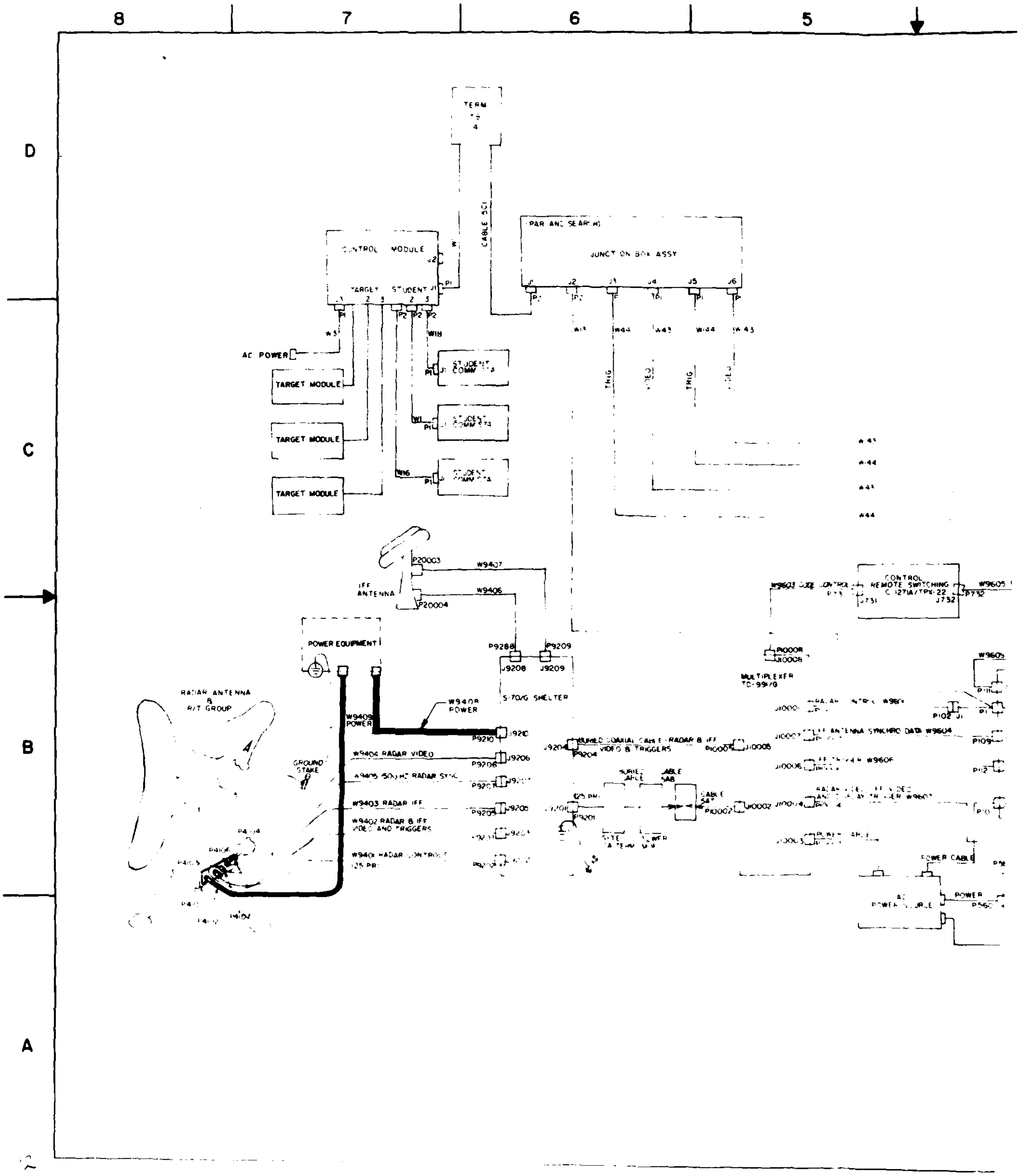
J. W. JOHNSTON

TYPICAL PROTECTIVE GROUND SYSTEM FOR ATC TOWERS TERMINAL BOX DETAILS

D | 50470

NEXT ASSEMBLY

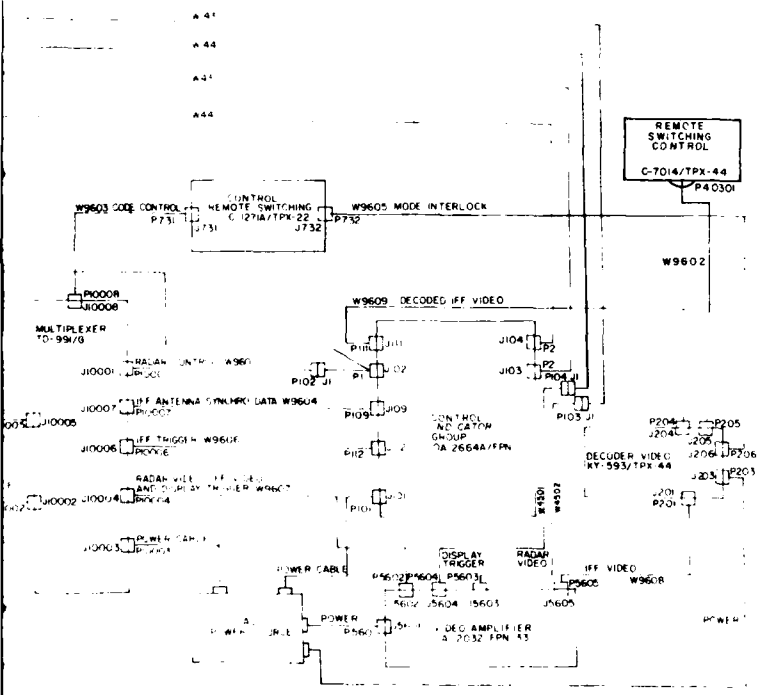
DWG INDEX NO


8
7
6
5
D
C
B
A
TERM
CABLE 501
CONTROL MODULE
TARGET
STUDENT
JUNCTION BOX ASSY
AC POWER
TARGET MODULE
TARGET MODULE
TARGET MODULE
STUDENT COMM STA
STUDENT COMM STA
STUDENT COMM STA
W18
W16
TRIG
VIDEO
TRIG
W44
W43
W44
W43
W44
W43
W44
IFF ANTENNA
P20003
P20004
W9407
W9406
POWER EQUIPMENT
P9288
P9209
J9208
J9209
S-70/G SHELTER
RADAR ANTENNA & R/T GROUP
GROUND STAKE
W9408 POWER
W9409 POWER
J9210
P9210
W9404 RADAR VIDEO
J9206
P9206
W9403 RADAR IFF
P9205
J9205
W9402 RADAR & IFF VIDEO AND TRIGGERS
W9401 RADAR CONTROLS
125 PR
P4104
P4106
P4105
P4107
P4102
J9204
P9204
BURIED COAXIAL CABLE - RADAR & IFF VIDEO & TRIGGERS
P10005
J10005
BURIED CABLE
CABLE 548
CABLE 547
P9201
P10002
J10002
P10008
J10008
MULTIPLEXER TD-991/G
CONTROL REMOTE SWITCHING C-12711A/TPX-22
J731
J732
P732
W9603
W9605
IFF ANTENNA SYNCHRO DATA W9604
P102
P109
P112
POWER CABLE
AC POWER SOURCE
POWER

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED
B&C	A	DELETED JUNCTION BOX J2972/G, MOVED REMOTE SWITCHING CONTROL FROM ZONE B TO C, AND ADDED SHEETS 2 AND 3 AND LOW PROJECT NO B-FOO-144 DFTSMN AR CHKR	6 JAN 81	

GENERAL NOTES

THIS DRAWING REPLACES SIG AF 01 9 SHEET 4 OF 4



ITEM NO	AEL	DESCRIPTION	PART NO / NSN	UI	QTY
66	07651N	TAPE, BINDING, PLASTIC, NON-ADHESIVE	8970-00-J04-0880	EA	AR
64	28589C	PLUG, CONNECTOR, N-TYPE, FEMALE	5935-00-J04-4488	EA	AR
63	23858Z	PLUG, CONNECTOR, N-TYPE, MALE	5935-00-J04-0997	EA	AR
33	06973J	CASE, SPLICE, CLOSURE, PN #9A	5905-00-937-0844	EA	AR

PARTS LIST

STD-AF-0515	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY	
DRAWN BY L BLEWLIN	GCA RADAR AN/FSQ-84 WITH OH-36/GPN SIMULATOR WIRING DIAGRAM	
CHECKED BY		
APPROVED BY	SIZE D	FSCM NO 50470
DESIGN ACTIVITY	SCALE NONE	DRAWING NO

SHEET NUMBER
REVISION STATUS OF SHEETS
NEXT ASSEMBLY
USED ON
DWG INDEX NO

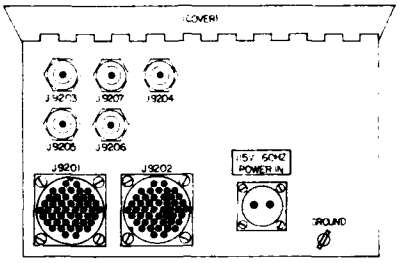


FIGURE 4
S-70/G SHELTER CABLE ENTRANCE PANEL

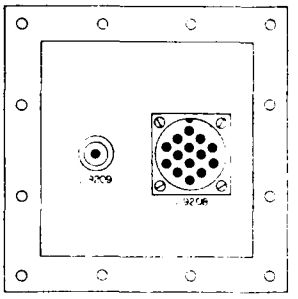


FIGURE 5
S-70/G ANTENNA CABLE ENTRY PANEL

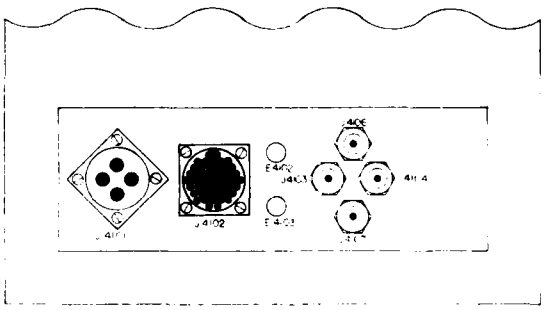


FIGURE 6
RECEIVER-TRANSMITTER GROUP, OA-2667/FPN-40
CABLE ENTRY PANEL

TABLE I
R/T SITE INTERCONNECTING

FROM						
S-70/G SHELTER CABLE ENTRANCE PANEL						AN/FPN-
FURNISHED AS PART OF AN/FSQ-84 CABLE NO.	REPLACEMENT CABLE TYPE	BOM NO.	CONNECTOR TYPE	BOM NO.	TERMINAL	TERMINAL
W 9401	WM-130/G	3	AMPHENOL [illegible]	4	J 9202	J 4102
W 9402	RG-59	24	AMPHENOL [illegible]	6	J 9203	J 4103
W 9403	RG-59	24	AMPHENOL [illegible]	6	J 9205	J 4107
W 9404	RG-59	24	AMPHENOL [illegible]	6	J 9206	J 4106
W 9405	RG-59	24	AMPHENOL [illegible]	6	J 9207	J 4105
S-70/G ANTENNA CABLE ENTRY PANEL						AB-1584/
W 9406	NOTE 402				J 9208	J 4104
W 9407	NOTE 402				J 9209	J 4108
S-70/G SHELTER CABLE ENTRANCE PANEL						POWER
W 9408 NOTE 401	JUNCTION BOX OF DUCT DISTRIBUTION SYSTEM	26	[illegible]		J 9210	[illegible]
AN/FPN-40 CABLE ENTRANCE PANEL						[illegible]
A [illegible] NOTE 401	[illegible]	27	[illegible]		[illegible]	[illegible]
S-70/G SHELTER CABLE ENTRANCE PANEL						JUNCTIO
NOT FURNISHED WITH AN/FSQ-84	WM-130/G	3	[illegible]	4	J 9211	[illegible]
NOT FURNISHED WITH AN/FSQ-84	RG-59	24	[illegible]	62	J 9204	BULKHEAD ADAPTER IN PULL BOX
JUNCTION BOX OF DUCT DISTRIBUTION SYSTEM						JUNCTIO
NOT FURNISHED WITH AN/FSQ-84	[illegible]	50	[illegible]	48		[illegible]
NOT FURNISHED WITH AN/FSQ-84	[illegible]	75	[illegible]	63	BULKHEAD ADAPTER IN PULL BOX	GCA OPE [illegible]
JUNCTION BOX CONTROL TOWER GROUND FLOOR						GCA OPE
NOT FURNISHED WITH AN/FSQ-84	TELE. 25 PAIR 24 AWG	28	50 PIN QUICK CONNECT PIN # RGEM	2	TB # 2 PAIRS 1 THRU 25	PAIRS 1 TH 25 (SOLI SIDE
GCA OPERATION ROOM-CONTROL JUNCTION BOX						REMOTE
NOT FURNISHED WITH AN/FSQ-84	WM-130/G	3	WIRE WRAP PIN # 70-2A	4	PAIRS 1 THRU 25	J [illegible]

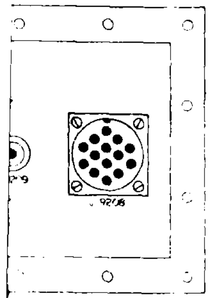
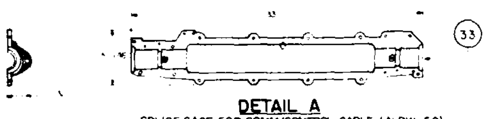
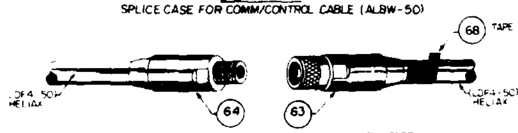


FIGURE 5
...TENNA CABLE ENTRY PANEL



DETAIL A
SPLICE CASE FOR COMM/CONTROL CABLE (ALBW-50)



NOTE: AFTER CONNECTION, WRAP THOROUGHLY WITH TAPE SO THAT SPLICE IS WATERPROOF.

DETAIL B
CONNECTORS FOR SPLICEING VIDEO TRIGGER CABLE (LDF4-75)

NOTES

401. THESE CABLES HAVE THE SAME CONNECTORS ON BOTH ENDS

402. IT IS RECOMMENDED THAT THESE CABLE ASSEMBLIES BE ORDERED FROM TM 11-5840-293-34P IF THEY NEED REPLACEMENT.

403. W9408 AND W9409 CABLE ASSEMBLIES SHOULD NOT BE USED BECAUSE THEY ARE MADE TO CONNECT TO DISTRIBUTION BOX, J2972/G WHICH IS NO LONGER REQUIRED. THE REPLACEMENT CABLES SHOWN SHOULD BE USED AND THE CONNECTORS THAT GO TO THE S-70/G SHELTER AND THE R/T CABLE ENTRANCE.

404. THE CABLE IS TERMINATED, ON THE MULTIPLEXER TD-991/G SIDE TO THE CONNECTOR BEGINNING WITH PAIR # 1, "TIP" GOES TO PIN "A" AND "RING" GOES TO PIN "B". PAIR # 2 GOES TO PIN C AND D. CONTINUE THESE CONNECTIONS THROW PAIR # 25, OBSERVING THAT CERTAIN LETTERS OF THE ALPHABET ARE LEFT OUT BOTH IN CAPITAL AND SMALL LETTERS, ON THE CONNECTOR. PAIR # 26 IS NOT CONNECTED ON EITHER END OF THE CABLE AND SHOULD BE DRESSED BACK ON THE CABLE AS A SPARE.

405. DETAIL "A" SPLICE CASE IS TO BE USED IF IT IS NECESSARY TO SPLICE THE COMM/CONTROL CABLE (ALBW-50) BETWEEN THE R/T SITE AND THE CONTROL TOWER. DETAIL "B" CONNECTORS ARE TO BE USED IF THE VIDEO TRIGGER CABLE (LDF4-75) REQUIRE SPLICING BETWEEN THE R/T SITE AND CONTROL TOWER.

TABLE I

R/T SITE INTERCONNECTING CABLES

FROM						TO			
SHELTER CABLE ENTRANCE PANEL						AN/FPN-10 CABLE ENTRANCE PANEL			
	REPLACEMENT						REPLACEMENT		
	CABLE TYPE	BOM NO.	CONNECTOR TYPE	BOM NO.	TERMINAL	TERMINAL	CONNECTOR TYPE	BOM NO.	REMARKS
	WM-130/G	31	AMPHENOL STANDARD CIRCULAR TYPE 36-10	41	J 9202	J 4102	NOTE 401		RADAR CONTROLS
	RG-59	24	AMPHENOL N-SERIES # 3475C	61	J 9203	J 4103	AMPHENOL C TYPE # 82-548 OR UG-627A	62	RADAR & IFF VIDEO AND TRIGGERS
	RG-59	24	AMPHENOL N-SERIES # 3475C	61	J 9205	J 4107	NOTE 401		RADAR & IFF VIDEO
	RG-59	24	AMPHENOL N-SERIES # 3475C	61	J 9206	J 4104	AMPHENOL C TYPE 82-548 OR UG-627A	62	RADAR VIDEO
	RG-59	24	AMPHENOL N-SERIES # 3475C	61	J 9207	J 4106	NOTE 401		NOTE 401 1500 HZ RADAR SYNC.
ANTENNA CABLE ENTRY PANEL						AB-1158/GPA-119 ANTENNA PEDESTAL (IFF)			
	NOTE 402				J 9208	J 20004	NOTE 402		NOTE 402 ANTENNA DRIVE & ANTENNA SYNCHRO DATA
	NOTE 402				J 9209	J 20003	NOTE 402		NOTE 402 PULSE MODULATOR RF PULSE
... SHELTER CABLE ENTRANCE PANEL						POWER DISTRIBUTION BOX - POWER PAD			
...03	ANACTER 2 #2 AWG PN# 3-0202	25	NOTE 403		J 9210	CB # 4 ØB REGULATED			NOTE 403 IFF POWER
...-40 CABLE ENTRANCE PANEL									
...03	[illegible]	27	NOTE 403		J 4101	CB # 1 AND 2 ØA AND ØB REGULATED			NOTE 403 R/T POWER
... SHELTER CABLE ENTRANCE PANEL						JUNCTION BOX OF DUCT DISTRIBUTION SYSTEM			
...SHED ...FSQ-84	WM-130/G	31	AMPHENOL STANDARD CIRCULAR TYPE 36-10	41	J 9201		AMPHENOL 57 SERIES # 57-20500-7		THE CONNECTORS LISTED ARE P/O CABLE ASSY BOM # 23 CONTROL CABLE
...SHED ...FSQ-84	RG-59	24	AMPHENOL C TYPE 82-548 OR UG-627A	62	J 9204	BULKHEAD ADAPTER IN PULL BOX	AMPHENOL N SERIES # 3475C	61	RADAR AND IFF VIDEO AND TRIGGER
...ON BOX OF DUCT DISTRIBUTION SYSTEM						JUNCTION BOX - CONTROL TOWER GROUND FLOOR			
...SHED ...FSQ-84	ALBW-50	30	SPLICE CASE PN # 2181	34			SPLICE CASE PN # 2081	32	COMM/CONTROL CABLE NOTE 405
						GCA OPERATION ROOM-MULTIPLEXER TD-991/G			
...SHED ...FSQ-84	LDF4-75	25	ANDREW N-TYPE MALE	63	BULKHEAD ADAPTER IN PULL BOX	J 10005	AMPHENOL C TYPE 82-548 OR UG-627A	62	VIDEO TRIGGER CABLE NOTE 405
...ON BOX CONTROL TOWER GROUND FLOOR						GCA OPERATIONS ROOM-CONTROL JUNCTION			
...SHED ...FSQ-84	TELE. 25 PAIR 24 AWG	28	50 PAIR - QUICK CONNECT PN # R66M1	12	TB # 2 PAIRS 1 THRU 25	PAIRS 1 THRU 25 (SOLDER SIDE	JUNCTION BOX COOK ELEC. # 490-5426	14	CONTROL CABLE
...PERATION ROOM - CONTROL JUNCTION BOX						REMOTE EQUIPMENT CABINET - MULTIPLEXER TD-991/G			
...SHED ...FQ-84	WM-130/G	31	WIRE CONN 19-26 AWG PN # 701-2A	42	PAIRS 1 THRU 25	J 10002	AMPHENOL STANDARD CIRCULAR TYPE 36-10	41	CONTROL CABLE NOTE 404

ENT NO STD-AF-0515	SIZE D	FSCM NO	DRAWING NO			
SHEET 2 OF 3						
DRAWN BY J. MCLELLAN	DATE JAN 81					
APPROVED BY		SCALE NONE			SHEET	OF

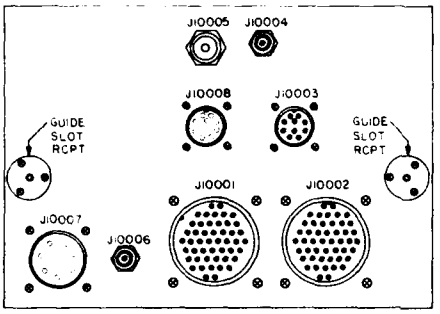


FIGURE 7
MULTIPLEXER TD-991/G REAR CHASSIS CABLE ENTRY

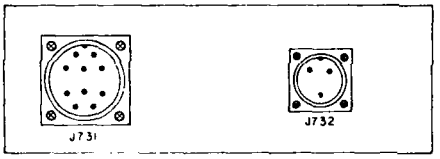


FIGURE 8
REMOTE SWITCHING CONTROL C-1271A/TPX-22 REAR CHASSIS CABLE ENTRY

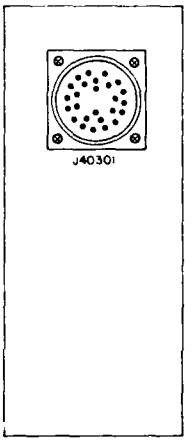


FIGURE 9
REMOTE SWITCHING CONTROL C-7014/TPX-22 REAR CHASSIS CABLE ENTRY

TABLE 2
INTERCONNECTING CABLES FURNISHED WITH AN/FSQ 84

FROM		TO	
CONTROL INDICATOR GP OA-2664A/FPN-40		MULTIPLEXER TD-991/G	
CABLE ASSY NO	TERMINAL	TERMINAL	REMARKS
W9601	J102	J10001	NOTE 301
VIDEO DCDR KY-593/TPX-44		C-7014-TPX-44	
W9602	J205	J40301	NOTE 301
MULTIPLEXER TD-991/G		C-1271A/TPX-22	
W9603	J10008	J731	NOTE 301
		OA-2664A/FPN-40	
W9604	J10007	J109	NOTE 301
KY-593/TPX-44		C-1271A/TPX-22	
W9605	J206	J732	NOTE 301
OA-2664A/FPN		MULTIPLEXER TD-991/G	
W9606	J112	J10006	NOTE 301
OA-2032/FPN-33			
W9607	J5602	J10004	NOTE 301
		KY-593/TPX-44	
W9608	J5605	J201	NOTE 301
OA-2664A/FPN-40			
W9609	J11	J204	NOTE 301

TABLE 3
INTERCONNECTING CABLES FURNISHED WITH AN/FPN-40

FROM		TO	
CONT-IND GP OA-2664A/FPN-40 FURNISHED AS PER AN/FPN-40 CABLE NO		VIDEO AMPL GP OA-2032/FPN-33	
	TERMINAL	TERMINAL	REMARKS
W4502	J104	J5604	NOTE 302
W4502	J103	J5603	NOTE 302
OR			
VIDEO AMPL GP OA-2032/FPN-33		SIMULATOR 15G14A CABLE	J-BOX TERM
W4501	J5604	J1 W144	J5
W4502	J5603	J1 W143	J6

TABLE 4
INTERCONNECTING CABLES FURNISHED WITH SIM 15G14A

FROM		TO	
JUNCTION BOX ASSY		VIDEO AMP OA-2032/FPN-33	
CABLE ASSY NO	TERMINAL	CABLE ASSY NO	TERMINAL
W143	J6	W4502	P103
W144	J5	W4501	P104
		CONT IND GP OA-2664A/FPN-33	
W43	J4		J103
W44	J3		J104
W13	J2		J102

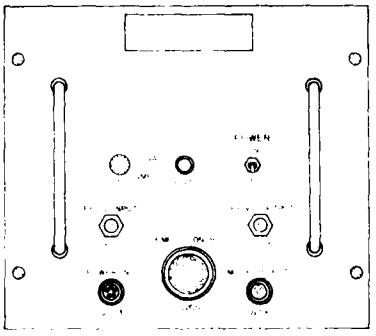


FIGURE 10
VIDEO DECODER KY-593/TPX-44 FRONT CHASSIS CABLE ENTRY

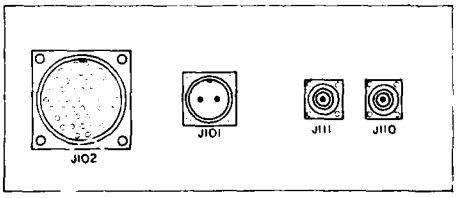


FIGURE 11
CONTROL-INDICATOR GROUP OA-2664A/FPN-40 REAR CHASSIS CABLE ENTRY

5	4	3	2	1

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED

TABLE 2

RCONNECTING CABLES
ISHED WITH AN/FSQ-34

	TO	
TOR GP 40	MULTIPLEXER TD-991/G	
MINAL	TERMINAL	REMARKS
)2	J10001	NOTE 301
33/TPX-44	C-701- TPX-44	
)5	J40301	NOTE 301
)-991/G	C-1271A/TPX-22	
)008	J731	NOTE 301
	OA-2664A/FPN 40	
)007	J109	NOTE 301
	C-1271A/TPX-22	
06	J732	NOTE 301
	MULTIPLEXER TD-991/G	
2	J10006	NOTE 301
13		
602	J10004	NOTE 301
	KY-593/TPX-44	
605	J201	NOTE 301
-40		
	J204	NOTE 301

TABLE 3

NG CA'S FURN'D WITH AN/FPN-40

M	TO	
2664A/	VIDEO AMPL GP OA 2032/ FPN-33	
RMINAL	TERMINAL	REMARKS
04	J5604	NOTE 302
03	J5603	NOTE 302
OR		
	SIMULATOR 15G14A	
33	CABLE	J-BOX TERM
5604	J1 W144	J5
5603	J1 W143	J6

TABLE 4

G CA'S FURN'D WITH SIM 15G14A

M	TO	
ASSY	VIDEO AMP OA-2032/FPN-33	
	CABLE	
ERMINAL	ASSY NO	TERMINAL
5	W4502	P103
6	W4501	P104
	CONT IND GP OA-2664A/FPN33	
4		J103
3		J104
2		J102

TABLE 5

GCA OPERATIONS ROOM
INTERCONNECTING POWER CABLES

FROM		TO
TERMINAL	EQUIPMENT	AC POWER SOURCE VOLTAGE REGULATOR BOM# 8 THE CONNECTIONS TO THE POWER SOURCE WILL BE DETERMINED BY THE CONTRACTOR AND/OR FACIL ENGR FOR EACH SITE
J101	CONT IND GROUP OA-2664A/FPN-40	
J5601	VIDEO AMP OA-2032/FPN-33	
J203	DECODER VIDEO KY-593/TPX-44	
J10003	MULTIPLEXER TD-991/G	
NOTE	THE PLUG/CONNECTOR AND CABLE TYPES ARE LISTED IN TM 11-5840-293-34P FOR THE VIDEO AMP OA-2032/FPN-33 AND TM-5840-345-20 PARAGRAPH 1-11 FOR THE KY-593/TPX-44, OA-2664A/FPN-40 AND TD-991/G	

NOTES:

301 IT IS RECOMMENDED THAT THESE CABLE ASSEMBLIES BE ORDERED FROM TM-5840-293-34P IF THEY NEED REPLACEMENT

302 WHEN SIMULATOR 15G14A IS USED WITH THE SYSTEM, W4501 CONNECTS TO J1 OF W144 INSTEAD OF J104 AND W4502 CONNECTS TO J1 OF W143 INSTEAD OF J103 OF OA-2664A/FPN-40 AS SHOWN UNDER "OR" OF THIS TABLE.

