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STANDARD ENGINEERING INSTALLATION PACKAGE. AUTOSEVOCOM HY-11/HY--ETC(U)
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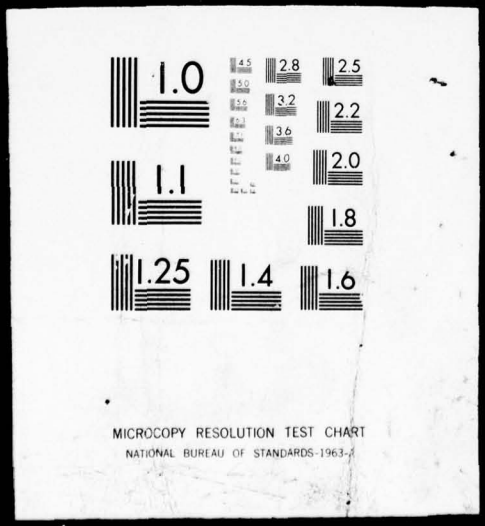

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STANDARD
ENGINEERING INSTALLATION PACKAGE

AUTOSEVOCOM
HY-11/HY-2 ALTERNATE AUTOVON
ACCESS CONFIGURATION

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19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*
AUTOSEVOCOM HY-11/HY-2 Alternate AUTOVON Access Configuration, consists of interface relay assembly and components of HY-11/HY-2 sys comprised of electronic key generator TSEC/KG-13, high speed modem DS-9601, modem MD-823 or WECo 207C, electrical synchronizer SN-394/G, switching Control (SCS) SA-1704/G, speech security equip TSEC/KY-3 and single frequency signaling unit (SFU) TA-825/G.

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*
This Standard Engineering Installation Package (SEIP) assists engineers, technicians, logistics personnel and project officers to engineer, install and standardize AUTOSEVOCOM facilities for alternate access (local wideband/narrowband subscribers) into the AUTOVON system. Document provides a system description along with information on the functions of the main components in this equipment configuration. Document also provides necessary drawings and list of applicable documents, to include necessary installation/modification instructions and bill of materials with which to accomplish system modification. The SEIP describes

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quality assurance inspections and gives sample forms to ascertain areas of responsibility, checklists, and certification. One section provides detailed test plan and checkout procedure and suggests the form for a technical acceptance record. The SEIP also contains a completion certificate that verifies the project has met all test criteria.

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

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No. 028

25 July 1977

Standard Engineering Installation Package AUTOSEVOCOM HY-11/HY-2 ALTERNATE AUTOVON ACCESS CONFIGURATION

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SECTION 1. GENERAL

1.1 BACKGROUND. The US Army Communications-Electronics Engineering Installation Agency (USACEEIA) is responsible for engineering and installing automatic secure voice communications (AUTOSEVOCOM/narrowband subscriber terminals (NBST)), narrowband trunk units (NBTU), and selected hardware in support of communications at designated Army sites. The contents of this document have been approved by the AUTOSEVOCOM Configuration Control Board and are intended for use as applicable throughout the US Army and other Department of Defense (DOD) facilities. Each DOD activity will be responsible for adapting this engineering package to its respective sites. The US Army standard will be the unitized Assembly #2, Drawing COM-TL03-152, sheet 2. This Standard Engineering Installation Package (SEIP) contains information for activities involved in the engineering, installation, and testing of HY-11/HY-2 equipment modified for dual access configuration. SEIP's 003 and 007 were prepared specifically for the HY-2 and HY-11 systems respectively. This SEIP contains information solely for the modification of existing systems with the external relay assembly. Section 4 contains specific instructions for the application of drawings as required for a particular site. Complete titles and ordering information may be found in section 4.

1.2 SYSTEM DESCRIPTION.

1.2.1 External Relay Assembly (ERA). The HY-11/HY-2 Alternate AUTOVON Access Configuration is accomplished by the external relay assembly. The relay provides the capability by which two NBTU's may share, singularly, one AUTOVON access circuit. The four-wire AUTOVON circuit is connected to the relay via a single frequency signaling unit (SFU) with a secure voice switchboard (SECORD) and its associated switching control subsystem and other components of the AUTOSEVOCOM system as indicated by Drawing COM-TL03-150, HY-11/HY-2 Alternate AUTOVON Access Block Diagram.

1.2.2 Narrowband Trunk Unit. The narrowband trunking unit contains secure equipment which enables a user to place or receive a telephone call over the automated secure voice communications network in a secure mode. Secure voice signals are coded as digital pulses, encrypted, and transmitted as quasi analog signals via a MODEM.

1.2.3 SECORD. Local wideband and narrowband subscribers obtain access to AUTOSEVOCOM and AUTOVON through the NBTU and manually operated desk-top secure voice Manual Telephone Switchboard SB-3259/G known as the SECORD (figure 1-1). Connections are provided (figure 1-2) by the use of double-ended dual-plug manual patch cords. The

SECORD is capable of serving up to 16 wideband or narrowband subscribers and can also terminate five trunks.

1.2.4 Major Components of the NBTU. Drawing COM-TL03-150 is a block diagram of the two NBTU's utilized in this configuration and their interrelationships. Listed below are the major components in each NBTU:

	NBTU #1	NBTU #2
CVSD Coder - Decoder TSEC/HY-11		X
Coder - Decoder TSEC/HY-2A	X	
Electronic Key Generator TSEC/KG-13	X	X
High Speed MODEM (Rixon DS 9601)		X
MODEM MD-823 or WECo 207C	X	
Electrical Synchronizer SN-394/G	X	X
Switching Control Subsystem SA-1704/G	X	X
Speech Security Equipment TSEC/KY-3	One common to both NBTU's	
Frequency Signaling Unit TA-825/G	One common to both NBTU's	

1.3 FUNCTIONAL DESCRIPTION.

1.3.1 Narrowband Trunk Unit. The NBTU's (#1 and #2), with their ancillary equipment, convert the wideband ciphony data stream to 9.6 or 2.4 kb/s data for transmission via conditioned 4 kHz circuits.

1.3.2 External Relay Assembly. The relay provides the switching of the transmit and receive lines, E&M leads and the KY-3 alarm circuit to either the HY-2 NBTU or the HY-11 NBTU. If the secure mode of operation with the HY-11 equipment is selected, the relay will be energized, switching the circuit path to the HY-11 NBTU. During the idle state, the external relay will connect the HY-2 NBTU to the line circuit. Selection of the HY1111 is accomplished by the SECORD operator.

1.3.3 Switching Control Subsystem (SCS) SA-1704/G. The SCS monitors and controls the individual equipment components of the NBTU. It controls synchronization of the narrowband communications link in

conjunction with the crypto ancillary unit. The SCS provides switching functions to allow either secure or nonsecure voice transmission over AUTOVON. In addition, when the SCS is used in the alternate AUTOVON access configuration, the SCS provides the signal path between the HY-11 or HY-2 and the common KY-3.

1.3.4 MODEM, Digital Data MD-823/G. The MD-823/G is a small compact MODEM capable of operating at 1200 or 2400 b/s. The MD-823/G is interchangeable and compatible with the MD-207C. The MD-823/G uses modular construction with all solid-state circuitry, including integrated circuits.

1.3.5 TA-825/G. The TA-825/G signaling assembly interfaces four-wire AUTOVON lines and provides a six-wire interface to terminal equipment. It consists of an audio frequency amplifier, audio frequency oscillator, and oscillator control, fixed attenuator, and power supply.

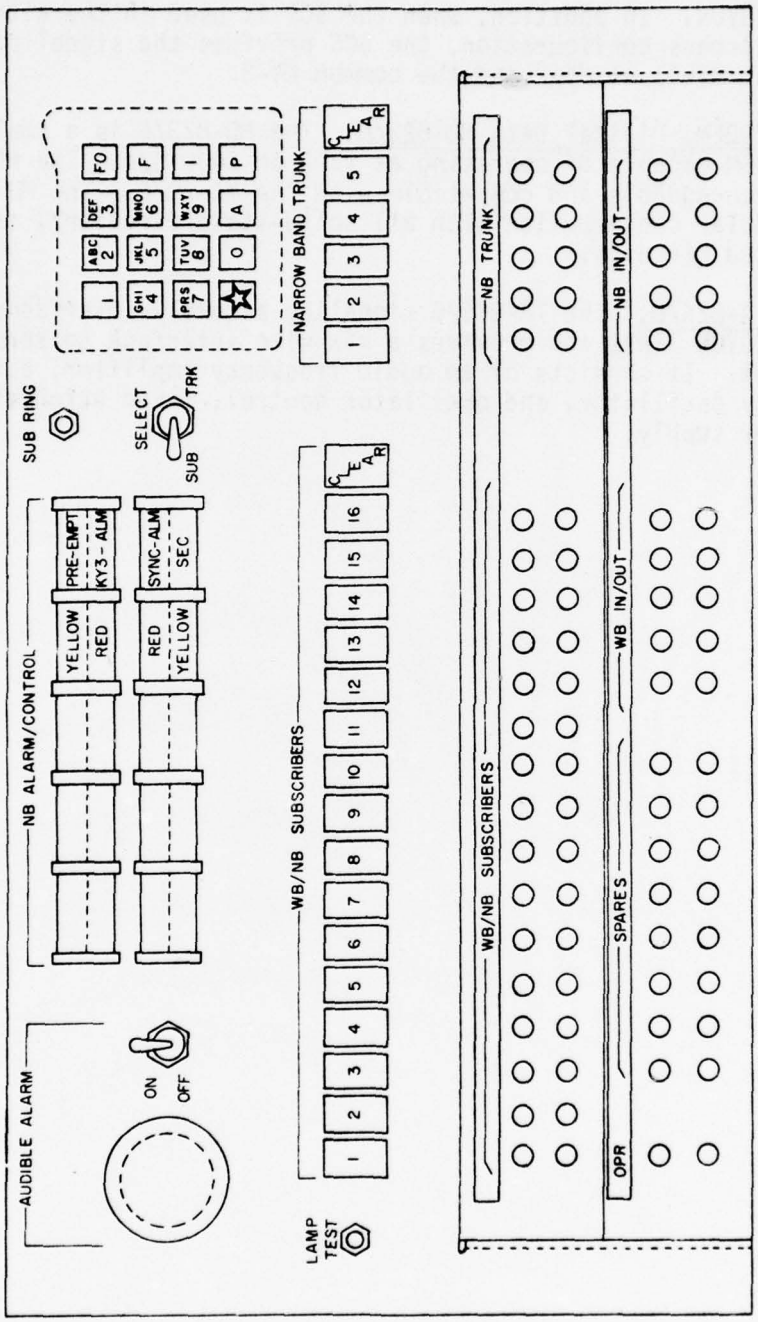

Figure 1-1. SECORD, front panel controls and indicators.

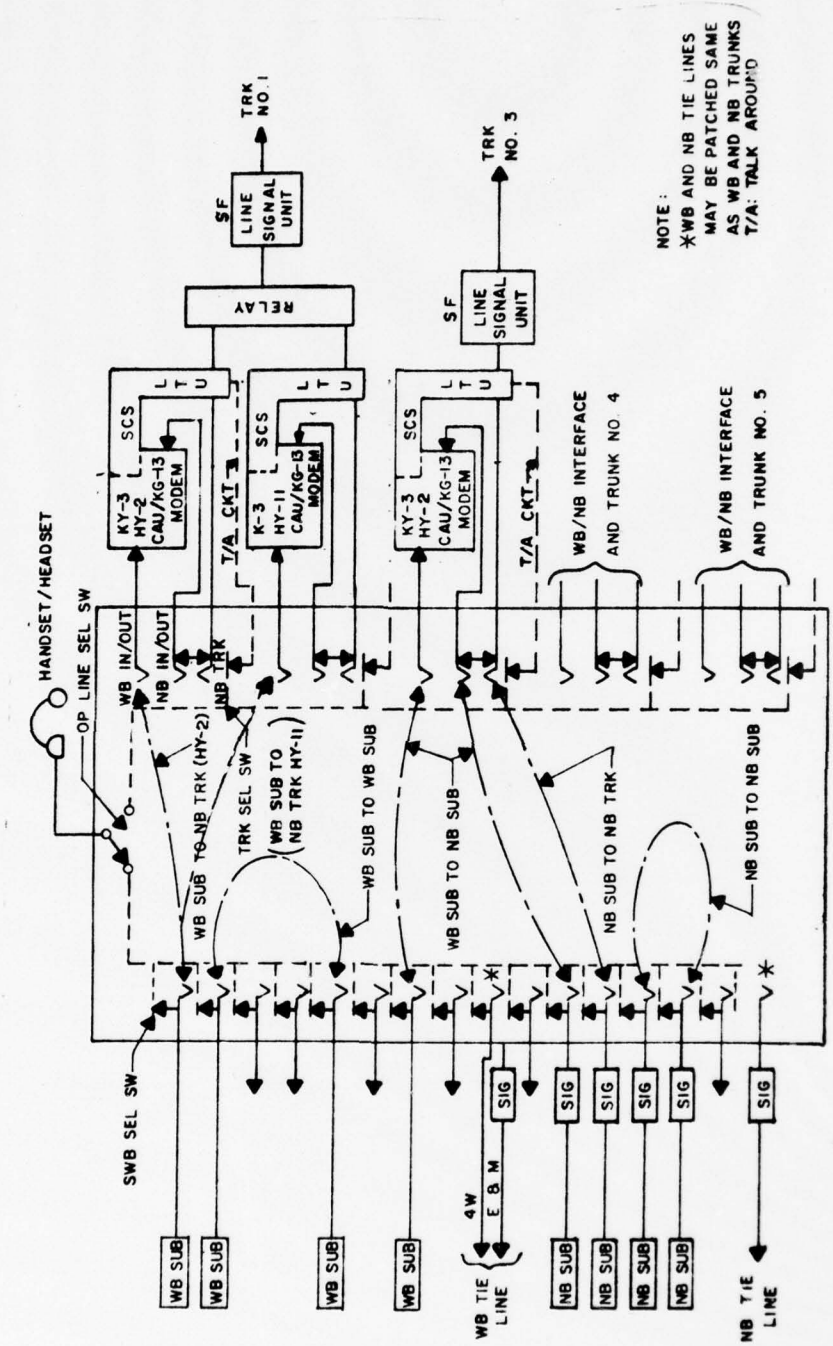

Figure 1-2. Examples of SECORD circuit patches.

SECTION 2. SITE SURVEY DATA AND CHECKLIST

2.1 GENERAL. This section provides the necessary information to accomplish the preliminary engineering, equipment layout, and site surveys associated with the NBTU installation.

2.2 SITE SURVEY CRITERIA. The site survey should be conducted in accordance with the guidelines and criteria set forth in Defense Communications Agency (DCA) Circular 370-160-3, Site Survey Data Book for Communications Facilities. In addition, the physical and electrical security requirements, as outlined in AR 530-4 (C) Control of Compromising Emanations (U), and MIL-HDBK-232 (C), RED/BLACK Engineering and Installation Guidelines (U), must be satisfied when selecting a site location and specifying power and construction design criteria.

2.2.1 Site Survey Checklist. The site survey checklist (fig. 2-1) should be used as a guide by the survey team for identifying and assembling the required technical data during the site survey.

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 site survey report will be an inclosure to the site concurrence letter which must be forwarded through the responsible agencies for concurrence or nonconcurrence, and any comments. The following items, as applicable, are to be included with the site survey checklist:

a. Floor plan of building containing controlled area (if any) and indicating occupants and equipment adjacent to the controlled area (reproducible from the District Engineers or using unit).

b. Plot layout indicating buildings and equipment within 200 feet of the controlled area (if any) indicating occupants and electrical equipment in the buildings.

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

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

e. Floor plan sketch to scale.

f. Comments on any anticipated difficulties in the flow of materials, work, or personnel in the operations area.

g. Local telephone directory.

h. Memorandum of Understanding between using unit, District Engineer, and District Space Coordinator.

i. US Army Security Agency comments, if any.

2.3 EQUIPMENT CHARACTERISTICS. The physical and electrical characteristics of the applicable equipment are listed in table 2-1. This table should be used as a guide for planning a facility of this type.

SITE SURVEY CHECKLIST
FOR

_____

_____

_____

_____

DATE: _____

PROJECT NUMBER: _____

SITE LOCATION: _____

CITY: _____ COUNTRY: _____

INSTALLATION: _____

_____

BUILDING: _____ ROOM: _____

PROJECT ENGINEER: _____

_____

_____

CLASSIFICATION: _____

Figure 2-1. Sample Site Survey Checklist (sheet 1 of 11).

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PROJECT OR TASK NO: _____

1. PURPOSE OF SITE SURVEY: _____

_____

_____

_____

_____

2. PERSONNEL CONTACTED OR PRESENT DURING SURVEY:

Name, Grade, and Title	Organization	Phone No.
a.		
b.		
c.		
d.		
e.		
f.		
g.		
h.		

3. EQUIPMENT TO BE INSTALLED:

   a. Contractor furnished and installed.

   b. GFE, Government installed.

   c. GFE, contractor installed.

   d. Equipment description chart.

Figure 2-1. Sample Site Survey Checklist (sheet 2 of 11).

PROJECT OR TASK NO: _____

Nomenclature	Weight	Dimensions	Ambient operating ranges	Heat dissipation	Access clearance requirements

4. DOCUMENTATION:

a. Documentation of the status of the physical plant should be completed by requisition and review of the appropriate as-built drawings. The list of as-built drawings obtained is as follows:

Drawing number	Title	Revision date	Source

b. Drawings not available during the site survey should be requested by the local military authorities through the most expeditious channels. Once obtained, the drawings should be immediately forwarded to responsible area electronics engineering installation agency.

Figure 2-1. Sample Site Survey Checklist (sheet 3 of 11).

PROJECT OR TASK NO:_____

c. If as-built drawings of the physical plant are not available, lack sufficient details, or are otherwise inadequate, provide a dimensioned sketch of the floor plan including location, dimensions, and identity of each equipment. (Please attach sketch.)

d. Additional general information, which bears on the engineering of the facility, is as follows:

_____

_____

_____

_____

_____

_____

_____

5. ROOM CONFIGURATION (to be supported by scaled drawings):

a. Room numbers:_____

b. Floor:

(1) Material:_____

(2) Condition:_____

(3) Loading capacity:_____

(4) Obstructions (pipes, pillars, etc):_____

_____

_____

_____

_____

Figure 2-1. Sample Site Survey Checklist (sheet 4 of 11).

PROJECT OR TASK NO:_____

(5) Space available under raised flooring, if installed:

_____

c. Walls:

(1) Material:_____

(2) Condition:_____

(3) Load bearing:_____

(4) Obstructions:_____

(5) Height:_____

(6) Possible removal:_____

_____

d. Doors:

(1) Number of outer doors:_____

(2) Number of inner doors:_____

(3) Material:_____

(4) Condition:_____

(5) Dimensions:_____

(6) Opening: In_____Out_____

e. Windows:

(1) Quantity on outer walls:_____

(2) Dimensions:_____

(3) Type (double hung, projected, etc.):_____

_____

Figure 2-1. Sample Site Survey Checklist (sheet 5 of 11).

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PROJECT OR TASK NO:_____

(4) Height above floor:_____

(5) Number of windows: Barred_____Opaques_____

f. Ceiling:

(1) Material:_____

(2) Condition:_____

(3) Height (suspended or other):_____

(4) Obstructions (pipes, pillars, etc.):_____

_____

_____

(5) Space available for ducting if a drop ceiling is installed:_____

_____

g. Lighting (if wiring is to be removed, check here_____):

(1) Type: Incandescent_____Flourescent_____

(2) Type of fixtures:_____

(3) Number of fixtures:_____

(4) Size of lamps in watts:_____

(5) Height above floor:_____

(6) All power cable for lights in ferrous conduit: Yes_____No_____.

(7) Foot candle rating:_____

(8) Total power loading:_____

Figure 2-1. Sample Site Survey Checklist (sheet 6 of 11).

PROJECT OR TASK NO:_____

h. Convenience outlets (if wiring is to be removed, check here____):

(1) Type:_____Number:_____

(2) Voltage:_____Phase:_____

Frequency:_____Ampere rating:_____

(3) Number of wires:_____

(4) Protective ground to ac outlets: Yes_____No_____

(5) All power cable in ferrous conduit: Yes___No_____

i. Environmental systems:

(1) Type of heating:_____

Btu/hr capacity:_____

(2) Type of air conditioning:_____

Btu/hr capacity:_____

(3) Maximum number of personnel who normally occupy area: _____

(4) Humidity controlled: Yes_____No_____

(5) Heat dissipation capacity of existing equipment:_____ _____Btu/hr

(6) Surplus air-conditioning capacity available for this installation:_____Btu/hr

(7) Feasibility of expansion (if necessary):_____

(8) Monitoring equipment:_____

Figure 2-1. Sample Site Survey Checklist (sheet 7 of 11).

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PROJECT OR TASK NO:_____

6. POWER AVAILABILITY:

a. Primary power supplied by commercial means: Yes___ No___

b. Power specifications:

(1) Present available capacity:_____kW

(2) Voltage:_____volts

(3) Frequency:_____Hz

(4) Phase:_____Ø

(5) Size of feeder lines:_____AWG

(6) Monitoring equipment (if any):_____

c. Means of providing emergency power:

(1) Manual start, automatic start, or no-break:_____

(2) Manual or automatic switching unit:

(3) Emergency power available:_____kW

(4) Generator specifications:

Number	Rating (kW)	Frequency (Hz)	Nomenclature	Capacity (kW)

d. Space available for additional generators: Yes___ No____

Figure 2-1. Sample Site Survey Checklist (sheet 8 of 11).