D

C

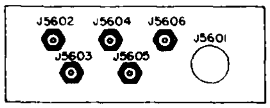


FIGURE 12
VIDEO AMP GP OA-2032/FPN-33 REAR CHASSIS CABLE ENTRY

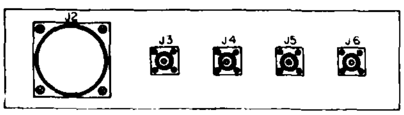
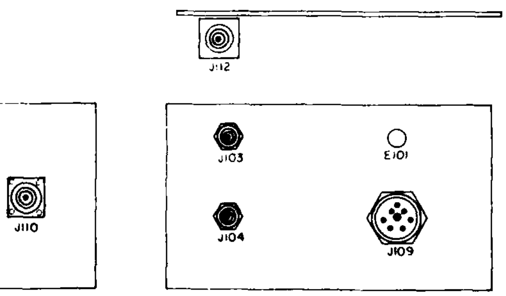


FIGURE 13
SIMULATOR 15G14A JUNCTION BOX ASSEMBLY CABLE CONNECTORS

B



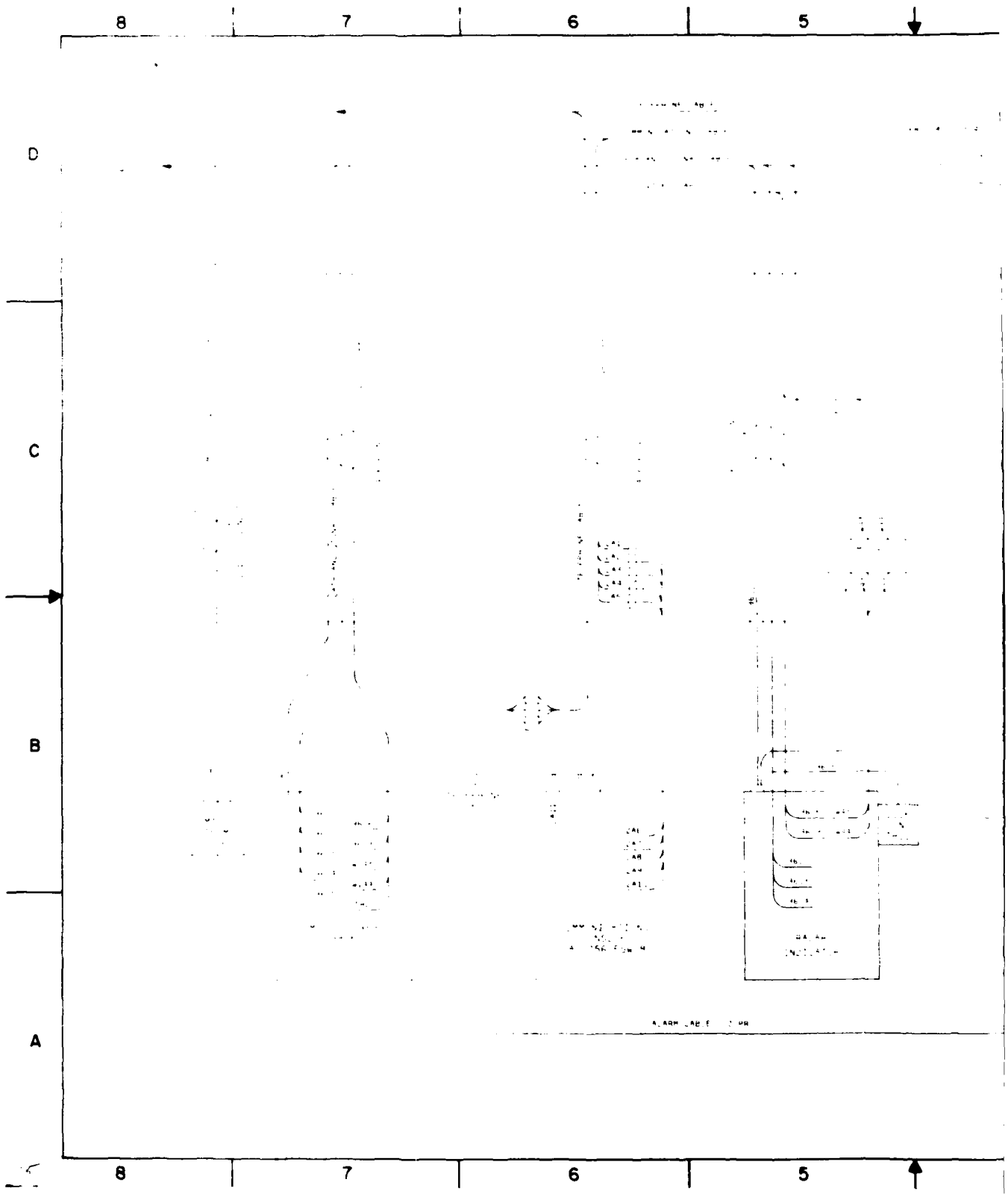
(INSIDE-RIGHT WALL)

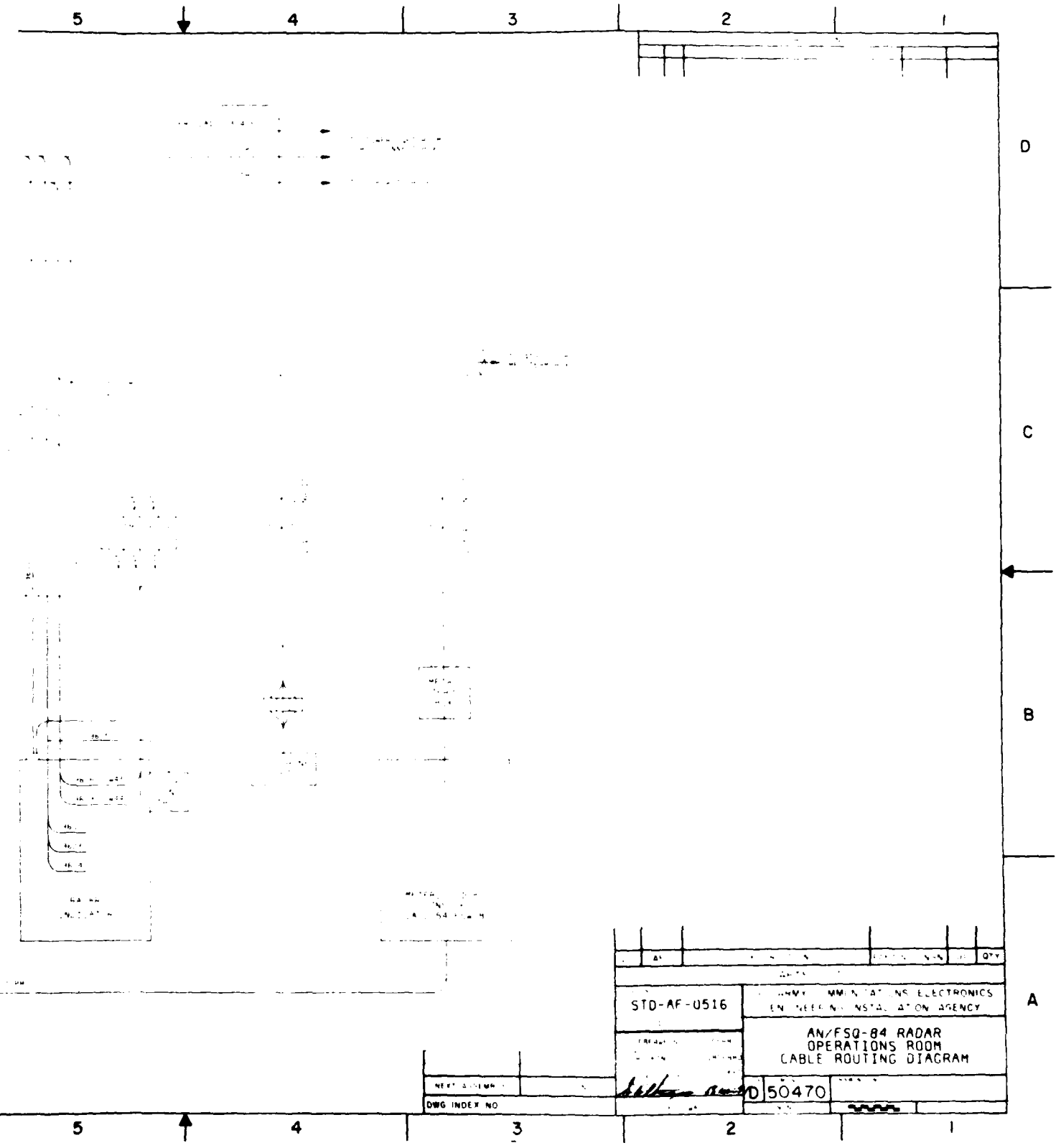
FIGURE 11
OR GROUP OA-2664A/FPN-40 REAR CHASSIS

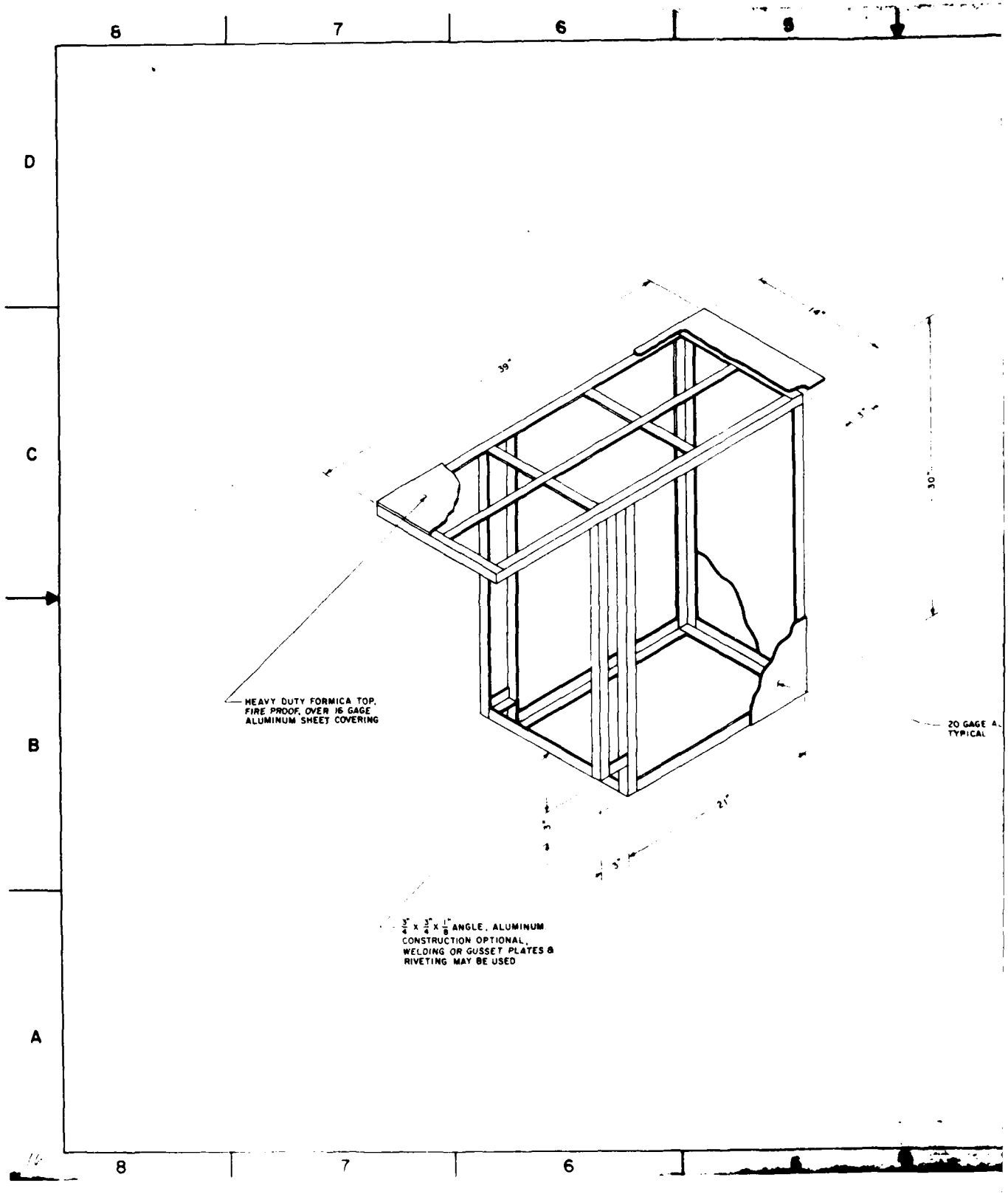
A

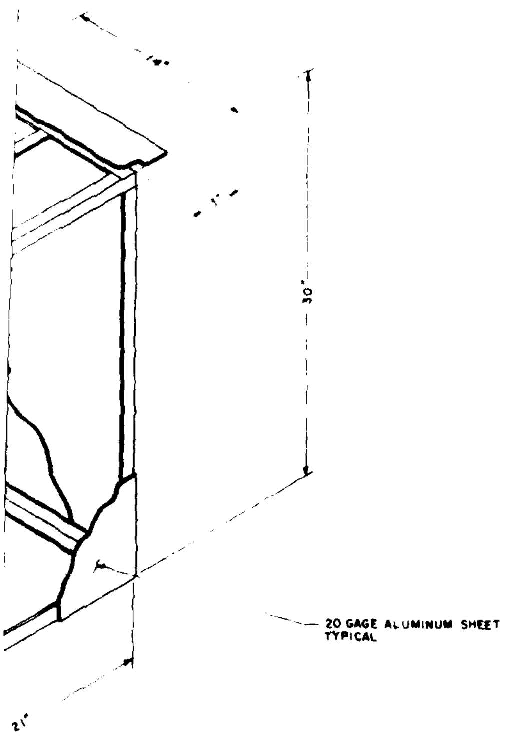
IDENT NO STD-AF-0515 SHEET 3 OF 3	SIZE D	FSCM NO	DRAWING NO 04 AF- -
DRAWN BY Y. HONDA DATE 20 JAN 81			
APPROVED BY	SCALE		1* [redacted] SHEET OF

5	4	3	2	1


8
7
6
5
D
C
B
A
8
7
6
5


5
4
3
2
1
D
C
B
A
QTY
STD-AF-0516
AN/FSQ-84 RADAR
OPERATIONS ROOM
CABLE ROUTING DIAGRAM
D 50470
DWG INDEX NO


8
7
6
5
D
C
B
A
39"
30"
21"
HEAVY DUTY FORMICA TOP, FIRE PROOF, OVER 16 GAGE ALUMINUM SHEET COVERING
20 GAGE A
TYPICAL
ANGLE, ALUMINUM CONSTRUCTION OPTIONAL, WELDING OR GUSSET PLATES & RIVETING MAY BE USED



REVISION

DESCRIPTION	PART NO. NSN	QTY

PARTS LIST

STD-AF-0604

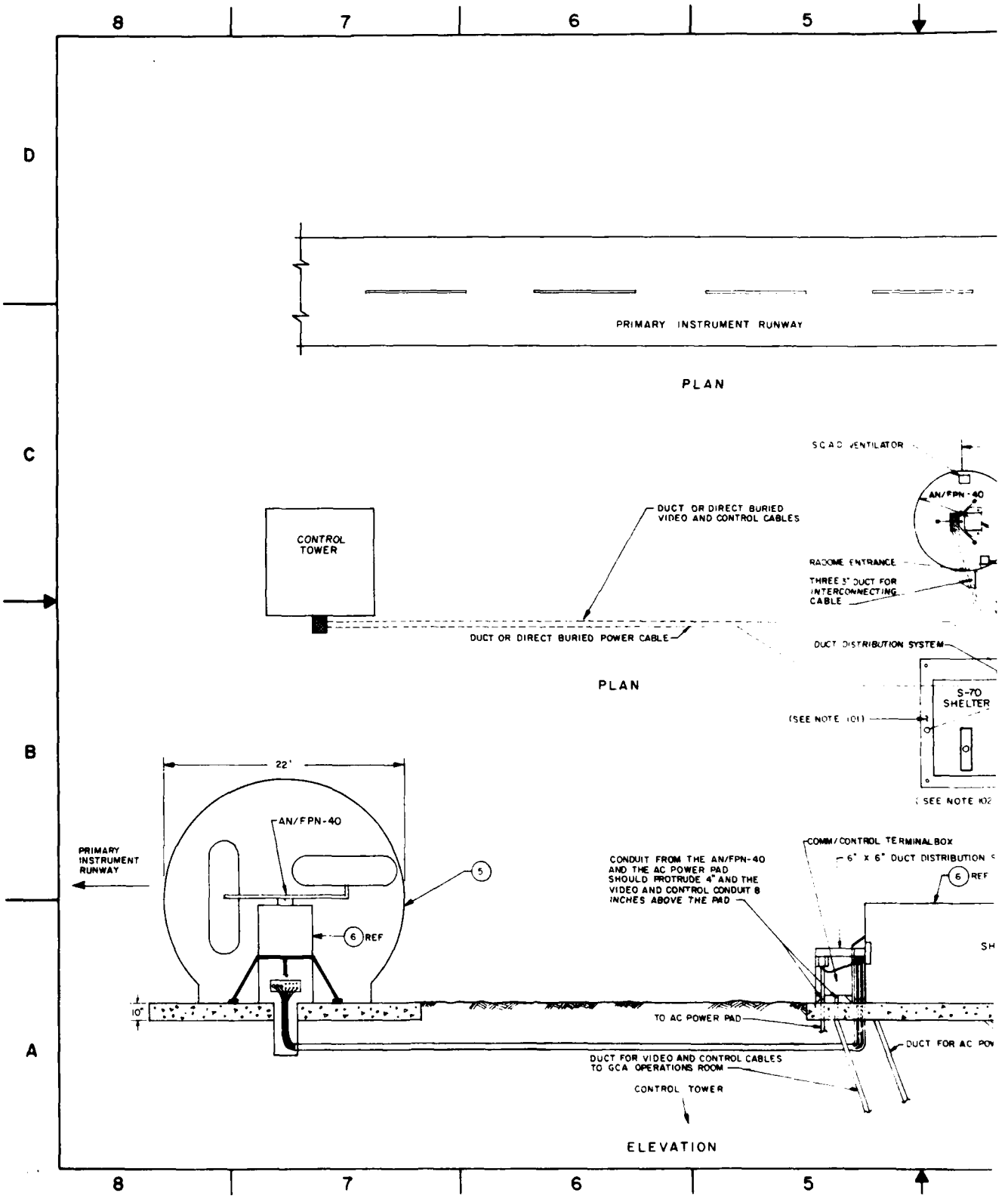
US ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

R. BROWN 1APR 79
DR ROBB 2APR 79

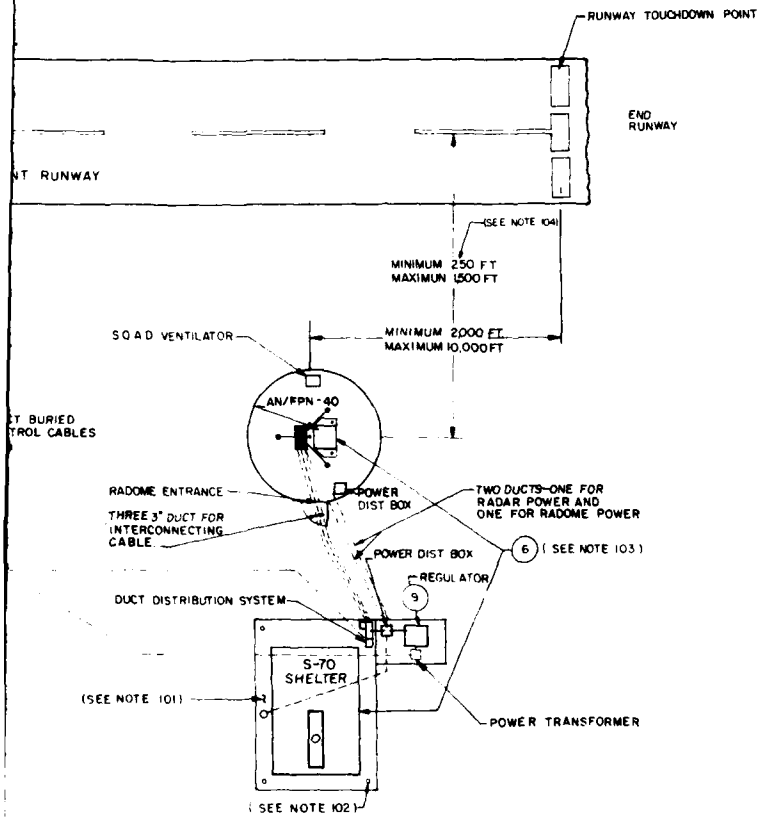
AN/FSW-8 CONSOLE
SEPARATOR/ COUNTER

D 50470

NEXT ASSEMBLY
INDEX NO


8
7
6
5
D
C
B
A
PRIMARY INSTRUMENT RUNWAY
PLAN
SCAD VENTILATOR
AN/FPN-40
RADOME ENTRANCE
THREE 5" DUCT FOR INTERCONNECTING CABLE
CONTROL TOWER
DUCT OR DIRECT BURIED VIDEO AND CONTROL CABLES
DUCT OR DIRECT BURIED POWER CABLE
PLAN
DUCT DISTRIBUTION SYSTEM
S-70 SHELTER
(SEE NOTE 101)
(SEE NOTE 102
22'
AN/FPN-40
PRIMARY INSTRUMENT RUNWAY
5
6 REF
10"
CONDUIT FROM THE AN/FPN-40 AND THE AC POWER PAD SHOULD PROTRUDE 4" AND THE VIDEO AND CONTROL CONDUIT 8 INCHES ABOVE THE PAD
COMM/CONTROL TERMINAL BOX
6" x 6" DUCT DISTRIBUTION
6 REF
TO AC POWER PAD
DUCT FOR AC POW
DUCT FOR VIDEO AND CONTROL CABLES TO GCA OPERATIONS ROOM
CONTROL TOWER
ELEVATION

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



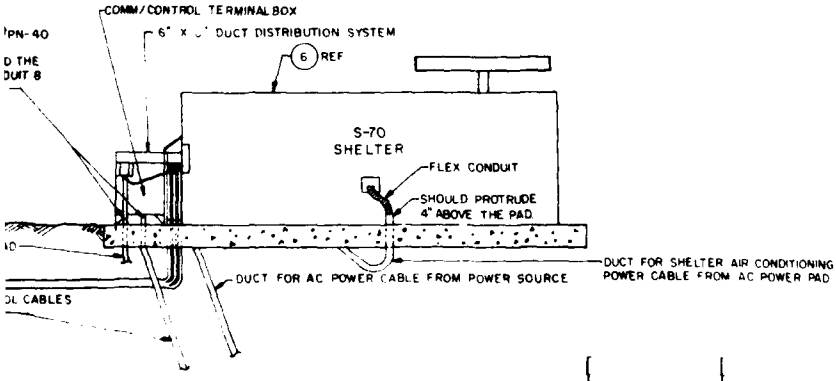
NOTES:

101 CONCRETE PAD FOR S-70 SHELTER POURED IN ACCORDANCE WITH COE SPECIFICATIONS

102 EYE BOLT, 3/4" SIZE (CFCI).

103 THE AN/FSQ-84 RADAR SYSTEM INCLUDES AN/FPN-40 AND S-70 SHELTER WITH COMPONENTS

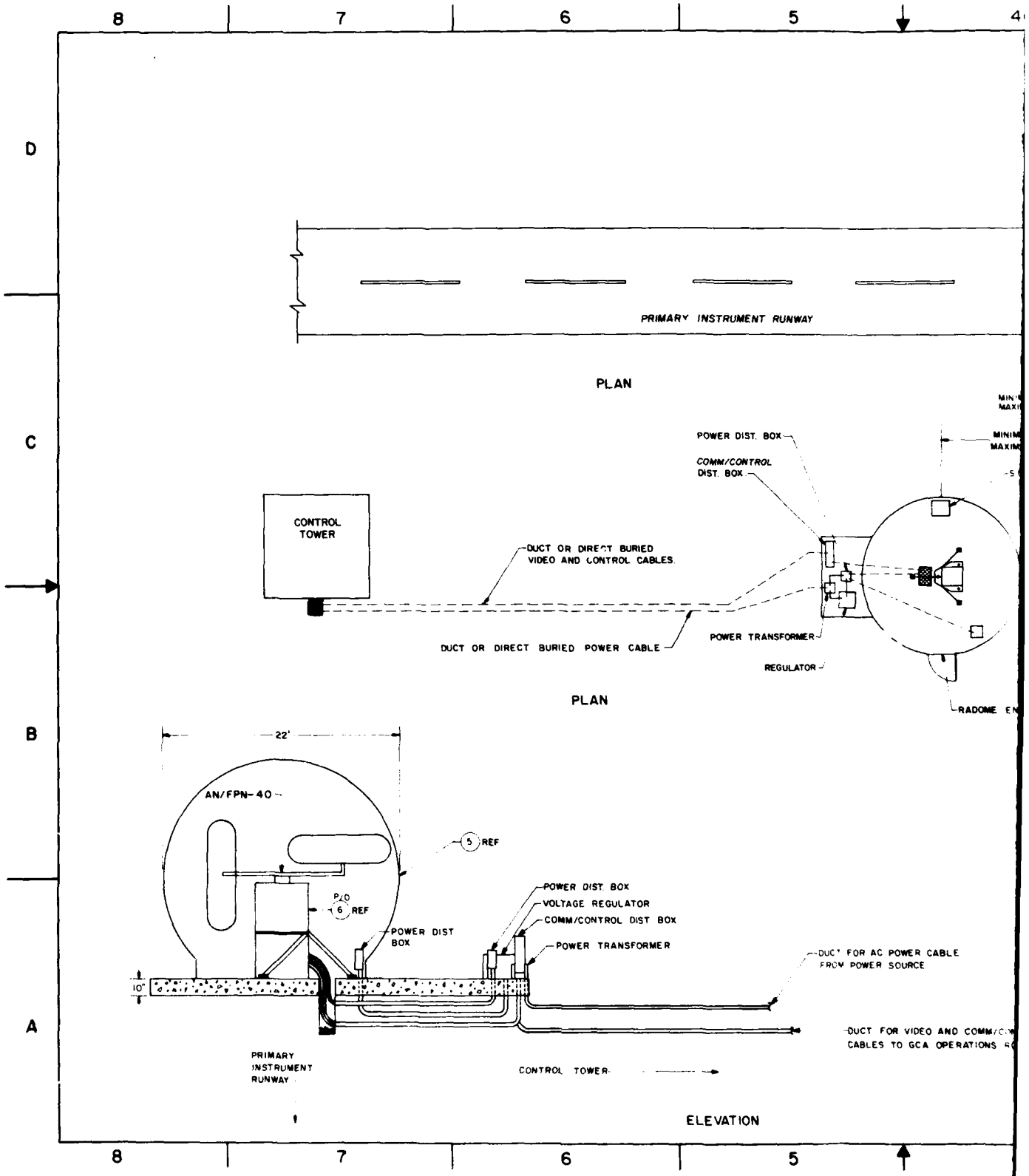
104 IF THE LOCATION OF THE GCA RADAR OR THE RADOME VIOLATES THE AIRFIELD LATERAL CLEARANCE CRITERIA AS SPECIFIED IN TM-5-803-4 A WAIVER IS REQUIRED



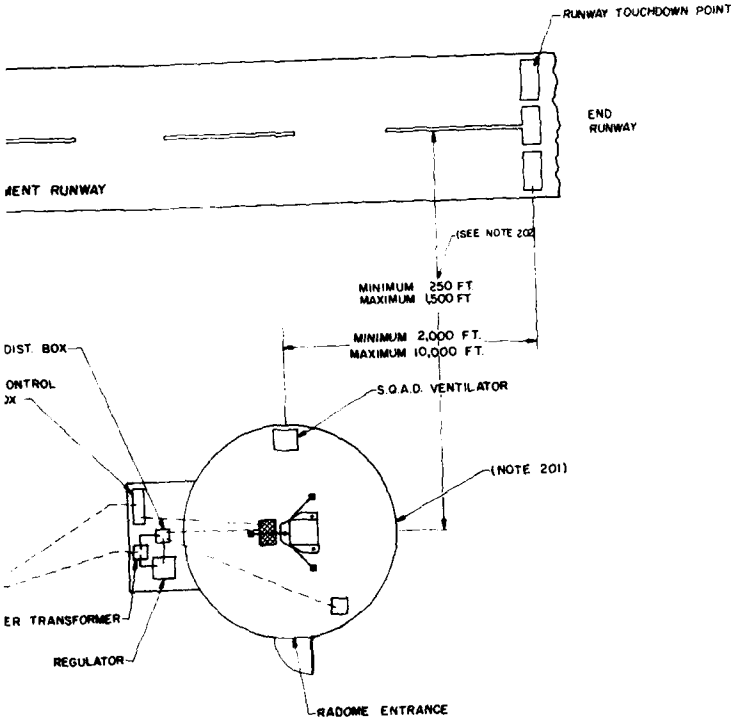
9	28297	VOLTAGE REGULATOR, 115 VAC, 50-60 HZ, 13.0 KVA, STABILINE EMT-4112BW	5805-00-J04-4247	EA	1
6	25416F	RADAR SYSTEM, AN/FSQ-84 W/COMPONENTS	5840-00-110-5773	EA	
5	28035M	METAL SPACE FRAME, RADOME ESSCO PL954-2	5895-00-J04-4085	EA	
ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

STD-AF-0503	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
DRAWN M DICKENS 10 OCT 80	TYPICAL GCA RADAR RECEIVER-TRANSMITTER SITE
CHECKED R REED 2 OCT 80	
APPROVED C BROWN 14 NOV 80	
NEXT ASSEMBLY	SIZE D
DWG INDEX NO	SCALE NONE


8
7
6
5
D
C
B
A
PRIMARY INSTRUMENT RUNWAY
PLAN
POWER DIST. BOX
COMM/CONTROL DIST. BOX
CONTROL TOWER
DUCT OR DIRECT BURIED VIDEO AND CONTROL CABLES
DUCT OR DIRECT BURIED POWER CABLE
POWER TRANSFORMER
REGULATOR
PLAN
22'
AN/FPN-40
5 REF
P/O 6 REF
POWER DIST BOX
POWER DIST. BOX
VOLTAGE REGULATOR
COMM/CONTROL DIST BOX
POWER TRANSFORMER
10"
DUCT FOR AC POWER CABLE FROM POWER SOURCE
PRIMARY INSTRUMENT RUNWAY
CONTROL TOWER
ELEVATION

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



NOTES:

201 THIS IS AN AN/FPN-40 ONLY INSTALLATION AND DOES NOT INCLUDE THE S-70 SHELTER

202 IF THE LOCATION OF THE GCA RADAR OR THE RADOME VIOLATES THE AIRFIELD LATERAL CLEARANCE CRITERIA AS SPECIFIED IN TM-5-803-4 A WAIVER IS REQUIRED

DUCT FOR AC POWER CABLE FROM POWER SOURCE

DUCT FOR VIDEO AND COMM/CONTROL CABLES TO GCA OPERATIONS ROOM

STD-AF-0503	SIZE D	FSCM NO	DRAWING NO
SHEET 2 OF 2	SCALE		SHEET OF
DRAWN BY	DATE		
APPROVED BY			

TION

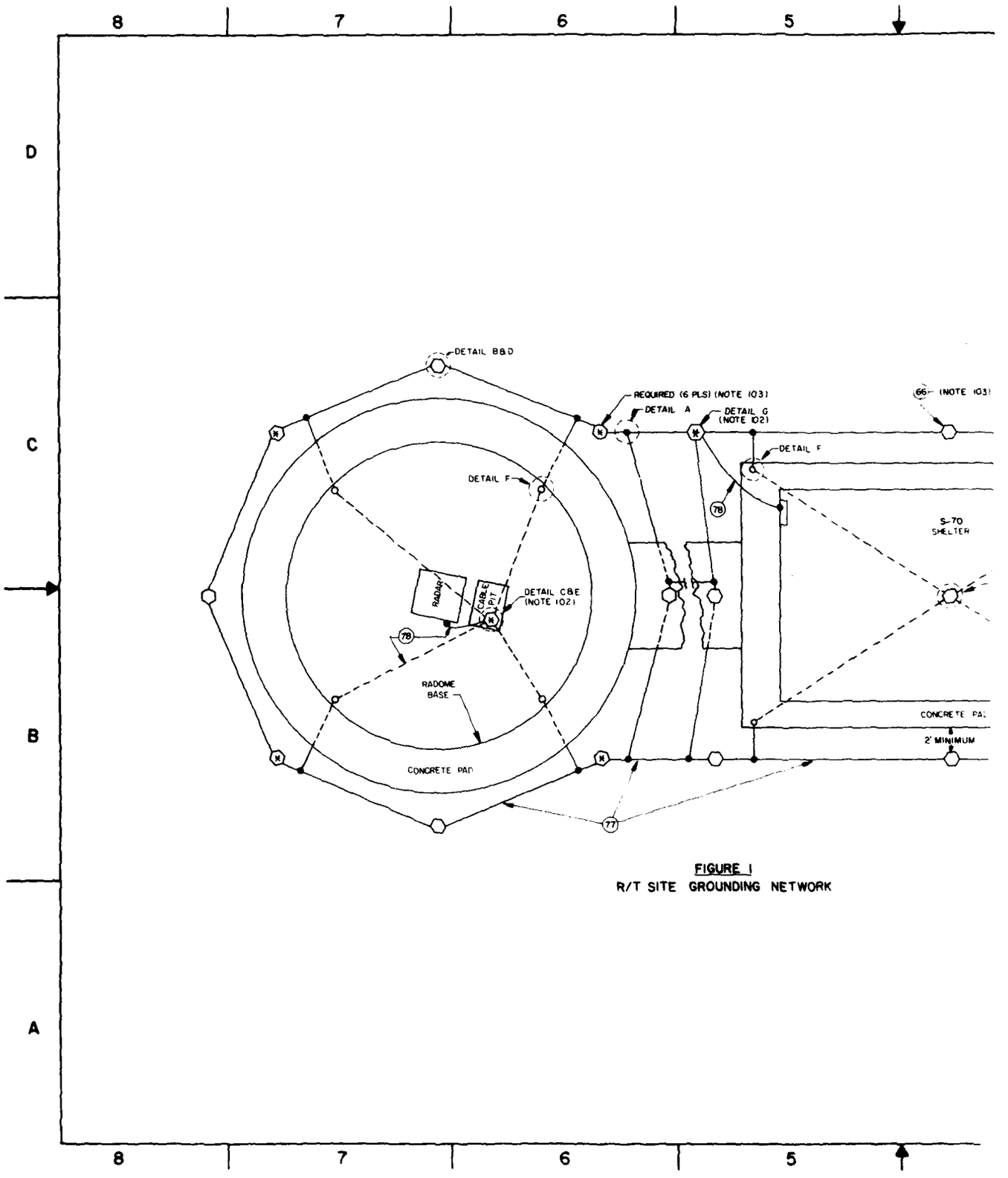


FIGURE 1
R/T SITE GROUNDING NETWORK

5	4	3	2	1

REVISION				
		DESCRIPTION	DATE	APPROVED

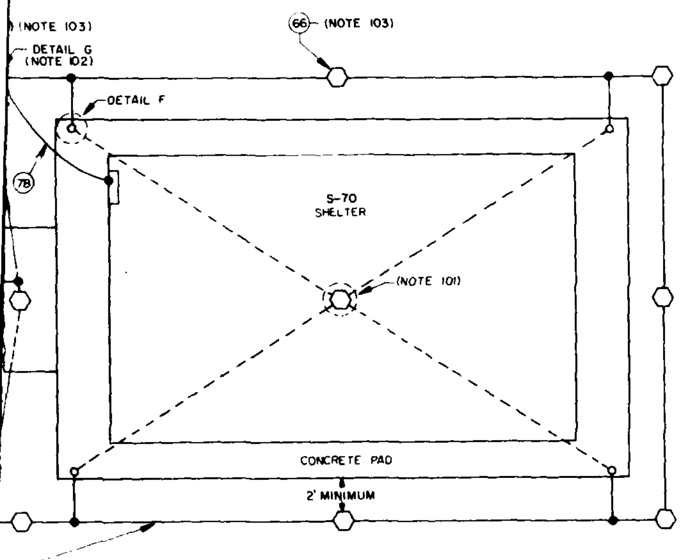


FIGURE 1
GROUNDING NETWORK

LEGEND:

- INDICATES GROUND WIRE CADWELDED TO GROUND WIRE
- INDICATES GROUND WIRE CADWELDED TO GROUNDING ROD
- INDICATES GROUND WIRE CADWELDED TO RE-BAR

NOTES:

101. THIS WELD IS THE SAME AS THE ONE ILLUSTRATED IN DETAILS C&E MINUS THE PIT AND RADAR UNIT.
102. THE S-70 SHELTER AND RADAR CABLE PIT GROUNDING RODS ARE TO BE USED TO CONNECT EQUIPMENT GROUND AND AS SITE GROUND TEST POINTS
103. THE NUMBER OF GROUNDING RODS WILL VARY FROM SITE TO SITE BECAUSE OF SOIL COMPOSITION THE NUMBER OF GROUNDING RODS WILL BE DETERMINED BY THE PROJECT ENGINEER TO OBTAIN 10 OHMS OR LESS AT SITE GROUND POINT. A MINIMUM OF SIX GROUNDING RODS ARE REQUIRED. FOUR FOR THE RADOME, ONE FOR THE RADAR AND ONE FOR THE IFF

FIND NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
85	28555J	MOLD, CADWELD TYPE TAC-2C2C	5975-00-J04-4464	EA	
84	28556Z	MOLD, CADWELD TYPE RCE-522C	5975-00-J04-4465	EA	
83	28557A	MOLD, CADWELD TYPE GYE-182C	5975-00-J04-4466	EA	
82	26266K	MOLD, CADWELD TYPE GTC-182C	5975-00-J04-2114	EA	
81	19513J	HANDLE, CLAMP, CADWELD TYPE L-160	5120-00-946-7411	EA	
79	28558B	BOX, TOOL, CADWELD # T-315	5180-00-J04-4467	EA	
78	21822W	WIRE, ELEC, TW, STRAN, 2AWG, YEL	9999-99-J90-1320	FT	AR
77	03597Z	WIRE, STRD, UNINSULATED, 1/0AWG, COPPER COND	6145-00-299-4453	FT	AR
74	19517C	WELD METAL, CADWELD NO 115 (BX OF 10)	3439-00-819-4000	BX	2
73	19566L	WELD METAL, CADWELD NO 90 (BX OF 10)	3439-00-819-4005	BX	
66	21508D	ROD, GROUNDING, 3/4 IN X 10 FT, COPPER CLAD	5975-00-878-4868	EA	AR

PARTS LIST

STD-AF-0504

SHEET 1 OF 2

U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

TYPICAL R/T SITE GROUNDING NETWORK

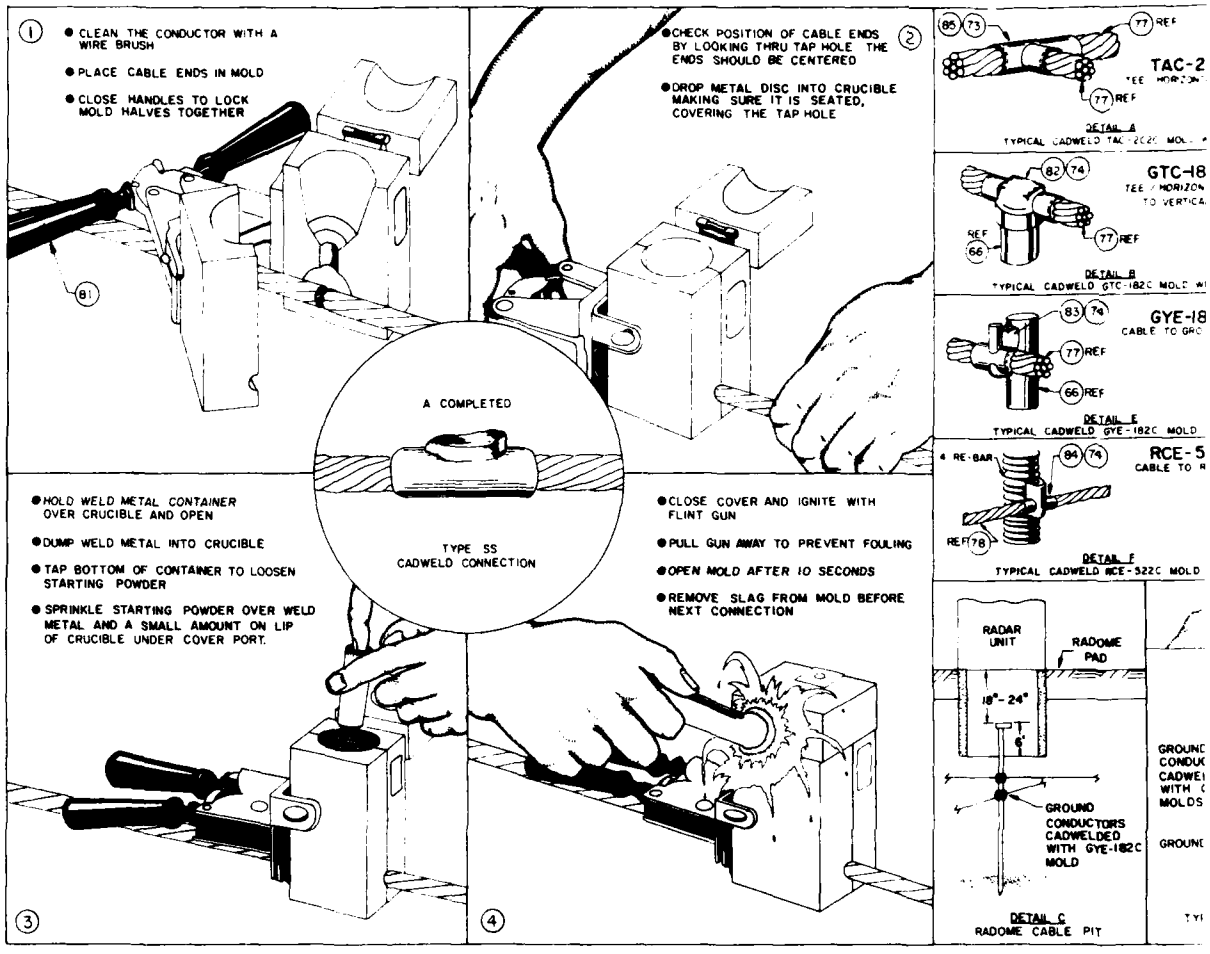
DESIGNED BY M DICKENS	9 DEC 80
DRAWN BY J WRIGHT	9 DEC 80
CHECKED BY C BROWN	9 DEC 80

SIZE D

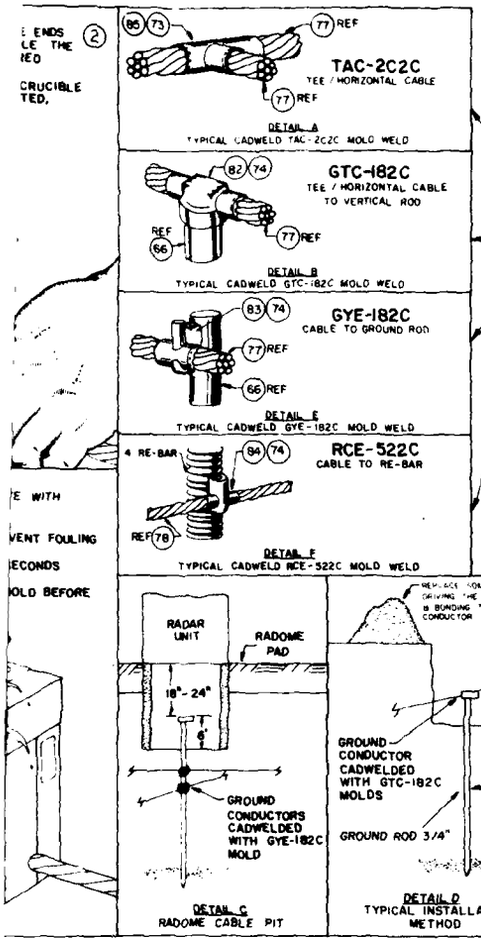
NEXT ASSEMBLY

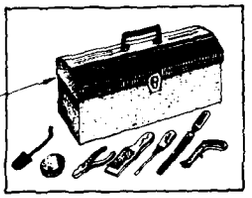
DWG INDEX NO

5	4	3	2	1


1
● CLEAN THE CONDUCTOR WITH A WIRE BRUSH
● PLACE CABLE ENDS IN MOLD
● CLOSE HANDLES TO LOCK MOLD HALVES TOGETHER
81
2
●CHECK POSITION OF CABLE ENDS BY LOOKING THRU TAP HOLE THE ENDS SHOULD BE CENTERED
●DROP METAL DISC INTO CRUCIBLE MAKING SURE IT IS SEATED, COVERING THE TAP HOLE
A COMPLETED
TYPE SS
CADWELD CONNECTION
3
●HOLD WELD METAL CONTAINER OVER CRUCIBLE AND OPEN
●DUMP WELD METAL INTO CRUCIBLE
● TAP BOTTOM OF CONTAINER TO LOOSEN STARTING POWDER
● SPRINKLE STARTING POWDER OVER WELD METAL AND A SMALL AMOUNT ON LIP OF CRUCIBLE UNDER COVER PORT.
4
●CLOSE COVER AND IGNITE WITH FLINT GUN
●PULL GUN AWAY TO PREVENT FOULING
●OPEN MOLD AFTER 10 SECONDS
●REMOVE SLAG FROM MOLD BEFORE NEXT CONNECTION
85
73
77 REF
TAC-2
77 REF
DETAIL A
82
74
GTC-18
REF
66
77 REF
DETAIL B
83
74
GYE-18
77 REF
66 REF
DETAIL E
TYPICAL CADWELD GYE-182C MOLD
4 RE-BAR
84
74
RCE-5
REF 78
DETAIL F
TYPICAL CADWELD RCE-522C MOLD
RADAR UNIT
RADOME PAD
18"-24"
6"
GROUND CONDUCTORS CADWELDED WITH GYE-182C MOLD
DETAIL C
RADOME CABLE PIT

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED





TOOL KIT TOOL BOX WITH TOOLS CADWELD # T-315, FOR USE WITH ALL TYPES OF CADWELD MOLDS

IDENT NO			
STD-AF-0504			
SHEET 2 OF 2	SIZE D	FSCM NO 50470	DRAWING NO
DRAWN BY J. WRIGHT DATE 5 DEC 80	SCALE NONE	1"	SHEET OF
APPROVED BY C. BROWN			

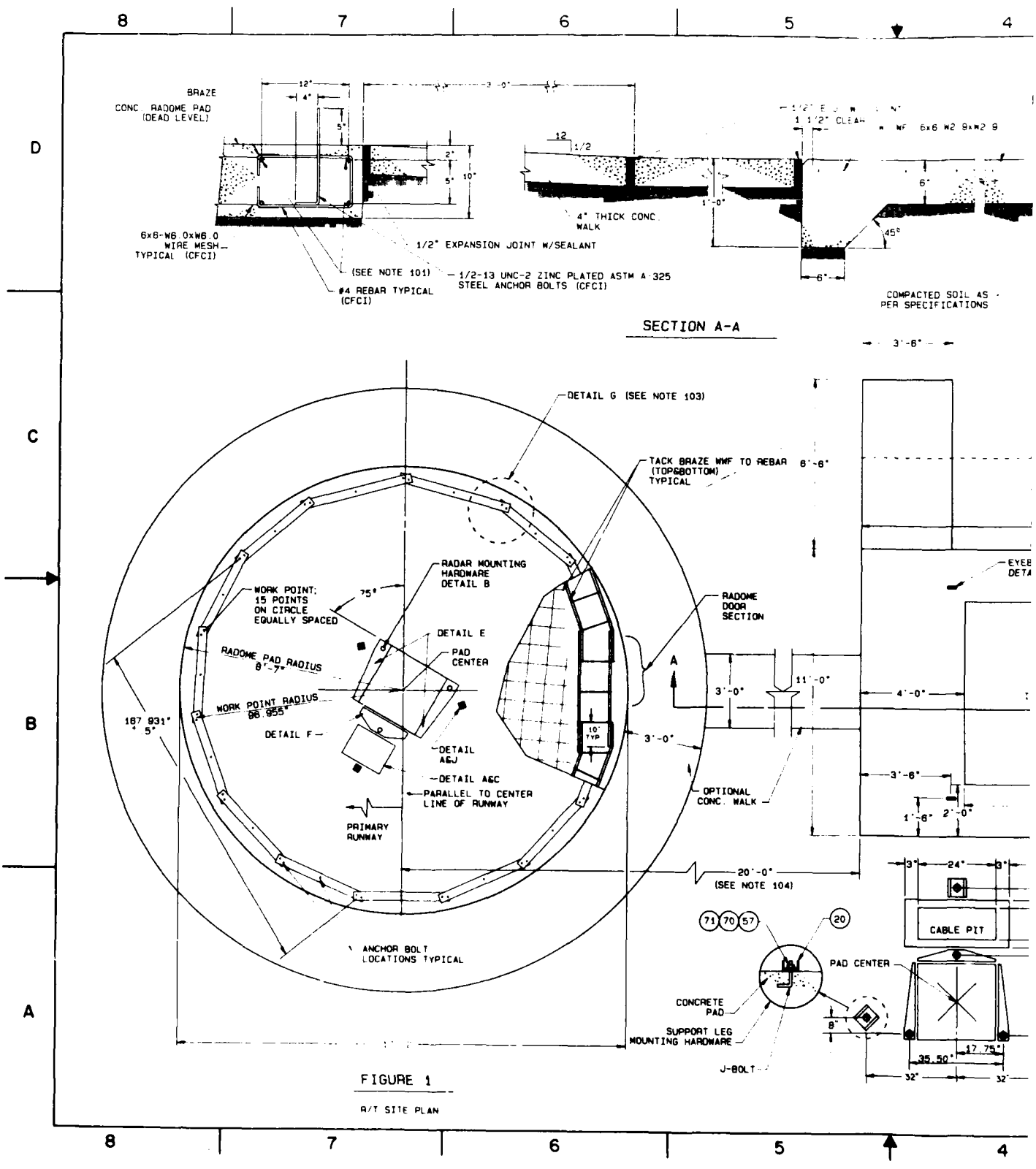
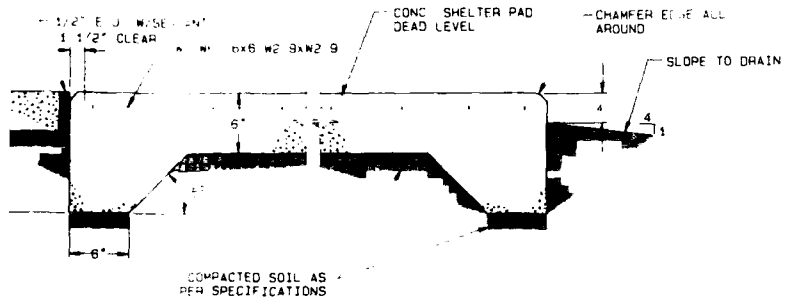
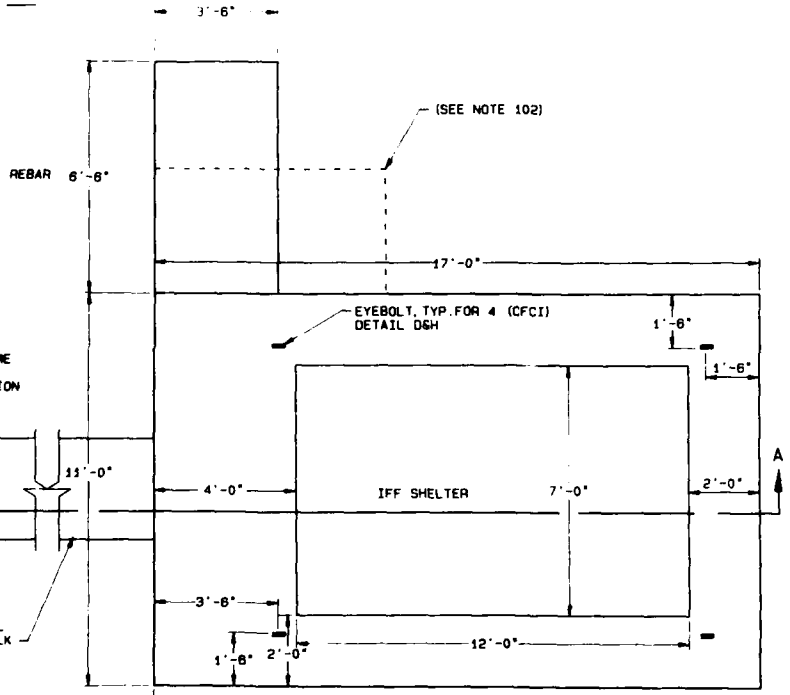


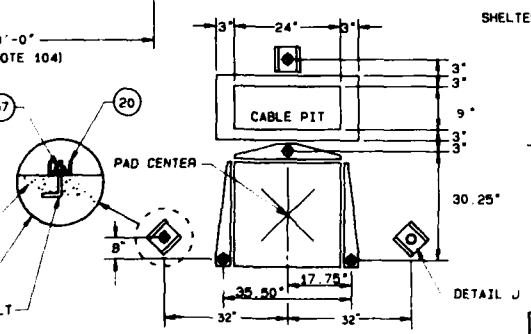
FIGURE 1

R/T SITE PLAN

REVISION			
		DATE	APPROVED
A	REVISED & REDRAWN	13 DEC 82	







DETAIL A

RADAR CABINET AND SUPPORT LEG MOUNTING BRACKETS, &CABLE PIT DIMENSIONS

NOTES:

101. BRAZE THE WIRE MESH, RE-BAR AND J BOLTS TOGETHER USING ASTHAWS METHOD, COMPOSITION BCU. EXOTHERMICALLY WELD THE GROUND WIRES TO THE RE-BAR AND GROUND RODS.

102. THE LOCATION OF THIS PAD IS OPTIONAL AND SHOULD BE LOCATED IN AN AREA ACCESSIBLE TO THE INCOMING POWER

103. THE TEMPLATE FOR POISTIONING THE RADOME ANCHOR BOLTS WILL BE SHIPPED TO EACH SITE AS NEEDED AND WILL BE CONTROLLED BY USACSA, FORT MONMOUTH, N.J.

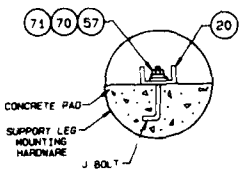
104. THE RADAR/RADOME PAD MAY BE LOCATED UP TO 50 FEET FROM THE IFF PAD BUT IT IS RECOMMENED THAT NO MORE THAN 20 FEET BE USED BECAUSE OF COST AND ACCESSIBLITY BETWEEN THE TWO.

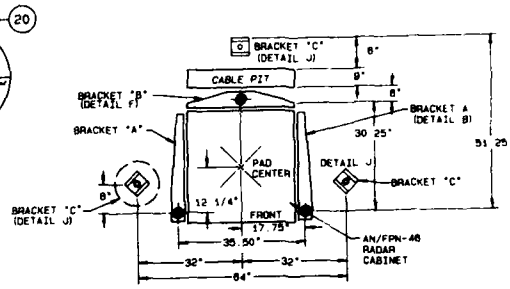
105. ITEMS 18, 19&20 ARE PROVIDED BY USACSA AND WILL BE SHIPPED TO THE LOCAL COMMAND WHEN REQUISTED. SEE SHEET 2 FOR INSTALLATION DETAILS.

ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
76	28088Y	WIRE ROPE ASSEMBLY KIT, MCMASTER-CARR #8828T12	4010-00-J04-4074	EA	1
75	28085P	WIRE ROPE, TYPE 304, MCMASTER-CARR #3461T51	4010-00-J04-4073	FT	25
71	28046Q	WASHER, LOCK, MCMASTER-CARR #91102A040	5310-00-J04-4072	EA	10
70	28063R	WASHER, FLAT MCMASTER-CARR #90108A040	5310-00-J04-4071	LB	4
69	28062X	TURNBUCKEL, HOOKEYE MCMASTER-CARR #2998T56	5340-00-J04-4070	EA	4
57	28061J	NUT, 1 25"10 MCMASTER-CARR #90480A040	5310-00-J04-4069	EA	10
56	18883K	NUT, 1/2"-13 UNC-2	5310-00-616-2793	EA	100
4*	28066K	END FITTING CLEVIS, MCMASTER-CARR #3480T31	5340-00-J04-4068	EA	8
20	28587	BRACKET, C, FOR SUPPORT LEG	5340-00-J04 4473	EA	3
19	28133N	BRACKET, B, FOR RDR CABINET	5340-00-J04-4098	EA	1
18	28132Y	BRACKET, A, FOR RDR CABINET	5340-00-J04-4098	EA	2

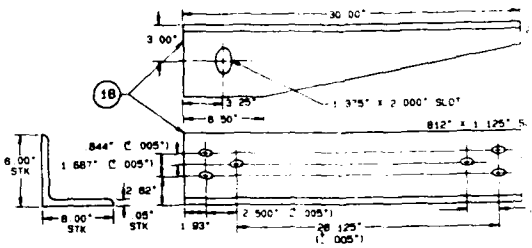
PARTS LIST

STD-AF-0505	US ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
THOMPSON 28DEC'82	TYPICAL RADOME AND IFF SHELTER PAD CONSTRUCTION
A.BURKE 18NOV82	
NEXT ASSEMBLY / USED ON	SIZE D / DRAWING NO
DWG INDEX NO	SCALE NONE / SHEET
CCC-CHQ-VCO	

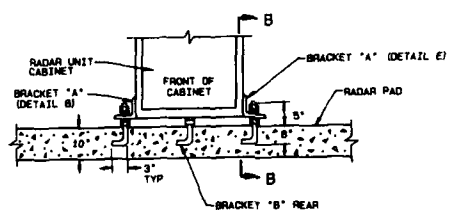




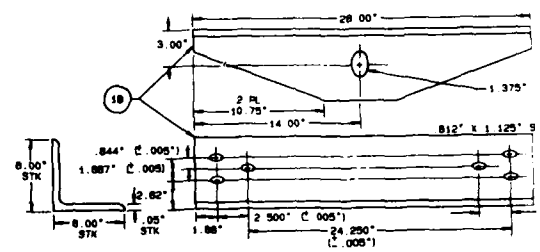
DETAIL A
RADAR CABINET AND SUPPORT LEG
MOUNTING BRACKETS & CABLE TRENCH DIMENSIONS
(NOTE 208)



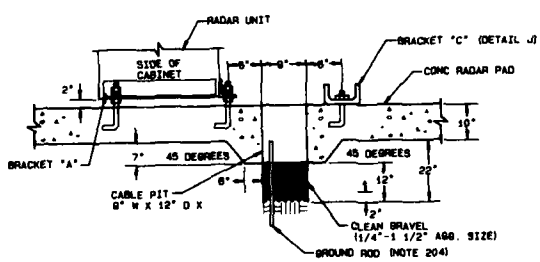
DETAIL E
RADAR UNIT MOUNTING BRACKETS A (2 PL)
(SIDE OF RADAR CABINET)
(NOTE 205)



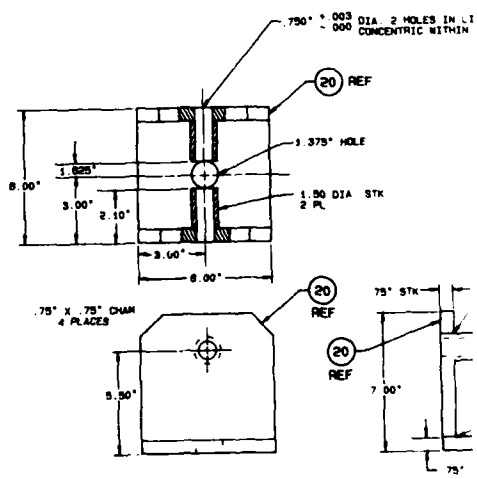
DETAIL B
RADAR MOUNTING HARDWARE



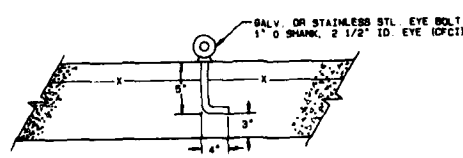
DETAIL F
RADAR UNIT MOUNTING BRACKET B
(REAR OF RADAR CABINET)
(NOTE 205)



DETAIL C
CABLE TRENCH

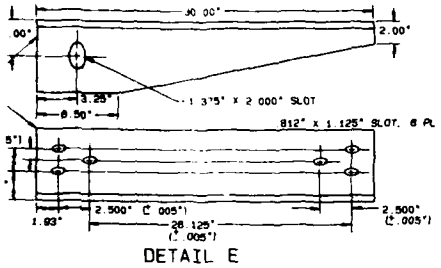


DETAIL J
RADAR UNIT ADJUSTABLE LEG
BRACKETS C (3 PL)
(FOR LEVELING JACKS P/O LEG ASSE

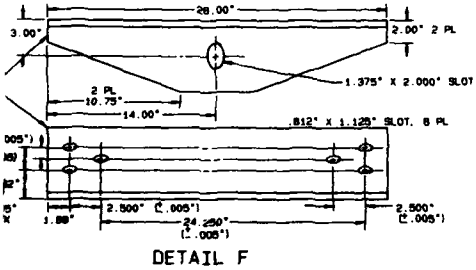


DETAIL D
IFF SHELTER EYE BOLT
(AS REQUIRED)

REVISION			
	DESCRIPTION	DATE	APPROVED
A	REVISED & REDRAWN	13 DEC 02	



DETAIL E
RADAR UNIT MOUNTING BRACKETS A (2 PL)
(SIDE OF RADAR CABINET)
(NOTE 205)



DETAIL F
RADAR UNIT MOUNTING BRACKET B
(REAR OF RADAR CABINET)
(NOTE 205)

NOTES:

201. TIGHTEN LEVELING NUTS ON BOTH SIDES OF ANCHOR BOLT.

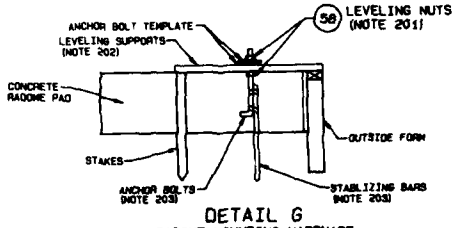
202. SUPPORT TEMPLATE WITH LEVELING SUPPORTS WHICH BRIDGE OUTSIDE FORM & STAKES DRIVEN INTO GROUND.

203. DRIVE STABALIZING BAR INTO GROUND ADJACENT TO EACH ANCHOR BOLT. WIRE WRAP ANCHOR BOLTS TO STABALIZING BARS SO THAT ANCHOR BOLTS ARE HELD IN A VERTICAL POSITION.