PROJECT OR TASK NO:_____

e. Uninterrupted power requirements: Yes_____No_____

(1) Voltage:_____

(2) Current:_____

(3) Solid state system: Yes_____No_____

Life after power failure:_____

Type of battery:_____

f. Presently programmed power upgrade (give details):_____

_____

g. Technical load:

(1) Present critical technical load:_____kW

(2) Present noncritical technical load:_____kW

(3) Present nontechnical load:_____kW

7. EXISTING POWER CONFIGURATION:

a. Main power panel:

(1) Location:_____

(2) Rating:_____kVA

(3) Voltage:_____Volts

(4) Phase:_____Ø

(5) Frequency:_____Hz

(6) Number of spare circuit breakers:_____

(7) RED/BLACK TEMPEST:_____

b. Additional power panels should also be reported here using the same reporting format given in a above. (Please attach sheet.)

Figure 2-1. Sample Site Survey Checklist (sheet 9 of 11).

PROJECT OR TASK NO:_____

c. All power panels have ac protective ground wire installed:

Yes_____No_____

d. All ac power lines contained in conduit: Yes_____No_____

e. All ac junction boxes used: Yes_____No_____

(1) If yes, what type:_____

(2) Pre-punched knockouts: Yes_____No_____

(3) Ferrous box and cover: Yes_____No_____

f. Power isolation transformer available: Yes_____No_____

(1) If yes, what type:_____

(2) Rating:_____

(3) Primary voltage:___volts Secondary voltage:___volts

(4) Number of phases:_____Ø

8. STATION GROUND:

a. Signal ground installed: Yes_____No_____

(1) Type (water pipe, rod, etc.)_____

(2) Resistance of true earth ground_____ohms

(3) Date measured:_____

(4) Method used:_____

(5) RED/BLACK ground distribution boxes available for installation: Yes_____No_____

b. Protective ac ground installed: Yes_____No_____

(1) All equipment grounded to ac protective ground by separate wires: Yes_____No_____

Figure 2-1. Sample Site Survey Checklist (sheet 10 of 11).

PROJECT OR TASK NO:_____

(2) Ferrous shields tied to ac protective ground bus:

Yes_____ No_____

9. UTILITIES AVAILABLE (water and gas):

a. Size and capacity of each:_____

b. Supplier:_____

c. Available capacity:_____

10. PRESENTLY INSTALLED EQUIPMENT (List type and quantity of installed equipment that will be associated with or used for this installation.):

Item No.	Room location	Nomenclature	Qty. in operation	Qty. reserved

11. MISCELLANEOUS:

_____
Site Survey Team Chief

Figure 2-1. Sample Site Survey Checklist (sheet 11 of 11).

TABLE 2-1. NBTU Equipment Characteristics

Equipment	Size	Ambient operating range	Heat dissipation (Btu/hr)	Power input	Access clearance	Weight (lbs)
HY-2A	8 3/4" H 24 1/2" D 19" rack	32 to 122 ^{o}F (0 to 50 ^{o}C)	240	100 to 130 V ac 45 to 65 Hz 72 W	25" front 10" rear	100
KG-13	33 1/4" H 26 3/4" D 19" rack	-67 to 150 ^{o}F (-20 to 65 ^{o}C)	1100	105 to 130 V ac 45 to 65 Hz 316 W	23" front	280
CAU	7" H (2 per 7") 28 1/2" D 19" rack	32 to 150 ^{o}F (0 to 64 ^{o}C) Not to exceed 4 hours at high extreme	51	129 V ac + 10% -20% 47.5 to 63 Hz 25 W	30" front	70
SCS	7" H 19" rack	30 to 120 ^{o}F (-1 to 49 ^{o}C)	600	200 W	30" front	100
MODEM WECo 207C	40" H 12 1/2" D 19" rack	30 to 122 ^{o}F (-1 to 50 ^{o}C)	750	120 V ac + 10% -20% or 230 V ±10% 47.5 to 63 Hz 218 W	30" front	250
MD-823	8.7" H 19 1/2" D 19" rack	32 to 122 ^{o}F (0-50 ^{o}C)		120 or 230 V ±10% 60 W	30" front	70

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TABLE 2-1. NBTU Equipment Characteristics (continued)

Equipment	Size	Ambient operating range	Heat dissipation (Btu/hr)	Power input	Access clearance	Weight (lbs)
HY-11	5 1/16" H 13 9/16" H 19" rack	32 to 123 °F (0 to 50 °C)	24	115 or 230 V ac 45 to 65 Hz 7 W	25" front 10" rear	18
MODEM Rixon	7" H 21 1/2" D 19" rack	32 to 122 °F (0 to 50 °C)	480	120 V ac + 10% V ac or 230 ±10% V ac 47.5 to 63 Hz 160 W	30" front 12" rear	45
KY-3	36 1/2" H 27 1/2" D 23" W	32 to 122 °F (0 to 50 °C)	333	115 ±15 V ac 45 to 65 Hz 100 W	23" front 6" rear	270
SECORD	13" H 18.5" D 21.5" W (desk mtd)	32 to 125 °F (0 to 52 °C)	900	300 W	12" rear	55

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SECTION 3. INSTALLATION SPECIFICATIONS AND INSTRUCTIONS

3.1 GENERAL. The installation instructions outlined in this section provide standard engineering guidance for use by responsible activities for the modification and/or installation of the HY-11/HY-2 Alternate AUTOVON Access Configuration.

3.2 INSTALLATION GENERAL INSTRUCTIONS. The equipment will be installed in accordance with established criteria, the inclosed engineering drawings and instructions, and referenced drawings and publications deemed necessary by the engineering activity responsible for a project. Installation personnel must be familiar with MIL-HDBK-232 (C), RED/BLACK Engineering and Installation Guidelines (U), and CCTM 105-50-21, Telecommunications Engineering-Installation Practices, Installation-General to ensure that the facility conforms to, and is installed in accordance with, standard installation procedures.

3.2.1 Mode of Operation. Drawing COM-TL03-150 is a block diagram depicting the HY-2/HY-11 NBTU and their interrelationships when used in this configuration. As indicated, the HY-2 equipment in the normal-through state with its associated status and control appearing on trunk position #1 of the SECORD. The HY-11 is the alternate equipment in this configuration. The HY-11 will be activated when a SECORD patch plug is placed in trunk #2 wideband in/out position. When this occurs, the signal path from the SF unit is switched to the lower band of equipment and status indications will appear on SECORD trunk #2.

3.2.2 Detail Instructions. The two SCS's will be modified as follows:

a. CLA, card A4: pins E1 and E2 will be strapped.

b. TTU Unit:

(1) Remove internal leads between pins 1, 2, 3, and 4 of card socket XA1 and C1, C2, C3, and C4 of the TTU. (NOTE: This action will break the signal path to the A12A1 card for talk around information from the BLACK area in the SCS.)

(2) Remove resistors R1, R2, R3, and R4 from the base of the XA1 socket in the TTU. Relocate wire leads on XA1 socket from pins 15 and 12 to pins N and 9 respectively.

3.3 SECORD OPERATION. (The following description may apply to any pair of trunk positions utilized on the SECORD.) Upon completion of the system modification for alternate AUTOVON access, the SECORD should be operated as follows:

3.3.1 For outgoing calls, the operator depresses the call/answer button on trunk position 1. This action will result in placing pin M15 of the SECORD A2TB1 board at ground which is an off hook indication for trunk 1. Pin M15 is connected to the J3-Z socket of the SCS #1. When the off hook indication is provided to the SCS, it in turn provides -48 volts on the M lead pin R of the J4 SCS socket. The lead leaving the SCS then passes through SECORD pins H15 and G15 and onto pin L11 of the external relay socket. The -48 volts appearing at pin L11 of the relay socket will also appear on pin L12 which is connected to the M lead of the SF unit. When the -48 volts are provided to the SF unit, an off hook status is sent to the AUTOVON switch and an AUTOVON DIAL tone is provided to the switchboard. At this time the operator, by means of the DTMF keyboard, will dial the desired precedence and number. When the distant operator answers, a determination is made by both operators as to which mode of secure operation (HY-2 or HY-11) will be established. If HY-2 equipment is selected, the operator will tell the wideband subscriber to go secure and plug one end of a SECORD patch cord in the WB subscriber's jack and the other end in the trunk 1 wideband I/O jack. If it was determined that HY-11 equipment was to be used in the narrowband portion of the call, the operator would instruct the wideband subscriber to go secure and plug one end of a SECORD patch cord into the wideband subscriber's jack and the other end into the trunk 2 wideband I/O jack. In so doing, SECORD pin L16 is connected to SCS #2 on its socket J3 pin Y. When this occurs, relay K1 on the A4 card in the SCS is deenergized and pin S of the J4 socket will go to ground potential. This ground potential is provided to pin 3 of the external relay socket. From pin 3, the potential is provided to pins 4 and 1 through isolation diodes CR3 and CR2. From pin 4, the potential is provided to the SCS LTU via the SECORD. Ground potential on pin 1 will energize the external relay; -48 volts will then activate signal paths that will be transferred to SCS #2 and associated equipment.

3.3.2 When the SCS is operating in the nonsecure mode, K1 is energized, placing a ground on pin 51 of the A4 card. Pin 51 of the A4 card is connected to pin 6 of the A12A1 card. When a ground potential is supplied to #6 pin, relays K1 and K2 of the A12A1 card in the TTU are activated and no signal path is provided

between the KY-3 (connected to the J7 socket of SCS #1) and HY-2 or HY-11. When the SCS receives a command to start secure operation, relay K1 on the A4 card deenergizes causing relays K1 and K2 on the A12A1 to deenergize. When this occurs, a signal path will be provided through that SCS to the vocoder which is connected to it and the common KY-3. In the case where the HY-11 equipment has been brought on line (in a secure mode) as described previously, relays K1 and K2 on the A12A1 of SCS #2 card will deenergize. The signals from the HY-11 will then have a path to the KY-3 via socket J6 of the SCS #2 through the contacts of relay K2 of the A12A1 card and out of socket J7 on the SCS #2 which is wired in common to the J7 socket on SCS #1 to the KY-3.

3.3.3 The wideband alarm from the KY-3 is connected to SCS #1. The wideband alarm signal path leaving the SCS is routed to pin L8 of the external relay. When the relay is not energized, there will be a complete path to the wideband alarm position on SECORD trunk 1 from pin L7 of the relay. When the relay is energized, the wideband alarm signal path will go to SECORD trunk position 2 via contacts L8 and L9 of the relay.

3.3.4 Upon the completion of a call utilizing HY-11 equipment and the removal of the patch cord from the WB I/O jack or the receipt of a preempt signal, relay K1 on the A4 card will become energized removing the ground condition from pin S of the J4 SCS #2 socket. As a result of this action, the external relay will become deenergized and the signals from the SF unit will revert back to SCS #1.

SECTION 4. ENGINEERING INSTALLATION DRAWINGS

4.1 GENERAL. This SEIP contains only engineering installation drawings necessary for the modification of the HY-11/HY-2 Alternate AUTOVON Access Configuration. Related drawings will be obtained from each site or documents for the aforementioned AUTOSEVOCOM systems.

4.2 MODIFICATION OF INSTALLATION DRAWINGS. The engineering drawings may be modified during and after installation to reflect adaptation to local physical and environmental conditions. Copies of modified drawings should be retained on site and changes, corrections, and deletions forwarded to the responsible area electronics engineering installation agency.

4.2.1 Lists of Materials. Lists of materials appearing on drawings are current to the drawing publication date. Identification of items are primarily by National Stock Number (NSN). When these are not available, contractor references and catalog nomenclature will be provided whenever possible.

4.2.2 USACEEIA-CED Drawings. The engineering installation drawings indicated herein show the necessary equipment and rewiring schemes that will be required to accomplish the reconfiguration of an installation which has both an operational HY-11 and HY-2 system. Description and application of drawings is as follows:

COM-TL03-150	HY-11/HY-2 Alternate AUTOVON Access Block Diagram (drawing depicts systems as in the BEFORE and AFTER modification, see note 102).
COM-TL03-152	HY-11/HY-2 Alternate AUTOVON Access Relay Assembly Detail (2 sheets). Sheet #1 depicts assembly #1 (nonunitized assembly). Applicable parts will be extracted from the BOM provided in section 5, for ordering data. Sheet #2 depicts assembly #2 (unitized assembly). Drawing depicts BOM of materials and details for fabrication of assembly unit for maintaining uniformity in AUTOSEVOCOM equipment configuration. This unit will be used by US Army activities.

COM-TL03-153	HY-11/HY-2 Alternate AUTOVON Access NBTU Wiring Details (6 sheets). This set of drawings depicts applicable wiring configurations of the aforementioned equipment. Special attention is invited to specific sheets and notes as follows: Sheet 1 (note 101), sheet 2 (note 201), sheet 3 (notes 304/305), and sheet 6 (note 605).

4.2.2.1 Related Drawings. Additional USACEEIA drawings related to the HY-11/HY-2 system configurations will be found in the SEIP provided for the HY-11, SEIP 007, title: AUTOSEVOCOM Phase 1 Narrowband Subscriber Terminal, Narrowband Trunk Unit, TSEC/HY-11, CAU, and 9.6-kb/s MODEM, and the HY-2, SEIP 003, title: AUTOSEVOCOM Narrowband Trunk Unit, SECORD, and Wideband Subscriber Terminal Using the HY-2. Requests for copies may be submitted to Cdr, USACEEIA, ATTN: CCC-CED-SEP, Ft Huachuca, AZ 85613.

4.2.2.2 Applicable Government Documents.

(C) DCAC 350-S110-2*	Defense Communications Worldwide Automatic Secure Voice Communications (AUTOSEVOCOM) Program Security Clearance Requirements for Maintenance and Operating Personnel (U).
(C) DCAC 300-S175-10*	DCA Criteria for Narrowband and Wideband Subscriber Terminals, AN/FTC-31 SEVAC, and Secure Voice Cord Board (SECORD) (U).
DCAC 370-160-3	Site Survey Data Book for Communications Facilities.
CCR 702-1-2	USACC Quality Assurance Program for for Engineering, Installation and Acceptance of Communications Electronics Equipment and Systems.
(C) AR 530-4*	Control of Compromising Emanations (U).
(C) MIL-HDBK-232*	RED/BLACK Engineering and Installation Guidelines (U).

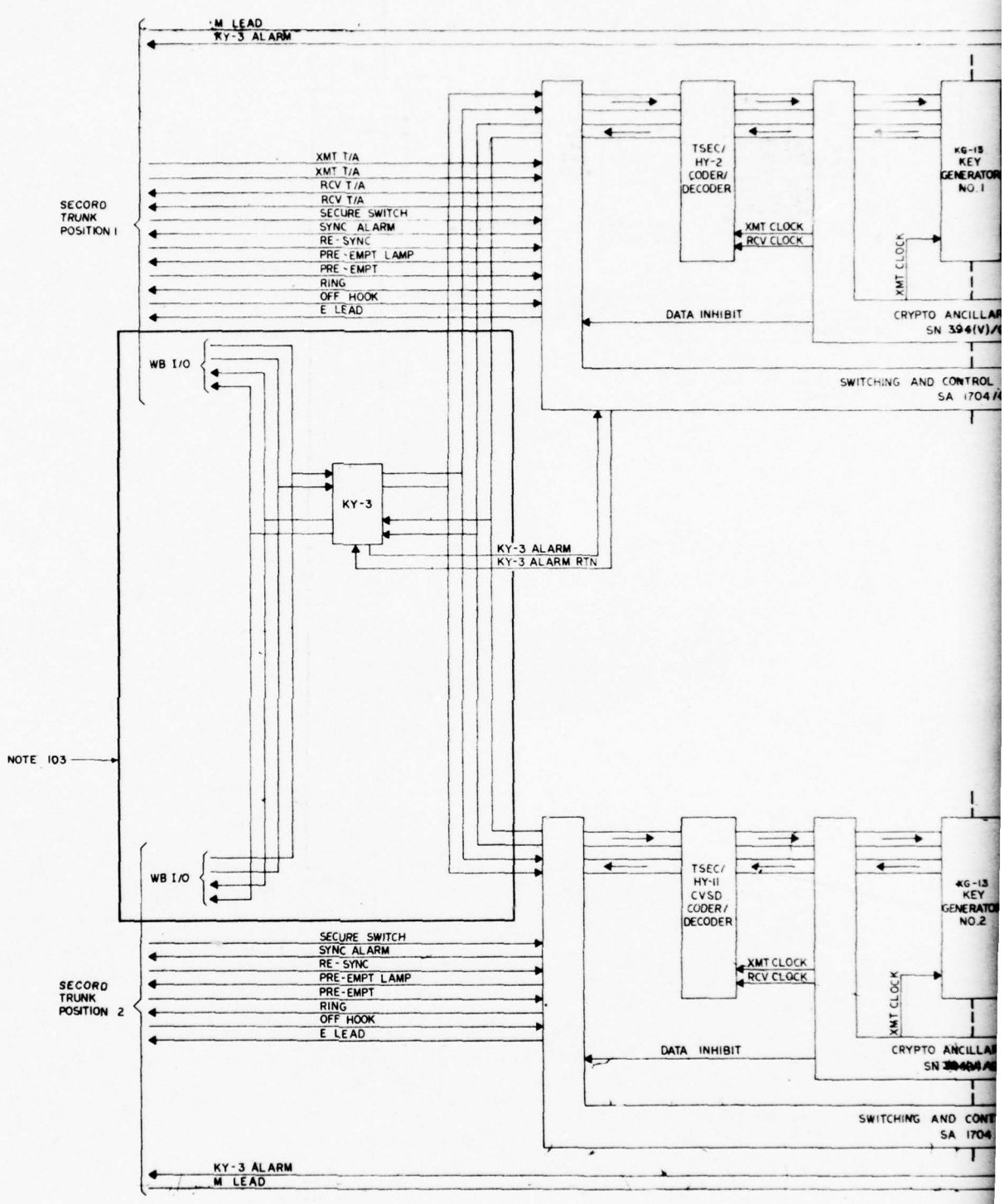
(C) TM 11-5805-620-14*	Operator's, Organizational, DS, GS, and Depot Maintenance Manual: AUTOSEVOCOM Systems (U), NAVELEX 0967-426-9010/T.O. 31W2-1-481.
TM 11-5895-543-12	Operational and Maintenance Manual, Synchronizer, Electrical SN-394(V)/G
TM 11-5895-576-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual Narrowband Subscriber Terminal and Switching Control Unit SA-1635/G and SA-1704/G.
Bell Systems Practices	Data Set 207 Type, sections 592-020-100, 592-020-150, 592-020-200, 592-020-300, and 592-020-500.
TM 11-5805-555-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tool Lists (Including Depot Maintenance Repair Parts and Special Tools) Modems, Telephone MD-773/GCC; -774/GCC; -775/GCC.
TM 11-5805-555-15	Organizational, DS, GS, and Depot Maintenance Manual MD-773/GCC, MD-774/GCC, and MD-775/GCC.
CCTM 105-50-21	USACC Telecommunications Engineering-Installation Practices, Installation-General.
TB SIG 322-145	Department of the Army Technical Bulletin, Fixed Signal Communications Facility Program, Coded Facility 145, AUTOSEVOCOM Narrowband Subscriber Terminal (NBST).
SEIP 003	AUTOSEVOCOM Narrowband Trunk Unit, SECORD, and Wideband Subscriber Terminal Using the HY-2.

SEIP 028

SEIP 007	AUTOSEVOCOM Phase 1 Narrowband Subscriber Terminal, Narrowband Trunk Unit, TSEC/HY-11, CAU, and 9.6-kb/s MODEM.

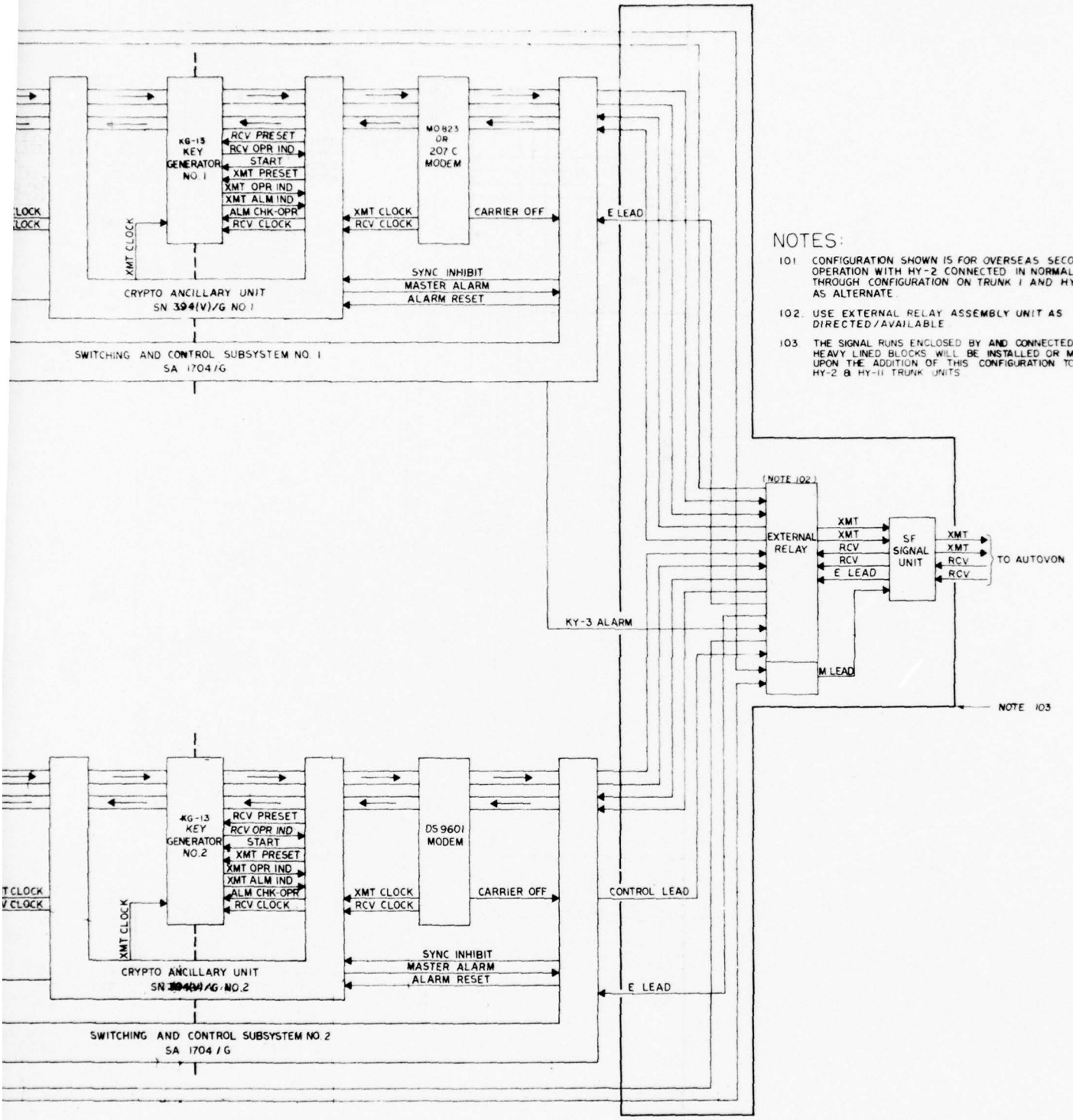
*See CONFIDENTIAL DA PAM 310-9, Index of Communications Security (COMSEC) Publications (U) for requisitioning information.