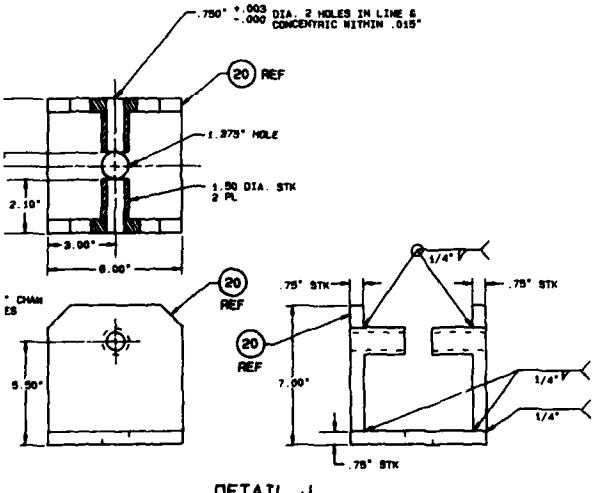
204. THE GROUND ROD SHOULD PROTRUDE 8 INCHES ABOVE THE GRAVEL IN THE PIT TO FACILITATE GROUND WIRE (S) CONNECTION (S).

205. BRACKETS A&B ATTACH TO EXISTING HOLES IN RADAR CABINET AVAILABLE AFTER PRESENT SUPPORT LEGS (3EA) ARE REMOVED.

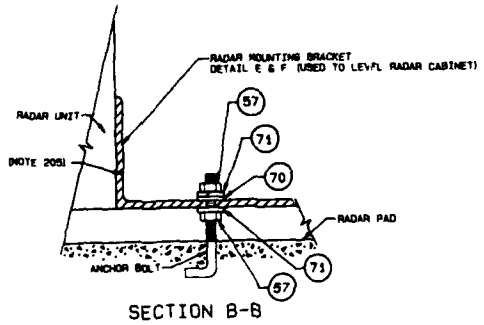
206. BRACKETS C ARE USED AS CONNECTION POINTS FOR THE LEG LEVELING JACKS (3EA) JACKS ARE NORMALLY ATTACHED TO THE CABINET LEGS, LEGS WILL BE REMOVED AND THE LEG END OF EACH JACK WILL BE ATTACHED TO THE "C" BRACKETS POSITIONED AS SHOWN. OTHER ENDS OF LEVELING JACKS ARE PERMENTLY ATTACHED TO THE RADAR CABINET.



DETAIL G
RADOME MOUNTING HARDWARE



DETAIL J
RADAR UNIT ADJUSTABLE LEG
BRACKETS C (3 PL)
(FOR LEVELING JACKS P/O LEG ASSEMBLY)

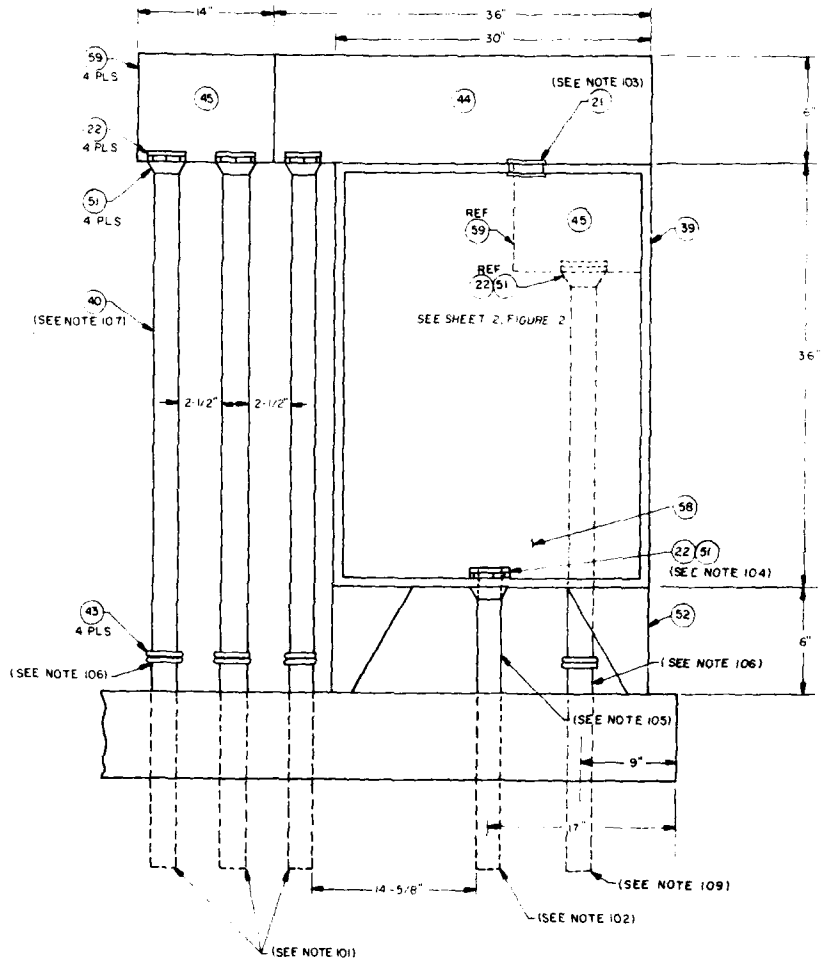


SECTION B-B

IDENT NO STD-AF-0505				
SHEET 2 OF 2		SIZE D	FSCM NO 50470	DRAWING NO
DRAWN BY A. OROZCO	DATE 13NOV02			
APPROVED		SCALE NONE		SHEET OF

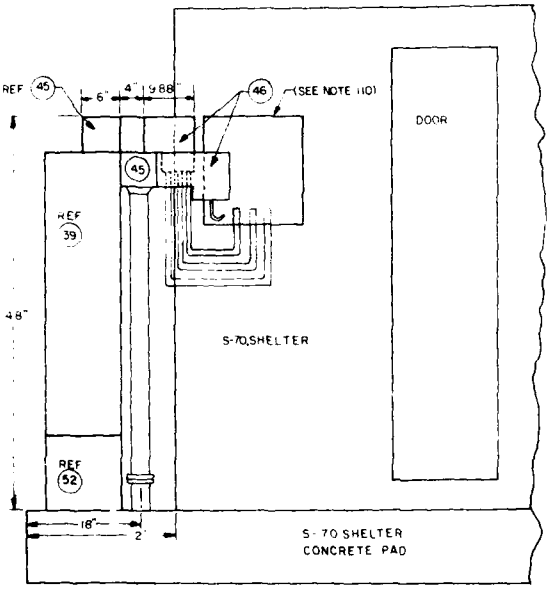
D C B A

5 4 3 2 1

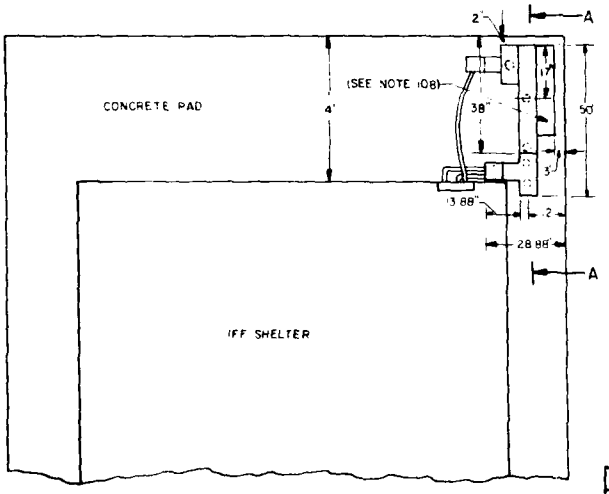

14"
36"
30"
59
4 PLS
45
44
(SEE NOTE 103)
21
22
4 PLS
51
4 PLS
REF
59
45
39
REF
22 51
40
(SEE NOTE 107)
SEE SHEET 2, FIGURE 2
36"
2-1/2"
2-1/2"
58
22 51
(SEE NOTE 104)
43
4 PLS
52
6"
(SEE NOTE 106)
(SEE NOTE 106)
(SEE NOTE 105)
9"
7"
(SEE NOTE 109)
14-5/8"
(SEE NOTE 102)
(SEE NOTE 101)

VIEW A-A

REVISION				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



(SIDE VIEW)



(TOP VIEW)

FIGURE 1
DUCT DISTRIBUTION SYSTEM

NOTES

01 THIS CONDUIT CONTAINS THE INTERCONNECTING CABLES FOR THE AN/FPN-40 RADAR AND THE S-70 SHELTER

02 THE VIDEO AND COMMUNICATIONS CONTROL CABLES MAY BE PLACED IN CONDUIT OR DIRECT BURIED TO THE CONTROL TOWER

03 THIS OPENING SHOULD BE MADE AT THE MOST ADVANTAGEOUS LOCATION TO FACILITATE INSTALLATION OF THE CABLES THE OPENING WILL BE 3 INCHES AND BOM ITEM INDICATED WILL BE USED

04 THIS OPENING SHOULD BE CENTERED IN THE BOTTOM OF THE CABINET

05 CONDUIT SHOULD PROTRUDE 8 INCHES FROM THE PAD SURFACE AND BE THREADED 3 INCHES FROM THE TOP

06 THIS CONDUIT SHOULD PROTRUDE 4 INCHES FROM THE PAD SURFACE, 2-1/2 INCHES APART, AND THREADED 2 INCHES FROM THE TOP

07 THESE 3 PIECES MUST BE CUT 38 INCHES LONG AND THREADED ON BOTH ENDS APPROXIMATELY 2 INCHES FROM EACH END

08 THE TERMINAL BOX DOOR OPENS ON THIS SIDE AS SHOWN BY SHEET 2, FIGURE 2

09 THIS CONDUIT CONTAINS THE POWER CABLE FOR THE S-70 SHELTER

10 THIS CABLE ENTRY PANEL IS ILLUSTRATED ON STD AF-0515, SHEET 2

86	c1406A	TOOL, TERMINAL CRIMPING	5120-00-798-1937	EA	1
85	13704W	TOOL, QUICK CONNECT	5120-00930-4907	EA	1
72	06339K	WASHER, SEALING, D-200, F/O/W SPLICE CASES (PKG OF 4)	5330-00-930-4036	PKG	2
68	07651N	TAPE, BINDING, PLASTIC, NON-ADHESIVE, 4 IN W	5970-00-204-0550	EA	3
67	12510C	SCREW, TAPPING, TYPE A, F/O/W CABLE CLAMPS	5305-00-883-0627	HD	1
65	13533C	PROTECTOR, SPLICE, CABLE, WECO PN#50A	5975-00-102-0974	EA	2
63	23856Z	PLUG, CONNECTOR, N-79PE, MALE, F/O/W LDF475 CABLE	5935-00-204-0997	EA	1
61	28093K	PLUG, AMPHENOL, PN#34750, F/O/W RG-59	5975-00-204-4087	EA	1
60	13396K	PLUG, AMPHENOL, PN#57-10500-7	5935-00-917-0405	EA	1
59	28155N	PLATE, CLOSING, SQ. D, PN#LC-6CP	5975-00-204-4119	EA	4
58	26508W	PANEL, BACKBOARD, WEMA 12, PN#A36P30	5975-00-204-2738	EA	1
54	07944B	KIT, SEALING, B, F/O/W SPLICE CASES	5330-00-933-9116	KT	2
53	19387Y	KIT, GROUNDING, COOK PN#376-0426	5975-00-204-2301	KT	1
52	28130Q	KIT, FLOOR STAND, HOFFMAN PN#A-FK0612	5975-00-204-4096	KT	1
51	28167Z	HUB, CROUSE-HINDS PN#HUB-8	5975-00-204-4124	EA	5
50	18241Q	HOUSING SECTION, CABLE TERM, COOK#CH-102	5975-00-204-4093	EA	1
49	07687M	GROMMET, RUBBER, ROUND	5325-00-248-7031	EA	1
48	19842K	END SECTION, CABLE TERM, BUR, COOK#CH-102	5975-00-204-0242	EA	2
46	28134Y	DUCT, 90 DEG, SQ. D, PN#LC-D90-LG	5975-00-204-4118	EA	2
45	28153P	DUCT, TEE, 14 IN X 6 IN, SQ. D, PN#LC-6TU	5975-00-204-4117	EA	2
44	23266E	DUCT, 6 IN X 6 IN X 36 IN, SQ. D, PN#LC-63	5975-00-204-4116	EA	1
43	28137J	COUPLINGS, SPLIT, OZ/GEDNEY PN#SSP30C	5340-00-204-4102	EA	4
42	27186Y	CONNECTOR, WIRE, 19-26AWG, (PKG OF 500)	5935-00-204-3363	PKG	1
40	02517W	CONDUIT, METAL, RIGID, 3 IN, STEEL, 10' LG.	5975-00-264-5973	LG	2
39	28129B	CLOSURE, CABLE, HOFFMAN PN#A36D12CP	5975-00-204-4095	EA	1
38	09151K	CLAMP, LOOP, F/O/W LDF4-75 HELIAX	5340-00-200-8559	EA	4
37	24959A	CLAMP, LOOP, F/O/W RG-59	5340-00-490-0778	EA	4
36	08719G	CLAMP, CABLE, F/O/W ALBW-50 TELE. CABLE	5340-00-807-1065	EA	6
34	15649G	CASE, SPLICE, CLOSURE, RELIABLE PN#2187	5805-00-999-6228	EA	1
32	05671N	CASE, SPLICE, CLOSURE, RELIABLE PN#2087	5805-00-992-0238	EA	2
31	28563M	CABLE, 26 PR, STR, WM-130/G TYPE	6145-00-277-8480	FT	AR
30	27123L	CABLE, TELE, 50 PR, 19 AWG, PN#ALBW-50	6145-00-204-3340	FT	AR
29	27670J	CABLE, TELE, 50 PR, 22 AWG	6145-00-204-1029	FT	AR
28	25216D	CABLE, TELE, 25 PR, 24 AWG	6145-00-204-5594	FT	AR
25	28146L	CABLE, HELIAX, 75 OHM, ANDREW, PN#LDF4-75	6145-00-204-4106	FT	AR
24	03739Z	CABLE, COAX, 75 OHM, RG-59	6145-00-061-0191	FT	AR
23	28566J	CABLE ASSEMBLY, 26 PR, STRANDED, 12' LG.	5995-00-204-4472	EA	1
22	28135L	BUSHING, INSULATING, OZ/GEDNEY #A-300	5975-00-204-4100	EA	4
21	28136K	BUSHING, INSULATING, OZ/GEDNEY #A8B-300	5975-00-204-4101	EA	3
17	21462B	BRACKET, 8PR, F/O/W HEAVY TERM. BLOCK	5905-00-274-3275	EA	2
16	22291Y	BRACKET, MOUNTING, 51B, F/O/W SPLICE CASE	5340-00-204-4105	EA	2
15	28128A	BOX, PULL, HOFFMAN PN#NA-SE 6X4X4	5975-00-204-4094	EA	1
13	19847L	BLOCK, CONNECTOR, 50 PR, PROT. PN#:3AA1A-50	5905-00-204-5592	EA	1
11	20260K	BLOCK, CONNECTOR, 50 PR, QUICK CONNECT #66M1-50	5940-00-204-5676	EA	4
11	28127J	BACKBOARD, DOOR PN#CA-92E	5975-00-204-4097	EA	1
10	28078M	ADAPTER, BULKHEAD, AMPHENOL #82-66	5935-00-755-3052	EA	1

ITEM NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

STD-AF-0506	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
M DICKENS 25NOV80	TYPICAL R/T SITE DUCT DISTRIBUTION SYSTEM AND CONTROL TOWER TERMINAL BOX
R AMERAULT 25NOV80	
C BROWN 25NOV80	
NEXT ASSEMBLY	DWG INDEX NO
SIZE D	CAGE NO NONE
SCALE NONE	SHEET

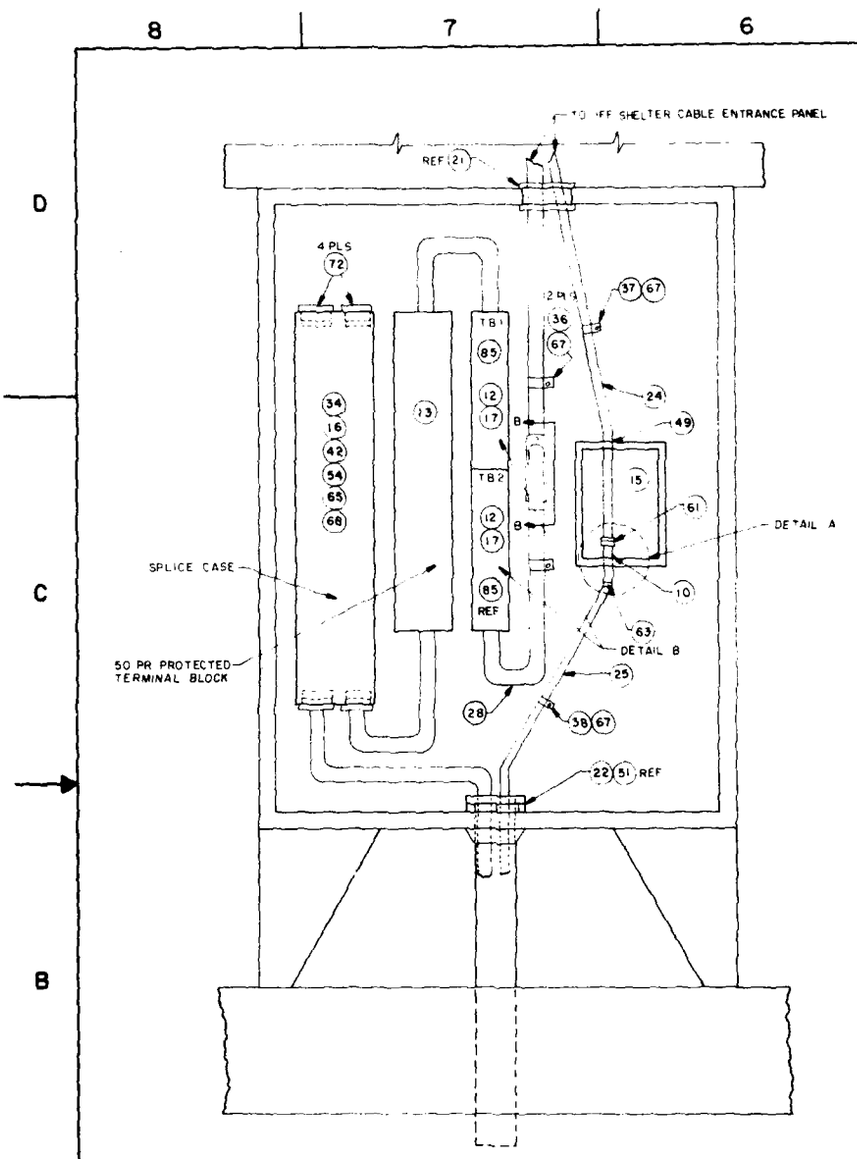
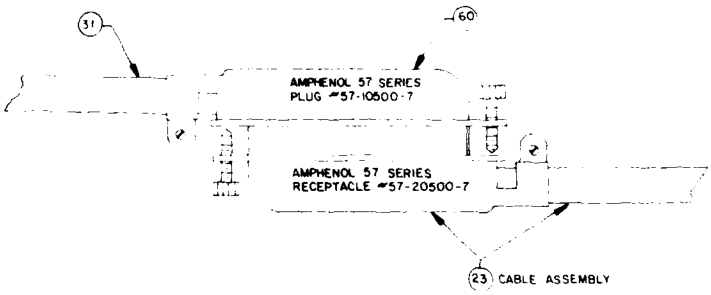
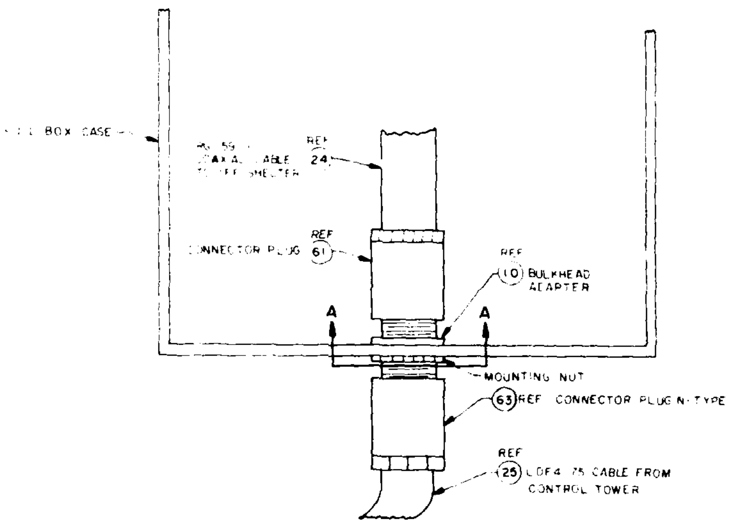


FIGURE 2

DUCT DISTRIBUTION SYSTEM TERMINAL BOX

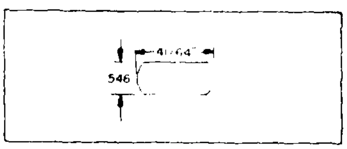


SECTION B-B



DETAIL A

PULL BOX



SECTION A-A

SLOT FOR BULKHEAD ADAPTOR

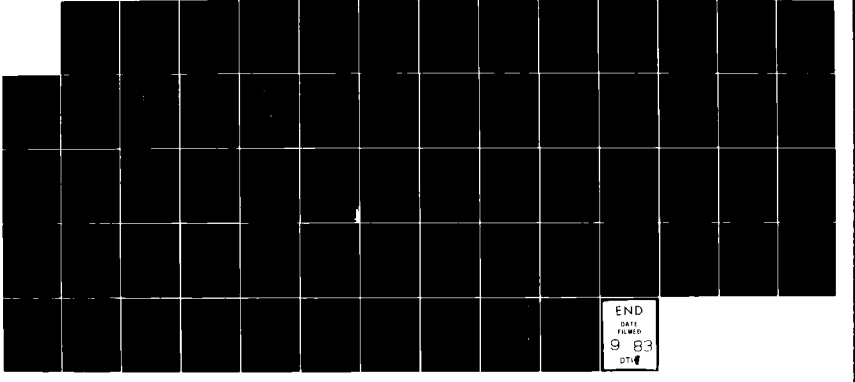
STD-AF-0506

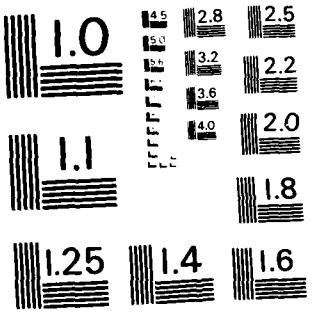
D

AD-A130 726 STANDARD ENGINEERING INSTALLATION PACKAGE GROUND CONTROL APPROACH RADAR S..(U) ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGEN .. 17 JAN 83 USACEEIA-SEIP-011 F/G 17/9 NL

UNCLASSIFIED

2/2





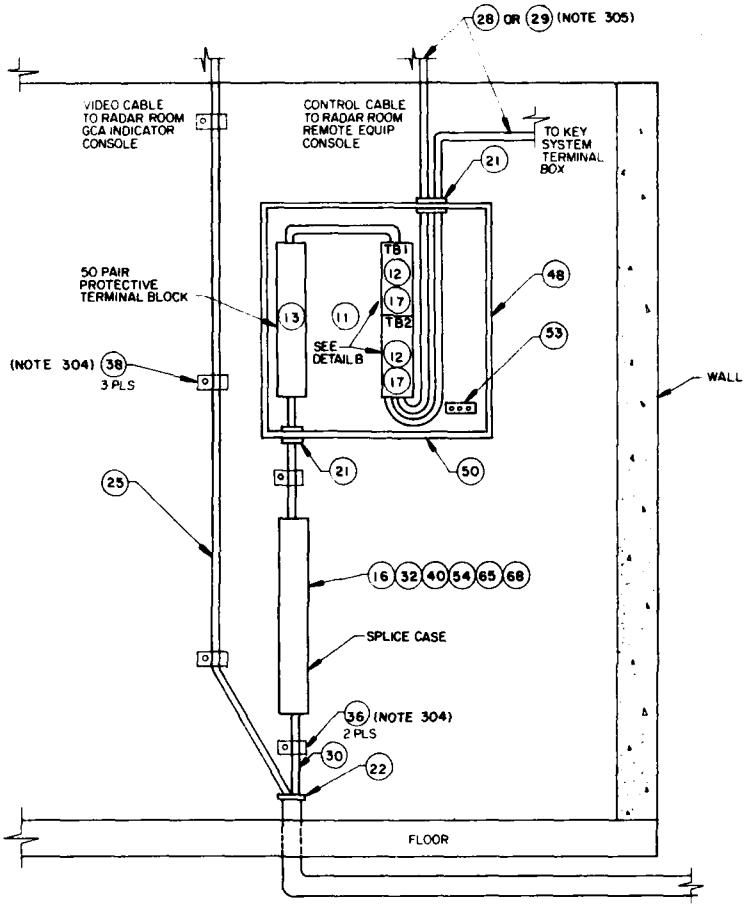
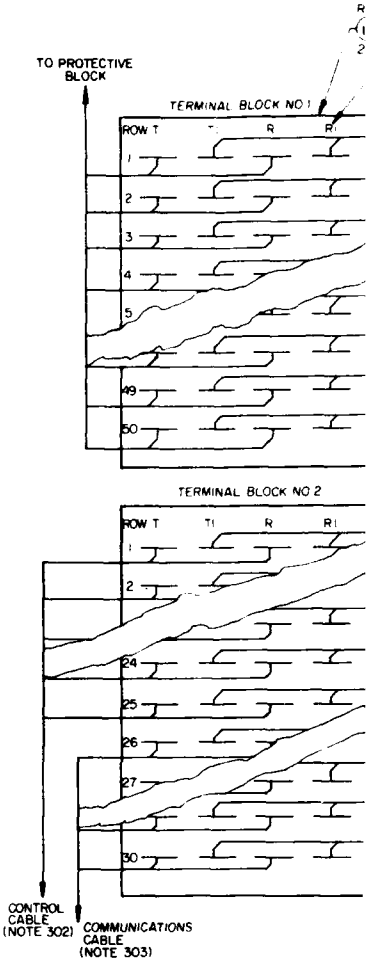
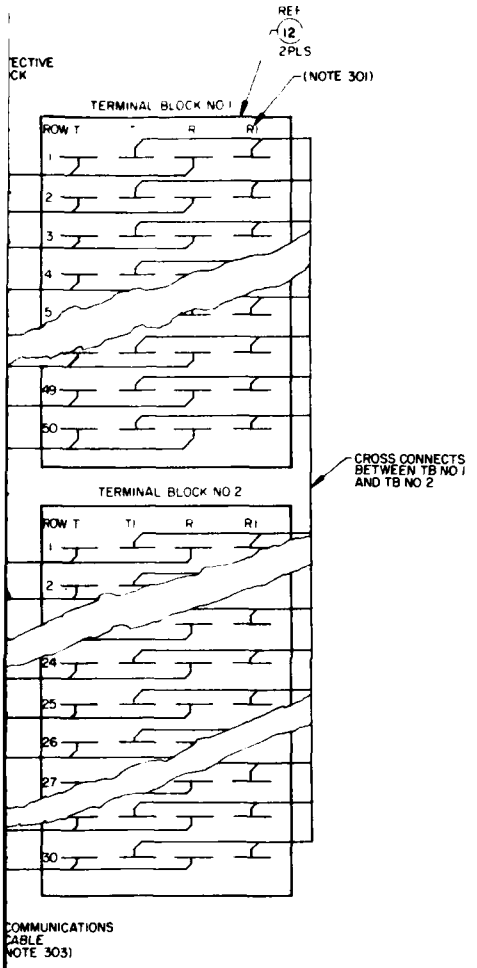


FIGURE 3
COMMUNICATIONS/CONTROL TERMINAL BOX
CONTROL TOWER GROUND FLOOR



DETAIL B
COMM/CONTROL TERMINAL

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



TYPICAL CROSS CONNECT CHART

FROM			TO		
TB NO.	ROW NO	TERM	TB NO	ROW NO	TERM
1	1	TI	2	1	TI
1	1	RI	2	1	RI
1	2	RI	2	2	RI
1	2	RI	2	2	RI
1	50	TI	2	50	TI
1	50	RI	2	50	RI

NOTES:

301 "T" AND "R" TERMINALS REPRESENT INCOMING OR OUTGOING CABLE PAIRS AND "TI" AND "RI" ARE CROSS CONNECT TERMINALS

302 THE CONTROL CABLE CONNECTION, AT THE R/T SITE, IS DEFINED IN THE "RADAR CABLE RUNNING LIST," SECTION 3, TABLE 3-1 OF THIS SEIP. THE CONTROL CABLE CONNECTION, FROM THE CONTROL TOWER GROUND FLOOR TO THE RADAR ROOM IS DEFINED IN SEIP 010, US ARMY AIRFIELD/HELIPORT AIR/GROUND COMMUNICATIONS

303 TB NO 2, PAIRS 26 THRU 50, ARE TO BE USED FOR VOICE COMMUNICATIONS AND SPARE PAIRS FOR THE CONTROL CABLE

304 THE CLAMP MOUNTING HARDWARE WILL VARY ACCORDING TO BUILDING CONSTRUCTION AND WILL BE DETERMINED BY THE PROJECT ENGINEER.

305 THE CABLE TO THE GCA OPERATIONS ROOM MAY BE 25 PR OR 50 PR DEPENDING ON THE LOCATION DESIRED FOR THE TERMINATION OF THE COMMUNICATIONS FROM THE R/T SITE.

DETAIL B

COMM/CONTROL TERMINAL BLOCK

IDENT NO			
STD-AF-0506			
SHEET 3 OF 3	SIZE D	FSCM NO	DRAWING NO
DRAWN BY JOHN A BODIE DATE 28 NOV 80	SCALE NONE	1"	SHEET OF
APPROVED BY			

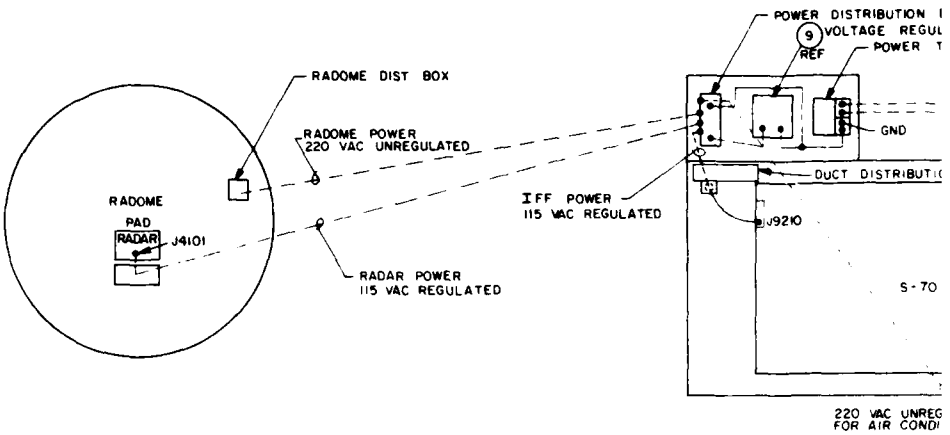
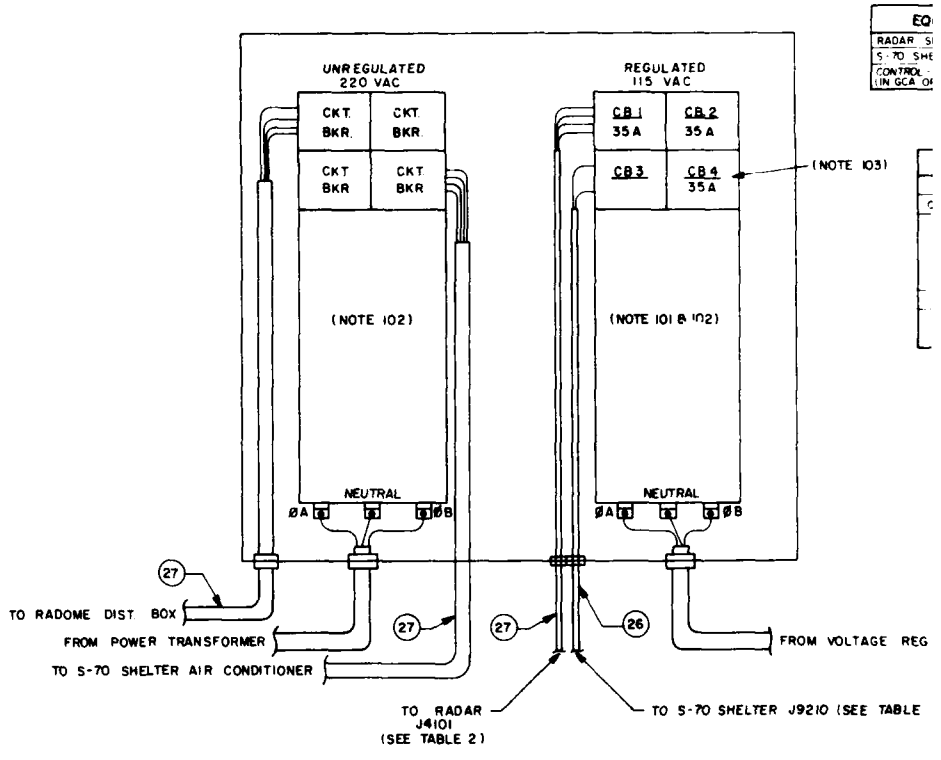


FIGURE 1

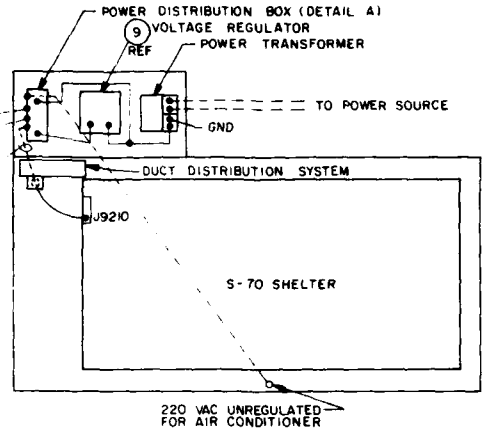
R/T SITE POWER DISTRIBUTION (NOTE 102)



DETAIL A

POWER DISTRIBUTION BOX

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



NOTE:

101 REGULATED AC POWER IS FOR IFF AND RADAR TECHNICAL POWER ONLY

102 THE LOCATION, SIZE, AND TYPE OF POWER EQUIPMENT, SITE REQUIREMENTS, AND THE INSTALLATION OF THE EQUIPMENT WILL VARY FROM SITE TO SITE AND WILL BE DETERMINED BY THE CONTRACTOR AND/OR FACILITY ENGINEER USING TABLE 1 OF THIS DRAWING, WHICH INDICATES AN/FSQ-84 EQUIPMENT POWER REQUIREMENTS.

103 THE POWER CABLE FOR THE S-70 SHELTER SHOULD BE CONNECTED TO ØB AND NEUTRAL BECAUSE THE RADAR ANTENNA EQUIPMENT IS CONNECTED TO ØA AND IS SUBJECT TO POWER FLUCTUATIONS WHEN THE RADAR GOES FROM THE "SEARCH" MODE TO THE "PRECISION" MODE OF OPERATION. THIS POWER FLUCTUATION WOULD ADVERSLY EFFECT THE S-70 SHELTER EQUIPMENT OPERATION.

104 THE CONNECTORS FOR THE OTHER END OF THESE CABLES ARE LISTED ON DRAWING STD-AF-0515, SHEETS 2 AND 3

ION (NOTE 102)

ULATED
VAC

CB 2
35 A

CB 4
35 A

(NOTE 103)

101 & 102)

EUTRAL

ØB

FROM VOLTAGE REGULATOR

TO S-70 SHELTER J9210 (SEE TABLE 2)

TABLE 1

AN/FSQ-84 MAJOR ITEMS
AC POWER REQUIREMENTS

EQUIPMENT	POWER REQUIREMENTS	
RADAR SET AN/FPN-40	105 TO 129 VAC - 48 TO 62 HZ	5 KW TOTAL
S-70 SHELTER	105 TO 129 VAC - 48 TO 62 HZ	
CONTROL-IND GP OA-2664 (IN GCA OPERATIONS ROOM)	105 TO 129 VAC - 48 TO 62 HZ	2 KW TOTAL

TABLE 2

POWER CABLE CONNECTIONS

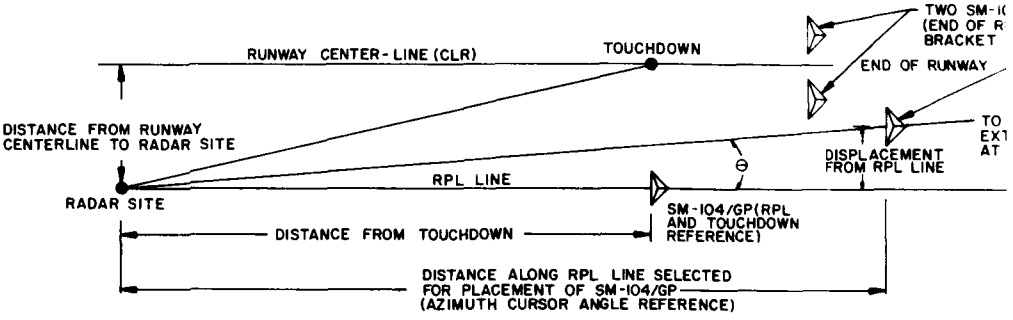
FROM		TO			REMARKS
RADAR AN/FPN-70		POWER DISTRIBUTION BOX			
CONNECTOR	PIN	TERMINAL	CB #	POWER TYPE	
P4101	A	Ø A	1	REGULATED	NOTE 104
	B	Ø B	2		
	C	NEUT	1		
	D	NEUT	2		
S-70 SHELTER				REGULATED	NOTE 104
P9210	A	Ø B	4		
	B	NEUT			

ITEM NO	PART NO	DESCRIPTION	NSN	UI	QTY
27	28564L	CABLE, PWR, 4 #2 AWG COND, ANIXTER #36-0204	6145-00-J04-4470	FT	AR
26	28565K	CABLE, PWR, 2 #2 AWG COND, ANIXTER #36-0202	6145-00-J04-4471	FT	AR

PARTS LIST

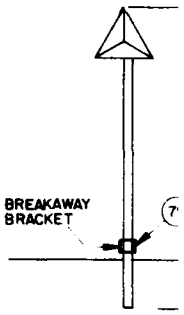
DWG NO STD-AF-0507	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
SHEET 1 OF 1	
DESIGNED BY M DICKENS DATE 17 OCT 80	TYPICAL R/T SITE AC POWER DISTRIBUTION
DRAWN BY R FABING DATE 17 OCT 80	
CHECKED BY C BROWN DATE 18 OCT 80	
APPROVED BY	SIZE D FSCM NO DRAWING NO
	SCALE NONE SHEET OF

NEXT ASSEMBLY	USED ON
DWG INDEX NO	



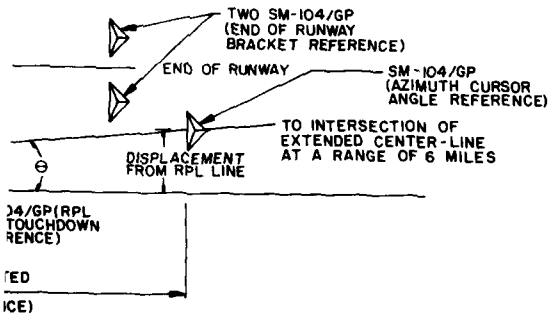
$$\tan \angle \Theta = \frac{\text{RADAR SITE DISPLACEMENT IN FEET TO LEFT OR RIGHT OF RUNWAY CENTER-LINE}}{\text{DISTANCE ALONG RPL LINE TO A LINE PERPENDICULAR TO EXTENDED RUNWAY CENTER LINE AT 6 MILES FROM TOUCHDOWN (6 MILES = 36,480 FEET)}}$$

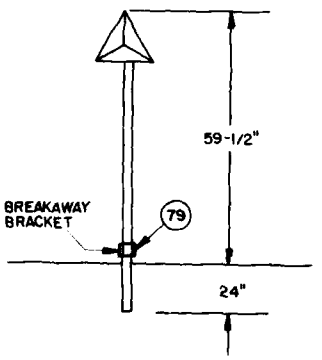
$$\text{DISPLACEMENT OF SM-104/GP (AZIMUTH CURSOR ANGLE REFERENCE) FROM RPL LINE} = \tan \angle \Theta \times \text{DISTANCE (IN FEET) ALONG RPL LINE, TO POINT PERPENDICULAR TO AREA SELECTED FOR PLACEMENT OF SM-104/GP (AZIMUTH CURSOR ANGLE REFERENCE)}$$



TYPICAL INSTAL
RADAR TARGET

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED





TYPICAL INSTALLATION OF SIMULATOR,
RADAR TARGET SM-104/GP

GENERAL NOTES:

1. THE RADAR TARGET SIMULATORS ARE FURNISHED AS PART OF RADAR SET, AN/FPN-40 AND ARE LISTED IN TM 11-5840-293-34P.

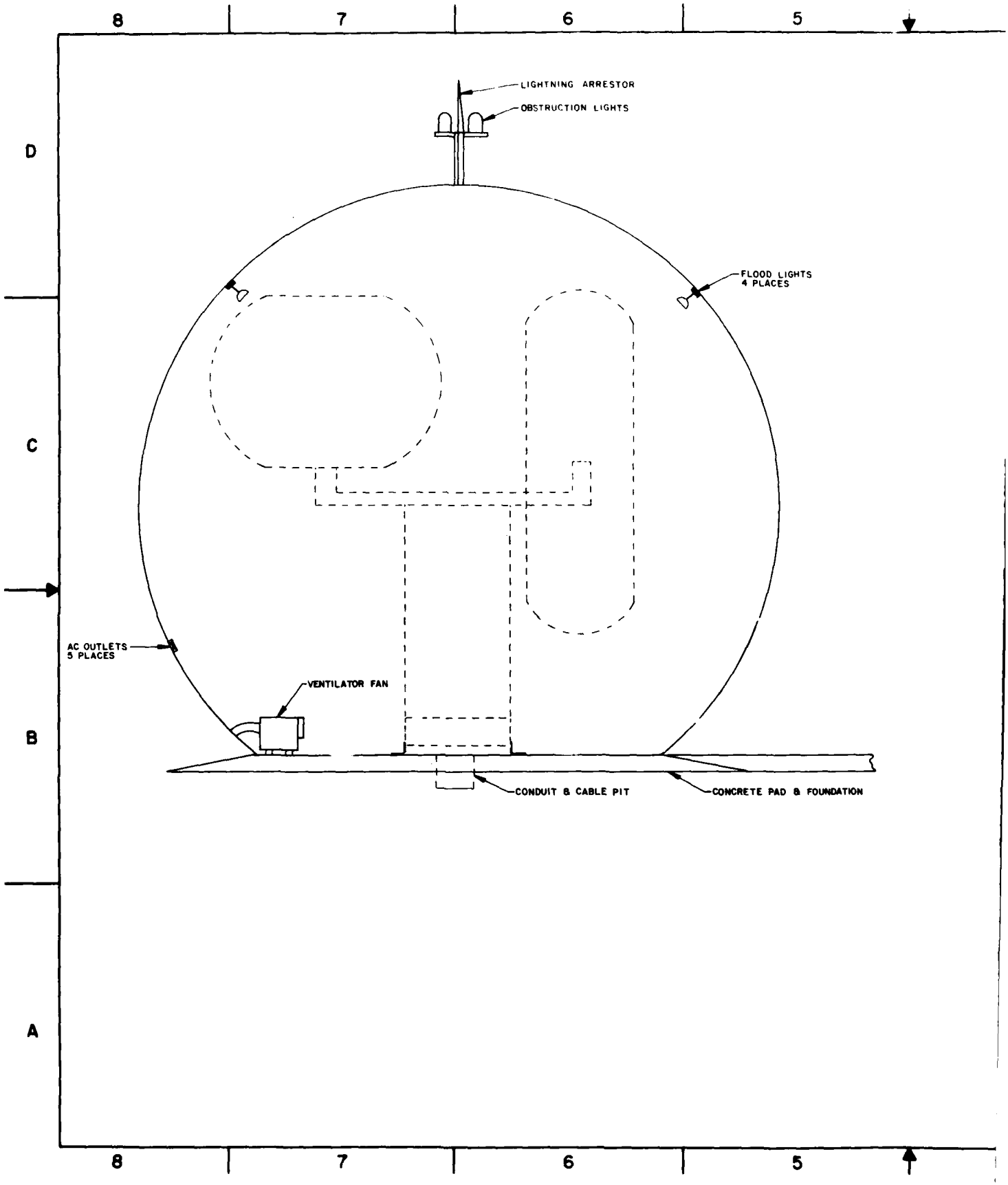
79	28680	COUPLING, BREAK-AWAY, F/2" EMT, CROUSE-HINDS PN# 10037-108	5975-00-J04-4672	EA	AR
FIG NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY

PARTS LIST

CONT NO	U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY
STD-AF-0508	
SIGNED BY M DICKENS 23 OCT 80	TYPICAL RADAR TARGET SIMULATOR LOCATIONS
DRAWN BY R FABING 27 OCT 80	
CHECKED BY C BROWN 28 OCT 80	
APPROVED BY	SIZE D; FSCM NO; DRAWING NO
DESIGN ACTIVITY	SCALE; SHEET

NEXT ASSEMBLY | USED ON

DWG INDEX NO:


8
7
6
5
D
C
B
A
LIGHTNING ARRESTOR
OBSTRUCTION LIGHTS
FLOOD LIGHTS
4 PLACES
AC OUTLETS
5 PLACES
VENTILATOR FAN
CONDUIT & CABLE PIT
CONCRETE PAD & FOUNDATION

4 | 3 | 2 | 1

REVISION

		DESCRIPTION	DATE	APPROVED
	A	MINOR REV. ADDED SH 3,4,5,6,&7		

D

NOTES:

101. ITEMS SHOWN BY MFG PART NUMBER WITHOUT NSN ARE PROVIDED BY THE MANUFACTOR. L.O.M. FIND NUMBERS DO NOT CORRESPOND TO BOM ITEM NUMBER ARE PROVIDED FOR ILLUSTRATION ONLY.

102 THE VENTILATOR FAN IS MOUNTED ON WOOD 2" X 4" CUT TO FIT

103 INSTRUCTIONS FOR OREINTATION AND ERECTION OF THE RADOME ARE CONTAINED IN ESSCO MANUAL TM80-3 SUPPLIED WITH THE RADOME.

C

B

FIND NO	SML	DESCRIPTION	PART NO / NSN	UI	QTY
52	26993J	COVER,UTILITY BOX,BLACK	5975 0 J04-3230	EA	AR
51	02515G	JUNCTION BOX,OUTLET	5975-00-204-5827	EA	AR
50		THERMOSTAT,MODEL 2E206	5950-01-039-9783	EA	1
49	113438	BOLT,LAG, 1/4" X 1-1/2"	5306-00-939-9505	EA	6
48	00454C	BOLT,MACHINE,3/8-16 X 1-1/2"	5306-00-292-2362	EA	4 EA
47	00740C	SHIELD,EXPANSION 3/8-16	5340-00-754-4560	BX	AR
46		LUMBER ,2" X 4"	5510-00-134-3964	BF	AR
45		WIRE 1C #12 AWG,RED		FT	AR
44	12732E	WIRE 1C #12 AWG,GREEN	6145-00-163-7984	FT	AR
43	24679F	WIRE 1C #12 AWG,WHITE	6145-00-942-4655	FT	AR
42	12731D	WIRE 1C #12 AWG,BLACK	6145-00-163-7982	FT	AR
41	26871J	SCREW,SELF-TAPPING, #10-16 X 1"	5305-00-432-4205	HD	AR
40	076672	STRAP,RETAINING,ARCH,1/2"CONDUIT	5430-00-190-6802	EA	AR
39	12165J	STRAP CONDUIT,1/2" THINWALL	5430-00-924-1683	HD	AR
38		CABLE,POWER,3C #16 AWG		FT	35
37		SET SCREW,SQ HEAD,1/4-20 X 1/2"		EA	2
36		HEX NUT,MODIFIED 1-1/4"-7		EA	1
35		ROPE,MAINTENANCE			
34		SET SCREW, 1/4-20 X 1/2"		EA	1
33		CONNECTOR,3 POLE,TWIST LOCK		EA	1
32		PLUG,3 POLE,TWIST LOCK		EA	1
31		CABLE,3C #18AWG		FT	6
30		TERMINAL LUG,WIRE,STA-CON		EA	10
29		LAMP,TRAFFIC,116 WATTS,120 VOLTS		EA	2
28		LIGHTNING ROD		EA	1
27		LIGHT,OBSTRUCTION,120 V		EA	1
26		SPACER		EA	1
25		PULLEY,ROPE		EA	1
24		HOUSING,PULLEY		EA	1
23		SHAFT		EA	1
22	100128	KIT,STRAPPING,WRAPLOCK	5340-00-640-396	EA	AR
21		NUT,LOCKING,#8-32		EA	5
20		SCREW,MACHINE,#8-32 X 3/4"		EA	5
19		WIRE TERMINAL,STA-CON		EA	AR
18		CAP SCREW,1/4-20 X 5/8"		EA	AR
17	20907H	SPLICE CONN,T & B 2RC10	5940-00-221-5104	EA	AR
16		WIRE JOINT,HANDTWIST		EA	AR
15	07708H	BOX,CONNECTOR 1/2" THINWALL	5975-00-081-9401	EA	AR
14	12165J	STRAO,CONDUIT 1/2" THINWALL	5340-00-924-1683	EA	AR
13	02384L	COUPLING,CONDUIT 1/2" THINWALL	5975-00-179-0096	EA	AR
12	02375J	CONOUIT,1/2" THINWALL,10'LG	5975-00-178-1216	EA	10
11		SCREW COUPLING,1/2" THINWALL CONDUIT		EA	5
10		CABLE CLIP,F/U/W 1/2" CONDUIT		EA	15
9		SET SCREW,CONDUIT CONN 1/2"		EA	25
8		COVER,BLANK ALUM,SERIES FD		EA	5
7		SERIES FD,1/2" TYPE C		EA	5
6		RECEPTACLE,AC,HEAVY DUTY		EA	5
5		COVER,ELECTOLET DUPLEX,SERIES FD		EA	5
4		GASKET,NEOPRENE,SERIES FD		EA	10
3		SERIES FD,1/2" TYPE C		EA	5
2		BASE,FLOOD LAMP		EA	5
1		FLOOD LAMP,240,200 WATTS		EA	5

PARTS LIST

A

A	A	A	A	A	A	A
7	6	5	4	3	2	1

SHEET NUMBER

REVISION STATUS OF SHEETS

NEXT ASSEMBLY	USED ON

DWG INDEX NO:

IDENT NO: STD-AF-0511

SHEET 1 OF 7

DESIGNED BY: S. THOMPSON — DATE: 2JULY82

DRAWN BY: B HERRMAN — 9JULY82

CHECKED BY: [signature]

APPROVED BY: [signature]

DESIGN ACTIVITY: CCC CFD-VCD

U S ARMY COMMUNICATIONS-ELECTRONICS ENGINEERING INSTALLATION AGENCY

CAMP HUMPHREYS KOREA

INSTALLATION DETAILS OF STANDARD DIAGRAM GCA RADOME SIDE VIEW

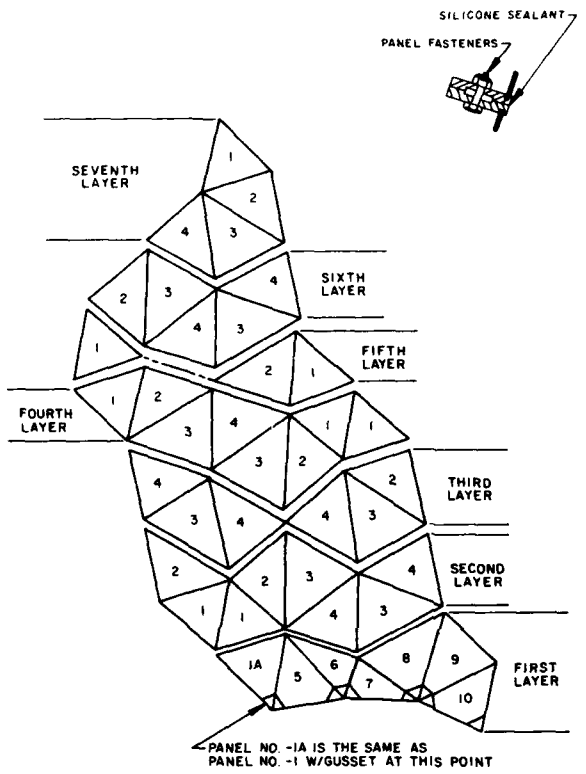
SIZE: D — FSCM NO: 50470 — DRAWING NO: STD-AF-0511

SCALE: NONE — 1" [redacted] — SHEET 1 OF 7

ENTERED

4 | 3 | 2 | 1

IDATION



LOCATION OF THE 41 PANELS IN A REPEATING 1/5 SECTION AS VIEWED FROM INSIDE THE RADOME

PANEL IDENTIFICATION BY BEAM NUMBERS			
PANEL NO.	BEAM NUMBERS		
-1	-1A	-1B	-2A
-2	-2B	-3A	-4A
-3	-4B	-5A	-6A
-4	-3B	-5B	-6B
-5	-7A	-2C	BASE
-6	-8A	-7B	-3C
-7	-9A	-8B	BASE
-8	-10A	-4C	-9B
-9	-1C	-10B	-11A
-10	-1D	-11B	BASE

PANEL REQUIREMEN	
PANEL IDENTIFICATION 6000 GEOMETRY 83%	
LAYER	PANEL NO
1	-1A
	-5
	-6
	-7
	-8
	-9
	-10
2	-1
	-2
	-3
	-4
3	-2
	-3
	-4
4	-1
	-2
	-3
	-4
5	-1
	-2
6	-2
	-3
	-4
7	-1
	-2
	-3
	-4

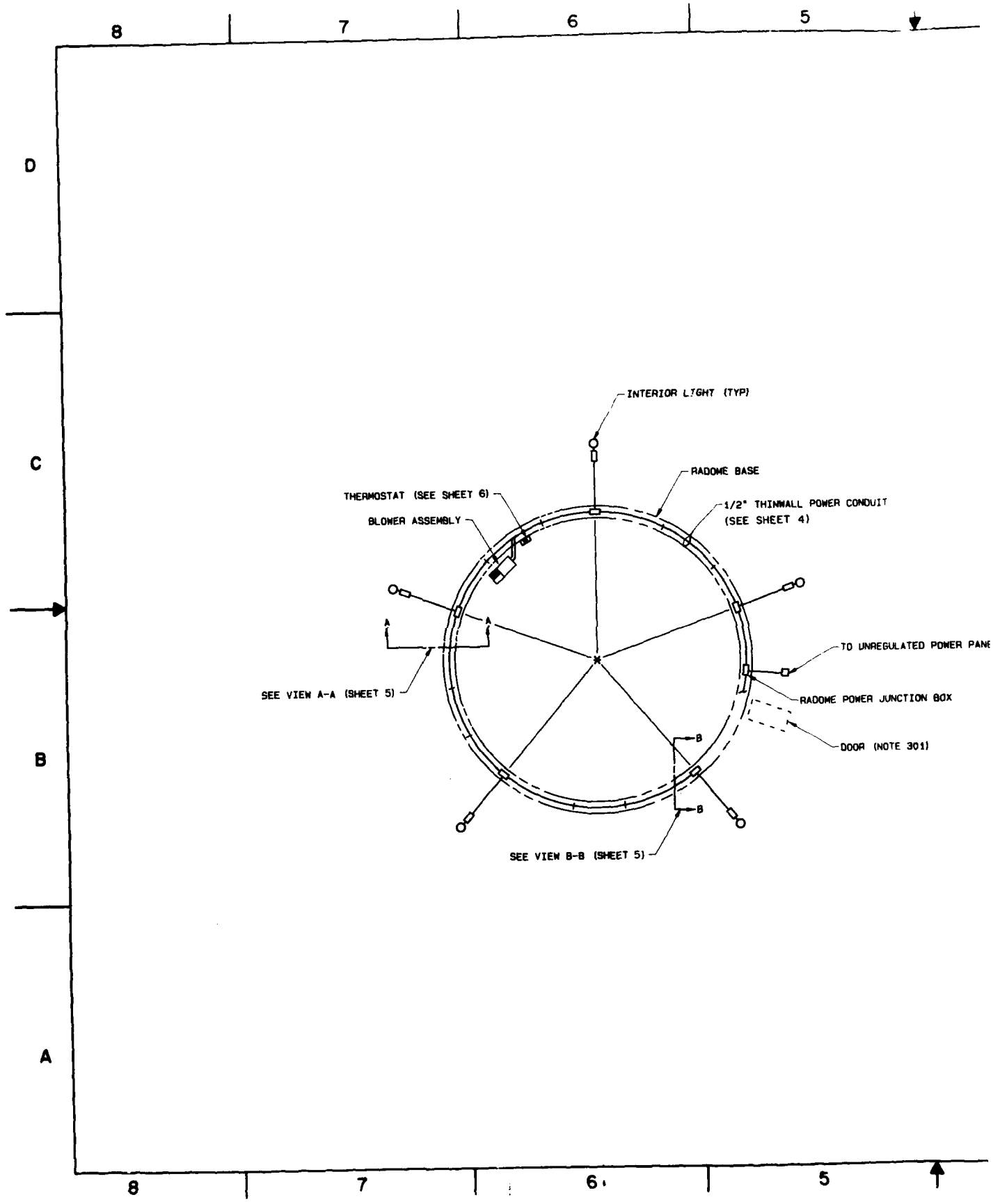
PANEL IDENTIFICATION & INSTALLATION SEQUENCE

REVISION			
SYMBOL	DESCRIPTION	DATE	APPROVED
A	MINOR REV	7 NOV 88	

PANEL REQUIREMENT LIST		
PANEL IDENTIFICATION BY LAYER 6000 GEOMETRY 83% TRUNCATION		
LAYER	PANEL NO	QUANTITY
1	-1A	5
	-5	5
	-6	5
	-7	5
	-8	5
	-9	5
	-10	5
2	-1	10
	-2	10
	-3	10
	-4	10
3	-2	5
	-3	10
	-4	15
4	-1	15
	-2	10
	-3	10
	-4	5
5	-1	10
	-2	5
6	-2	5
	-3	10
	-4	10
7	-1	5
	-2	5
	-3	5
	-4	5

ENCE

IDENT NO	SIZE	FSCM NO	DRAWING NO
STD-AF-0511	D	50470	
SHEET 2 OF 7	SCALE NONE		SHEET OF


8
7
6
5
D
C
B
A
INTERIOR LIGHT (TYP)
RADOME BASE
THERMOSTAT (SEE SHEET 6)
1/2" THINWALL POWER CONDUIT
(SEE SHEET 4)
BLOWER ASSEMBLY
A
A
TO UNREGULATED POWER PANE
SEE VIEW A-A (SHEET 5)
RADOME POWER JUNCTION BOX
DOOR (NOTE 301)
B
B
SEE VIEW B-B (SHEET 5)

REVISION			
	DESCRIPTION	DATE	APPROVED
A	ADDED THIS SHEET	7 Dec 82	[illegible]

NOTES:

301 DOOR AND RADOME POWER CABLE JUNCTION BOX WILL VARY FROM SITE TO SITE.

302. ITEMS SHOWN BY P/N AND WITHOUT NSN PROVIDED BY RADOME MANUFACTURER. MANUFACTURER ALSO PROVIDES ADDITIONAL 1/2" CONDUIT, 1/2" BOX CONNECTS, #12 AWG WIRE, ETC.