4.3 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. A mailing card for convenience is bound with this SEIP. Comments should be sent directly to the Commander, US Army Communications-Electronics Engineering Installation Agency, ATTN: CCC-CED-SEP, Fort Huachuca, Arizona 85613.


M LEAD
KY-3 ALARM
SECORD TRUNK POSITION 1
XMT T/A
XMT T/A
RCV T/A
RCV T/A
SECURE SWITCH
SYNC ALARM
RE-SYNC
PRE-EMPT LAMP
PRE-EMPT
RING
OFF HOOK
E LEAD
WB I/O
KY-3
KY-3 ALARM
KY-3 ALARM RTN
TSEC/ HY-2 CODER/ DECODER
XMT CLOCK
RCV CLOCK
KG-13 KEY GENERATOR NO. 1
DATA INHIBIT
SWITCHING AND CONTROL
NOTE 103
WB I/O
SECURE SWITCH
SYNC ALARM
RE-SYNC
PRE-EMPT LAMP
PRE-EMPT
RING
OFF HOOK
E LEAD
SECORD TRUNK POSITION 2
TSEC/ HY-11 CVSD CODER/ DECODER
XMT CLOCK
RCV CLOCK
KG-13 KEY GENERATOR NO.2
DATA INHIBIT
SWITCHING AND CONT
KY-3 ALARM
M LEAD

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		ADDITIONAL INFO ADDED TO KEY GEN NO 1 AND NO 2, AND 207C MODEM	3/7/77	
B		REVISED PER FIELD CORRECTIONS	14 JUN 1977	

2



NOTES:

101. CONFIGURATION SHOWN IS FOR OVERSEAS SECORD OPERATION WITH HY-2 CONNECTED IN NORMAL THROUGH CONFIGURATION ON TRUNK 1 AND HY-11 AS ALTERNATE.

102. USE EXTERNAL RELAY ASSEMBLY UNIT AS DIRECTED/AVAILABLE.

103. THE SIGNAL RUNS ENCLOSED BY AND CONNECTED TO THE HEAVY LINED BLOCKS WILL BE INSTALLED OR MODIFIED UPON THE ADDITION OF THIS CONFIGURATION TO EXISTING HY-2 & HY-11 TRUNK UNITS

	ORGANIZATION
DESIGN BY A. O MARTHAN	FORT HUACHUCA, ARIZONA
DRAFTSMAN M. BOLLACK	HY-11 / HY-2 ALTERNATE AUTOVON ACCESS
CHECKER J. Chamberlain	BLOCK DIAGRAM
DATE 25 MAR 76	CODE IDENT NO. 50470 SIZE F COM - TL03-350
ORGANIZATION APPROVAL	SCALE NONE REVISION B SHEET 1 OF 1
FAB APPROVAL	

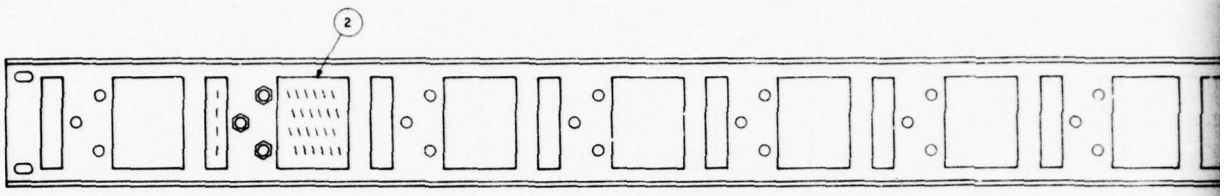


FIGURE 101
STRIP RELAY MOUNT
W/ SOCKET INSTALLED (REAR VIEW)

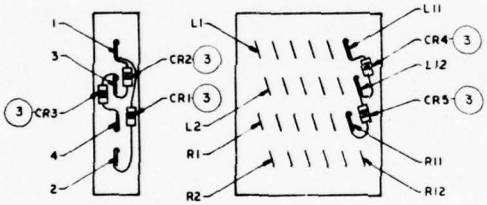


FIGURE 102
RELAY SOCKET (REAR VIEW)

SPRING COMBINATION
NUMBERS IN L AND R COLUMNS INDICATE TERMINAL ARRANGEMENT AND THE CORRESPONDING "EIN" OR "ETP" TERMINAL DESIGNATION FOR WIRING

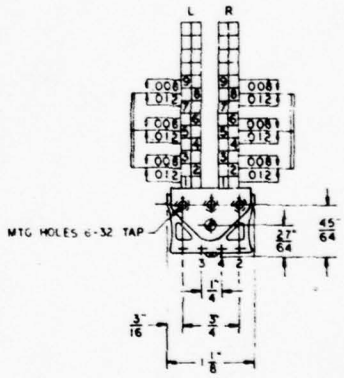
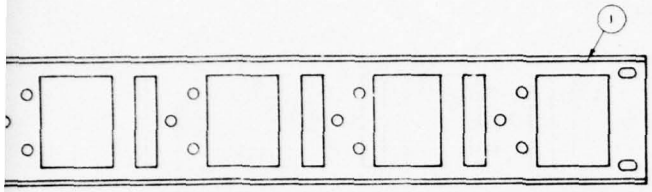


FIGURE 103
RELAY CONTACT ARRANGEMENT

2

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
B		CHANGE TITLE BLOCK	4 Jan 77	[illegible]



101
MOUNT
D (REAR VIEW)

SPRING COMBINATION
NUMBERS IN L AND R COLUMNS INDICATE TERMINAL ARRANGEMENT AND THE CORRESPONDING "EIN" OR "ETP" TERMINAL DESIGNATION FOR WIRING

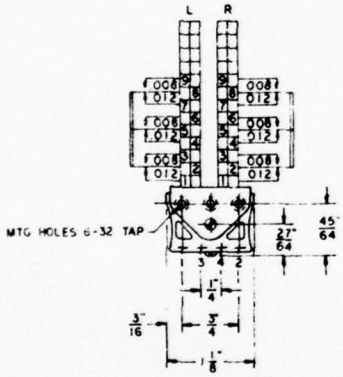


FIGURE 103
RELAY CONTACT ARRANGEMENT

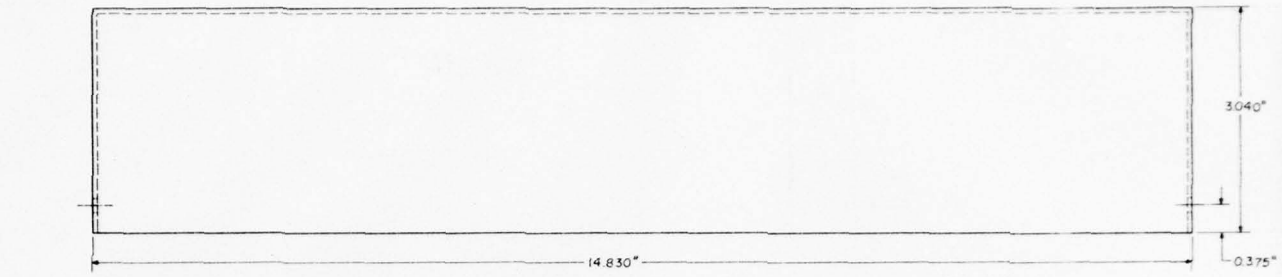
NOTE
101. REFER TO DRAWING COM-TL 03-153, SHEET 4 FOR CABLE/WIRING DETAILS.

ITEM	DESCRIPTION	FSN	UI	QTY
3	DIODE, IN4246	5961-914-9740	EA	5
2	SOCKET, RELAY	5935-498-1321	EA	1
1	STRIP, RELAY MOUNT	5945-450-4667	EA	1

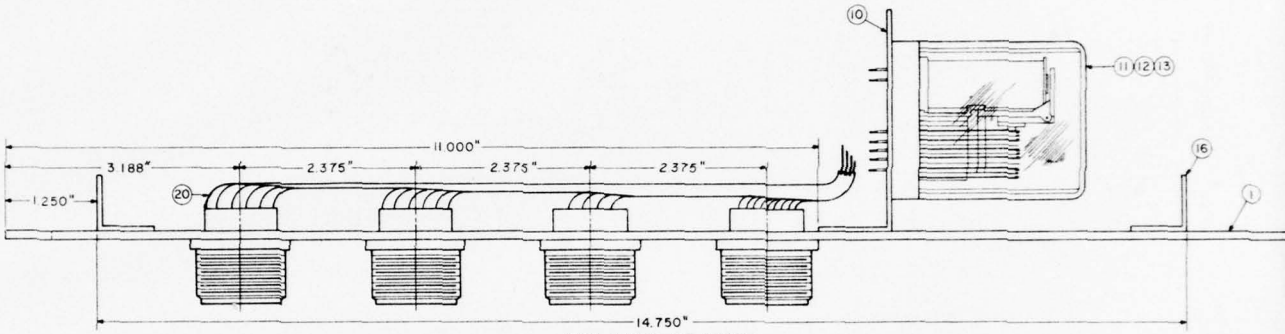
LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY A. OMARTIAN	HY-11/HY-2 ALTERNATE AUTOVON ACCESS RELAY ASSEMBLY NO. 1 DETAIL
DRAFTSMAN G. OLSON	
CHECKER [illegible]	
DATE 14 MAY 76	
ORGANIZATION APPROVAL	CODE IDENT NO. 50470 / SIZE D / COM-TL 03-152
APPROVAL	SCALE NONE / REVISION: B / SHEET 1 OF 2

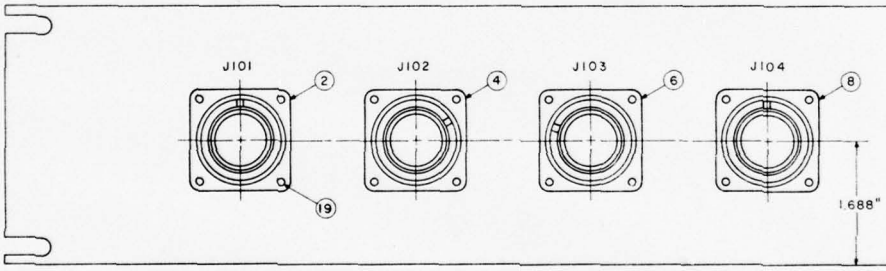
PREPARED IN USACEEIA, FORT HUACHUCA, ARIZONA



COVER DETAIL
(NOTE 202)



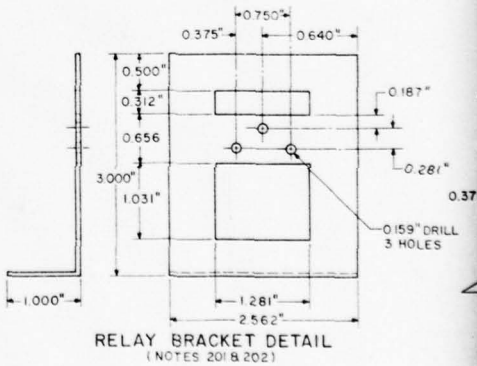
TOP VIEW OF PANEL
(NOTES 201, 202, 203, 204 & 205)



FRONT VIEW OF PANEL
(NOTES 202 & 204)

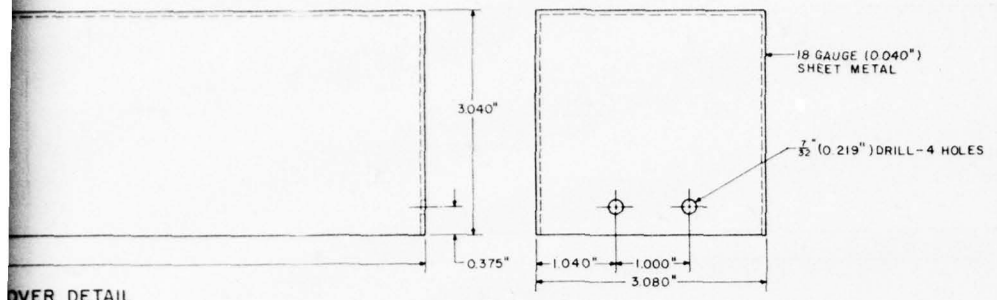
(NOTE 203)
WIRING CONFIGURATION

PLUG/JACK PINS		RELAY ASSEMBLY CONTACTS					
J101		J102		J103		J104	
A	L2	A	L8	A	L11	A	4
B	R2	B	L1	B	L7	B	3
C	R5	C	R1	C	L9	C	1
D	L5	D	R4	D	R11	D	L3
E	R8	E	L4			E	R3
F	L12	F	R7			F	R6
		G	L11			G	L6
						H	R9
						I	2
						J	R11

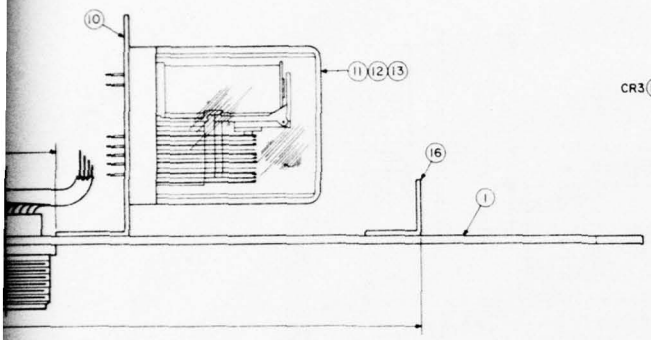


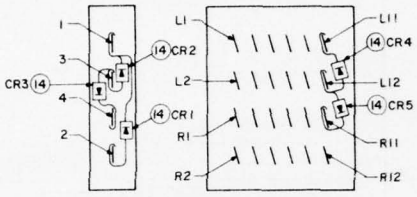
RELAY BRACKET DETAIL
(NOTES 201 & 202)

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
B		REDRAWN SUPERCEDES COM-TL 03-152 DATED 14 MAY 76	7 APR 77	
C		REVISED PER FIELD CORRECTIONS	14 APR 1977	



OVER DETAIL
(NOTE 202)



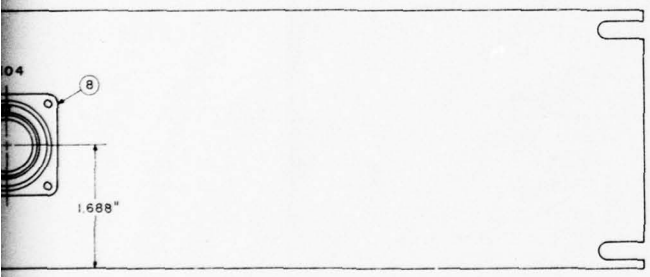


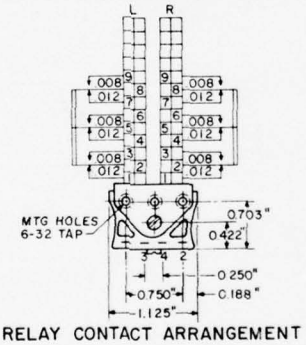
RELAY SOCKET CONFIGURATION
(BASE)

LEGEND:
(10) INDICATES MATERIAL LIST ITEM NUMBER 10.

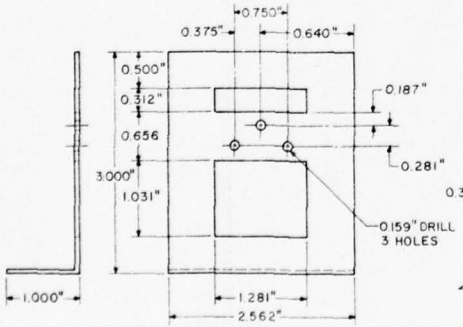
NOTES:
201. RELAY BRACKET AND COVER BRACKETS WILL BE SPOT WELDED TO THE PANEL.
202. ALL DIMENSIONS SHOWN HAVE A TOLERANCE OF ± 0.005".
203. REFER TO DRAWING COM-TL 03-153 SHEET 6 FOR CABLE RUN / WIRING OF PLUG / JACK.
204. WALL MOUNTED CONNECTORS J101 – 104 SHALL BE AFFIXED TO THE PANEL WITH #4 - 40 X 5/8" LONG ROUND HEAD MACHINE SCREWS.
205. CABLE BUNDLE SHALL BE TERMINATED TO THE RELAY SOCKET PER WIRING CONFIGURATION LIST.
206. MATING PLUGS TO CONNECTORS NOT SHOWN ON PRINT.

SPRING COMBINATION
NUMBERS IN L AND R COLUMNS INDICATE TERMINAL ARRANGEMENT AND THE CORRESPONDING "EIN" OR "ETP" TERMINAL DESIGNATION FOR WIRING

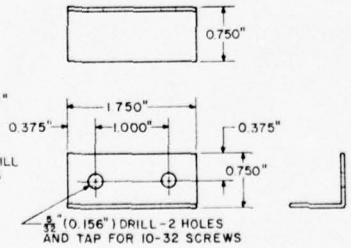




RELAY CONTACT ARRANGEMENT



RELAY BRACKET DETAIL
(NOTES 201 & 202)



COVER BRACKET DETAIL
(NOTES 201, 202 & 206)

ITEM	DESCRIPTION	NSN	QTY	UI
20	CABLE, SWBD-16P, 22 AWG, ID 03663Z, AFCN 3321	6145-00-557-7301	10	FT
19	SCREW, PAN HEAD MACH 4-40 X 5/8", MS 35206-218	—	16	EA
18	BUSHING CABLE ADAPTER TELESCOPING, USED WITH ITEM 17, MS3420-10A	—	4	EA
17	CABLE CLAMP, STRAIN RELIEF, USED WITH ITEMS 3, 5, 7 & 9, MS-3057-10A	5935-00-809-0786	4	EA
16	BRACKET, COVER (0.059" COLD ROLL STEEL)	—	2	EA
15	SCREW, ROUND HEAD, 10-32 X 5/16"	5305-00-781-5662	4	EA
14	DIODE, IN4246	5961-00-914-9740	5	EA
13	COVER, RELAY (PLASTIC)	5945-00-942-5636	1	EA
12	RELAY, ARMATURE / COIL	5945-00-466-2887	1	EA
11	SOCKET, RELAY	5935-00-498-1321	1	EA
10	BRACKET, RELAY (0.059" COLD ROLL STEEL)	—	1	EA
9	PLUG, STRAIGHT, MATES WITH J104, MS3106F18-1S	5935-00-189-3932	1	EA
8	CONNECTOR, WALL MOUNTED (J104), MS3102E18-1P	5935-00-295-4778	1	EA
7	PLUG, STRAIGHT, MATES WITH J103, MS3106F18-8SZ	—	1	EA
6	CONNECTOR, WALL MOUNTED (J103), MS3102R18-8PZ	5935-00-682-0589	1	EA
5	PLUG, STRAIGHT, MATES WITH J102, MS3106F18-8SW	5935-00-515-2193	1	EA
4	CONNECTOR, WALL MOUNTED (J102), MS3102R18-8PW	5935-00-752-2707	1	EA
3	PLUG, STRAIGHT, MATES WITH J101, MS3106F18-8S	5935-00-013-8972	1	EA
2	CONNECTOR, WALL MOUNTED (J101), MS3102R18-8P	5935-00-169-9358	1	EA
1	PANEL, STEEL BLANK, 19" X 3 15/32" X 1/8"	5975-00-685-9545	1	EA

LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY A. OMARTIAN	HY-II/HY-2 ALTERNATE AUTOVON ACCESS RELAY ASSEMBLY # 2 DETAIL
DRAFTSMAN N. T. BARRERA	
CHECKER	
DATE 7 APRIL 1977	
ORGANIZATION APPROVAL	CODE IDENT NO 50470 · SIZE D · COM-TL 03-152
	SCALE NONE · REVISION C · SHEET 2 OF 2