WER CONDUIT

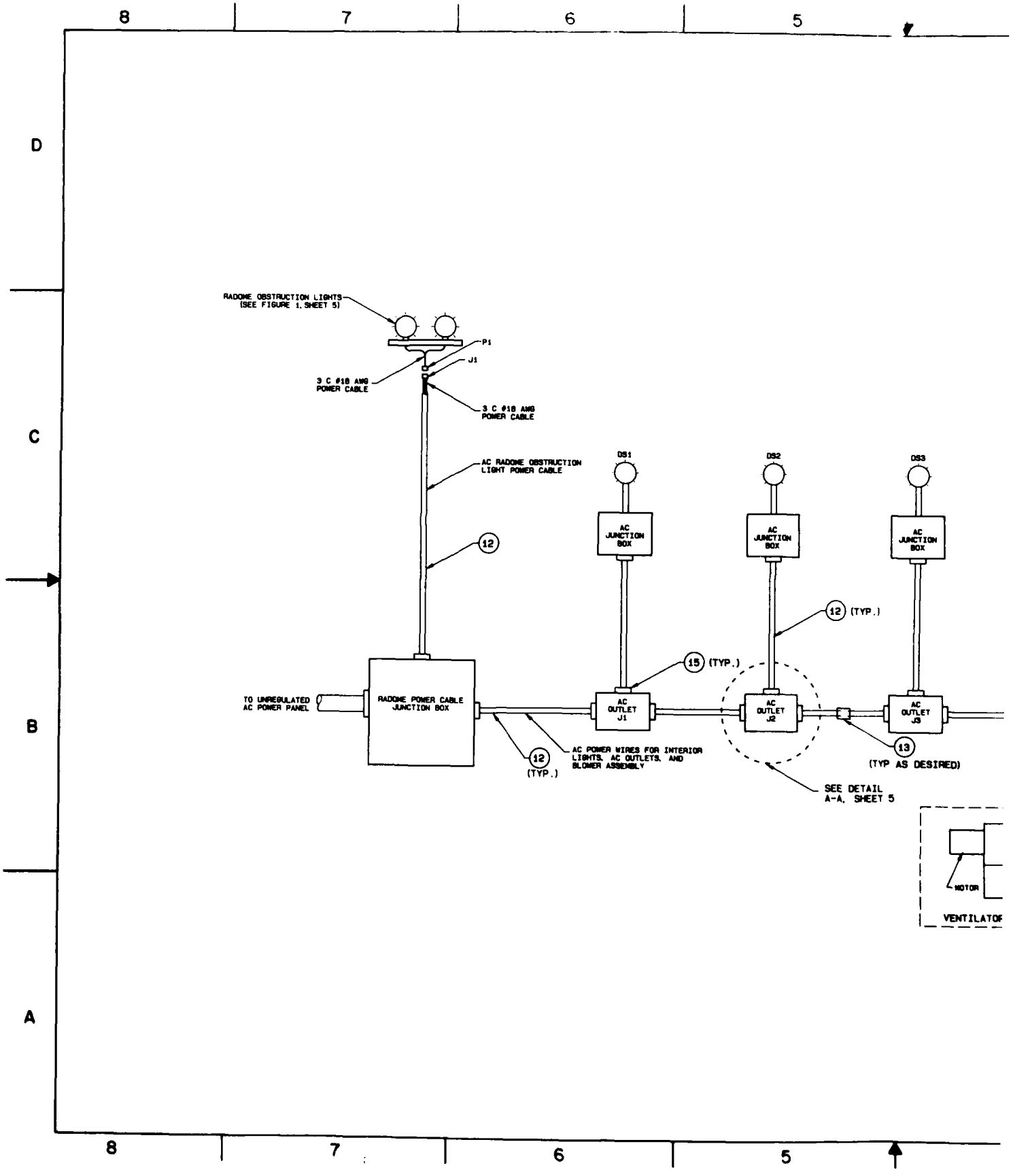
— TO UNREGULATED POWER PANEL

HE POWER JUNCTION BOX

— DOOR (NOTE 301)

IDENT NO STD-AF-0511	SIZE D	FSCM NO 50470	DRAWING NO
SHEET 3 OF 7	SCALE NONE	1" [illegible]	SHEET OF
DRAWN [illegible] FAB/NO			
APPROVED [illegible]			

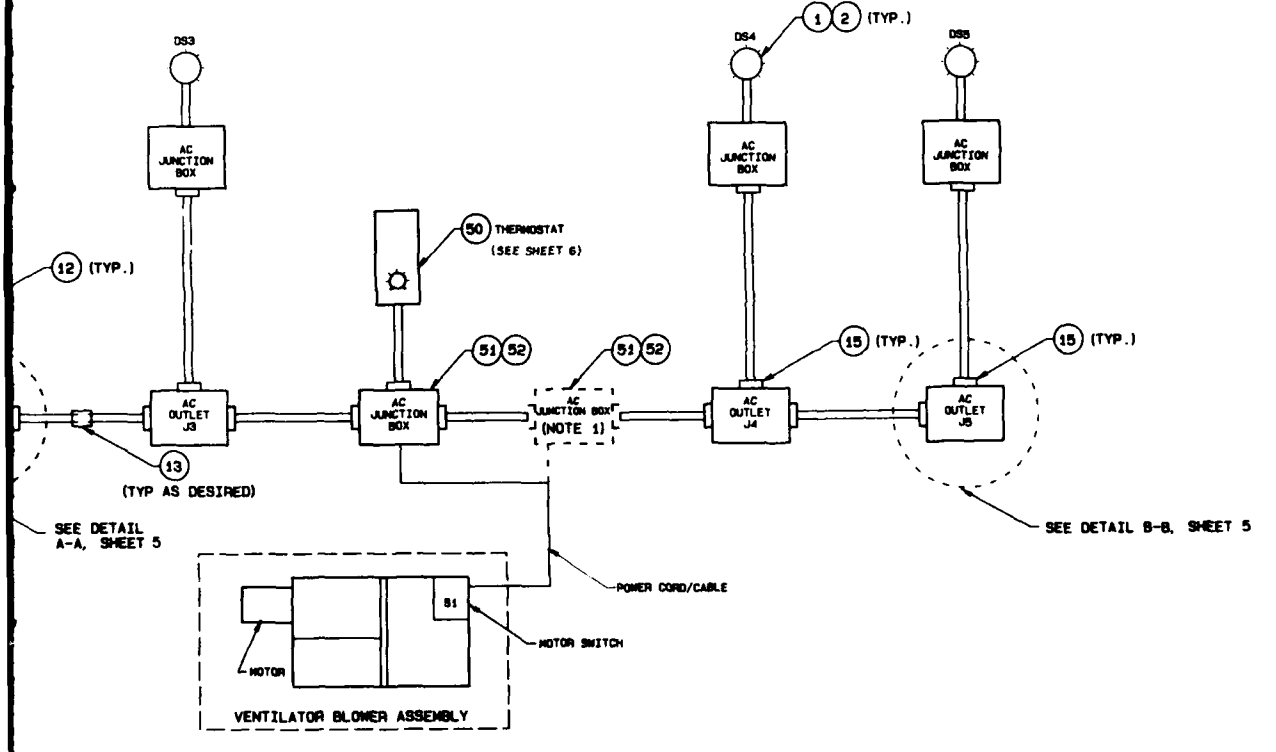
104F3


8
7
6
5
D
C
B
A
RADOME OBSTRUCTION LIGHTS (SEE FIGURE 1, SHEET 5)
P1
J1
3 C #18 AWG POWER CABLE
3 C #18 AWG POWER CABLE
AC RADOME OBSTRUCTION LIGHT POWER CABLE
12
DS1
DS2
DS3
AC JUNCTION BOX
AC JUNCTION BOX
AC JUNCTION BOX
12 (TYP.)
15 (TYP.)
TO UNREGULATED AC POWER PANEL
RADOME POWER CABLE JUNCTION BOX
AC OUTLET J1
AC OUTLET J2
AC OUTLET J3
12 (TYP.)
AC POWER WIRES FOR INTERIOR LIGHTS, AC OUTLETS, AND BLOWER ASSEMBLY
13
(TYP AS DESIRED)
SEE DETAIL A-A, SHEET 5
MOTOR
VENTILATOR

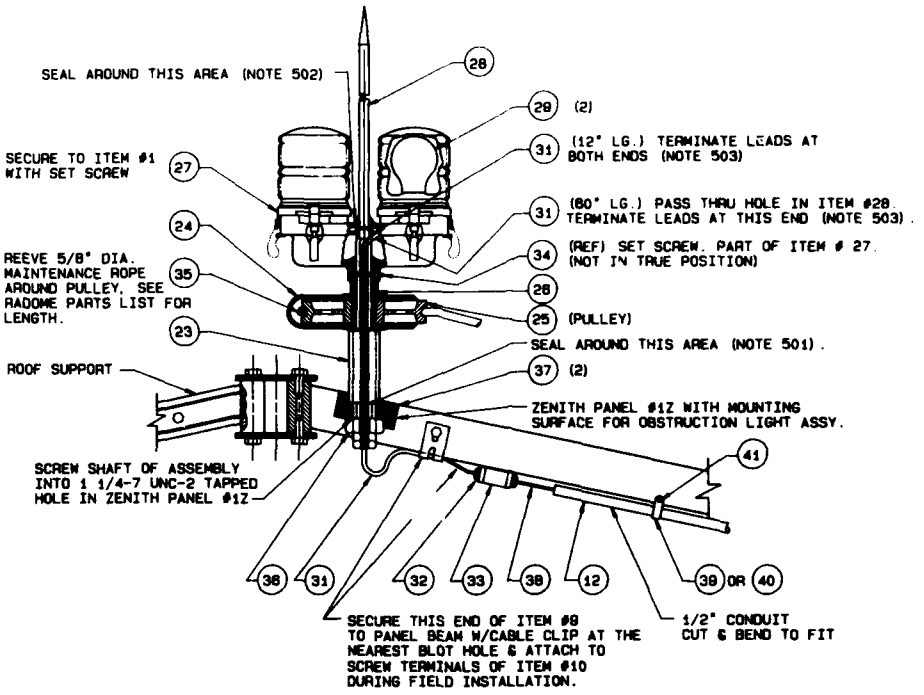
REVISION			
	DESCRIPTION	DATE	APPROVED
A	ADDED THIS SHEET	7 Dec 92	

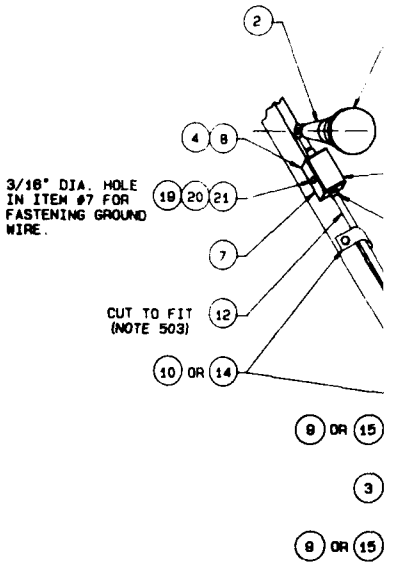
NOTES:

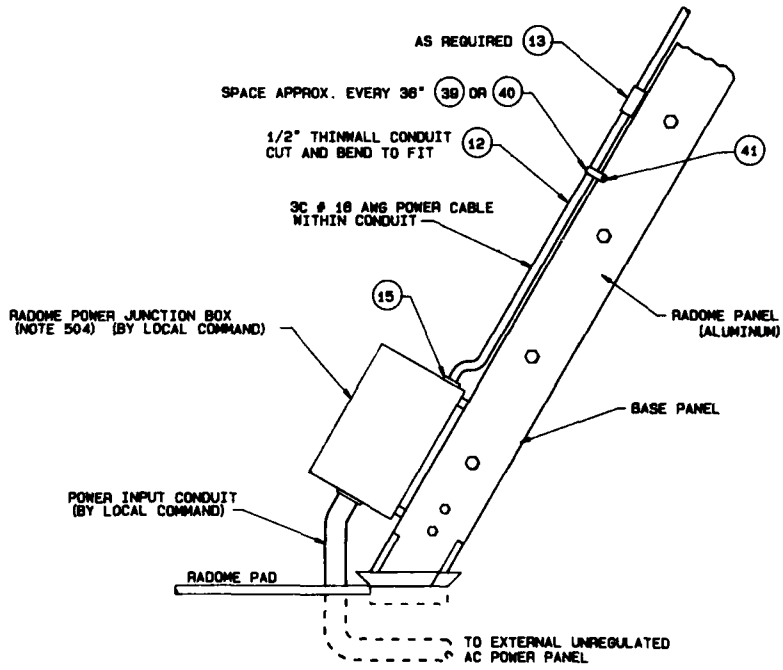
1. OPTIONAL AC JUNCTION BOX FOR BLOWER ASSEMBLY, IF THERMOSTAT AC JUNCTION CAN NOT BE INSTALLED IN CLOSE PROXIMITY TO BLOWER ASSEMBLY.

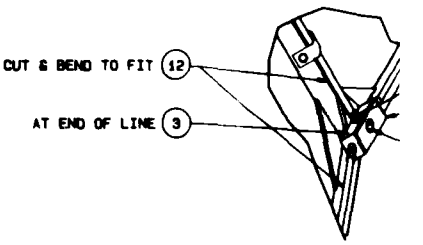


IDENT NO: STD-AF-0511	SIZE: D	FSCM NO: 50470	DRAWING NO
SHEET 4 OF 7	SCALE: NONE		SHEET OF
DRAWN BY: A. [illegible] DATE DRAWN:			
APPROVED:			





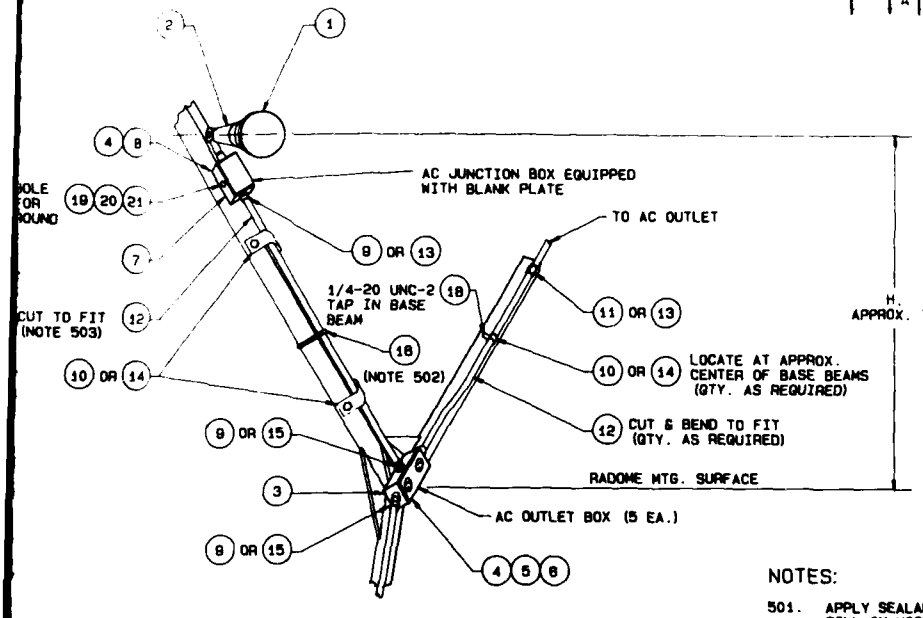




VIEW "B-B"
END OF LIGHT/AC OUTLET
(1 PLACE)

FIGURE 1
AIRCRAFT OBSTRUCTION LIGHT AND LIGHTING PROTECTION ELECTRODE INSTALLATION DETAILS

REVISION			
	DESCRIPTION	DATE	APPROVED
A	ADDED THIS SHEET	7 Dec 92	



VIEW "A-A"
INTERIOR LIGHT (S) INSTALLATION DETAIL
(4 PLACES)

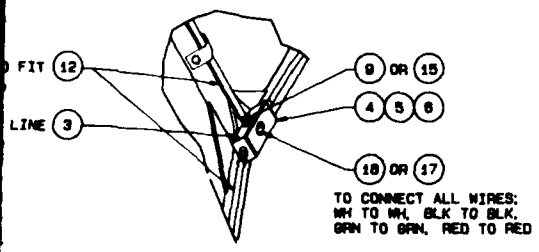
NOTES:

501. APPLY SEALANT (SUPPLIED W/RADOME) BETWEEN MOUNTING SURFACES. FILL IN VOIDS AND REMOVE EXCESS NEATLY.

502. APPLY SEALANT (SUPPLIED W/RADOME) AROUND LIGHTNING ROD TO FILL IN GAP BETWEEN HOLE IN ITEM #27 AND ITEM #28. REMOVE EXCESS NEATLY.

503. TERMINATE LEADS WITH ITEM #30 AND ATTACH TO SCREW TERMINALS OF LAMP SOCKETS OF ITEM #27 PER SCHEMATIC DIAGRAM.

504. RADOME POWER CABLE JUNCTION BOX SIZE AND MOUNTING CONFIGURATION MAY VARY FROM LOCATION TO LOCATION.



VIEW "B-B"
END OF LIGHT/AC OUTLET CONDUIT RUN
(1 PLACE)

IDENT NO			
STD-AF-0511			
SHEET 5 OF 7	SIZE D	FSCM NO 50470	DRAWING NO
DRAWN BY	DATE	SCALE NONE	SHEET OF
APPROVED			

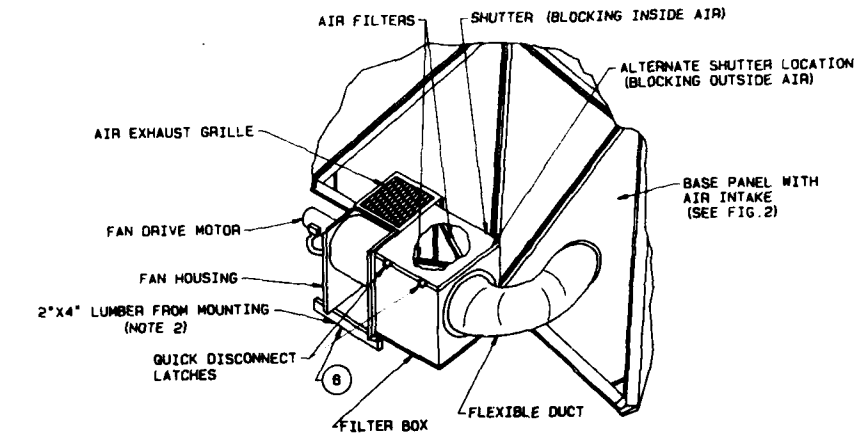


FIGURE 1
VENTILATION BLOWER ASSEMBLY
(NOTE 1)

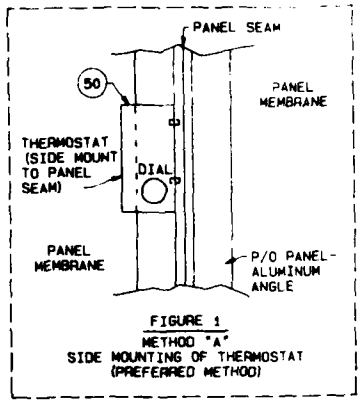


FIGURE 1
METHOD "A"
SIDE MOUNTING OF THERMOSTAT
(PREFERRED METHOD)

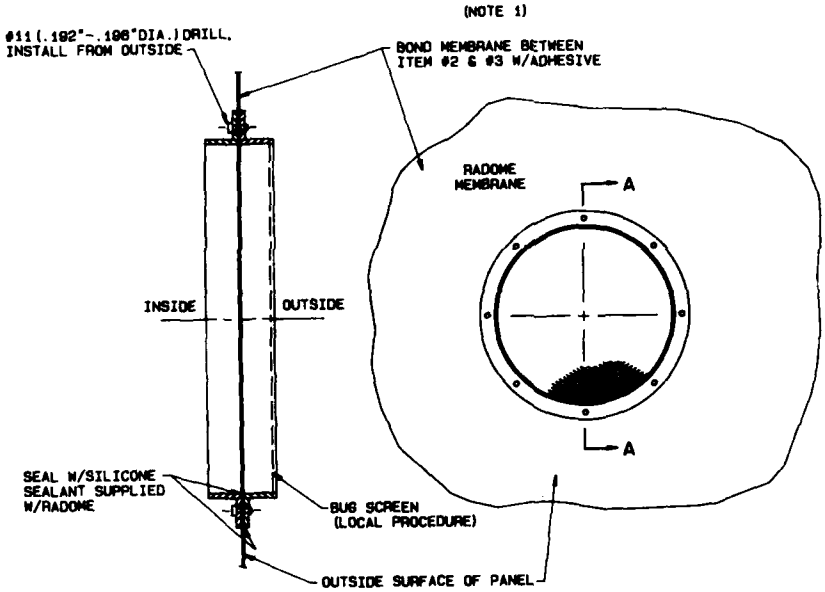
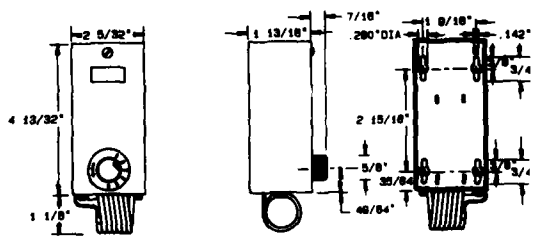


FIGURE 2
PANEL WITH AIR INTAKE SCREEN
(NOTE 3)

VERTICAL ALUMINUM PANEL SEA



DIMENSIONS
THERMOSTAT MODEL 2E206

REVISION			
	DESCRIPTION	DATE	APPROVED
A	ADDED THIS SHEET	7 Dec 88	

ANEL SEAM

PANEL MEMBRANE

P/O PANEL-ALUMINUM ANGLE

1

"A" THERMOSTAT METHOD)

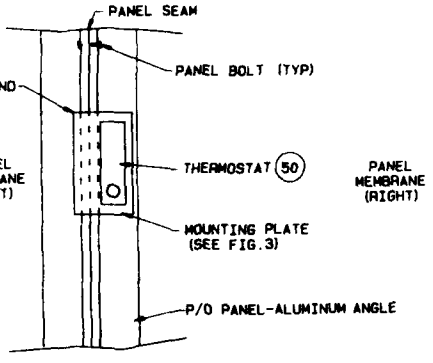


FIGURE 2

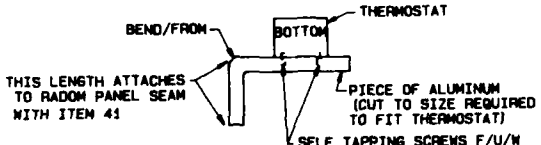
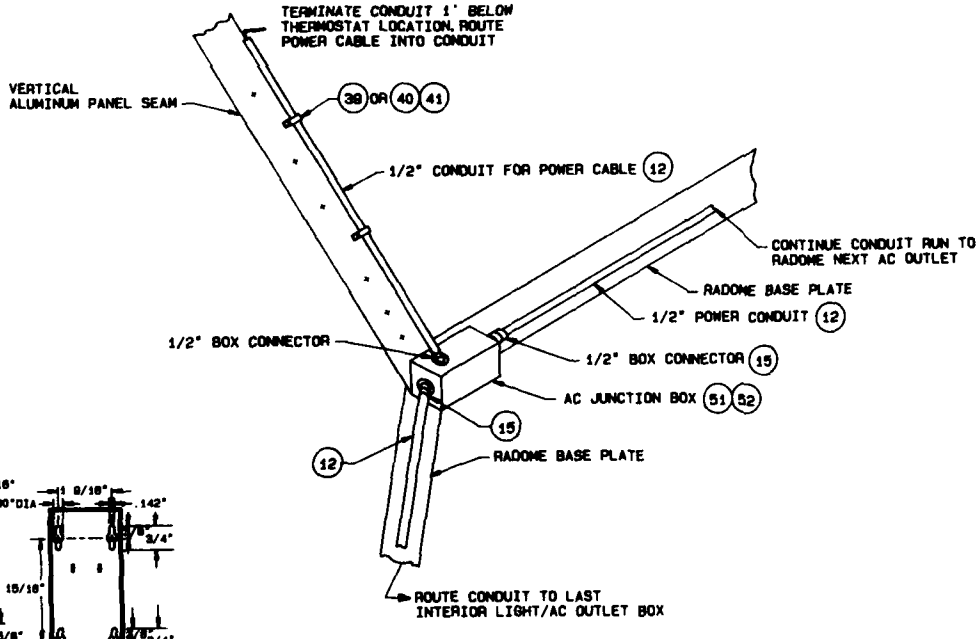


FIGURE 3
THERMOSTAT MOUNTING PLATE

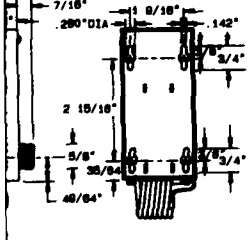
METHOD "B" MOUNTING OF THERMOSTAT

GENERAL NOTES:

1. PROVIDED AS A COMPLETELY ASSEMBLED UNIT.
2. MOUNT 2"X4" LUMBER TO RADOME FLOOR USING ITEMS 47&48. PLACE ASSEMBLY ON 2"X4" LUMBER AND BOLT TO LUMBER WITH ITEM 49. ALIGN FLEXIBLE DUCT WITH BASE PANEL AND INSTALL AIR INTAKE AS SHOWN IN FIGURE 2.
3. LOCALLY PROCURE ALUMINUM OR COPPER SCREEN MATERIAL AND ATTACH TO EXTERNAL SURFACE OF AIR INTAKE SCREEN. THIS WILL PREVENT SMALL BUGS FROM BEING SUCKED INTO VENTILATION BLOWER ASSEMBLY.



THERMOSTAT CONDUIT INSTALLATION



IONS
ODEL 2E206

IDENT NO	SIZE	FSCM NO	DRAWING NO
STD-AF-0511	D	50470	
SHEET 6 OF 7	SCALE NONE		SHEET OF

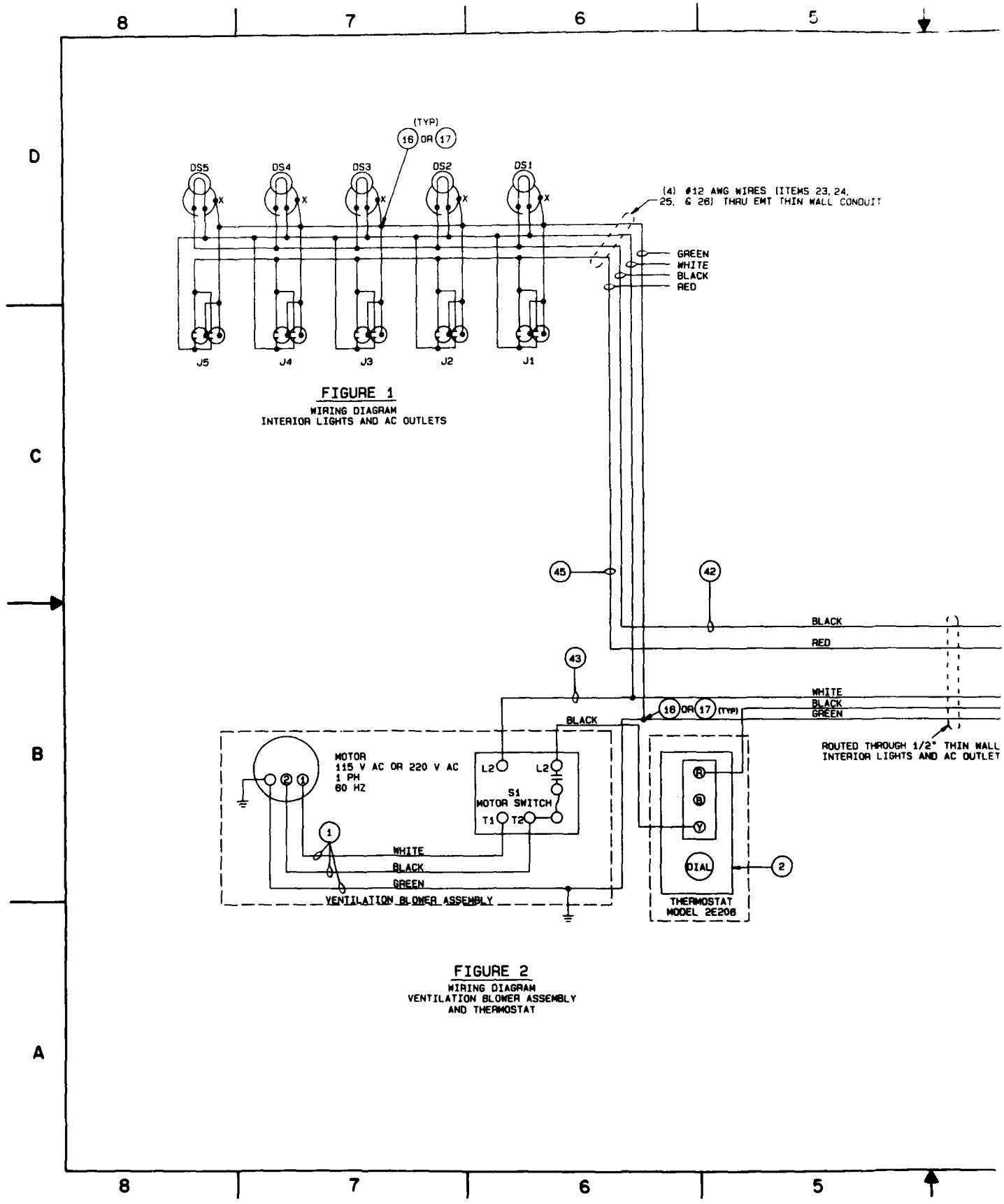
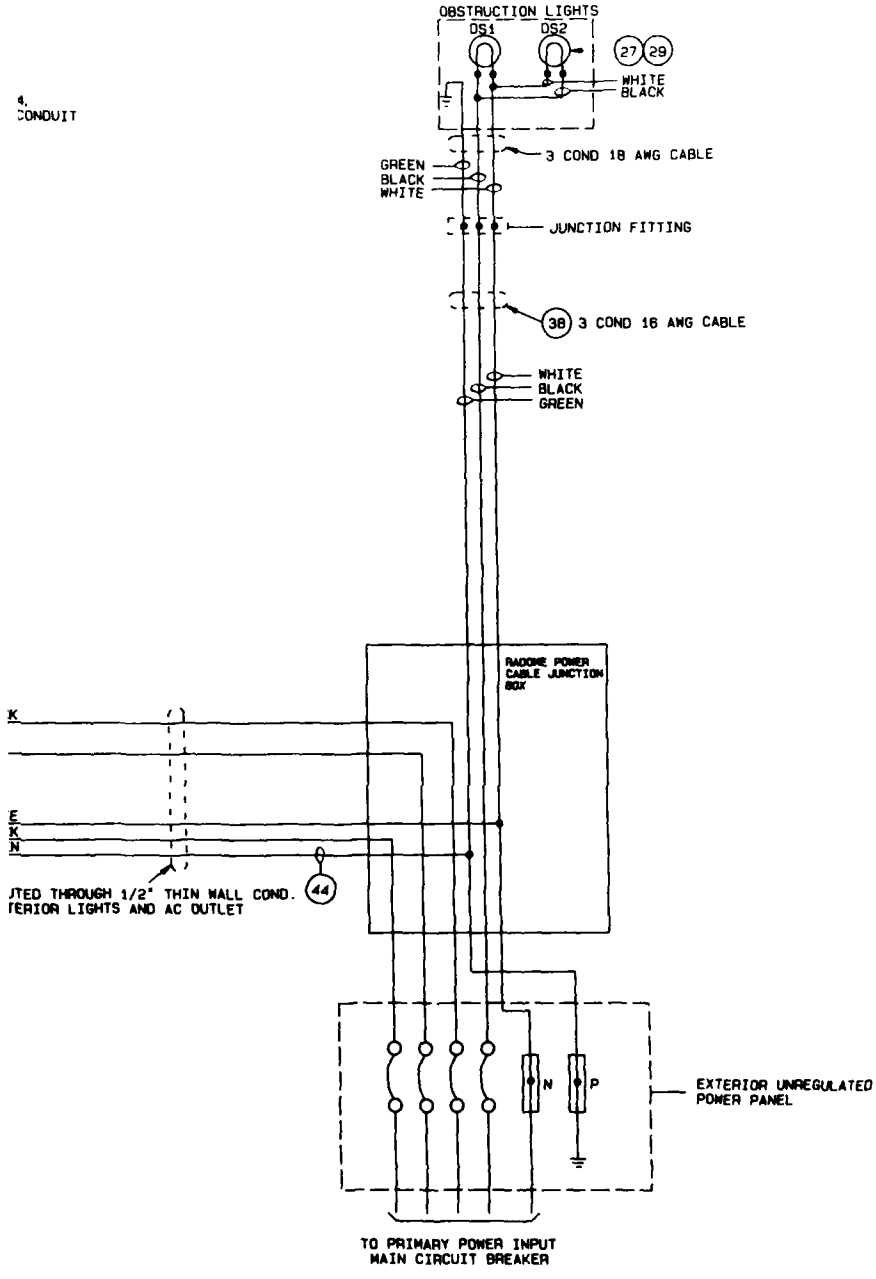


FIGURE 1
WIRING DIAGRAM
INTERIOR LIGHTS AND AC OUTLETS

FIGURE 2
WIRING DIAGRAM
VENTILATION BLOWER ASSEMBLY
AND THERMOSTAT

REVISION			
	DESCRIPTION	DATE	APPROVED
A	ADDED THIS SHEET	7 Dec 82	



IDENT NO STD-AF-0511	SIZE D	FSCM NO 50470	DRAWING NO
SHEET 7 OF 7			
DRAWN BY R AMERAULT / DATE NOV	SCALE NONE		SHEET OF
APPROVED BY			

SECTION 5. BILL OF MATERIALS

5.1 General. This section contains the Bill of Materials (BOM) which identifies the major end items and materials commonly used for the installation of a complete AN/FSQ-84 and radome. The items identified are intended as a guide for preparing an EIP. Items may be added or deleted to meet the requirements of a specific installation. The quantities cannot always be determined; therefore, these items will be designated as required (AR) in the quantity column.