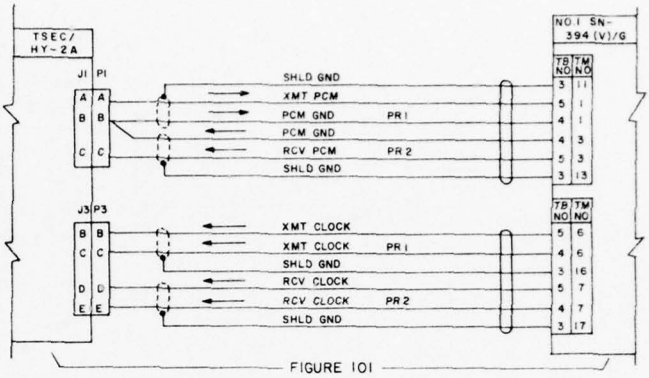


FIGURE 101

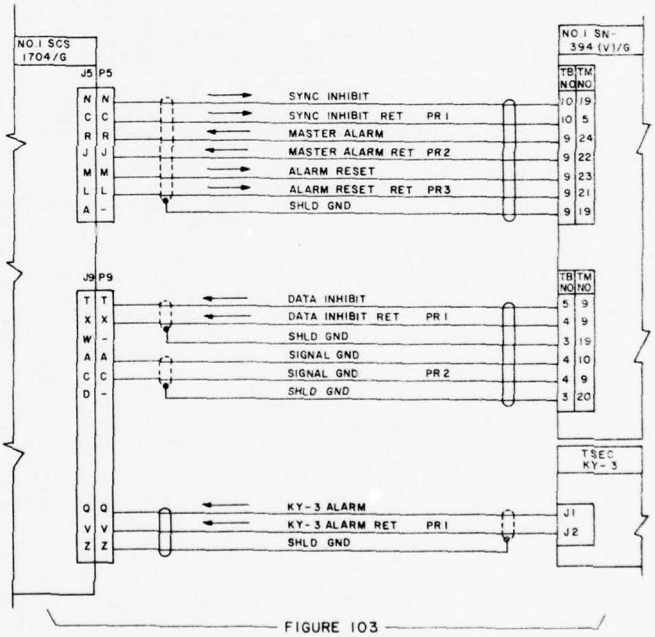
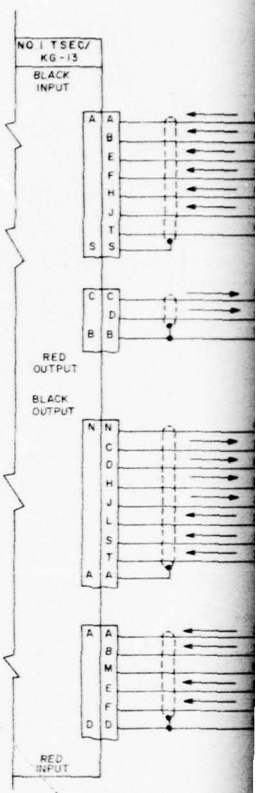


FIGURE 103



REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		REVISED AND REDRAWN FOR CLARITY	7MAR77	
B		CHANGED DIRECTION OF ARROW IN RCV CLOCK RETURN, BLACK INPUT TO BLACK OUTPUT & SH 1 OF 5 TO 1 OF 6	13 JUN 77	

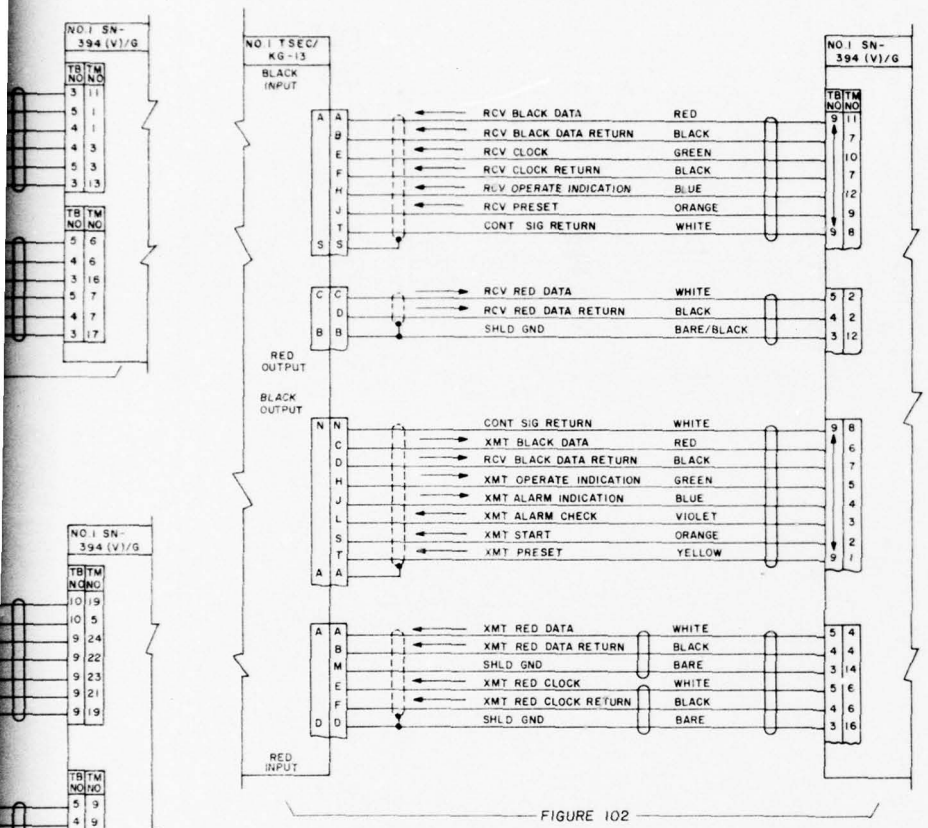


FIGURE 102

NOTES:

101. ALL SIGNAL CONNECTIONS SHOWN ON THIS SHEET WILL BE IN PLACE WHEN THE HY-2 NBTU WAS OPERATIONAL PRIOR TO RECONFIGURATION TO THE HY-2/HY-11 ALTERNATE AUTOVON CONFIGURATION.

ITEM	DESCRIPTION	NSN	UI	QTY

LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY: A. OMARTIAN	HY-11/HY-2 ALTERNATE AUTOVON ACCESS NBTU WIRING DETAILS
DRAFTSMAN: L. QUIGTAR	
CHECKER:	
DATE: 7 MAR 77	
ORGANIZATION APPROVAL	CODE IDENT NO. 50470 / SIZE D / COM-TL 03-153
	SCALE NONE / REVISION: B / SHEET 1 OF 6

B	B	C	B	A	B					
A	A	B	A							
1	2	3	4	5	6	7	8	9	10	

SHEET NUMBER

REVISION STATUS OF SHEETS

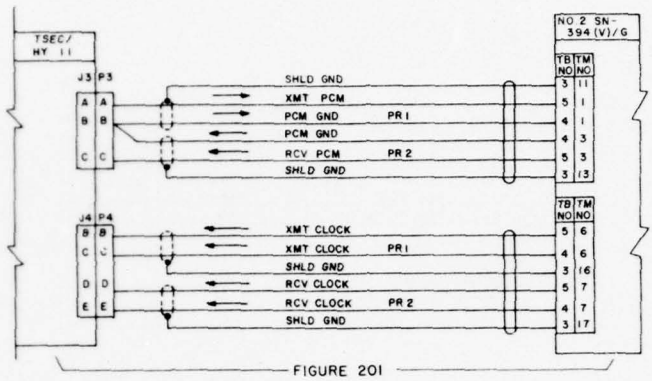


FIGURE 201

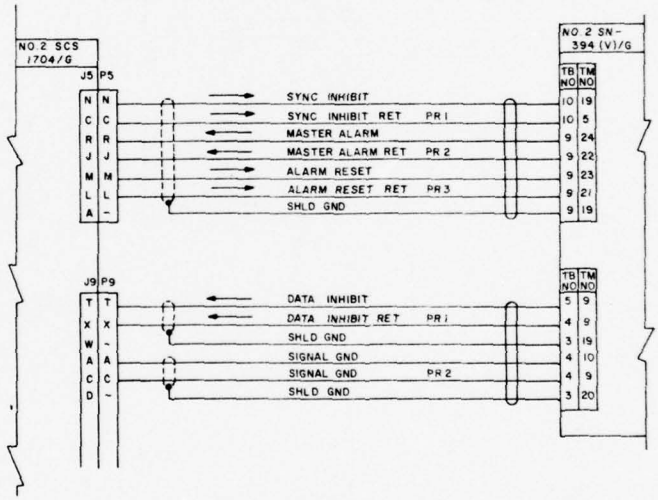
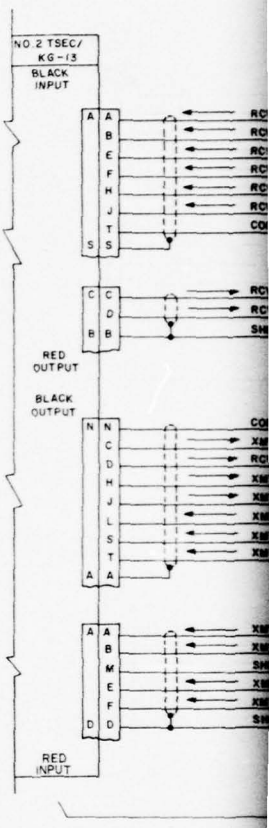


FIGURE 203



REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		REVISED AND REDRAWN FOR CLARITY	8MAR77	
B		CHANGED THE DIRECTION OF ARROW IN RCV CLK RETURN, BLACK INPUT TO BLACK OUTPUT B SH 2 OF 5 TO 2 OF 6	15JUN77	

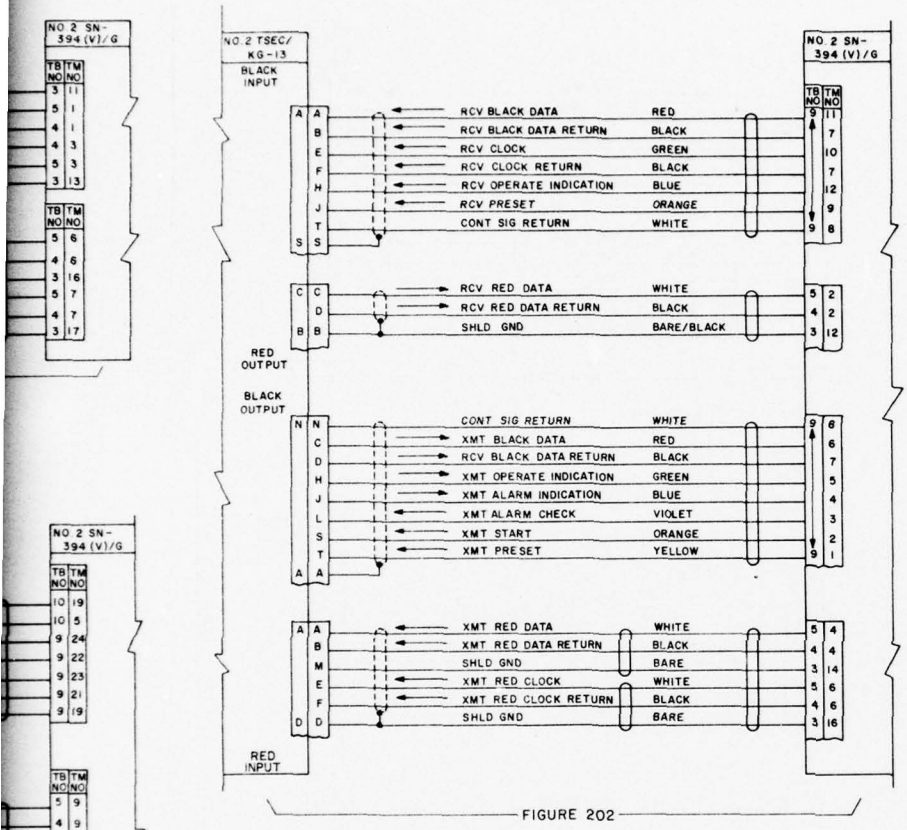


FIGURE 202

NOTES:

201. ALL SIGNAL CONNECTIONS SHOWN ON THIS SHEET WILL BE IN PLACE WHEN THE HY-11 NBTU WAS OPERATIONAL PRIOR TO RECONFIGURATION TO THE HY-2/HY11 ALTERNATE AUTOVON ACCESS CONFIGURATION.

ITEM	DESCRIPTION	NSN	UI	QTY
LIST OF MATERIALS				

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA		
DESIGN BY A. OMARTIAN	HY-11/HY-2 ALTERNATE AUTOVON ACCESS NBTU WIRING DETAILS		
DRAFTSMAN L. QUIGTAR			
CHECKER R. Kumasaki			
DATE 8 MAR 77			
ORGANIZATION APPROVAL	CODE IDENT NO. 50470	SIZE D	COM-TL 03-153
	SCALE NONE	REVISION: B	SHEET 2 OF 6

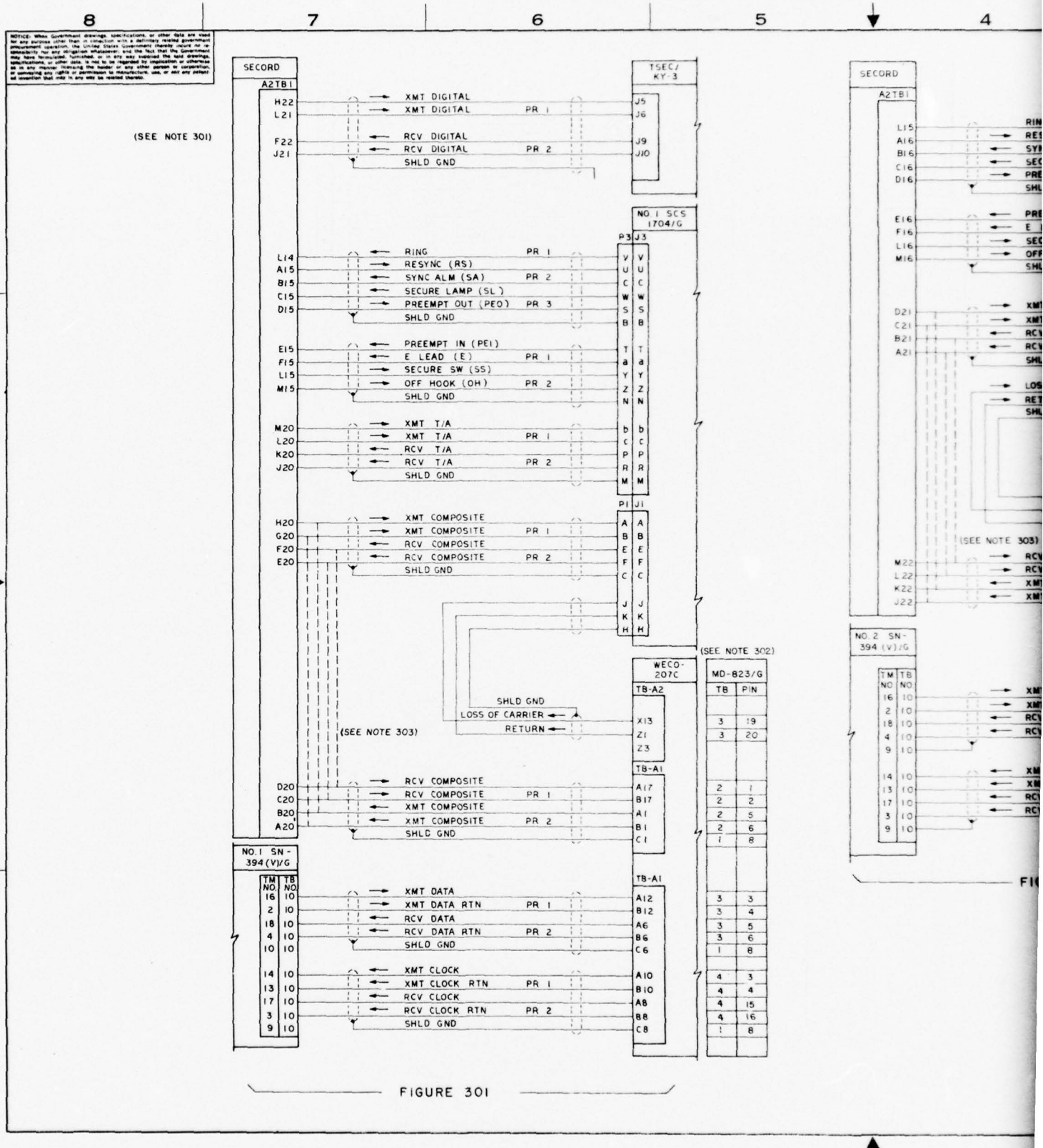

8
7
6
5
4
D
C
B
A
SECORD
A2TB1
H22
L21
F22
J21
XMT DIGITAL
XMT DIGITAL PR 1
RCV DIGITAL
RCV DIGITAL PR 2
SHLD GND
TSEC/ KY-3
J5
J6
J9
J10
NO. 1 SCS 1704/G
P3 J3
L14 RING PR 1
A15 RESYNC (RS)
B15 SYNC ALM (SA) PR 2
C15 SECURE LAMP (SL)
D15 PREEMPT OUT (PEO) PR 3
SHLD GND
E15 PREEMPT IN (PEI)
F15 E LEAD (E) PR 1
L15 SECURE SW (SS)
M15 OFF HOOK (OH) PR 2
SHLD GND
M20 XMT T/A
L20 XMT T/A PR 1
K20 RCV T/A
J20 RCV T/A PR 2
SHLD GND
P1 J1
H20 XMT COMPOSITE
G20 XMT COMPOSITE PR 1
F20 RCV COMPOSITE
E20 RCV COMPOSITE PR 2
SHLD GND
(SEE NOTE 302)
WECO-207C
MD-823/G
TB-A2
TB PIN
SHLD GND
LOSS OF CARRIER
RETURN
X13
Z1
Z3
3 19
3 20
(SEE NOTE 303)
TB-A1
D20 RCV COMPOSITE
C20 RCV COMPOSITE PR 1
B20 XMT COMPOSITE
A20 XMT COMPOSITE PR 2
SHLD GND
A17
B17
A1
B1
C1
2 1
2 2
2 5
2 6
1 8
NO. 1 SN-394 (V)/G
TM NO. TB NO.
16 10
2 10
18 10
4 10
10 10
14 10
13 10
17 10
3 10
9 10
XMT DATA
XMT DATA RTN PR 1
RCV DATA
RCV DATA RTN PR 2
SHLD GND
XMT CLOCK
XMT CLOCK RTN PR 1
RCV CLOCK
RCV CLOCK RTN PR 2
SHLD GND
A12
B12
A6
B6
C6
A10
B10
A8
B8
C8
3 3
3 4
3 5
3 6
1 8
4 3
4 4
4 15
4 16
1 8
(SEE NOTE 301)
SECORD
A2TB1
L15
A16
B16
C16
D16
E16
F16
L16
M16
D21
C21
B21
A21
M22
L22
K22
J22
(SEE NOTE 303)
NO. 2 SN-394 (V)/G
TM NO. TB NO.
16 10
2 10
18 10
4 10
9 10
14 10
13 10
17 10
3 10
9 10

FIGURE 301

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A	5B	ADDED NOTE 302 MD-823/G	29OCT76	
B		CHANGED FIG 301, 302 FROM 7,8, ADDED NOTE 305	8MAR77	
C		GENERAL REVISIONS PER FIELD CORRECTIONS AND CHANGED SH 5 OF 5 TO 3 OF 6	13JUN77	

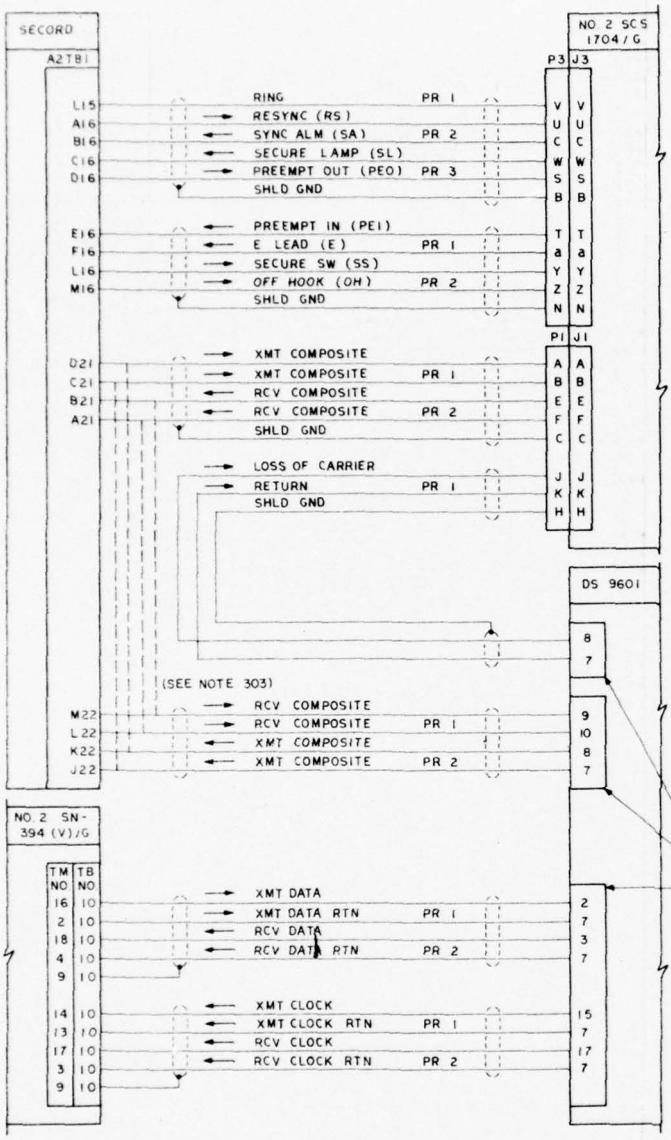


FIGURE 302

NOTES:

301. IN ADDITION TO THE KY-3 CONNECTIONS INDICATED TO THE A2TB1 BOARD PIN H22 WILL BE STRAPPED WITH M21, L21 WITH G22, F22 WITH K21, J21 WITH E22.

302. PIN CONNECTIONS FOR MD-823/G

303. IF NO NBST ARE CONNECTED TO THE SUBSCRIBER SIDE OF THE SECORD THE 4 SIGNAL CONNECTIONS FROM THE SCS J1, A, B, E AND F CAN BE CONNECTED DIRECTLY TO THE MODEMS AS INDICATED BY THE DOTTED LINES.

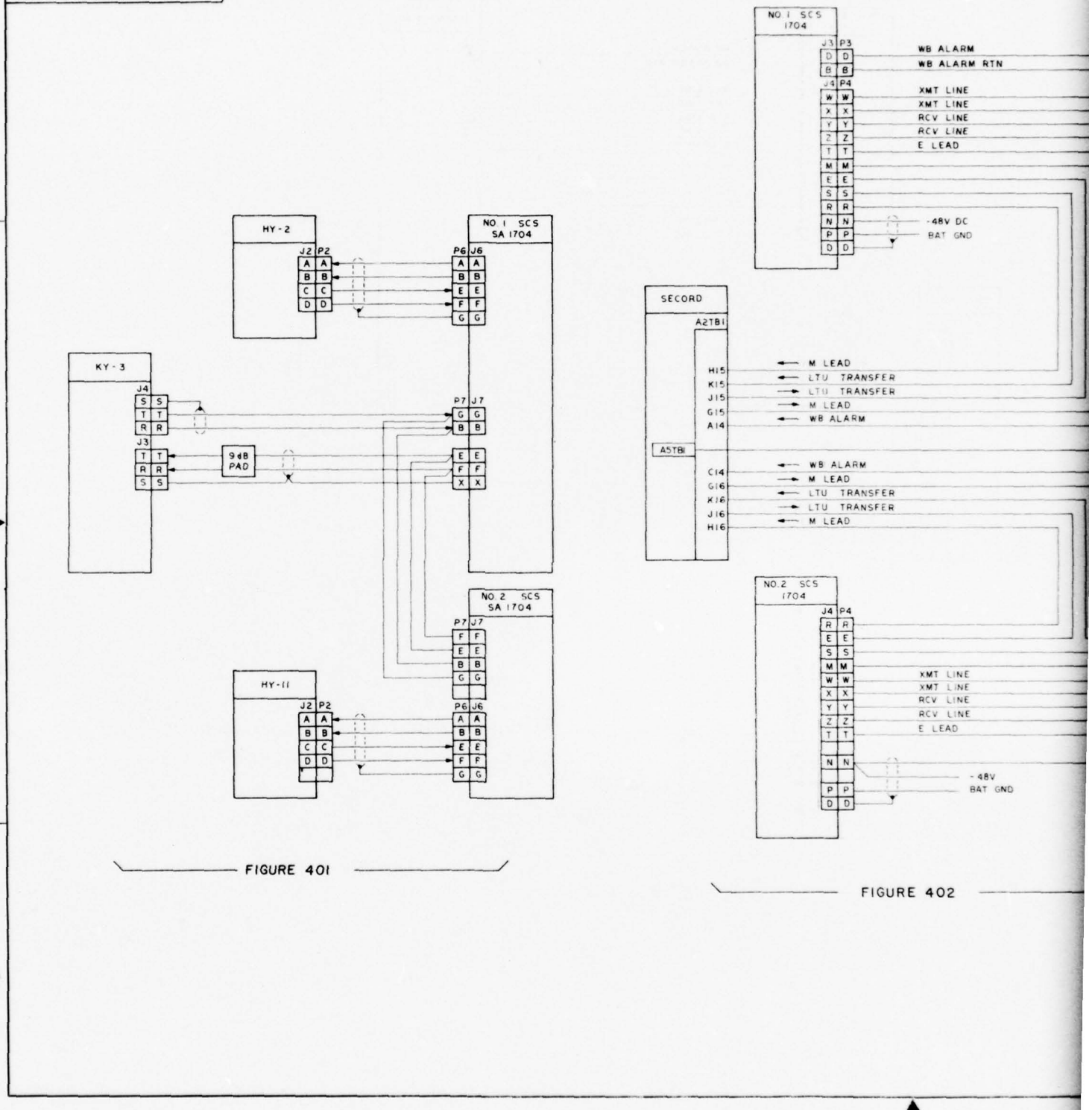
304. ALL SIGNAL CONNECTIONS SHOWN ON THIS SHEET SHOULD BE IN PLACE WHEN THE HY-2 & HY-11 SYSTEMS WERE OPERATIONAL PRIOR TO START OF RECONFIGURATION WORK TO THE ALTERNATE ACCESS CONFIGURATION.

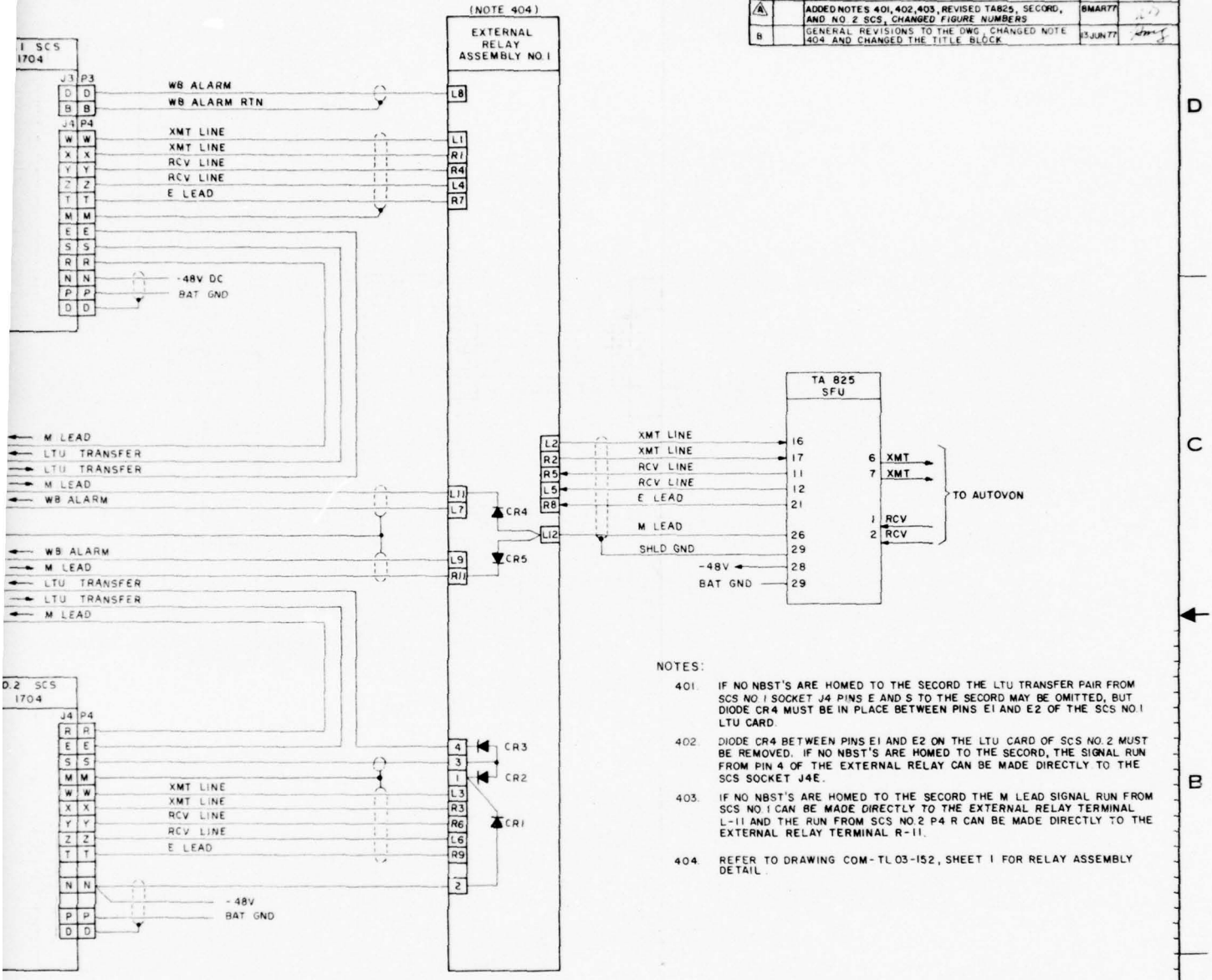
305. IF THE HY-11 NBTU WAS OPERATIONAL PRIOR TO RECONFIGURATIONS, ITS ASSOCIATED KY-3 & THE TALK AROUND PATH WIRING FROM SCS # 2 SOCKET P3 PINS b, c, P & M WILL BE REMOVED.

ITEM	DESCRIPTION	FSN	UI	QTY

LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY A. OMARTIAN	HY-11 / HY-2 ALTERNATE AUTOVON ACCESS NBTU WIRING DETAILS
DRAFTSMAN J. KALLBERG	
CHECKER	
DATE 15 MAY 76	
ORGANIZATION APPROVAL	CODE IDENT NO. 50470 / SIZE D / COM-TL 03-153
APPROVAL	SCALE NONE / REVISION: C / SHEET 3 OF 6


8
7
6
5
4
D
C
B
A
NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.
HY-2
J2 P2
A A
B B
C C
D D
P6 J6
A A
B B
E E
F F
G G
NO 1 SCS SA 1704
KY-3
J4
S S
T T
R R
J3
T T
R R
S S
9dB PAD
P7 J7
G G
B B
E E
F F
X X
NO 2 SCS SA 1704
P7 J7
F F
E E
B B
G G
HY-11
J2 P2
A A
B B
C C
D D
P6 J6
A A
B B
E E
F F
G G
FIGURE 401
NO 1 SCS 1704
J3 P3
D D
B B
WB ALARM
WB ALARM RTN
J4 P4
W W
X X
Y Y
Z Z
T T
M M
E E
S S
R R
N N
P P
D D
XMT LINE
XMT LINE
RCV LINE
RCV LINE
E LEAD
-48V DC
BAT GND
SECORD
A2TB1
H15
K15
J15
G15
A14
M LEAD
LTU TRANSFER
LTU TRANSFER
M LEAD
WB ALARM
A5TB1
C14
G16
K16
J16
H16
WB ALARM
M LEAD
LTU TRANSFER
LTU TRANSFER
M LEAD
NO 2 SCS 1704
J4 P4
R R
E E
S S
M M
W W
X X
Y Y
Z Z
T T
N N
P P
D D
XMT LINE
XMT LINE
RCV LINE
RCV LINE
E LEAD
-48V
BAT GND
FIGURE 402



REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		ADDED NOTES 401, 402, 403, REVISED TA825, SECORD, AND NO. 2 SCS, CHANGED FIGURE NUMBERS	8MAR77	
B		GENERAL REVISIONS TO THE DWG., CHANGED NOTE 404 AND CHANGED THE TITLE BLOCK	13JUN77	

NOTES:

401. IF NO NBST'S ARE HOMED TO THE SECORD THE LTU TRANSFER PAIR FROM SCS NO. 1 SOCKET J4 PINS E AND S TO THE SECORD MAY BE OMITTED, BUT DIODE CR4 MUST BE IN PLACE BETWEEN PINS E1 AND E2 OF THE SCS NO. 1 LTU CARD.

402. DIODE CR4 BETWEEN PINS E1 AND E2 ON THE LTU CARD OF SCS NO. 2 MUST BE REMOVED. IF NO NBST'S ARE HOMED TO THE SECORD, THE SIGNAL RUN FROM PIN 4 OF THE EXTERNAL RELAY CAN BE MADE DIRECTLY TO THE SCS SOCKET J4E.

403. IF NO NBST'S ARE HOMED TO THE SECORD THE M LEAD SIGNAL RUN FROM SCS NO. 1 CAN BE MADE DIRECTLY TO THE EXTERNAL RELAY TERMINAL L-11 AND THE RUN FROM SCS NO. 2 P4 R CAN BE MADE DIRECTLY TO THE EXTERNAL RELAY TERMINAL R-11.

404. REFER TO DRAWING COM-TL 03-152, SHEET 1 FOR RELAY ASSEMBLY DETAIL.

FIGURE 402

ITEM	DESCRIPTION	FSN	UI	QTY

LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY A. OMARTIAN	HY-11 / HY-2 ALTERNATE AUTOVON ACCESS NBTU WIRING DETAILS (FOR EXTERNAL RELAY ASSEMBLY NO. 1)
DRAFTSMAN J. KALLBERG	
CHECKER	
DATE 15 MAY 76	
ORGANIZATION APPROVAL	CODE IDENT NO. 50470 / SIZE D / COM-TL 03-153
APPROVAL	SCALE NONE / REVISION: B / SHEET 4 OF 6

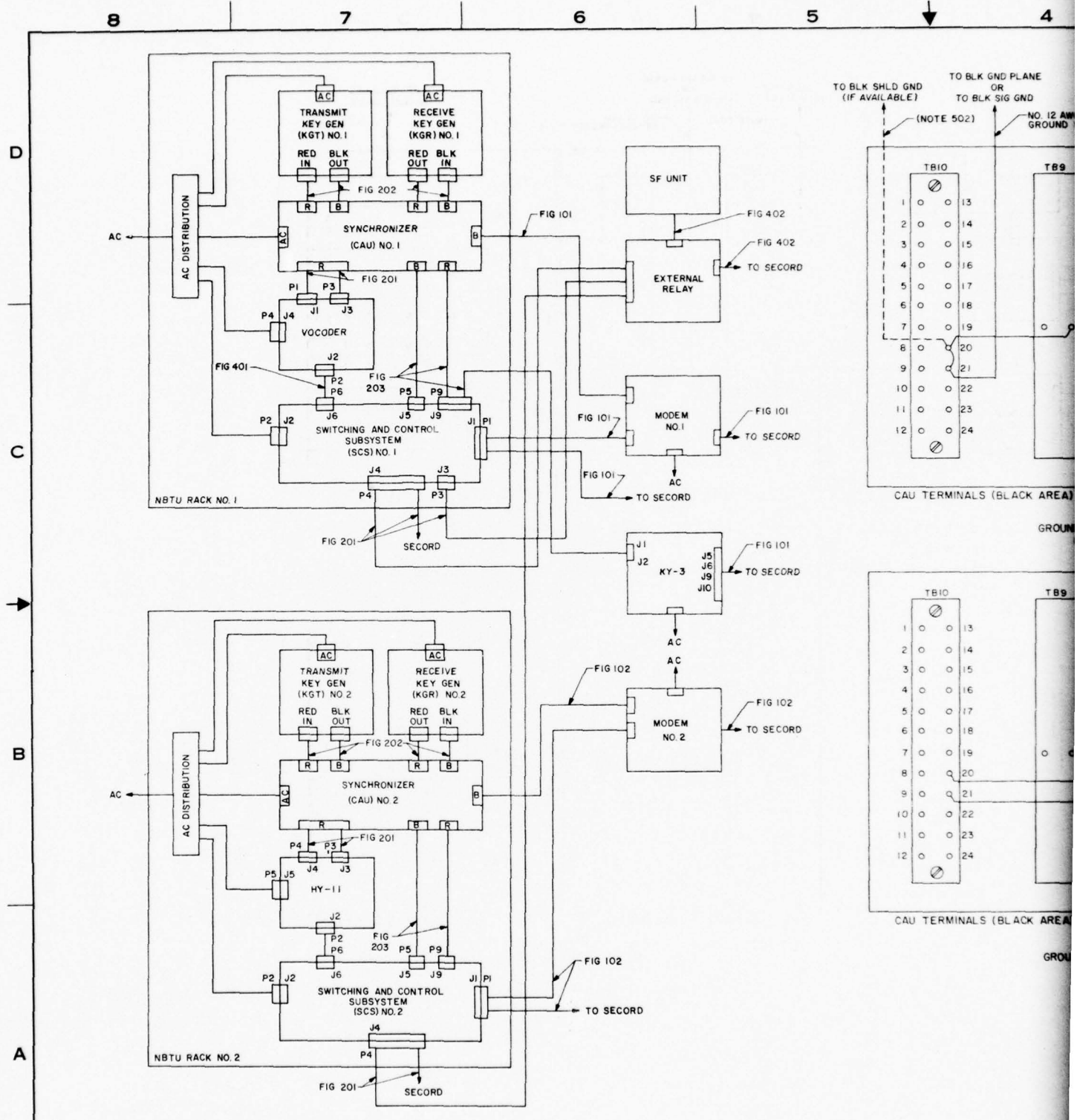

8
7
6
5
4
D
C
B
A
TRANSMIT KEY GEN (KGT) NO. 1
RECEIVE KEY GEN (KGR) NO. 1
RED IN
BLK OUT
RED OUT
BLK IN
FIG 202
SYNCHRONIZER (CAU) NO. 1
AC DISTRIBUTION
AC
FIG 201
VOCODER
FIG 401
FIG 203
SWITCHING AND CONTROL SUBSYSTEM (SCS) NO. 1
NBTU RACK NO. 1
SECORD
FIG 101
SF UNIT
FIG 402
EXTERNAL RELAY
TO SECORD
MODEM NO. 1
KY-3
TRANSMIT KEY GEN (KGT) NO. 2
RECEIVE KEY GEN (KGR) NO. 2
SYNCHRONIZER (CAU) NO. 2
HY-11
SWITCHING AND CONTROL SUBSYSTEM (SCS) NO. 2
NBTU RACK NO. 2
FIG 102
MODEM NO. 2
TO BLK SHLD GND (IF AVAILABLE)
TO BLK GND PLANE OR TO BLK SIG GND
(NOTE 502)
TB10
TB9
CAU TERMINALS (BLACK AREA)

FIGURE 501

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		REVISED NOTES PER FIELD CORRECTIONS AND CHANGED SH 5 OF 5 TO SH 5 OF 6	13 JUN 77	

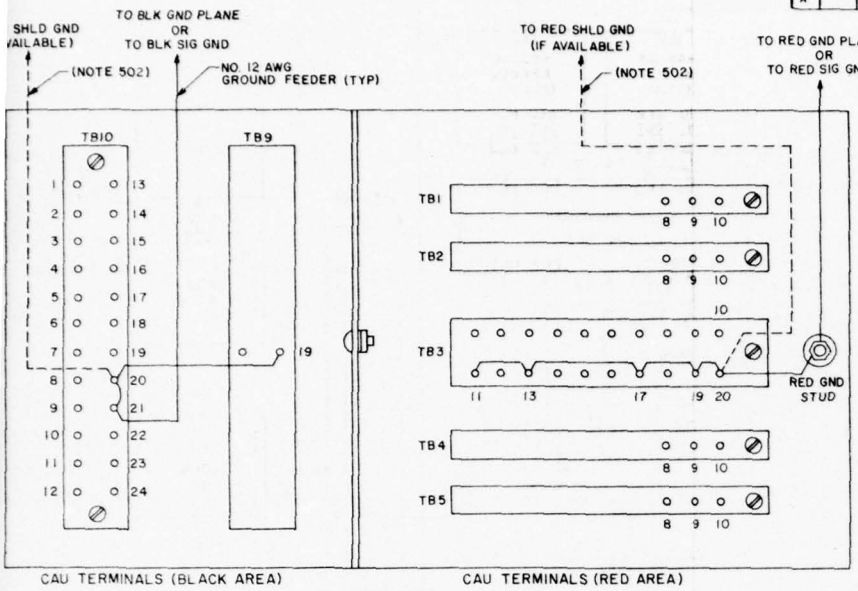


FIGURE 502
GROUND PLAN FOR NBTU EQUIPMENT
(NOTES 501 AND 502)

LEGEND

[R] INDICATES RED TERMINAL BLOCK

[B] INDICATES BLACK TERMINAL BLOCK

NOTES:

501. WHEN A RED/BLACK GROUND SYSTEM IS NOT AVAILABLE, CONNECT BOTH THE BLACK GROUND FEEDER AND THE RED GROUND FEEDER TO THE STATION GROUND. IF A STATION GROUND IS NOT AVAILABLE, USE THE GROUND PLAN AS SHOWN IN FIGURE 503.

502. IF SEPARATE SIGNAL AND SHIELD GROUND PLANES EXIST FOR BOTH THE RED AND BLACK GROUNDS, OMIT STRAP ON TB10 BETWEEN TERMINALS 20 AND 21 (BLACK AREA) AND OMIT STRAP BETWEEN TB3 TERMINAL 20 AND THE GROUND STUD (RED AREA). CONNECT TB10 TERMINAL 20 TO THE BLACK SHIELD GROUND PLANE AND CONNECT TB3 TERMINAL 20 TO THE RED SHIELD GROUND PLANE.

503. CAU STRAPPING. THE CAU UTILIZED IN THE HY-11 NBTU RACK SHOULD BE STRAPPED AS FOLLOWS:
(1) PINS 19-22 ON TB-9.
(2) PINS 1-12 WILL BE STAP ON TB-10
(3) PIN 20 OF TB-9 STRAP TO PINS 20, 21, & 22 OF TB-10.
(4) PIN 5 OF TB-4 STRAP TO PIN 5 OF TB-5.
(5) PINS 11, 13, 17, 19, & 20 OF TB-3 TO RED SIGNAL GROUND STUD.