5.2 Bill of Materials. The major items and commonly used materials are listed on DA Form 3071 R, Bill of Materials. The System Material List (SML) number and NSN are provided. Major items are entered first and are the BOM items that will become accountable by the O&M command. An exception would be when a major, or accountable item is identified after the BOM has been compiled, and in some cases, issued. The major item identified, after completion of the BOM, will be on a separate sheet and contain a revision number and pertinent data.

3579S/1115K

TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command

LOCATION	UNIT IDENT CODE		
N/A			
TELER NUMBER	**DATE**	**PAGE NO.**	**NO. OF PAGES**
Change 1 to SEIP 011	17 JAN 83	1	10

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
1	5840-00-646-4418 08428B	AMPLIFIER GROUP, VIDEO, DA-2032/FPN-33, F/U/W AN/FPN-40 RADAR WHEN INDICATOR GROUP IS REMOTED FROM RADAR	EA	1	NOTE 2	
2	5895-00-752-5850 07195X	CONSOLE, COMMUNICATONS CONTROL, OA-2056/FSW-8	EA	AR		
3	6660-00-788-7477 07196R	CONSOLE, METEOROLOGY, OA-2054/FSW-8	EA	1		
4	5840-00-775-3765	INDICATOR-CONTROL GROUP, OA-2664/FPN-40 W/PWR SUPPLY	EA	1	NOTE 2	
5	5985-00-J04-4065 28035M	RADOME, METAL SPACE FRAME, ESSCO MODEL M22-83-6000	EA	1		
		CONSISTING OF THE FOLLOWING				
5.1		MANUAL TECHNICAL TM 80-3 BY ESSCO SUPPORTING ESSCO MODEL M22-83-6000 RADOME	EA	1		
5.2		MEMBRANE REPAIR KIT, PN A877-5	EA	1		
5.3		AIRCRAFT OBSTRUCTION LIGHT/LIGHTNING ROD/ROPE PULLY ASSY	EA	1		
5.4		LIGHTING SYSTEM INTERIOR INCLUDING FIVE DUPLEX, 20-AMP RECEPTACLES	EA	1		
5.5		FAN ASSY, VENTILATOR, 1055CFM S.Q.A.D.	EA	1		
5.6		PANEL ASSY W/ZENTH VENT, PN A930-8 PANEL ASSY W/HATCH 2 FT X 4 IN	EA	1		
5.7		BORESIGHT WINDOW ASSEMBLY 8 IN X 12 IN MIN	EA	1		
5.8		FILTER, AIR, CLEANABLE	EA	1		
5.9		LAMP FLOOD, R40, 200 WATTS A825-3	EA	5		
5.10		BASE LAMP FLOOD, PN M-430	EA	5		
5.11		BOX OUTLET, ELECTRIC SERIES FD, 1/2" TYPE C	EA	5		
5.12		GASKET NEOPRENE SERIES FD, FSRG	EA	10		
5.13		COVER DUPLEX SERIES FD, 1FA	EA	10		
5.14		RECEPTACLE AC P/N 5252-S	EA	5		

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TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

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LOCATION	UNIT IDENT CODE		
N/A			
TELER NUMBER	**DATE**	**PAGE NO**	**NO OF PAGES**
Change 1 to SEIP 011	17 JAN 83	2	10

ITEM NO.	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
5.15		BOX OUTLET ELECTRICAL SERIES FD, FDCT-1	EA	5		
5.16		COVER BLANK ALUM SERIES FD, PN 1FB	EA	5		
5.17		CONNECTOR CONDUIT 1/2" SET SCREW TYPE T&B 5051	EA	25		
5.18		CLIP CABLE F/U/W 1/2" CONDUIT B701-27-2	EA	15		
5.19		SCREW COUPLING, 1/2" THINWALL CONDUIT T&B 5030	EA	5		
5.20		SCREW CAP 1/4-20 X 5/8"	EA	AR		
5.21		TERMINAL STA-KON PN RC16-8FC	EA	AR		
5.22		SCREW MACHINE # 8-32 X 3/4"	EA	5		
5.23		NUT LOCKING # 8-32	EA	5		
5.24		SHAFT PN C-705-87-1	EA	1		
5.25		HOUSING PULLY PN C-540-5	EA	1		
5.26		PULLY ROPE PN C-705-7-3	EA	1		
5.27		SPACER PN A-705-89	EA	1		
5.28		LIGHT OBSTRUCTION 120V, PN C-705-85-1	EA	1		
5.29		ROD LIGHTNING ARRESTING PN B-705-88-1	EA	1		
5.30		LAMP, TRAFFIC, 116 WATTS, 120 VOLTS, PN A825-1	EA	2		
5.31		LUG, WIRE TERMINAL, STA-CON, T&B RB14-8F	EA	10		
5.32		CABLE 3C #18 AWG, BELDEN, PN 8453	FT	6		

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TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

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LOCATION	UNIT IDENT CODE			
N/A				
TELER NUMBER	**DATE**	**PAGE NO**	**NO OF PAGES**	
Change 1 to SEIP 011	17 JAN 83	3	10	

ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
5.33		PLUG, TWIST LOCK, 3 POLE, A-H 7485	EA	1		
5.34		CONNECTOR, TWIST LOCK, 3 POLE A-H 7484	EA	1		
5.35		SCREW SET 1/4"-20 X 1/2"	EA	1		
5.36		NUT HEX, MODIFIED 1-1/4 -7 A705-95	EA	1		
5.37		SCREW, SET SQ HEAD, 1/4"-20 X 1/2"	EA	2		
5.38		CABLE, PWR, 3C #16 AWG PN W4636	FT	35		
5.39		WIRE 1C #12AWG, RED PN W0782	FT	AR		
5.40		LUMBER 2" X 4"	BF	AR		
5.41		THERMOSTAT MODEL 2E206	EA	1		
6	5840-00-110-5773 2_416F	RADAR SYSTEM, AN/FSQ-84 CONSISTING OF: A. IFF VAN, SYSTEM INCLUDES: (1) INTERROGATOR SET, RADAR, AN/TPX-41, NSN 5895-00-406-1603, SML 14501C (2) MULTIPLEXER, FREQ. DIV, TD-991/G, NSN 5840-00-406-3438, SML 14504F (3) DEMULTIPLEXER, FREQ. DIV, TD-992/G, NSN 5805-00-402-5274, SML 14505G B. RADAR SET, AN/FPN-40, NSN 5940-00-752-0603, SML 14500B	EA	1	NOTE 2	
7	5840-00-406-3439 14503E	VIDEO AMPLIFIER, AM 1577A/FPN-33, F/U/W OA-2032/FPN-33	EA	1	NOTE 2	
8	5805-00-J04-4075 20074R	VOLTAGE REGULATOR, 115 VAC, 6.6 KVA, 50/60 HZ, SUPERIOR ELEC, STABILINE EMT-4106C, ID 07961L	EA	1	NOTE 2	
9	5805-00-J04-4247 28297Y	VOLTAGE REGULATOR, 115 VAC, 13.0 KVA, 50/60 HZ, SUPERIOR ELEC, STABILINE EMT-4112BW	EA	1	NOTE 2	
10	5935-00-755-3052 28078N	ADAPTER, BULKHEAD, AMPHENOL PN 82-66	EA	1		
11	5975-00-J04-4092 28127Z	BACKBOARD, COOK PN CA-82D	EA	1		
12	5940-00-J04-5678 20260M	BLOCK, CONNECTOR, 50 PR, QUICK CONNECT, R66M1-50	EA	4	NOTE 2	
13	5805-00-J04-1512 19847C	BLOCK, CONNECTOR, 50 PR, PROTECTED, PN 134A1A-50 6 FT STUB	EA	2	NOTE 2	

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TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

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LOCATION	UNIT IDENT CODE		
N/A			
TELER NUMBER	DATE	PAGE NO	NO OF PAGES
Change 1 to SEIP 011	17 JAN 83	4	10

ITEM NO.	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
14	5975-00-J04-4474 28568A	BOX, JUNCTION, COOK PN 490-5426	EA	1	NOTE 4	
15	5975-00-J04-4094 28128A	BOX, PULL, HOFFMAN PN HA-SE 6 X 4 X 4	EA	1		
16	5805-00-274-3219 22291Y	BRACKET, MOUNTING, 51 B, F/U/W SPLICE CASE	EA	2	NOTE 2	
17	5805-00-274-3219 21452B	BRACKET, 89B, F/U/W A66M1 TERM BLOCK	EA	4	NOTE 2	
18	5340-00-J04-4098 28132Y	BRACKET A, FOR MOUNTING RADAR TO PAD	EA	2	NOTES 1 AND 2	
19	5340-00-J04-4099 28133N	BRACKET B, FOR MOUNTING RADAR TO PAD	EA	1	NOTES 1 AND 2	
20	5340-00-J04-4473 28567Z	BRACKET C, FOR RADAR SUPPORT LEG MOUNTING	EA	3	NOTES 1 AND 2	
21	5975-00-J04-4101 28136K	BUSHING, INSULATING, OZ/GEDNEY PN ABB-300	EA	3		
22	5975-00-J04-4100 28135L	BUSHING, INSULATING, OZ/GEDNEY PN A-300	EA	5		
23	5995-00-J04-4472 28566J	CABLE ASSEMBLY, 26 PR STRAND, 10 FT LG, W/CONNECTORS	EA	1	NOTES 1 AND 2	
24	6145-00-661-0191 03739Z	CABLE, COAX, 75 OHM, RG-59	FT	AR		
25	6145-00-J04-4109 28146L	CABLE HELIAX, 75 OHM, ANDREWS PN LDF4-75	FT	AR		
26	6145-00-J04-4471 28565K	CABLE, POWER, 2 COND 2 AWG, INS, STRAND, ANIXTER PN 3G-0202	FT	AR		
27	6145-00-J04-4470 28564L	CABLE, POWER, 4 COND 2 AWG, INS, STRAND, ANIXTER PN 3G-0204	FT	AR		
28	6145-00-J04-5592 25216D	CABLE, TELE, 25 PR, 24 AWG	FT	AR		
29	6145-00-J04-1029 22670J	CABLE, TELE, 50 PR, 22 AWG	FT	AR		

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TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22; the proponent agency is the United States Army Communications Command.

LOCATION: N/A

UNIT IDENT CODE:

TELER NUMBER: Change 1 to SEIP 011

DATE: 17 JAN 83

ITEM NO.	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
30	6145-00-J04-3340 27123L	CABLE, TELE, 50 PR, 19 AWG, WECO PN ALBW-50	FT	AR		
31	6145-00-577-8480 28563M	CABLE, 26 PR, STRAND, WM-130/G	FT	AR		
32	5805-00-992-0238 05671N	CASE, SPLICE, CLOSURE, RELIABLE PN 20B1	EA	2	NOTE 2	
33	5805-00-937-0644 06973J	CASE, SPLICE, CLOSURE, PN 9A (ORDER 2 FOR EACH SPLICE)	EA	AR	NOTE 3	
34	5805-00-991-6228 15649G	CASE, SPLICE, CLOSURE, RELIABLE PN 21B1	EA	2	NOTE 2	
35	5610-00-J04-4469 28562N	CEMENT, EVR-TITE, POURABLE	BL	1	NOTE 2	
36	5340-00-807-1065 08719G	CLAMP, CABLE, F/U/W ALBW-50 TELE CABLE	EA	2	NOTE 2	
37	5340-00-290-0778 24959A	CLAMP, LOOP, F/U/W RG-59	EA	1	NOTE 2	
38	5340-00-200-8559 09151K	CLAMP, LOOP, F/U/W LDF4-75 HELIAX	EA	4	NOTE 2	
39	5975-00-J04-4095 28129B	CLOSURE, CABLE, HOFFMAN PN A363012LP	EA	1		
40	5975-00-284-5971 02517W	CONDUIT, METAL RIGID, 3 IN, STEEL, 10 FT LENGTH	EA	AR		
41	5935-00-552-2341 28561Y	CONNECTOR, AMPHENOL, STD CIRC, PN MS3106B36-10S	EA	2	NOTE 2	
42	5935-00-J04-3363 27186Y	CONNECTOR, WIRE, 19-26 AWG, WECO PN 701-2A, (PKG OF 500)	PKG	1		
43	5340-00-J04-4102 28137J	COUPLING, SPLIT, OZ/GEDNEY PN SSP300	EA	3		
44	5975-00-J04-4116 23226E	DUCT, 6 IN X 6 IN X 36 IN, SQ D PN LC-63	EA	1		
45	5975-00-J04-4117 28153P	DUCT, "T", 14 IN X 6 IN X 6 IN, SQ D PN LC-6TO	EA	2		

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TELECOMMUNICATIONS DEVELOPMENT PROJECT — BILL OF MATERIALS

For use of this form, see AR 105-22, the proponent agency is the United States Army Communications Command.

LOCATION: N/A

UNIT IDENT CODE:

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ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
46	5975-00-J04-4118 28154Y	DUCT, 90 DEG, SQ D PN LC-690-LO	EA	2		
47	5340-00-J04-4068 28060K	END FITTINGS, CLEVIS, FORGED ALLOY STEEL, MCMASTER-CARR PN 3480131	EA	8		
48	5975-00-J04-0242 19842K	END SECTION, CABLE TERM, BOX COOK PN CJ-102	EA	2		
49	5325-00-248-7031 07487M	GROMMET, RUBBER, ROUND	EA	1		
50	5975-00-J04-4093 18241Q	HOUSING SECTION, CABLE TERM, BOX, COOK PN CH-102	EA	1		
51	5975-00-J04-4124 28161X	HUB, CROUSE-HINDS PN HUB 8	EA	4		
52	5975-00-J04-4096 28130Q	KIT, FLOOR STAND, HOFFMAN PN A-FK0612	KT	1		
53	5975-00-J04-2301 19387Y	KIT, GROUNDING, COOK PN 116-0426	KT	1		
54	5970-00-089-7952 07770P	KIT, SEALING, B, F/U/W SPLICE CASES	KT	AR	NOTE 3	
55	5940-00-144-1536 08248K	LUG, TERMINAL, SPADE TONGUE	EA	100	NOTE 2	
56	5310-00-616-2793 16883K	NUT, 1/2 IN-13 UNC-2, F/U/W RADOME ANCHOR BOLTS	EA	100	NOTES 1	AND 2
57	5310-00-J04-4069 28061J	NUT, 1.25 ID, FOR RADAR BRACKETS AND JACK MOUNTING,	EA	10	NOTES 1	AND 2
58	5975-00-J04-2738 26508W	PANEL, BACKBOARD, NEMA-12, HOFFMAN PN A36P30	EA	1		
59	5975-00-J04-4119 28155N	PLATE, CLOSING, SQ D PN LC-6CP	EA	4		
60	5935-00-917-0405 13396K	PLUG, AMPHENOL, PN 57-10500-7, F/U/W 25 PR TELE CABLE	EA	AR		
61	5975-00-J04-4087 28093K	PLUG, AMPHENOL PN 34750, F/U/W MS-59	EA	1	NOTE 2	

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ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQ REM
62	5935-00-201-6463 28560P	PLUG, UG-627A, F/U/W RG-59	EA	AR		
63	5935-00-J04-0997 23858Z	PLUG, CONNECTOR, N-TYPE, MALE ANDREWS PN L44W-75, F/U/W LDF4-75 CABLE	EA	AR	NOTE 3	
64	5935-00-J04-4468 28559C	PLUG, CONNECTOR, N-TYPE, FEMALE, ANDREWS PN L44N-75, F/U/W LDF4-75 CABLE	EA	AR	NOTE 3	
65	5975-00-102-0974 13533C	PROTECTOR, SPLICE, CABLE, WECO PN 50A	EA	1	NOTE 2	
66	5975-00-878-4868 21508D	ROD, GROUNDING, 3/4 IN X 10 FT, .012 COPPER JACKET	EA	AR		
67	5305-00-883-0627 12510C	SCREW, TAPPING, TYPE A, PAN HEAD, F/U/W CABLE CLAMPS AND PULL BOX MOUNTING	HD	1		
68	5305-00-883-0627 12510C	SCREW, TAPPING, TYPE A, PAN HEAD, F/U/W CABLE CLAMPS AND PULL BOX MOUNTING	HD	1		
68	5970-00-J04-0550 07651N	TAPE, BINDING, PLASTIC, NON-ADHESIVE, 4 IN W	EA	AR	NOTE 3	
69	5340-00-J04-4070 28062X	TURNBUCKLE, HOOK AND EYE, DROP FORGED STEEL, MCMASTER-CARR PN 2998T56	EA	4	NOTE 2	
70	5310-00-J04-4071 28063R	WASHER, FLAT, 1-3/8 IN ID, FOR 1-1/4 IN BOLT, MCMASTER-CARR PN 90108A040, 3 PER LB	LB	4	NOTES 1 AND 2	
71	5310-00-J04-4072 29064Q	WASHER, LOCK, FOR 1-1/4 IN BOLT, MCMASTER-CARR PN 91102A040	EA	10	NOTES 1 AND 2	
72	5330-00-930-4036 06339C	WASHER, SEALING, D-200, F/U/W SPLICE CASE (PKG OF 4)	EA	AR	NOTES 3 AND 4	
73	3439-00-819-4005 19566C	WELD METAL, CADWELD NO 90 (BOX OF 10)	BX	1	NOTE 2	
74	3439-00-819-4000 19517C	WELD METAL, CADWELD NO 115 (BOX OF 10)	BX	2	NOTE 2	
75	4010-00-J04-4073 29065F	WIRE ROPE, TYPE 304, STAINLESS STEEL	FT	25	NOTE 2	
76	4010-00-J04-4074 28066Y	WIRE ROPE, ASSEMBLY KIT, MCMASTER-CARR PN 829112	EA	*		

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ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
77	6145-00-299-4453 03597Z	WIRE, STRAND, UNINSULATED, 1/0 AWG, COPPER COND	FT	500		
78	6145-00-J04-4462 21822W	WIRE, ELEC, TW, STRAND, 2 AWG, 600V INS, YELLOW	FT	100		
79	5975-00-J04-4672 28868D	COUPLING, BREAK-AWAY, F/2 IN EMT, CROUSE-HINDS PN 10037-108	EA	AR		
		TOOLS				
80	5180-00-J04-4467 28558B	BOX, TOOL, CADWELD TYPE T-315	EA	1		
81	5120-00-946-7411 19513J	HANDLE, CLAMP, CADWELD L-160	EA	1		
82	5975-00-J04-2114 26266K	MOLD, CADWELD TYPE GTC-182C	EA	1		
83	35975-00-J04-4466 28557A	MOLD, CADWELD TYPE GYE-182C	EA	1		
84	5975-00-J04-4465 28556Z	MOLD, CADWELD TYPE RCE-522C	EA	1		
85	5975-00-J04-4464 28555J	MOLD, CADWELD TYPE TAC-2C2C	EA	1		
86	5120-00-930-4907 13704W	TOOL, QUICK CONNECT	EA	1		
87	5120-00-798-1939 21406A	TOOL, TERMINAL CRIMPING	EA	1		
		ESSCE RADOME REPAIR PARTS LIST RECOMMENDED FOR STOCKAGE AT DIRECT SUPPORT LEVEL				
	5895-00-J04-4506 28633Z	PANEL ASSY 3, W/ACCESS HATCH, PN B930-5	EA	1		
	5895-00-J04-4507 28634A	PANEL, ZENITH, FOR OBSTRUCTION LIGHT/LIGHTNING ROD/ ROPE PULLEY ASSY, PN A931-2-1Z	EA	1		
	5895-00-J04-4508 28635B	OBSTRUCTION LIGHT/LIGHTNING ROD/ROPE PULLEY ASSY PN PL705-82-1	EA	1		

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ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
	5895-00-J04-4509 28636C	KIT, ROPE TIE OFF, PN B705-70-1	EA	1		
	5895-00-J04-4510 29637D	KIT, WIRING, FOR OBSTRUCTION LIGHT, PN PL930-6-1	EA	1		
	5895-00-J04-4511 28638E	KIT, INTERIOR LIGHTING W/AC OUTLETS, PN PL930-7-1	EA	1		
	5895-00-J04-4512 28639F	WINDOW, BORESIGHT, 12 IN, PN B797-18	EA	1		
	5975-00-J04-4513 28640M	CAP, CLUSTER, COVER, 5 IN DIA, PN B874-14	EA	1		
	5975-00-J04-4514 28641L	CAP, CLUSTER, BLANK, 5IN DIA, PN A903-8	EA	1		
	6210-00-J04-4515 28642K	LIGHT, OBSTRUCTION, PN C705-85-1	EA	1		
	6210-00-J04-4517 28643J	LAMP, TRAFFIC, 6000 HRS LIFE, 116 WATTS, 120 VAC PN A825-1	EA	1		
	5975-00-J04-4518 28644Z	FAN, AIRFOIL, SIZE 10, 1055 CFM, 1/4 HP, 60 HZ, 115 VAC SINGLE 0, PN A-800	EA	1		
	5915-00-J04-4519 28645A	FILTER, AIR, CLEANABLE, PN A-817	EA	1		
	5975-00-J04-4520 28646B	CAP, CLUSTER, MODIFIED, (4B) PN B920-9-4B	EA	1		
	5975-00-J04-4521 28647C	CAP, CLUSTER, MODIFIED, (4T) PN B920-9-4T	EA	1		
	5895-00-J04-4522 28648D	PANEL ASSY, PN A-931-2-1	EA	1		
	5895-00-J04-4523 28649E	PANEL ASSY, PN A-931-2-2	EA	1		
	5895-00-J04-4524 28650N	PANEL ASSY, PN A-931-2-3	EA	1		
	5895-00-J04-4525 28651M	PANEL ASSY, PN A-931-2-4	EA	1		

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ITEM NO	STOCK NUMBER	NOMENCLATURE	UNIT	TOTAL REQ FOR PROJECT	AVAILABLE IN COMMAND	REQUIRED
	5895-00-J04-4526 28652L	PANEL ASSY, PN A-931-2-1A	EA	1		
	5895-00-J04-4527 28653K	PANEL ASSY, PN A-931-2-5	EA	1		
	5895-00-J04-4528 28654J	PANEL ASSY, PN A-931-2-6	EA	1		
	5895-00-J04-4529 28655Z	PANEL ASSY, PN A-931-2-7	EA	1		
	5895-00-J04-4530 28656A	PANEL ASSY, PN A-931-2-8	EA	1		
	5895-00-J04-4531 28657B	PANEL ASSY, PN A-931-2-9	EA	1		
	5895-00-J04-4532 28658C	PANEL ASSY, PN A-931-2-10	EA	1		

NOTES

NOTE 1. THESE ITEMS WILL BE FURNISHED BY: COMMANDER, TOBYHANNA ARMY DEPOT, ATTN: SDSTO-MP-S, TOBYHANNA, PA 18466

NOTE 2. IF THE SITE REQUIRES TWO RADAR SETS, DOUBLE THE QUANTITY OF THIS ITEM.

NOTE 3. THESE ITEMS ARE USED FOR SPLICING CABLE AND THE AMOUNT WILL VARY FROM SITE TO SITE.

NOTE 4. THIS JUNCTION BOX IS USED FOR THE TERMINATION OF THE COMM/ CONTROL CABLE IN THE CONTROL TOWER GCA OPERATIONS ROOM.

SECTION 6. QUALITY ASSURANCE PLAN

6.1 GENERAL. The quality assurance (QA) procedures for the Ground Control Approach (GCA) Systems and Radomes Radar Project have been developed in accordance with the provisions and criteria of CCR 702-1-2. The QA Program specified here and in Sections 7 and 8 will be implemented to provide assurance that the specified equipment and facilities have been installed in accordance with the requirements and criteria of this SEIP and are acceptable for use by the operating agency.

6.2 REFERENCES. The following references apply to this QA Program:

a. US Army Communications Command (USACC) Regulation 702-1-2, USACC Quality Assurance Program for Engineering, Installation and Acceptance of Communications-Electronics Equipment and Systems.

b. US Army Communications-Electronics Engineering Installation Agency (USACEEIA) Regulation 702-1, USACEEIA Quality Assurance and Testing Program.

c. USACEEIA Regulation 702-2, Preparation of Documentation for Test and Evaluation of Communications-Electronics Materiel.

d. USACEEIA Regulation 702-3, Role of the Test Director.

e. USACEEIA Regulation 702-4, Quality Assurance During On-Site Installation.

f. USACEEIA Regulation 702-6, Quality Assurance Reports.

g. USACCIA Regulation 702-7, Quality Assurance Corrective Actions.

h. US Air Force Technical Order (AFTO) Series 31-10-2 through 31-10-29, Standard Installation Practices.

i. US Army Communications-Electronics Installation Battalion (USACEI-Bn) Pamphlet 105-3, USACEI Bn, Communications-Electronics Installation Planning and Implementation Guide.

j. USACC Regulation 95-1, Management of Air Traffic Control Resources and Navigational Aids Facilities.

k. USACEEIA Memorandum 34-3, USACEEIA Modifications to Air Force Technical Manuals, Technical Order 31-10 Series.

l. USACC Technical Publication CCC-TED-75-TP-200, Quality Assurance Evaluation and Technical Acceptance Test Plan World-Wide Army Airfields/Heliports Communications and Navigational Aids (Revision 2).

6.3 QUALITY ASSURANCE PROGRAM

6.3.1 The QA Program defined herein consists of a planned and systematic approach for assessing the quality during the installation and acceptance testing of project implementation and correcting at the earliest time any discrepancies, deficiencies or shortcomings revealed through inspection and test efforts. The QA and Quality Control (QC) planning and functions will begin at the earliest stages of project implementation and end only after all possible corrective action efforts are completed and the GCA Radar and/or radome is released to the Operating or User Agency. QA and QC functions are to be performed by personnel operating independently from those charged with the engineering of the installation or involved in the process of installing the GCA radar facility. Under the Program, these functions are divided among three participating organizations: (1) the test agency, (2) the installation agency, and (3) the operating agency.

6.3.2 Test Agency. As the manager and implementer of the QA Program and acceptance testing efforts for this project, the Test Agency QA Representative (QAR)/Test Director is responsible for periodic in-process QA checks, final QA inspections and acceptance tests in accordance with management provisions of USACEEIA Regulation 702-3 and this SEIP. QA inspections will be performed at the discretion of this Agency for the purpose of assessing the effectiveness of the QC effort by the Installation Agency; initiating corrective actions thereto, as appropriate; and determining the extent to which the installation effort adheres to the requisite quality requirements. Acceptance testing is conducted in accordance with Section 7 and for the purpose of determining if the installed equipment complies with the technical requirements of this SEIP and that the installed equipment is suitable for the intended application. At the earliest stages of project initiation, the Test Agency is to identify a QAR/Test Director. For project continuity and effective management, a single individual should be assigned both roles. This will assure that the QA and test efforts are fully integrated and the following actions are expeditiously accomplished in the manner and sequence following:

a. Implement the QA concepts and requirements identified herein.

b. Assure that the participating elements and organizations are thoroughly familiar with their respective roles in support of QA, QC, and testing and have been properly tasked.

c. Validate through the use of project oriented reports, formal and informal contacts, project status reviews, on-site inspections, etc., the QC and installation efforts to assure compliance with the stated requirements and criteria of this SEIP. When an inadequacy is found to exist in the Installation Agency QC effort, a special QA Report will be submitted to this Agency, ATTN: CCC-TED-TRSS, in accordance with USACEEIA Regulation 702-6. In addition, the test agency will monitor and assess follow-up actions and bring to the attention of higher authority those discrepancies or differences which cannot be resolved at this level or in a timely manner.

d. Facilitate responsibilities by identifying and recording this information and data as required by USACEEIA Form 113-R, Cognizant Agency, Command and Facility Points of Contact (Figure 6-1). This form becomes a part of the project files and will be updated as necessary to assure orderly project execution. The dissemination of this information to the participants in the QA Program is encouraged.

e. Perform a final QA inspection using USACEEIA Form 111-R (Figure 6-2). tailored to the specifics of this effort. When the installation effort and checkout of the installed equipment have been completed, this SEIP and the AFTO series shall be the evaluation criteria for the site inspection efforts. This inspection will consist of thorough visual and mechanical observations of the installed materiel, QC records, on-site inspection and other factors to evaluate the quality of the work performed and its acceptability.

f. Conduct acceptance tests in accordance with the provisions of Section 7 of this SEIP, the subsidiary documents specified therein, and USACEEIA Regulation 702-3 (reference 6.2d) to determine the acceptability of the GCA Radar facility, as installed. If the results of any portion of acceptance tests are not satisfactory, corrective action efforts are to be initiated through on-site engineering, installation and operational participants and in the absence of such representation through channels. The QAR/Test Director may retest to verify that corrective action efforts have been implemented and that the efforts will preclude recurrence. After satisfactory resolution, he may subsequently resume acceptance tests. If these items cannot be resolved by on-site personnel, the QAR/Test Director will take either of the following actions: (1) reject the installed equipment and terminate testing until the matter is corrected or resolved, or (2) attempt to complete the acceptance tests noting the discrepancies, deficiencies, or shortcomings, as exceptions on the Technical Acceptance Recommendation (TAR), Form 98, Section 8. The participating agencies and organizations will be notified of these discrepancies, deficiencies and shortcomings at the earliest practical date.

g. Record and analyze test results, determine acceptability of the installed equipment, record the data and findings on the TAR and coordinate the data with the designated participants, prepare a final test report and make distribution in accordance with the guidance, direction and format of USACEEIA Regulation 702-2. Project tasking documents must be consulted for modification of the distribution requirements. The Acceptance Test Report will note outstanding installation and operational exceptions, and will recommend corrective actions to be taken by the responsible and participating agency(ies). The report will document project completion with correction of the exceptions being documented by correspondence or supplemental test reports as determined by the QAR/Test Director or Test Agency, as appropriate.