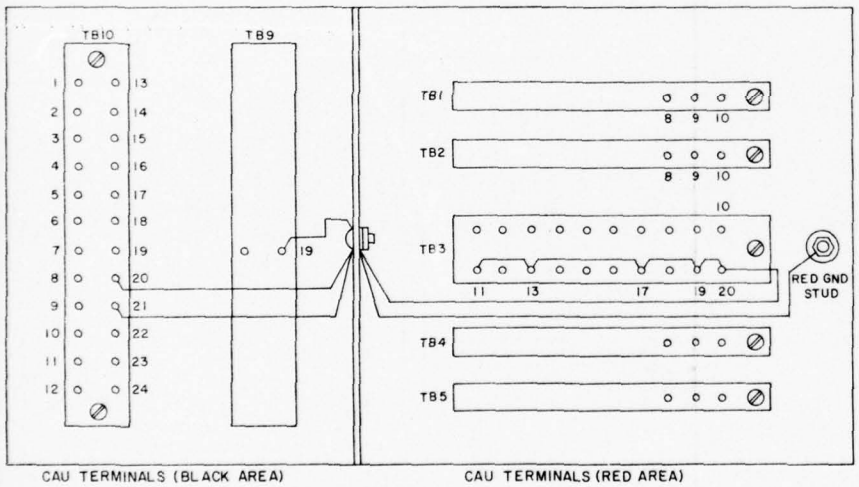


FIGURE 503
GROUND PLAN FOR NBTU EQUIPMENT
TO BE USED WHEN A GROUND PLANE IS NOT AVAILABLE (NOTE 501)

ITEM	DESCRIPTION	NSN	UI	QTY

LIST OF MATERIALS

	ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA
DESIGN BY A. OMARTIAN	HY-11/HY-2
DRAFTSMAN L. QUIGTAR	ALTERNATE AUTOVON ACCESS
CHECKER R. Kennedy	NBTU WIRING DETAILS
DATE 10 MAR 77	
ORGANIZATION APPROVAL	CODE IDENT NO. 50470 / SIZE D / COM-TL 03-153
	SCALE NONE / REVISION A / SHEET 5 OF 6

FORM 6447-R

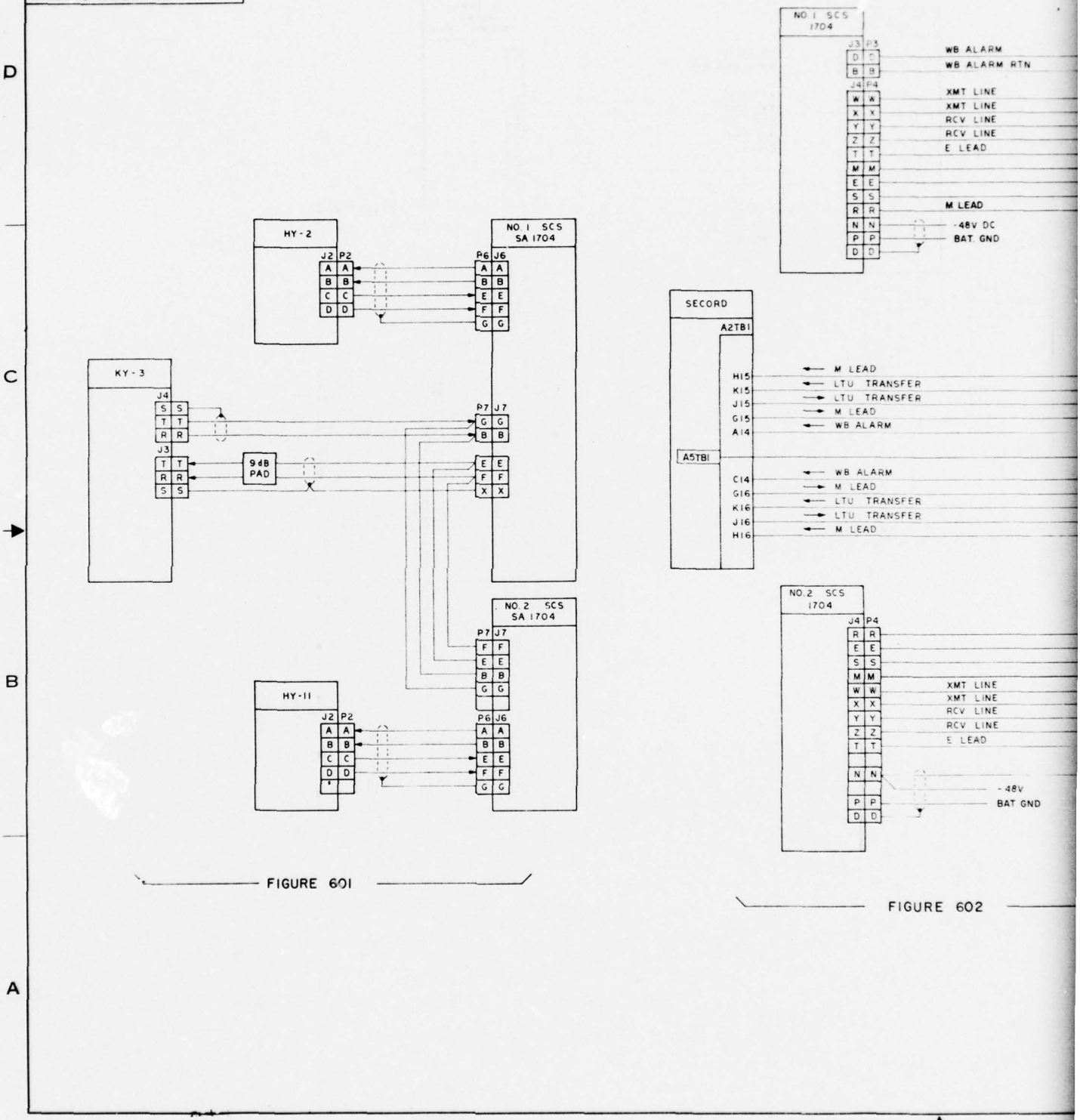


FIGURE 601

FIGURE 602

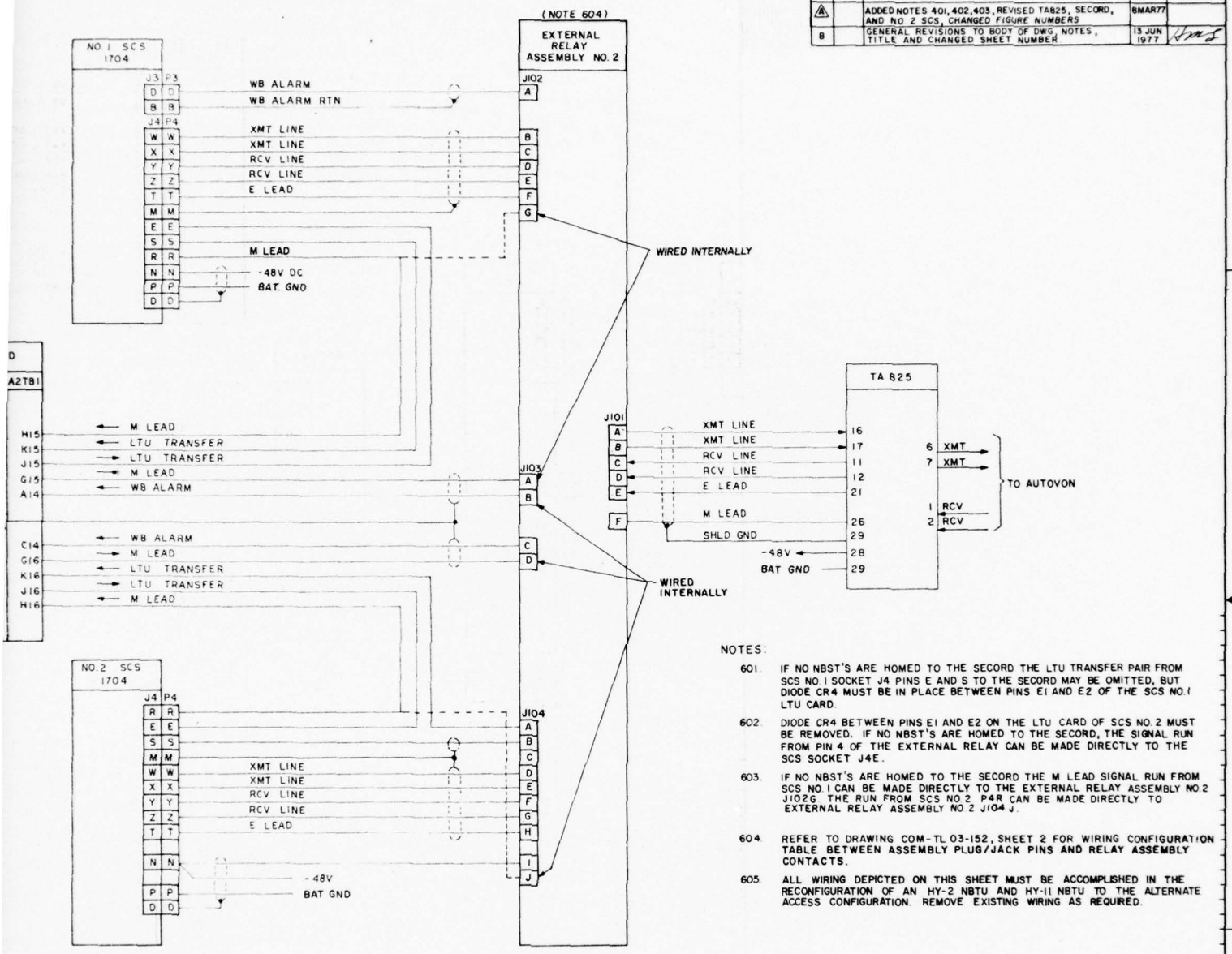


FIGURE 602

NOTES:

601. IF NO NBST'S ARE HOMED TO THE SECORD THE LTU TRANSFER PAIR FROM SCS NO. 1 SOCKET J4 PINS E AND S TO THE SECORD MAY BE OMITTED, BUT DIODE CR4 MUST BE IN PLACE BETWEEN PINS E1 AND E2 OF THE SCS NO. 1 LTU CARD.

602. DIODE CR4 BETWEEN PINS E1 AND E2 ON THE LTU CARD OF SCS NO. 2 MUST BE REMOVED. IF NO NBST'S ARE HOMED TO THE SECORD, THE SIGNAL RUN FROM PIN 4 OF THE EXTERNAL RELAY CAN BE MADE DIRECTLY TO THE SCS SOCKET J4E.

603. IF NO NBST'S ARE HOMED TO THE SECORD THE M LEAD SIGNAL RUN FROM SCS NO. 1 CAN BE MADE DIRECTLY TO THE EXTERNAL RELAY ASSEMBLY NO. 2 J102G. THE RUN FROM SCS NO. 2 P4R CAN BE MADE DIRECTLY TO EXTERNAL RELAY ASSEMBLY NO. 2 J104 J.

604. REFER TO DRAWING COM-TL 03-152, SHEET 2 FOR WIRING CONFIGURATION TABLE BETWEEN ASSEMBLY PLUG/JACK PINS AND RELAY ASSEMBLY CONTACTS.

605. ALL WIRING DEPICTED ON THIS SHEET MUST BE ACCOMPLISHED IN THE RECONFIGURATION OF AN HY-2 NBTU AND HY-11 NBTU TO THE ALTERNATE ACCESS CONFIGURATION. REMOVE EXISTING WIRING AS REQUIRED.

REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		ADDED NOTES 401, 402, 403, REVISED TA825, SECORD, AND NO. 2 SCS, CHANGED FIGURE NUMBERS	8MAR77	
B		GENERAL REVISIONS TO BODY OF DWG, NOTES, TITLE AND CHANGED SHEET NUMBER	13 JUN 1977	

ITEM	DESCRIPTION	FSN	UI	QTY

LIST OF MATERIALS

ORGANIZATION: USACEEIA-CED, FORT HUACHUCA, ARIZONA

DESIGN BY A. OMARTIAN
DRAFTSMAN J. KALLBERG
CHECKER
DATE 15 MAY 76
ORGANIZATION APPROVAL
APPROVAL

HY-11/HY-2
ALTERNATE AUTOVON ACCESS
NBTU WIRING DETAILS
(FOR EXTERNAL RELAY ASSEMBLY NO. 2)

CODE IDENT NO. 50470 | SIZE D | COM-TL 03-153

SCALE NONE | REVISION: B | SHEET 6 OF 6

SECTION 5. BILL OF MATERIALS

5.1 GENERAL. The BOM provided herein (fig. 5-1) will be used to order the materials necessary to accomplish the integration of the equipment described in this SEIP, as required.

BILL OF MATERIALS

PROJECT NO: SEIP 028 | LOCATION CODE | DRAWING LIST NO.

DATE | UNIT IDENT CODE | SHEET 1 OF 2

ITEM	NSN	AEL-ID	NOMENCLATURE	UNIT	QTY	REMARKS
1	5975-00-685-9545		Panel, Steel Blank, 19" x 3 15/32" x 1/8"	EA	1	
2	5935-00-169-9358		Connector, Wall Mounted (J101), MS3102R18-8P	EA	1	
3	5935-00-013-8972		Plug, Straight, Mates with J101, MS3106F18-8S	EA	1	
4	5935-00-752-2707		Connector, Wall Mounted (J102), MS3102R18-8PW	EA	1	
5	5935-00-515-2193		Plug, Straight, Mates with J102, MS3106F18-8SW	EA	1	
6	5935-00-682-0589		Connector, Wall Mounted (J103), MS3102R18-8PZ	EA	1	
7			Plug, Straight, Mates with J103, MS3106F18-8SZ	EA	1	
8	5935-00-295-4778		Connector, Wall Mounted (J104), MS3102E18-1P	EA	1	
9	5935-00-189-3932		Plug, Straight, Mates with J104, MS3106F18-1S	EA	1	
10			Bracket, Relay (0.059" cold roll steel)	EA	1	
11	5935-00-498-1321		Socket, Relay	EA	1	

USACC FORM 60-R

Figure 5-1. Bill of Materials (sheet 1 of 2).

BILL OF MATERIALS

PROJECT NO: SEIP 028
DATE:
LOCATION CODE:
UNIT IDENT CODE:
DRAWING LIST NO:
SHEET 2 OF 2

ITEM	NSN	AEL NO	NOMENCLATURE	UNIT	QTY	REMARKS
12	5945-00-466-2887		Relay, Armature/coil	EA	1	
13	5945-00-942-5636		Cover, Relay (Plastic)	EA	1	
14	5961-00-914-9740		Diode, IN4246	EA	5	
15	5305-00-781-5662		Screw, Round Head, 10-32 x 5/16"	EA	4	
16			Bracket, Cover (0.059" cold roll steel)	EA	2	
17	5935-00-809-0786		Cable, Clamp, Strain Relief, used with items 3,5,7,8,9, MS-3057-10A	EA	4	
18			Bushing cable, Apapter, Telescoping, used with item 17, MS3420-10A	EA	4	
19	5305-00-983-6730		Screw Pan Head Mach, 4-40 x 5/8", MS35206-21B	EA	16	
20	6145-00-557-7301	03663Z	Cable, SWBD - 16 Pr, 22 AWG, AFCN 3321	FT	10	

USACC

Figure 5-1. Bill of Materials (sheet 2 of 2).

SECTION 6. QUALITY ASSURANCE

6.1 GENERAL OBJECTIVES. All quality assurance (QA) inspections will be made in accordance with CCR 702-1-2, USACC Quality Assurance Program for Engineering, Installation and Acceptance of Communications Electronics Equipment and Systems. The QA procedures in this section will be used to inspect installations that have both HY-11 and HY-2 presently installed.

a. Determine the quality and capability of the installation to satisfactorily provide terminal services to both HY-11 and HY-2.

b. Identify, isolate, and recommend resolutions to discrepancies and to conduct inspections and reevaluations to determine the adequacy of the system.

6.2 INSPECTION SCHEDULE. QA inspections generally are conducted during normal duty hours. However, inspections may be made during other than normal duty hours if necessary.

6.3 DETAILS OF QA INSPECTIONS. This paragraph outlines the detailed QA inspections and procedures to be used for the HY-11/HY-2 alternate AUTOVON access configuration. The inspector will prepare and publish a final QA inspection report which will become part of the permanent records of the facility. Copies of the final report will be distributed to cognizant agencies. The QA inspections results will be analyzed to determine the acceptability of the system.

6.3.1 Phasing of the QA Inspections for the HY-11/HY-2 Configurations.

a. Phase I, Documentation. Figure 6-1 (sample document) shall be completed prior to beginning any formal inspections. This document shall become a permanent part of the facility records.

b. Phase II, Inspection Preparation.

(1) Preparations for the visual, mechanical, electrical, and operational inspections (to be performed by the installation team leader) shall be made as follows:

(a) A copy shall be obtained of the site plans, specifications and drawings. These shall be used to mark and identify discrepancies.

(b) Any discrepancies noted shall be recorded using green markings to record deletions of equipment or cables or changes in schematic diagrams. All additions shall be recorded using red markings.

(2) The following tools, test, and measuring equipment are required for the QA inspections:

(a) One Simpson Model 260 Multimeter (PSM-G or equivalent).

(b) One portable Tektronix Model 422 Oscilloscope (or equivalent).

(c) One Amprobe (or equivalent) calmp-on volt-ammeter to measure line voltage and amperage.

(d) One magnetic probe to check conduit (ferrous and nonferrous).

(e) One dental mirror to inspect solder joints.

(f) One wooden spudger to inspect solder joints, wire wraps, etc.

(g) One two-cell flashlight (rubber cased).

(h) One metal 12-foot tape measure graduated in eighths of an inch and feet; one 100-foot tape measure graduated in eighths of an inch and feet; safety goggles or glasses. One tool box suitable to house these tools and of a size that is easily handcarried.

(3) Support personnel are required as part of the QA inspection team. Arrangements should be made with the local operating command for various types of technical personnel such as:

(a) One power system engineer.

(b) One journeyman electrician.

(c) One mechanical engineer.

(d) One electrical engineer.

(e) One air-conditioning/environmental system engineer.

(f) One industrial safety engineer or specialist.

(g) One electronic technician.

(h) One senior COMSEC equipment repairman.

(i) One senior COMSEC equipment operator.

(j) One senior circuit-conditioning equipment repairman.

(k) One inside plant engineer or technician.

(l) One outside plant engineer or technician.

(m) The local operating command shall make available all administrative support necessary for recording, typing, filing, preparing drafts, and final QA inspection correspondence (letters and messages). Any other administrative support necessary for conducting the QA inspection mission should be furnished as required.

c. Phase III, Initial QA Inspections.

(1) The site engineering plans, specifications, and BOM of this SEIP shall be the referenced technical material for the inspection of the facility.

(2) The initial inspections (to be performed by the installation team leader) consist of a thorough visual review of the C-E equipment, the installation of the equipment, the condition of the facility in which the C-E equipment is located, and the ancillary factors. The ancillary factors consist of the following:

(a) Power systems (prime and back-up).

(b) Environmental systems (prime and back-up).

(c) Space availability for the operations areas.

(d) Space availability for maintenance areas and entrance and exits to these areas.

(e) Installation and locations of ducting, conduit, circuit breaker panels, security alarm systems, building crawl spaces, raised floors, and airhandling discharge and return registers.

(f) Placement of C-E equipment in the facility, and location and appearances of all fixed test, measuring, alarm, and system status equipment and indicators.

(g) The data obtained from the initial inspection will support the conduct and analysis of the final inspection.

d. Phase IV, Final QA Inspections. The final QA inspections shall be conducted in accordance with the foregoing procedures and figure 6-2.

e. Phase V, QA Acceptance or Rejection. Recommendations for QA acceptance or rejection of the AUTOVON access configuration facility shall be made based upon a detailed analysis of all data obtained from the detailed inspections and the operational acceptance test.

(1) Based upon the results of the detailed analysis, the QA inspector may direct that all or portions of any inspection be repeated to verify compliance with stated requirements and objectives.

(2) The QA inspector also may recommend acceptance of the AUTOVON access configuration installation with exceptions. These exceptions will be documented and will be made only under conditions which permit use of the system, pending permanent resolution, using procedural methods to alleviate known problems.

(3) The QA inspector will categorize deficiencies as follows:

(a) Category I. Category I deficiencies are considered major and are such that the system cannot operate as long as the deficiency is present. Category I deficiencies are cause for rejection.

(b) Category II. Category II deficiencies are considered minor and are such that the system can operate using procedural methods to alleviate the problems until a permanent resolution is made. Category II deficiencies, because of their nature, become items of concern. Action to resolve these deficiencies must be taken within 30 days and action completed within 60 days after completion of the QA inspections and formal operational acceptance testing.

(c) Category III. Category III deficiencies do not affect the operation of the system. These deficiencies are not cause for rejection. Generally Category III deficiencies are those very minor items which in effect are desired for system enhancement but not actually required to sustain system operation. Category III deficiencies will be noted and reported by the QA inspector; however, any action to resolve a Category III deficiency rests with the cognizant agency, department, or command desiring resolution.

(d) The QA inspector will issue status reports, as deemed necessary, during the conduct of the inspections. Upon completion

of all inspections and any necessary reinspections, the inspector shall prepare and issue a final QA inspection report and furnish copies to cognizant organizations.

6.3.2 Evidence of Quality Assurance Inspections. All inspections shall be verified and signed on the QA checklist by the QA inspector, the installation team leader, and the local QA coordinator or representative. Signatures on the QA checklist only recommend, they do not signify acceptance of the items under inspection. Formal acceptance shall be made and reported separately by the QA inspector.

6.3.3 QA Inspection Locations. QA inspection locations will be made known at the time the schedules are issued.

6.3.4 Special QA Inspection Procedures.

6.3.4.1 The inspections described in the figures are interruptible at any point if disrupted by a hardware malfunction. They also may be interrupted at a compatible breaking point by the QA inspector to permit scheduled duty breaks. Any inspection that is interrupted because of a hardware malfunction shall be restarted at a point mutually agreed upon by the QA inspector and the installation team leader.

6.3.4.2 The QA inspections and procedures in the QA checklist have been sequenced in an orderly controlled manner. However, unforeseen problems may require an inspection or procedure to be resequenced. Resequencing of any inspection or procedure shall be mutually agreed upon by the QA inspector and the installation team leader.

6.3.4.3 Spare equipment may be substituted for malfunctioning equipment upon mutual agreement between the QA inspector and the installation team leader. Any equipment which has been replaced by a substitute shall be repaired and reinspected at a point and time agreed to by the QA inspector and the installation team leader.

6.3.4.4 Once any C-E equipment component, including cables, conduit, etc., is placed under inspection, no changes or adjustments shall be permitted without the approval of the QA inspector pending completion of all scheduled inspections.

6.3.4.5 Once QA inspections have been completed on any C-E equipment, including cables, conduit, etc., no changes or adjustments shall be performed without the approval of the QA inspector pending performance of the operational acceptance test.

6.3.4.6 Cognizant agencies, departments, and commands having any SECORD NB or WB related COMSEC equipment are expected to ensure that adequate test and operational keying materials are at the site prior to the start of any inspections.

6.3.4.7 Cognizant agencies, departments, and commands having any requirements to interface the NB/WB system with the AUTOVON or other networks shall have made provisions for sufficient circuits and have had them adequately conditioned prior to the start of the final QA inspections.

6.3.5 Applicability.

6.3.5.1 The QA inspections and procedures contained herein have been standardized and apply to all NB/WB systems, sites, or installations.

6.3.5.2 In the event that any item on the checklist does not apply to the particular system, site, or installation, mark it NA (not applicable) and explain.

6.3.6 Revisions to the QA Checklist.

6.3.6.1 The QA checklist is designed as a guide to the QA inspectors. The checklist provides a means whereby QA inspectors have their attention focused on the C-E equipment, elements, and functions inherent in the NB/WB systems and sites. Also, the checklist will aid local operating commands and other cognizant agencies in the timely inspection, identification of problems or potential problems, and interrelated problem areas of their facilities in order that corrective actions may be initiated. It may be revised to satisfy the QA inspection requirements for a specific function whenever that becomes necessary as a result of abnormal situations.

6.3.6.2 A revision is considered to be any change to an inspection requirement or procedure through the addition, deletion, or modification of any part of the stated inspection or procedure.

6.3.6.3 Revisions to this checklist can be authorized by the on-site QA inspector. All revisions will be documented and forwarded to Commander, US Army Communications-Electronics Engineering Installation Agency, ATTN: CCC-TED, Fort Huachuca, Arizona 85613.

COGNIZANT AGENCY, COMMAND, AND FACILITY
POINTS OF CONTACT

COGNIZANT AGENCY:

Mailing Address _____

_____

_____

Electrical Address _____

Commander_____ Phone No._____ Bldg. No._____

Deputy/
Exec Off_____ Phone No._____ Bldg. No._____

COMMAND:

Mailing Address _____

_____

_____

Electrical Address _____

Commander_____ Phone No._____ Bldg. No._____

Deputy/
Exec Off_____ Phone No._____ Bldg. No._____

FACILITY:

Commander/
OIC_____ Phone No._____ Bldg. No._____

Deputy_____ Phone No._____ Bldg. No._____

Operations
Officer_____ Phone No._____ Bldg. No._____

Figure 6-1. Cognizant Agency, Command, and Facility Points of Contact (sample) (sheet 1 of 3).

SEIP 028

Operations	Phone No.	Bldg No.	Rm No.
NCO_____	____	____	____
Maintenance Officer_____	____	____	____
Maintenance NCO_____	____	____	____
COMSEC Officer_____	____	____	____
COMSEC NCO_____	____	____	____
SECORD NCOIC_____	____	____	____
BASE SUPPORT ACTIVITIES			
Telephone:			
Base Telephone Exchange Officer_____	____	____	____
Chief NCO/ Operator_____	____	____	____
Security:			
Base Security Officer_____	____	____	____
Base Security NCO_____	____	____	____
Provost Marshall_____	____	____	____

Figure 6-1. Cognizant Agency, Command, and Facility Points of Contact (sample) (sheet 2 of 3).

Logistics/Supply:

	Phone No.	Bldg. No.	Rm No.
Logistics Officer			
Logistics NCO			

Base Engineer/Civil Engineer:

Electrical Shop			
Plumbing Shop			
Machine Shop			
Building/Grounds Shop			

INSTALLATION:

Team Leader			
Assistant Team Leader			

QUALITY ASSURANCE:

Coordinator			
Alternate Coordinator			

Figure 6-1. Cognizant Agency, Command, and Facility Points of Contact (sample) (sheet 3 of 3).

FINAL QUALITY ASSURANCE INSPECTION CHECKLIST

PROJECT_____ DATE_____

TITLE_____ PERCENT COMPLETION_____

SITE LOCATION_____

	Yes	No	Note
1. PLANS, DRAWINGS, SPECIFICATIONS, AND BILL OF MATERIALS			
a. Is all the C-E equipment provided as GFE?	___	___	___
Work Order No._____			
Contract No._____			
b. Is a copy of the work order or contract available at the facility?	___	___	___
(If the answer is no, obtain copies for facility use.)			
c. Have change orders been issued to the work order or contract?	___	___	___
(If the answer is yes, complete the following.):			
How many?_____			
Are copies at the facility?_____			
(Attach copies of each to master copy of QA checklist.)			
d. Is the C-E equipment BOM requirements list available at the facility?	___	___	___
(If the answer is yes, attach list to master copy of QA checklist.)			

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 1 of 16).

	Yes	No	Note
e. Has the C-E equipment been inventoried and discrepancies posted?	___	___	___
(If the answer is no, an inventory shall be made.)			
(If the answer is yes, attach inventory to master copy of QA checklist.)			
f. Are the engineering plans, specifications, and drawings at the facility?	___	___	___
(If the answer is no, obtain them for the facility.)			
(If the answer is yes, are they Original?___Redline?___ As-built?___Other?_____ Attach these to master copy of QA checklist.)			
g. Is all required C-E equipment at the site?	___	___	___
(If the answer is no, identify missing equipment and attach list to master copy of QA checklist.)			
h. Is all C-E equipment installed?	___	___	___
(If the answer is no, identify the C-E equipment that is not installed, give percentage of completion, and expected completion date for each piece of C-E equipment.)			
(Attach to master copy of QA checklist.)			
2. FLOOR PLAN LAYOUT			
a. Are the layout plans in accordance with site layout drawings?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 2 of 16).

	Yes	No	Note
b. Was the layout plan completed before the equipment was moved into the area?	___	___	___
3. EQUIPMENT INSTALLATION			
a. Are equipment, racks, and cabinets installed in accordance with floor plan drawings and the engineering package?	___	___	___
b. Has proper spacing been provided between equipment racks?	___	___	___
c. Has the finish of the equipment, cabinets, and racks been touched up?	___	___	___
d. Are all screws and bolts free from stripped threads and defaced heads?	___	___	___
e. Are all terminal blocks and boards installed as specified in the engineering package?	___	___	___
f. Has the equipment been installed in cabinets or racks in accordance with face layouts?	___	___	___
g. Are all nuts, bolts, and screws properly tightened?	___	___	___
h. Are exposed or cut ends of metal filed smooth and painted?	___	___	___
4. EQUIPMENT STRAPPING			
a. Are all straps properly placed?	___	___	___
b. Is the correct type of strap wire used?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 3 of 16).

	Yes	No	Note
c. Does insulation extend to terminals?	___	___	___
d. Is the equipment removable or blocked?	___	___	___
e. Are any strapping designations obscured?	___	___	___
5. CONNECTING AND SOLDERING			
a. Are all interconnecting cables and wires installed?	___	___	___
b. Are all cables and wires installed in conduits or ducts?	___	___	___
c. Has all wiring between equipment been checked for continuity (buzzed) to ensure that the system is in accordance with the engineering package?	___	___	___
d. Has each signal line and its associated return line been checked for a short circuit or low impedance between them?	___	___	___
e. Have service loops been installed in the interconnecting wiring to enable troubleshooting or maintenance of the NBTU, SECORD, and WBST without unsoldering or unwrapping the interconnecting wiring?	___	___	___
f. Is a soldering clamp used when connecting wires?	___	___	___
g. Are terminal connections made in the proper manner?	___	___	___
h. Is all soldering done with standard rosin core solder?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 4 of 16).

	Yes	No	Note
i. Are connections secure and free of foreign substances?	___	___	___
j. Have all excess globules of solder and unsightly flux been removed?	___	___	___
k. Is insulation on skinners burned or otherwise damaged?	___	___	___
l. Do skinners on connected terminals exceed 1/6 inch?	___	___	___
m. Are all spare signal wires tied at one end to signal ground and tied back and taped at the other end?	___	___	___
6. WRAPPED CONNECTIONS			
a. Are wrapped connections applied only on suitable terminals?	___	___	___
b. Are connections essentially straight and free of angular bends or crimps?	___	___	___
c. Is the required number of turns in contact with the terminal in accordance with criteria for the gage of wire used?	___	___	___
d. Are wrapped connectors soldered where applicable?	___	___	___
e. Has any insulation been broken during wire wrap?	___	___	___
7. CONDUIT			
a. Are burrs removed from conduit after cutting?	___	___	___
b. Are bending radii in accordance with specified tolerances?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 5 of 16).

	Yes	No	Note
c. Are there more than four 90-degree bends in a single conduit run?	___	___	___
d. Does the number of conductors in each conduit conform to specification standards?	___	___	___
e. Are conduits supported at the proper angle?	___	___	___
f. Have all fittings been tightened?	___	___	___
g. Have all conduit connections been cleaned of paint and nonmetallic substances to ensure good metal-to-metal contact?	___	___	___
h. Are all conduits installed in accordance with the engineering package with respect to spacing?	___	___	___
i. In secure areas, are all conduits marked with red or black tape or paint at specified intervals to designate their classification in accordance with RED/BLACK criteria?	___	___	___
8. DUCTS (RF SHIELDINGS)			
a. Are the hangers for overhead ducts mounted first?	___	___	___
b. Is the proper type mallet used in assembly?	___	___	___
c. Are all flange sections cleaned before installation?	___	___	___
9. COAXIAL CABLES			
a. Is each cable inspected for possible damage prior to installation?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 6 of 16).

	Yes	No	Note
b. Where required, is cable laced in the same manner as signal cable?	___	___	___
c. Is butting and stripping done in the same manner as signal cable?	___	___	___
d. Are support spacing and bending radii installed as prescribed?	___	___	___
10. SECORD CHECK LIST			
a. Are patch panels mounted and positioned at a convenient height from the standing surface?	___	___	___
b. Are patch jacks and receptacles properly matched?	___	___	___
c. Are jack receptacles securely mounted on patch panels?	___	___	___
d. Are contacts of jacks and receptacles clean and devoid of rust, oily film, and dust?	___	___	___
e. Are labels on patch panel designation strips listed correctly and legibly?	___	___	___
f. Are cables terminating at patch panels properly dressed?	___	___	___
g. Are the jack fields wired correctly?	___	___	___
h. Have all jack field positions been identified on the SECORD?	___	___	___
i. Have circuit cabling records been made for each circuit?	___	___	___
11. INSTALLATION AREA			
a. Were the nonelevated floors left in good condition?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 7 of 16).

	Yes	No	Note
(1) Broken tiles	___	___	___
(2) Cracked tiles.	___	___	___
(3) Loose tiles.	___	___	___
b. Were the elevated floors left in good condition?	___	___	___
(1) Level.	___	___	___
(2) Load tested.	___	___	___
(3) Panels fit properly.	___	___	___
(4) Floor supports firmly affixed to subfloor.	___	___	___
(5) Broken tiles.	___	___	___
(6) Cracked tiles.	___	___	___
(7) Replacement tiles.	___	___	___
(8) Are vacuum cup floor panel lifters provided?	___	___	___
(9) Were any crawl spaces cut into the floor foundation?	___	___	___
(10) Are crawl spaces protected by security bars or screens?	___	___	___
(11) Were security bars or screens provided where walls were cut through?	___	___	___
(12) Was the subfloor left clean and free of debris?	___	___	___
c. Is the building provided with radio frequency interference (rfi) shielding?	___	___	___
d. Did the installation require rfi shield modification?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 8 of 16).

	Yes	No	Note
e. Did the installation require ceiling modifications?	___	___	___
(1) Acoustical tile panels.	___	___	___
(2) Air plenums for the air-conditioning system.	___	___	___
(3) Were any cable or duct entrances from the roof cut into the ceilings?	___	___	___
f. Is there a logistic or supply room for operating supplies?	___	___	___
g. Is there a storage room or area for maintenance parts?	___	___	___
h. Is there a maintenance area or workshop for communications equipment and test equipment repair?	___	___	___
i. How many rooms in the building were affected by the installation of the NBTU-SECORD-WBST system?	___	___	___
(1) Operations.	___	___	___
(2) SECORD.	___	___	___
(3) Maintenance.	___	___	___
(4) SCS, TA-825/G, and MODEM.	___	___	___
(5) COMSEC.	___	___	___
(6) Utility.	___	___	___
(7) Parts.	___	___	___
(8) Supplies.	___	___	___
(9) Telephone.	___	___	___
(a) NBTU.	___	___	___
(b) WBST.	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 9 of 16).

	Yes	No	Note
j. Are the air handling registers sufficient for the equipment installed?	___	___	___
(1) Discharge registers.	___	___	___
(2) Return air registers.	___	___	___
12. EQUIPMENT AND SIGNAL GROUNDS			
a. Are all equipment and signal grounds installed in accordance with the applicable codes and standards, and in accordance with installation drawings?	___	___	___
b. Does the station ground meet specified requirements?	___	___	___
13. AC POWER CHECK LIST			
a. Are all power wires from distribution panels to the equipment enclosed in conduits or metallic enclosures?	___	___	___
b. Are all power wires adequate for their current drains?	___	___	___
c. Is power distribution properly balanced?	___	___	___
d. Are all circuit breakers in use adequate to accommodate their required current drains?	___	___	___
e. Is standby power available?	___	___	___
f. Is there a time element required when switching from commercial to standby power?	___	___	___
g. Is the commercial power stable and constant?	___	___	___
h. What is the degree of fluctuation, if any?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 10 of 16).

	Yes	No	Note
i. Have ac convenience outlets been installed as specified?	___	___	___
j. Are outlets of the three-wire grounding type?	___	___	___
k. Have power filters been installed?	___	___	___
l. Does each piece of equipment or rack have a separate three-wire connection to the power breakers?	___	___	___
(1) Are all power wires in the conduits, power panels, junction boxes, and equipment accounted for? (There should be no spare wires.)	___	___	___
(2) Are the equipment designations stamped or labeled on the panels adjacent to the circuit breakers?	___	___	___
m. Is the main power service identified?	___	___	___
(1) Is the main power service protected by:			
Fuses?	___	___	___
(If so give the amperage rating_____.)			
(2) Circuit breakers?			
(If so give the amperage rating_____.)			
(3) Can the main power service panel be secured?	___	___	___
(4) Is it secured?	___	___	___
n. Are all circuit breakers identified and marked as to the circuits they control?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 11 of 16).

	Yes	No	Note
o. Are all other electrical panels identified and marked?	___	___	___
p. What are the voltage and amperage readings on each phase (including neutral) with all circuit breakers off?_____			
(1) Is any current present on the ground bus with all circuit breakers off except the main supply circuit breakers?	___	___	___
(2) What is the reading?_____			
(3) With all circuit breakers on?_____			
(4) Are the phases properly balanced under load conditions?	___	___	___
q. What is the rated amperage of the main feeder service?_____			
r. Are all equipment convenience outlets identified and marked as to the voltage available?	___	___	___
s. Are all ground lugs clean and tight?	___	___	___
t. Are the equipment blowers and fans installed and operating properly?	___	___	___
u. Are the temperature and humidity controls installed and operating properly?	___	___	___
v. If a backup power system is installed, what is its kVA rating _____and is it:			
(1) No-break power?	___	___	___
(2) Automatic start-up?	___	___	___
(3) Manual start-up?	___	___	___
(4) Automatic switchover?	___	___	___
(5) Manual switchover?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 12 of 16).

	Yes	No	Note
(6) Gasoline powered?	___	___	___
(7) Diesel powered?	___	___	___
(8) Other?	___	___	___
w. Will the backup power system provide sufficient power for all requirements?	___	___	___
(1) Administration.	___	___	___
(2) Operations.	___	___	___
(3) COMSEC.	___	___	___
(4) SECORD.	___	___	___
(5) SCS, TA-825/G, and MODEM.	___	___	___
(6) Air conditioning.	___	___	___
(7) Telephone.	___	___	___
(8) NBTU.	___	___	___
(9) WBST.	___	___	___
(10) Others.	___	___	___
(11) Are connections to the station ground made in accordance with the engineering package?	___	___	___
(12) Are all exposed terminals identified and marked with respect to any hazardous voltages?	___	___	___
14. DC POWER CHECK LIST			
a. Are all dc power supply units securely mounted as specified?	___	___	___
b. Are spare units available?	___	___	___
c. Is activation of the spare units automatic or manual?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 13 of 16).

	Yes	No	Note
d. Are all exposed terminals marked with the available voltages?	___	___	___
15. FUNCTIONAL			
a. Do all equipment doors open and close properly?	___	___	___
b. Do all equipment drawers slide in and out properly?	___	___	___
c. Are all junction boxes closed?	___	___	___
d. Are the conduits, ducts, and equipment racks insulated from the station floor and walls?	___	___	___
e. Are the signal line filters installed on a baffle plate?	___	___	___
f. Are all fuses installed?	___	___	___
g. Is the value of each installed fuse correct?	___	___	___
h. Is the equipment power strapping installed in accordance with the required voltages (for example, 110 V, 220 V)?	___	___	___
i. Are the chassis interlock switches contained in the equipment operating properly?	___	___	___
16. STENCILING			
a. Is the equipment correctly identified and stenciled in accordance with floor plans and drawings?	___	___	___
b. Are the designations located correctly?	___	___	___
c. Are correctly sized designations used on particular types of apparatus or equipment?	___	___	___

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 14 of 16).

REMARKS/NOTES/REFERENCES

QUALITY ASSURANCE INSPECTOR	DATE/TIME
INSTALLATION TEAM LEADER	DATE/TIME
QUALITY ASSURANCE COORDINATOR	DATE/TIME

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 15 of 16).

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QUALITY ASSURANCE DATA SHEET

Installation Inspection
Percent completion____%

1. Project Number:

2. Date:_____

3. Project Title:

4. Sheet_____of_____

5. Location:

6. Reference:

7. Criteria Applied:

8. Discrepancy Noted:

9. Location:

10. Corrective Action:

11. Corrected By:_____Organization_____

12. Remarks:

13.

QUALITY ASSURANCE INSPECTOR _____ DATE/TIME _____

INSTALLATION TEAM LEADER _____ DATE/TIME _____

QUALITY ASSURANCE COORDINATOR _____ DATE/TIME _____

14. Copy furnished:

Figure 6-2. Final Quality Assurance Inspection Checklist (sample) (sheet 16 of 16).

SECTION 7. OPERATIONAL TEST FOR THE HY-11/HY-2 ALTERNATE AUTOVON ACCESS CONFIGURATION

7.1 SCOPE. The Operational Test Plan is designed to verify that the HY-11/HY-2 Alternate AUTOVON Access Configuration will operate properly using the Common AUTOVON Access Line and the Common Frequency Signaling Unit.

7.2 TIME FRAME. The operational test and acceptance of the system shall be performed as specified in Figure 7-1. US Army activities will begin testing after the installer has provided a written statement of readiness (unless otherwise specified in the contract or work order) to the US Army Communications-Electronics Engineering Installation Agency, ATTN: CCC-TED, Fort Huachuca, Arizona 85613, no less than 10 days before offering the system for Government acceptance. Other DOD activities will provide appropriate instructions.

7.3 TEST CRITERIA. Test procedures and requirements are as specified in Figure 7-1. If one or more tests fail to meet requirements, an engineering or installation rework shall be performed on the section or sections that caused the substandard test results. The test director should determine which portions, if any, of the previous tests were affected and those portions to be retested.

7.4 TEST EQUIPMENT. None required.

7.5 TEST PLAN ORGANIZATION. This operational acceptance plan includes the following and each HY-11/HY-2 shall be tested at least four times.

a. Narrowband subscriber terminal to AUTOVON switch (back to back).

b. Operational call initiation.

c. Wideband subscriber to wideband subscriber calls.

d. Wideband subscriber to narrowband subscriber calls.

e. Narrowband subscriber to narrowband subscriber calls.

f. Wideband subscriber to narrowband trunk calls.

g. Narrowband subscriber to narrowband trunk calls.

h. Combined calls.

i. Alarms (KY-3 and Synchronization).

j. Preempt in and out.

7.6 TEST CONDITIONS. The test shall be performed as specified herein. All testing shall be conducted in a normal operating environment (i.e., 28-32 inches of mercury, 15 to 32 ^{o}C and maximum relative humidity of 80 percent). Abnormal ambient conditions, e.g., temperature, humidity, etc., during any test shall be noted in the test log with detailed remarks included with the test results.

7.7 TEST RESULTS. A detailed log of all testing and test results shall be maintained. US Army activities shall provide USACEEIA, ATTN: CCC-TED, Fort Huachuca, Arizona 85613, a copy of the log and test results, within 30 days after completion of testing. Other DOD activities should provide appropriate test results, as directed by their headquarters.

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
A.	Operational Test for HY-2/HY-11 modified for Alternate AUTOVON Access using Common AUTOVON line for circuits.				
1	Test Procedure for HY-2 Trunk/equipment (Incl calls).				
	a. Have distant end (D.E.) secure switch call SECORD on modified trunk.	C/A light flashes and audible alarm rings.			
	b. Put trunk select switch to TRK and depress C/A button.	C/A light stays on and audible alarm stops. Can talk to D.E. operator in clear.			
	c. Instruct D.E. operator to hold. Put select switch to SUB, depress C/A button for the WB sub position (designated for the test). Depress sub ring button.	Sub light should light when sub answers.			
	d. Operator instructs sub to go secure and inserts one end of the patch cord into the sub's jackset. Operator places select switch to TRK and instructs D.E. operator to go secure with HY-2 and inserts	Secure light associated with trunk/should flash and then go on steady. (WB sub should now be able to talk to the D.E. in the secure mode).			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 1 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	the other end of the patch cord in WB I/O jackset #1.				
	e. Remove patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
2	Test Procedure for HY-11 Trunk Equipment (incoming calls).				
	a. Have distant end (D.E.) secure switch call SECORD on modified trunk.	C/A light flashes and audible alarm rings.			
	b. Put trunk select switch to TRK and depress C/A button.	C/A light stays on and audible alarm stops. Can talk to D.E. operator in clear.			
	c. Instruct D.E. operator to hold Put select switch to SUB, depress C/A button for the WB sub position (designated for the test). Depress sub ring button.	Sub light should light when sub answers.			