6.3.3 Installation Agency. In accordance with the provisions and authority of USACEEIA Regulation 702-4, the Installation Agency will establish and maintain a QC system. The QC system will assure that assessments of quality are conducted in accordance with the published procedures and that the results of the Agency's QC inspections and follow-up actions are adequately recorded.

COGNIZANT AGENCY, COMMAND, AND
FACILITY QA POINTS OF CONTACT
(CCCR 702-2)

	Individual POC	Bldg. No.	Rm. No.	Phone No.	Name of Agency
Installation:					
Team Leader					
Assistant Team Leader					
Quality Control					
Quality Assurance Agency:					
Representative					
Testing Activity					
Operating Agency:					
Representative					
Site Commander					

HQ CEEIA CCC-TED-QA FM 113-R
1 JAN 79

Figure 6-1. QA Points of Contact.

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	DATE (Day, Month, Year)
SITE	LOCATION
PROJECT NAME	TASK NO.

REFERENCES FOLLOW MAIN AND SUB PARAGRAPHS	YES	NO	NA
A. Drawings and Specifications (AFTO 31-10-3, -9, -27, -29, USACEEIA PAM 105-10):			
1. Is the EIP complete and available?			
2. Are floor plans available?			
3. Are equipment location drawings available?			
4. Are face layout drawings of equipment in bays available?			
5. Are drawings for the MDF/CDF/IDF/CCFB block assignments available?			
6. Is stenciling of terminal blocks shown on drawings?			
7. Are pin connections on terminal blocks shown on drawings?			
8. Are drawings of AC/DC power distribution equipment available?			
9. Are wire sizes and circuit breaker capacity shown on drawings?			
10. Are schematic diagrams of typical circuits to be installed included in drawings?			
11. Are drawings of site grounding systems available?			
12. Do specifications contain a list of reference material required by installers?			
13. Are drawings showing the arrangement of cable racks, ducts, and trenches available?			

HQ CEEIA CCC TED-QA FM 112-R
Rev (6 JAN 79) Previous edition 1 JAN 79 is obsolete.

Figure 6-2. QA Inspection Checklist - Installation.

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
14. Do specifications contain the cable running list for power distribution?			
15. Do specifications contain the cable running list for signal cabling?			
16. Do specifications contain the cable running list for RF cabling?			
17. Do specifications contain the cable running list for optical cabling?			
18. Do specifications contain detailed information on grounding/bonding/ shielding?			
19. Do specifications contain details on all special instructions for installers?			
20. Do the drawings reference all applicable items to the BOM?			
B. Tools and Equipment (AFTO 31-10-29):			
1. Is equipment damaged or unserviceable?			
2. Are all installation materials on hand and serviceable?			
3. Are all special tools necessary for completion of the job on hand?			
4. Will all test equipment needed for test and checkout be available?			
5. Is the BOM equipment available at the facility?			
6. Is the C-E equipment BOM available at the facility?			
7. Has the C-E equipment been inventoried and are discrepancies reported (2-13)?			
C. General Safety Practice (AFTO 31-10-all):			
1. Are goggles worn when drilling and grinding?			

2

Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)			
	YES	NO	NA
2. Are all sharp edges properly disposed of?			
3. Are hand tools properly used?			
4. Are electric tools properly grounded?			
5. Are rubber gloves used when working near electrical hazards?			
6. Is first-aid equipment on site?			
7. Are emergency numbers posted conspicuously?			
8. Are safety practices observed during the installation?			
D. Floor Plan Layout (AFTO 31-10-9):			
1. Are equipment layout plans in accordance with drawings?			
2. Was the layout plan completed before equipment was moved into area?			
3. Are reference lines still visible/useable (2-11)?			
E. Erecting and Mounting (AFTO 31-10-29):			
1. Is equipment laid out in accordance with floor plan drawing (2-10)?			
2. Are equipment bays level and plumbed within tolerances (2-42)?			
3. Has proper spacing been provided between equipment racks (2-36)?			
4. Are base angles of frames secured to floor in the proper location (2-48)?			
5. Are all cabinets flush mounted and plumbed (2-36)?			
6. Has the finish of equipment/cabinets/racks been touched up (3-2a)?			

3

Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
7. Are bolts and screws free from stripped threads and defaced heads (3-3f)?			
8. Are sufficient clearances provided between apparatus for heat dissipation (3-11)?			
9. Are terminal blocks aligned on MDF/CDF/IDF (3-23)?			
10. Has equipment been installed in cabinets or racks in accordance with face layouts?			
11. Are all nuts and bolts securely tightened (3-3h)?			
12. Are exposed or cut ends of metal filed smooth and painted?			
13. Are the correct lock and flat washers used (3-3a, e, and f)?			
F. Cable Racks (AFTO 31-10-6):			
1. Location of cable racks:			
a. Are racks located in accordance with the cable plan drawing (3-17)?			
b. Does the height of racks conform to the drawing (3-13)?			
c. Are racks located so that clearances for installation and maintenance of equipment are unencumbered (3-14)?			
d. Are racks located so cables are not subject to damage, exposure, or other detrimental conditions (3-36a)?			
2. Assembly of cable racks:			
a. Are long sections of racks used where possible (3-3b)?			
b. Have clamping details been altered other than where necessary to avoid interference?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
c. Are open ends of racks properly closed (3-34)?			
d. Are vertical racks properly terminated on floors (3-36h)?			
3. Support of cable racks:			
a. Are racks properly supported and fastened (3-36b)?			
b. Are racks installed so that no excessive load or binding is imposed on the equipment (3-36e)?			
c. Are horizontal racks supported on 5' centers but not exceeding 6' (1-16)?			
d. Has support been provided within 3' of free end of rack (1-16)?			
e. Are racks braced to prevent sway (2-50)?			
f. Are racks level (3-33)?			
G. Running Cable (AFTC 31-10-13):			
1. Are cable runs made in accordance with cable running list (1-34)?			
2. Are cables twisted or crossed on cable rack (1-43)?			
3. Do cables at turns or bends conform to the bending radius and maintain their position (1-42)?			
4. Is protection provided where cable sheaths contact rough or sharp edges or metal (1-53)?			
5. Are cables, which are turned off over the side of cable racks, formed with the minimum allowable radius (1-42)?			
6. Are cables turned off rack horizontally and then up/down (1-42)?			
7. Do cables to the MDF/CDF/IDF enter on the vertical side (3-56)?			

5

Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
8. Are cables serving the horizontal side of a frame secured to the transverse arms near the vertical upright (3-58)?			
9. Are cable tags properly prepared and in accordance with the cable running list (1-26)?			
10. Are cable tags secured at each end of the cable run (2-3)?			
11. Have cable tags been removed upon completion of verification and termination excluding coaxial cables (1-32)?			
12. Are cable butts located as near as practicable to the point where the first conductors turn out (4-8)?			
13. Are cable butts properly treated (4-9)?			
14. Is the cable pile-up exceeded (1-18)?			
15. Are the conductors damaged at the cable butt (4-9)?			
16. Are the AC/DC power cables separated for signal cables (1-43)?			
17. Are the correct color conductors used for power runs(AFTO 31-10-2, 3-100)?			
H. Securing Cable (AFTO 31-10-2, -13)?			
1. Is the starting stitch properly made and placed (3-22)?			
2. Is the required Kansas City City Stitch properly made (3-26)?			
3. Are first and succeeding layers properly secured (3-23)?			
4. Are cables secured at every other cable rack cross strap on horizontal runs (3-21)?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
5. Are cables secured at every cable rack cross strap on vertical runs (3-53)?			
6. When cable butt is between securing devices, are cables secured together with the appropriate stitch (3-54)?			
7. Are lock stitches properly made and spaced (3-32)?			
8. Are splices in twine properly made (3-32)?			
9. Are cables protected where twine is apt to cut or damage cable (3-3)?			
10. Is the correct amount of cable secured under one stitch (3-16)?			
I. Sewed Forms (AFTO 31-10-2):			
1. Is proper size twine used for the diameter of the form (3-25)?			
2. Are the proper stitches used and spaced (3-26, 3-30)?			
3. Are wires formed correctly (3-49)?			
4. Are the skinners the correct length (2-26)?			
5. When ty-wraps are used, are the correct size and spacing maintained (3-42)?			
6. Are spare wires treated correctly for the form (3-51)?			
J. Butting and Stripping (AFTO 31-10-13):			
1. Are the proper tools used (4-9, 4-15, 4-24)?			
2. Are the cable butts properly dressed (4-32, 4-34)?			
3. Is the proper distance maintained from the cable to the fanning strip (4-8)?			
4. Is the cable butt adequately supported (3-54)?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
5. Are the conductors damaged at the cable butt (4-9)?			
K. Fanned and Formed Conductors (AFTO 31-10-2):			
1. Are cables fanned and connected to the correct side of the terminal blocks (2-7)?			
2. Are the conductors in the fanned form twisted and bunched (2-14)?			
3. Are fanned forms straight and taut from the cable butt to the fanning strip (2-23)?			
4. Is the length of the skinners correct (2-26)?			
5. Has the correct color code been followed (2-28)?			
6. Are spare/unused/unequipped conductors disposed of properly (2-31)?			
7. Are the shields properly disposed of (3-79)?			
L. Stenciling (AFTO 31-10-27):			
1. Is equipment correctly identified and stenciled in accordance with floor plan drawings (1-24)?			
2. Are designations located correctly (2-16)?			
3. Are correct size designations used on particular types of apparatus or equipment (2-16)?			
4. Are the correct abbreviations used (3-3, 3-5)?			
M. Strapping (AFTO 31-10-16):			
1. Are the straps properly placed (1-15)?			
2. Is the correct type of strap wire used (1-17)?			
3. Does the insulation extend to the terminal (2-9)?			
4. Do the straps interfere with the operation of the equipment?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
5. Do the straps make maximum contact with the terminals (2-6)?			
6. Do wrapped straps conform to the criteria of wrapped conductors (AFTO 31-10-1, 2-111)?			
7. Do straps obscure equipment designations (2-52f)?			
N. Terminating and Soldering Conductors (AFTO 31-10-7):			
1. Are the soldering clamp and solder bag used when connecting conductors (2-45a)?			
2. Is the proper soldering iron used (2-5)?			
3. Is all soldering done with the correct rosin core solder (2-22)?			
4. Is the conductor connected to the terminal correctly (2-34, 2-38)?			
5. Do skinners on terminals, both wrapped and soldered, exceed 1/16"(2-34)?			
6. Is the insulation burnt, frayed, or otherwise damaged (2-34)?			
7. Have all unsightly flux and excess globules of solder been removed?			
8. Are the conductors given a continuity test after termination?			
9. Are wrapped connections applied only to suitable terminals (2-113)?			
10. Are mechanical connections making good contact, secure, and under no local stress (2-81)?			
11. Do pressure connections provide a good electrical connection (2-86)?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
12. Are the required number of turns in contact with the terminal in accordance with the gauge of wire used (2-120)?			
13. Are the conductors dressed on the terminal block after termination?			
14. Are wrapped connectors soldered where necessary (2-131f)?			
15. Do the wrap connections appear uniform with no open spirals, overwraps, or shiners exceeding 1/16" (2-131)?			
O. Cross Connections (AFTO 31-10-11):			
1. Are jumpers routed at the MDF/CDF/IDF correctly (2-6)?			
2. Is there sufficient slack remaining after termination (2-32)?			
3. Are conductors twisted between fanning strip and terminal (2-34)?			
4. Does the pair twist remain in conductors beyong the rear of the fanning strip (2-34)?			
5. Are jumpers properly dressed (2-54)?			
6. Are jumpers made in accordance with the cable running list?			
7. Is the correct gauge wire used?			
8. CCP's (USACEEIA PAM 105-10):			
a. Are sufficient jacks/plugs available for use with the CCP's (3-1)?			
b. Are jumpers made with 26 AWG wire only (3-1a)?			
c. Are modular tools available (3-2)?			

Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
3. Are the external strength members of the OFC properly served?			
4. Are the fibers properly terminated?			
U. Waveguides and Antennas (USACEEIA PAM 105-3):			
1. Are waveguides stored horizontally and away from heavy objects (7a)?			
2. Are waveguides inspected for damage and cleaned prior to installation (7a)?			
3. Are waveguides supported correctly (7a)?			
4. Are the feed horns aligned correctly?			
5. Do waveguide bends conform to the minimum radius (8b, 8e)?			
6. Are antennas/reflectors mounted at the prescribed heights?			
7. Are antennas/reflectors oriented to the correct azimuth?			
8. Are E and H plane benders on hand for elliptical waveguides?			
9. Are waveguides grounded correctly (7-6 (7))?			

QUALITY REPRESENTATIVE

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
2. Is the percent of fill or voltage rating of the duct exceeding (3-5, 3-50)?			
3. Are junction boxes of underfloor raceway level and secure (-3-26)?			
4. Are all covers secured in place?			
5. Have all entrance/exit holes for outside ducting been properly sealed(2-23)?			
6. Is the red/black criteria observed?			
S. Coaxial Cables (AFTO 31-10-14):			
1. Is cable inspected for damage prior to termination?			
2. Where required, is cable sewn in the same manner as signal cable?			
3. Are the correct connectors on cable ends (2-6)?			
4. Are connections secure, free of excess solder, and electrically open (1-42, 1-55)?			
5. Are cable tags still connected to both ends of the RF cable (3-29)?			
6. Is the bending radius exceeded (1-73)?			
7. Are the cables properly supported (1-26, 3-21)?			
8. Are rigid cables properly grounded (1-46, 3-27)?			
9. Is the pressure maintained (1-75, 3-61)?			
T. Optical Fiber Cables (OFC):			
1. Are the OFC protected so that external conditions will not crush the fibers?			
2. Has adequate slack been provided for maintenance loops?			

Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY CHECKLIST - INSTALLATION (CCCR 702-2)	YES	NO	NA
P. Equipment and Signal Grounds (AFTO 31-10-24, MIL-STD-188-24, TM 11-487-4):			
1. Are equipment and signal grounds installed in accordance with applicable drawings?			
2. Are the correct color coded cables used?			
3. Are grounds/bonds/shields protected from external corrosion?			
4. Are the correct screw/washer/nut combinations used on ground junctions?			
5. Are equipment/signal/protective grounds connected at the station ground box only?			
6. Are the signal grounds and signal buss insulated?			
Q. Conduit (AFTO 31-10-12):			
1. Are burrs removed from conduit after cutting (2-40)?			
2. Is the bending radius exceeded (2-55)?			
3. Are there more than 360 degrees of total bends in a single conduit run(2-46)?			
4. Does the number of conductors in a conduit exceed the established criteria (2-16)?			
5. Are conduits supported at intervals not exceeding 6' and within 3' of the end or outlet box (2-58)?			
6. Are flexible conduits terminated correctly (2-98)?			
7. Are all connections tight and secure?			
8. Are secure conduit runs correctly marked?			
R. Metal Ducts (AFTO 31-10-12):			
1. Are the ducting/raceways supported and anchored adequately (2-97, 3-10)?			

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Figure 6-2. QA Inspection Checklist - Installation (Continued).

QUALITY ASSURANCE/MIL-Q-9858A/ MIL-I-45208 PROGRAM CHECKLIST (CCCR 702-2)			DATE (Day, Month, Year)
SITE/LOCATION		PROJECT NAME	QUALITY ASSURANCE REPRESENTATIVE (QAR)
___QA	___MIL-Q-9858A	___MIL-I-45208	TASK NO.

	YES	NO	NA
1. Is the on-site inspection/quality program available for review?			
2. Does the inspection system/quality program address the pertinent requirements which will assure that all conditions are complied with?			
3. Are quality personnel and their responsibilities identified?			
4. Are detailed work instructions provided and complied with?			
5. Do records provide useful information, data, and indicate follow-up action?			
6. Are provisions made for prompt corrective actions when deficiencies occur?			
7. Are procedures provided and complied with for prevention and correction of defects?			
8. Are pertinent documents and drawings available?			
9. Are procedures provided and complied with for updating and controlling documents and drawings?			
10. Are procedures provided and complied with for storage of material prior to installation.			
11. Are in-process and final test and inspection procedures available and used?			
12. Is inspection system being complied with in all phases?			

HQ CEEIA CCC TED-QA FM 111-R
(Rev 1 Jan 79) Previous edition 6 DEC 78 is obsolete.

Figure 6-3. QC Checklist - Installation (sheet 1 of 2).

QUALITY ASSURANCE/MIL-Q-9858A/MIL-I-45208 PROCRAM CHECKLIST (CCCR 702-2)			
	YES	NO	NA
13. Are procedures provided for control of subcontractor's work?			
14. Are procedures provided for calibration and controlling of test equipment?			
15. Are procedures provided for handling, inspection, and test of furnished material?			

NOTE: IF THE "NO" COLUMN IS CHECKED, EXPLAIN HERE, AND CONTINUE ON REVERSE SIDE IF NEEDED.

Figure 6-3. QC Checklist - Installation (sheet 2 of 2).

USACEEIA Form 112-R (Figure 6-3) may be used for this purpose. The records are to be made available for review and evaluation by the Test Agency's QAR/Test Director. The shakdedown checkouts are to be satisfactorily completed and necessary corrections made prior to offering the equipment for acceptance testing. The installation activity's QC system must meet all procedures contained in USACEI Bn Pamphlet 105-3 (reference 6.2h). The Installation Agency will designate a QAR, who will assure that the following actions are expeditiously performed:

a. Assure that QC procedures are effectively applied on this installation and establish the reporting requirements consistent with this project, the SEIP, and all policies. Assure that the corrective action efforts related to the installation are resolved and corrected at the earliest possible point in the installation effort.

b. Assure that adequate test equipment is available for shakedown and acceptance testing. Reliance is to be placed upon the Operating Agency to supply test equipment when it is common to operations and maintenance (O&M) functions.

c. Assure that shakedown is accomplished as specified and any corrective action is completed prior to acceptance testing.

d. Advise the QAR/Test Director of the anticipated completion date at the earliest time. This notice should be given not less than 15 days days prior to the scheduled completion to permit efficient and expeditious transportation of test personnel and equipment.

e. Assure that an adequate complement of personnel remain on-site to assist in the final QA Inspection and Acceptance Testing.

f. Assure the QA inspection records and installation documentation are maintained on-site and readily available to the QAR/Test Director. When the on-site effort is completed, the QC documentation shall be placed in the project files and maintained for 1 year.

6.3.4 Operating Agency. The Operating Agency will desigante a representative early in the project but no later than the start of installation. This representative will assure that the following actions are taken and expeditiously completed:

a. Provide administrative and typing support.

b. Serve as interface between the installation, QA and test personnel and the Operating Agency.

c. Assist in resolution of discrepancies, deficiencies, and shortcomings.

d. Provide O&M personnel to assist on an as-required basis.

e. Provide test equipment as required to support the shakedown and acceptance tests.

f. Provide a representative to witness the acceptance test and sign the TAR.

6.4 SPECIAL CONSIDERATIONS

6.4.1 Interruptions. QA inspections and tests may be interrupted at any point if disrupted by an equipment or system malfunction. They may also be interrupted at a compatible breaking point to permit scheduled duty breaks. Any inspection that is interrupted because of equipment malfunction shall be restarted at a point determined appropriate by the QAR/Test Director.

6.4.2 Substitutions. Spare equipment may be substituted for malfunctioning equipment with the approval of the QAR/Test Director. Any equipment which has been replaced shall be repaired and retested. During acceptance tests, no piece of equipment, including cables, conduit, etc., may be changed or adjusted without the approval of the QAR/Test Director.

6.4.3 Corrections or Modifications of Documentation. Sites plans, specifications, SEIPs, drawings, etc., are to be acquired by QA, QC, and test personnel prior to commencement of the specified work effort. Any drawing discrepancies noted shall be corrected using yellow markings to record deletions, red markings to record additions, and blue markings for notes to the draftsman. Site documentation will be marked in the same manner. The designated Installation Agency representative will deliver a copy of the marked-up drawings to the on-site USACEEIA installation engineering element and in the absence of an engineer to Commander, USACEEIA, ATTN: CCC-CED-VCD, Fort Huachuca, AZ 85613. In all cases, a complete set of marked drawings will be left on-site for and maintained by the Operating Agency.

6.4.4 Radome Installations. Installations involving the addition of a radome only will require a QC inspection by the installation agency but not require acceptance testing as in the case of the installation of electronic equipment. When the radar RT unit is moved or repositioned in such an installation, it will be the responsibility of the O&M Command to assure proper operation following repositioning. In this case, an FAA flight check will also be required.

SECTION 7. ACCEPTANCE TEST PLAN AND PROCEDURES

7.1 GENERAL. This section contains the test procedures and states the special conditions which apply to shakedown and checkout and acceptance tests for the installed equipment. On-site tests are performed to determine if the equipment has been installed correctly, performs in accordance with the technical requirements of this SEIP and subsidiary documents and is operationally suitable for the intended application.

7.2 TESTING

7.2.1 Shakedown Test and Checkout. Functional tests will be conducted by the Installation Agency for the purpose of assuring that the equipment is aligned and operable and the installation is in accordance with the engineering documentation. These tests and checkouts will be conducted in coordination with personnel of the Operating Agency using the test plan identified in paragraph 7.2.2 and applicable technical bulletins and technical manuals available to the Operating Agency (the user). These tests will be conducted prior to the Installation Agency offering the installation for acceptance tests. As stated in Section 6, the Installation Agency is to anticipate the installation completion date and notify the Test Agency of this completion not less than 15 days days of scheduled date.

7.2.2 On-site Acceptance Tests. On-site acceptance testing will be accomplished in accordance with USACEEIA Publication CCC-TED-75-TP-200, Quality Assurance Evaluation and Technical Acceptance Test Plan for Worldwide Army Airfields/Heliports Communications and Navigational Aids (Revision 2). These tests will be preceeded by a thorough QA inspection in accordance with the requirements of Section 6. Tests will be conducted in a normal operating environment. Abnormal ambient conditions (e.g., temperature, humidity, or barometric pressure) during any test will be noted in the test log with detailed remarks included with the test results. The Test Director will determine if any retesting is required. The Operating Agency will provide personnel to operate and maintain the equipment during tests. Installation Agency will provide personnel to assist the Test Director in the conduct of tests and measurements.

7.2.3 Test Equipment. A complete listing of the required test equipment is contained in USACEEIA Publication CCC-TED-75-TP-200. Although the Installation Agency is responsible for assuring that the required complement of test equipment is available for installation, inspection and test purposes, this test equipment should be available on-site from the Operating Agency.

7.2.4 Test Results. When one or more tests fail to meet requirements, the Test Director will determine which portion(s) of the test was affected and which portion(s) of the equipment or facility is to be retested. All deficiencies will be corrected, or, if not corrected, the deficiencies will be listed as exceptions on the TAR and outlined in the Test Report.

7.2.5 Flight Checks. Operational flight inspections will be performed by Federal Aviation Administration (FAA) qualified Air Traffic Control (ATC) personnel in conjunction with the acceptance tests and under the direction of the Test Director. Flight inspections will determine whether or not the installed equipment functions correctly and performs in accordance with individual equipment and system mission requirements. This flight inspection is documented on the Ground/Air Flight Inspection Report, USACEEIA TED Form 10-5R. Copies of this report will be furnished participating agencies and included in the test report and retained in project files.

7.2.6 Technical Acceptance Recommendation (TAR). Based on the QA inspections, QC reports and documentation and acceptance test results, the Test Director will determine the acceptability of the work effort. The Test Director will prepare and distribute the TAR in accordance with the requirements of Section 8. Preparation of the TAR will be accomplished on-site immediately following acceptance tests.

7.2.7 Test Report. The Test Agency will prepare and distribute a test report in accordance with USACEEIA Regulation 702-2 as amended by the individual SEIP and tasking documents. Copies of the completed TAR and Quality Inspection Checklist-Installation (USACEEIA Form 112-R) will be included.

SECTION 8. COMPLETION CERTIFICATION

8.1 GENERAL. The results of the QA inspections and acceptance tests specified in Sections 6 and 7 of this SEIP will be documented on-site by the QAR/Test Director using USACEEIA Form 98-R (TAR). The purpose of this technical document is to record the significant project information to include the scope of the effort, results and conclusions of the requisite inspections and tests, exceptions to the technical requirements, and recommendations regarding acceptance with or without exceptions or rejection of the work effort. The TAR also provides for participants to indicate agreement or disagreement with the inspection and test assessments and for the user to state a willingness to technically accept the installed equipment. In accordance with CCR 95-1 (reference 6.2k), a representative from the US Army Air Traffic Control Activity (USAATCA) should participate during acceptance testing to assure that the system will fulfill the operational requirements of the user and the supported aviation unit. The USAATCA representative will also be a signatory on the TAR. Additional information on TAR usage and instructions for completion are provided in CCCR 702-2.

8.2 DISTRIBUTION. A copy of the TAR will be provided to the signing participants and the Operating Agency. The original copy will be maintained in the Test Agency project files but copies will be reproduced and included as a part of the test report.

8.3 WAIVERS. Waivers to include command approvals for individual installations will be recorded in the TAR and copies attached for the purpose of clarifying deviations from this SEIP.

TECHNICAL ACCEPTANCE RECOMMENDATION (SUMMARY) (CCCR 702-2)		PAGE OF PAGES DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NO.	TITLE	LOCATION
FACILITY		TEST DIRECTOR
OPERATING AGENCY	ENGINEERING AGENCY	
INSTALLATION AGENCY	TESTING AGENCY	
PROJECT DESCRIPTION		

This Technical Acceptance Recommendation is executed by the onsite representatives of the installation, test and operating agencies. It does not constitute official acceptance of the project but does certify that the MAJOR ITEMS INSTALLED AND DOCUMENTATION PROVIDED are as stated herein. This document further certifies that the project has been installed and performs satisfactorily in accordance with the requirements listed under REFERENCES *except as noted under* EXCEPTIONS and REMARKS. *Upon execution of this* TECHNICAL ACCEPTANCE RECOMMENDATION, USACEEIA *considers this project complete except for such follow-on action as may be necessary to clear the* EXCEPTIONS *stated herein.*

HQ CEEIA CCC-702-QA FM 98-R
(Rev 1 Jan 79) Previous edition 27 Mar 78 is obsolete.

Figure 8-1. Technical Acceptance Recommendation (sheet 1 of 6).

TECHNICAL ACCEPTANCE RECOMMENDATION (INSTALLED EQUIPMENT) (CCCR 702-2)		PAGE OF PAGES DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION
MAJOR EQUIPMENT INSTALLED/RELOCATED		

BOM ITEM NO.	DESCRIPTION	PART NUMBER/FSN	QUANTITY

Figure 8-1. Technical Acceptance Recommendation (sheet 2 of 6).

TECHNICAL ACCEPTANCE RECOMMENDATION (DOCUMENTATION) (CCCR 702-1)		PAGE OF PAGES
		DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION
PROJECT DOCUMENTATION PROVIDED		
REFERENCE DOCUMENTATION	TITLE	NO. OF COPIES

Figure 8-1. Technical Acceptance Recommendation (sheet 3 of 6).

TECHNICAL ACCEPTANCE RECOMMENDATION (EXCEPTIONS) (CCR 702-2)		PAGE OF PAGES DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION

EXCEPTIONS ENGINEERING INSTALLATION OTHER	SUGGESTED ACTION AGENCY

Figure 8-1. Technical Acceptance Recommendation (sheet 4 of 6).

TECHNICAL ACCEPTANCE RECOMMENDATIONS (REMARKS) (CCCS 7012)		PAGE OF PAGES
		DATE (DAY, MO., YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION
REMARKS:		

Figure 8-1. Technical Acceptance Recommendation (sheet 5 of 6).

TECHNICAL ACCEPTANCE RECOMMENDATION (CERTIFICATION)		PAGE OF PAGES DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION
CERTIFICATION Acceptance tests and Quality Assurance Inspections are complete for equipment installed under this project.		
WITHOUT EXCEPTIONS ☐ WITH NOTED EXCEPTIONS ☐		
INSTALLATION AGENCY		SIGNATURE AND TITLE PRINTED
OPERATING AGENCY		SIGNATURE AND TITLE PRINTED
TEST AGENCY		SIGNATURE AND TITLE PRINTED
ACCEPTANCE Equipment herein certified successfully installed and tested, is accepted.		
OPERATING COMMAND		SIGNATURE TITLE

Figure 8-1. Technical Acceptance Recommendation (sheet 6 of 6).

30 June 1981 SEIP 011

(CCC-CED)

FOR THE COMMANDER:

OFFICIAL:

R. K. BOWERS
Colonel, Signal Corps
Deputy Commander

MERTON M. K. CHUN
Lieutenant Colonel, Signal Corps
Executive Officer

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This standard engineering installation package is based on the most current thinking at US Army Communications Command. Your experience and help can improve our responsiveness in this area. Please send us your comments. Thanks.

Comments on SEIP ____ (please give number)

SEIP MGT Officer
AUTOVON 879-6719

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Rank	Name	Duty position	Duty station	AUTOVON number

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