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Figure 7-1. Operational Test Procedures and Data Sheets (sheet 2 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	d. Operator instructs sub to go secure and inserts one end of the patch cord into the sub's jackset. Operator places select switch to TRK and instructs D.E. operator to go secure with HY-11 and inserts the other end of the patch cord in WB I/O jackset #2.	The secure light associated with Trunk 2 should flash and then go on steady. Sub should now be able to talk to the D.E. in the secure mode.			
	e. Remove patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
3	To assure all equipment reverts to the normal through configuration repeat all procedures in step #1.				
4	Test procedure for HY-2 (outgoing calls)				
	a. Operator puts select switch to TRK and depress C/A button #1.	Operator should hear AUTOVON dial tone.			
	b. Operator dial number of D.E. secure switch utilizing DTMF.	Operator receives ring back, when D.E. answers C/A indicator lights and the local operator can talk to D.E. in the clear.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 3 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	c. Operator instructs D.E. to hold, then places select switch to sub position and depresses the sub's C/A button and rings sub by pressing sub ring button.	Sub C/A light goes on when sub answers and operator can talk to him in the clear.			
	d. Operator instructs sub to go secure and places one end of a patch cord in the sub's jackset. The select switch is then placed in the TRK Position and the operator instructs D.E. operator to go secure with HY-2 equipment and then places the other end of the patch cord in WB I/O jackset #1.	The secure light associated with Trunk 1 should flash and then go steady (The WB sub should now be able to talk to the D.E. in the secure mode).			
	e. Remove the patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
5	Test procedure for HY-11 (outgoing calls).				
	a. Operator puts select switch to TRK and depress C/A button #1.	Operator should hear AUTOVON dial tone.			

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Figure 7-1. Operational Test Procedures and Data Sheets (sheet 4 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	b. Operator dial number of D.E. secure switch utilizing DTMF.	Operator receives ring back when D.E. answers. C/A indicator lights and local operator can talk to D.E. in the clear.			
	c. Operator instructs D.E. to hold, then places select switch to sub position and depresses the sub C/A button and rings sub by pressing sub ring button.	Sub C/A light goes on when he answers and operator can talk to him in the clear.			
	d. Operator instructs sub to go secure and places one end of a patch cord in the sub's jack set. The select switch is then placed in the TRK position and the operator instructs D.E. operator to go secure with HY-11 equipment and then places the other end of the patch cord in W/B I/O jackset #2.	The secure light associated with Trunk 2 should flash and then go steady (The WB sub should now be able to talk to the D.E. in the secure mode.).			
	e. Remove the patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 5 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
6	To assure all equipment reverts to the normal through configuration repeat all procedures in step 4.				
7	Preempt in (PEI) with HY-2.				
	a. Establish an HY-2 call per steps 4 (a-d).	Preempt light associated with Trunk position 1 should come on and the established call should be disconnected.			
	b. Have another AUTOVON operator call Trunk one, utilizing a high precedence.				
	c. Operator should remove patch cord and release the Trunk C/A button (if this has not previously been done).	The Trunk C/A light should begin flashing.			
	d. Operator places select switch to TRK and depresses the C/A button.	Operator should be able to talk to the party who called with the higher precedence.			
8	Preempt in (PEI) with HY-11.				
	a. Establish an HY-11 call per steps 5 (a-d).				

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Figure 7-1. Operational Test Procedures and Data Sheets (sheet 6 of 7).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	b. Have another AUTOVON operator call the Trunk one, utilizing a high precedence.	Preempt light associate with Trunk should come on and the established call should be disconnected.			
	c. Operator should remove patch cord and release the Trunk C/A button (if this has not previously been done).	The Trunk C/A light should begin flashing.			
	d. Operator places select switch to TRK and depresses the C/A button.	Operator should be able to talk to the party who called with the higher precedence.			
9	Preempt out (PEO) with HY-2.				

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 7 of 7).

SECTION 8. COMPLETION CERTIFICATION

8.1 GENERAL. The completion document shall consist of the information indicated by the technical acceptance record (TAR). The information and documentation provided by these sheets may be expanded to meet the requirements of a specific project.

8.2 DISTRIBUTION. The distribution list for the TAR will be provided in the tasking document, QA test plan, or contractual document.

8.3 FORM. Prescribed TAR form items are as follows (fig 8-1): (form may be locally reproduced.)

8.3.1 Paragraph 1 (Project). Identify project.

8.3.2 Paragraph 2 (Facility). Identify facility.

8.3.3 Paragraph 3 (Location). Identify geographic location (e.g., city or post, state, and zip code).

8.3.4 Paragraph 4 (Operating Agency). Identify organization.

8.3.5 Paragraph 5 (Engineering Agency). Identify organization.

8.3.6 Paragraph 6 (Installation Agency). Identify organization.

8.3.7 Paragraph 7 (Quality Assurance/Test Agency). Identify organization (e.g., test director's parent organization).

8.3.8 Paragraph 8 (Project Description). Provide brief description of the project purpose e.g., "This project provides capability. . . "

8.3.9 Paragraph 9 (Equipment Provided). This paragraph normally lists two parts: paragraph 9A, operational equipment installed, and paragraph 9B, test equipment seccessfully tested and test equipment successfully calibrated. All hardware listed is correlated to the project BOM item number, and quantities shown are for items successfully tested/calibrated only.

8.3.10 Paragraph 10 (Documentation Provided). This paragraph normally lists two parts: paragraph 10A, drawings provided to the operator, and paragraph 10B, technical manuals provided to the operator. Drawings are listed in numerical sequence, with the title and sheet quantity identified for each. Technical manuals are listed by equipment BOM item in numerical sequence, with the equipment described and the manual quantity identified for each item.

8.3.11 Paragraph 11 (Exceptions). Exceptions to project completion and to full facility operation are identified in detail in this paragraph. Each exception will be identified separately and categorized according to the agency, or 11A, B, C, or D, anticipated to be responsible for corrective action. This categorization constitutes the test director's recommendation and is not binding. The project manager retains tasking authority regarding resolution of all exceptions.

8.3.12 Paragraph 12 (Remarks). Comment by the QA/test, installation, and operating agencies or respective paragraphs 12A, B, or C is encouraged. In the event a representative of the engineering agency is at hand during execution of final documentation, comment from that source is also encouraged. Remarks should be confined to technical matters affecting the project. Laudatory comment relative to support received, work accomplished, etc., while commendable, should be addressed in separate correspondence. Standard statements to be entered on all TAR's by the QA/test agency are shown in this paragraph. Reference to other documentation, if required, should also be addressed in this paragraph.

8.3.13 Paragraph 13 (Certification). Signatures are affixed by installation, operating, and QA/test agency representatives to authenticate activity which transpired during the acceptance test phase and to verify that system status is as stated in the document.

8.3.14 Paragraph 14 (Acceptance). The O&M Commander, or his representative, indicates by his signature that the system described in the document is accepted for full operation, less exceptions noted, if any.

TECHNICAL ACCEPTANCE RECORD

1. Project:

2. Facility:

3. Location:

4. Operating Agency:

5. Engineering Agency:

6. Installation Agency:

7. Quality Assurance/Test Agency:

8. Project Description:

Figure 8-1. Sample Technical Acceptance Record (sheet 1 of 14).

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9. Equipment Provided	A. Operational Equipment		
BOM Item No.	Description	Part Number	Qty Rqr / Qty On Site

Figure 8-1. Sample Technical Acceptance Record (sheet 2 of 14).

9. Equipment Provided: B. Test Equipment

BOM Item No.	Description	Part Number	Qty Rqr	Qty On Site

Figure 8-1. Sample Technical Acceptance Record (sheet 3 of 14).

10. Documentation Provided A. Drawings

Drawing Number	Title	Sheet

Figure 8-1. Sample Technical Acceptance Record (sheet 4 of 14).

10. Documentation Provided: B. Tech Manuals

BOM Item No.	Description	Part Number	Tech Manual Qty Rqr	Tech Manual Qty On Site

Figure 8-1. Sample Technical Acceptance Record (sheet 5 of 14).

AD-A044 955 ARMY COMMUNICATIONS COMMAND FORT HUACHUCA ARIZ F/G 17/2
STANDARD ENGINEERING INSTALLATION PACKAGE. AUTOSEVOCOM HY-11/HY--ETC(U)
JUL 77

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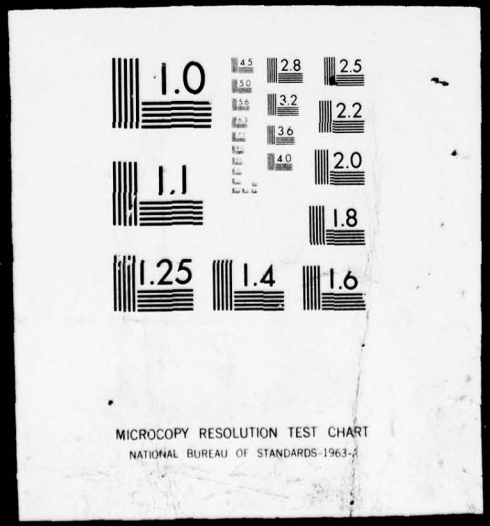

11. A. Exceptions for which the Operating Agency Assumes Responsibility

Figure 8-1. Sample Technical Acceptance Record (sheet 6 of 14).

11. B. Exceptions for which the Installation Agency Assumes Responsibility

Figure 8-1. Sample Technical Acceptance Record (sheet 7 of 14).

11. C. Exceptions Requiring Resolution by the Engineering Agency:

Figure 8-1. Sample Technical Acceptance Record (sheet 8 of 14).

11. D. Exceptions Requiring Resolution by the Project Manager:

Figure 8-1. Sample Technical Acceptance Record (sheet 9 of 14).

12. Remarks:

A. QA/Test Agency

(1) This document signifies that the equipment identified in paragraph 9 is technically acceptable for operation. This document does not signify acceptance of the equipment by the O&M Command, nor does it serve to transfer accountability for property book purposes; both of these are actions which must be consummated by the Project Manager/O&M Commander.

(2) Paragraph 11 contains agreements by personnel involved in acceptance testing relative to Agency responsibility for correction of exceptions identified therein. Assignments will be adjusted if necessary and confirmed by the PM subsequent to distribution of this document.

(3) Disposition of excess project material is a USACSA function.

(4) One copy of each marked-up drawing listed at paragraph 10A, above is provided to the Operating Command with execution of this document.

(5) All tech manuals listed at paragraph 10B, above, are provided to the Operating Command with execution of this document.

(6) One copy of each test data sheet, prepared during the installation shakedown test and during acceptance test, is provided to the Operating Command with execution of this document.

Figure 8-1. Sample Technical Acceptance Record (sheet 10 of 14).

12. Remarks:

B. Installation Agency:

Figure 8-1. Sample Technical Acceptance Record (sheet 11 of 14).

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12. Remarks:

C. Operating Agency:

Figure 8-1. Sample Technical Acceptance Record (sheet 12 of 14).

13. Certification:

Acceptance Test and Quality Assurance inspections are complete for this project:

Without Exception _____ With Exception Cited Para 11 _____

INSTALLATION AGENCY REPRESENTATIVE

Printed: _____

Signed: _____

Title: _____

Organization: _____

Date: _____

OPERATING AGENCY REPRESENTATIVE

Printed: _____

Signed: _____

Title: _____

Organization: _____

Date: _____

QA/TEST AGENCY REPRESENTATIVE

Printed: _____

Signed: _____

Title: _____

Organization: _____

Date: _____

Figure 8-1. Sample Technical Acceptance Record (sheet 13 of 14).

14. Acceptance:

This project is accepted for full operation:

Without Exception_____ With Exception Cited Para 11_____

OPERATING COMMAND

Printed: _____

Signed: _____

Title: _____

Organization: _____

Date: _____

Figure 8-1. Sample Technical Acceptance Record (sheet 14 of 14).

(CC-OPS)

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Colonel, GS
Chief of Staff

R. R. SANDERS
Major, AGC
Assistant Adjutant General

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2 - Air Force Communications Service, ATTN: 1842 EEG/EEM (MAJ Tilmon), Richards-Gebaur AFB, MO 64030
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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.

SEIP MGT Officer
AUTOVON 879-6719

Comments on SEIP ____ (please give number)

How can we contact you?

Rank Name Duty position Duty station AUTOVON number

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.

SEIP MGT Officer
AUTOVON 879-6719

Comments on SEIP ____ (please give number)

How can we contact you?

Rank Name Duty position Duty station AUTOVON number

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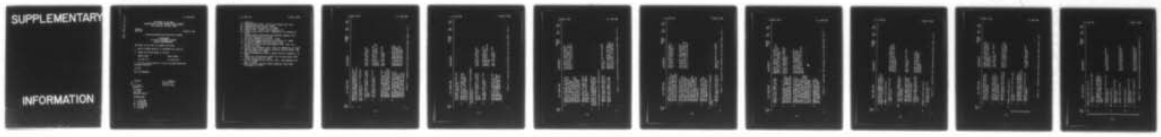

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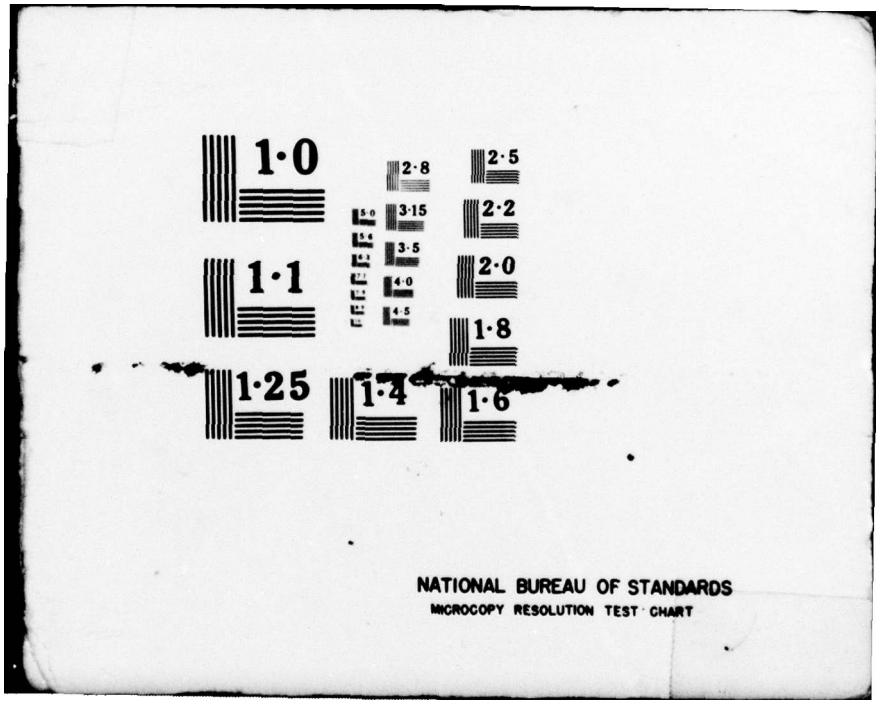
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SUPPLEMENTARY

INFORMATION

AD-A044 955

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

Change 1
SEIP 028

25 April 1978

Standard Engineering Installation Package

AUTOSEVOCOM
HY-11/HY-2 ALTERNATE AUTOVON
ACCESS CONFIGURATION

SEIP 028, 25 July 1977 is changed as follows:

1. New or changed material is indicated by a side bar.

2. Remove and insert pages as follows:

Remove pages	Insert pages
7-3 thru 7-9	7-3 thru 7-10

3. File this change sheet in front of the publication for reference purposes.

(CC-OPS)

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Colonel, GS
Chief of Staff

J. HOSTON
LTC, AGC
Adjutant General

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2 - Naval Electronic Systems Command (NAVELEX), Code 51032, Washington, DC 20315

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
A.	Operational Test for HY-2/HY-11 modified for Alternate AUTOVON Access using Common AUTOVON line for circuits.				
1	Test Procedure for HY-2 Trunk/equipment (Incl calls).				
	a. Have distant end (D.E.) secure switch call SECORD on modified trunk.	C/A light flashes and audible alarm rings.			
	b. Put trunk select switch to TRK and depress C/A button.	C/A light stays on and audible alarm stops. Can talk to D.E. operator in clear.			
	c. Instruct D.E. operator to hold. Put select switch to SUB, depress C/A button for the WB sub position (designated for the test). Depress sub ring button.	Sub light should light when sub answers.			
	d. Operator instructs sub to go secure and inserts one end of the patch cord into the sub's jackset. Operator places select switch to TRK and instructs D.E. operator to go secure with HY-2 and inserts	Secure light associated with trunk/should flash and then go on steady. (WB sub should now be able to talk to the D.E. in the secure mode).			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 1 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	the other end of the patch cord in WB I/O jackset #1.				
	e. Remove patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
2	Test Procedure for HY-11 Trunk Equipment (incoming calls).				
	a. Have distant end (D.E.) secure switch call SECORD on modified trunk.	C/A light flashes and audible alarm rings.			
	b. Put trunk select switch to TRK and depress C/A button.	C/A light stays on and audible alarm stops. Can talk to D.E. operator in clear.			
	c. Instruct D.E. operator to hold Put select switch to SUB, depress C/A button for the WB sub position (designated for the test). Depress sub ring button.	Sub light should light when sub answers.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 2 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	d. Operator instructs sub to go secure and inserts one end of the patch cord into the sub's jackset. Operator places select switch to TRK and instructs D.E. operator to go secure with HY-11 and inserts the other end of the patch cord in WB I/O jackset #2.	The secure light associated with Trunk 2 should flash and then go on steady. Sub should now be able to talk to the D.E. in the secure mode.			
	e. Remove patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
3	To assure all equipment reverts to the normal through configuration repeat all procedures in step #1.				
4	Test procedure for HY-2 (outgoing calls)				
	a. Operator puts select switch to TRK and depress C/A button #1.	Operator should hear AUTOVON dial tone.			
	b. Operator dial number of D.E. secure switch utilizing DTMF.	Operator receives ring back, when D.E. answers C/A indicator lights and the local operator can talk to D.E. in the clear.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 3 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	c. Operator instructs D.E. to hold, then places select switch to sub position and depresses the sub's C/A button and rings sub by pressing sub ring button.	Sub C/A light goes on when sub answers and operator can talk to him in the clear.			
	d. Operator instructs sub to go secure and places one end of a patch cord in the sub's jackset. The select switch is then placed in the TRK Position and the operator instructs D.E. operator to go secure with HY-2 equipment and then places the other end of the patch cord in WB I/O jackset #1.	The secure light associated with Trunk 1 should flash and then go steady (The WB sub should now be able to talk to the D.E. in the secure mode).			
	e. Remove the patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				
5	Test procedure for HY-11 (outgoing calls).				
	a. Operator puts select switch to TRK and depress C/A button #1.	Operator should hear AUTOVON dial tone.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 4 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	b. Operator dial number of D.E. secure switch utilizing DTMF.	Operator receives ring back when D.E. answers. C/A indicator lights and local operator can talk to D.E. in the clear.			
	c. Operator instructs D.E. to hold, then places select switch to sub position and depresses the sub C/A button and rings sub by pressing sub ring button.	Sub C/A light goes on when he answers and operator can talk to him in the clear.			
	d. Operator instructs sub to go secure and places one end of a patch cord in the sub's jack set. The select switch is then placed in the TRK position and the operator instructs D.E. operator to go secure with HY-11 equipment and then places the other end of the patch cord in W/B I/O jackset #2.	The secure light associated with Trunk 2 should flash and then go steady (The WB sub should now be able to talk to the D.E. in the secure mode.).			
	e. Remove the patch cord when the C/A lights go out. Contact the WB sub and record his comments on the call.				

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 5 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
6	To assure all equipment reverts to the normal through configuration repeat all procedures in step 4.				
7	Preempt in (PEI) with HY-2.				
	a. Establish an HY-2 call per steps 4 (a-d).	Preempt light associated with Trunk position 1 should come on and the established call should be disconnected.			
	b. Have another AUTOVON operator call Trunk one, utilizing a high precedence.				
	c. Operator should remove patch cord and release the Trunk C/A button (if this has not previously been done).	The Trunk C/A light should begin flashing.			
	d. Operator places select switch to TRK and depresses the C/A button.	Operator should be able to talk to the party who called with the higher precedence.			
8	Preempt in (PEI) with HY-11.				
	a. Establish an HY-11 call per steps 5 (a-d).				

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 6 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
	b. Have another AUTOVON operator call the Trunk one, utilizing a high precedence.	Preempt light associate with Trunk should come on and the established call should be disconnected.			
	c. Operator should remove patch cord and release the Trunk C/A button (if this has not previously been done).	The Trunk C/A light should begin flashing.			
	d. Operator places select switch to TRK and depresses the C/A button.	Operator should be able to talk to the party who called with the higher precedence.			
9	Preempt out (PEO) with HY-2.				
	a. Establish an HY-2 call per steps 4 (a-d).				
	b. The operator will then depress the preempt button on Trunk position #1, and remove the patch cord.				
	c. Operator will call the D.E. and record comments.	D.E. should have received a preempt indication.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 7 of 8).

STEP NO	TEST CONDITIONS	REQUIREMENTS	OBSERVATION	ACCEPT	REJECT
10	Preempt out (PEO) with HY-11.				
	a. Establish an HY-11 call per steps 5 (a-d).				
	b. The operator will then depress the preempt button on Trunk position #2, and remove the patch cord.				
	c. Operator will call the D.E. and record comments.	D.E. should have received a preempt indication.			
11	KY-3 Alarm (Trunk 1).				
	a. Establish an HY-2 call per steps 4 (a-d).				
	b. Insert a fault in KY-3.	KY-3 alarm indication should light on Trunk position 1.			
12	KY-3 Alarm (Trunk 2).				
	a. Establish an HY-11 call per steps 5 (a-d)				
	b. Insert a fault in the KY-3.	KY-3 alarm indication should light on Trunk position 2.			

Figure 7-1. Operational Test Procedures and Data Sheets (sheet 8 of 8).