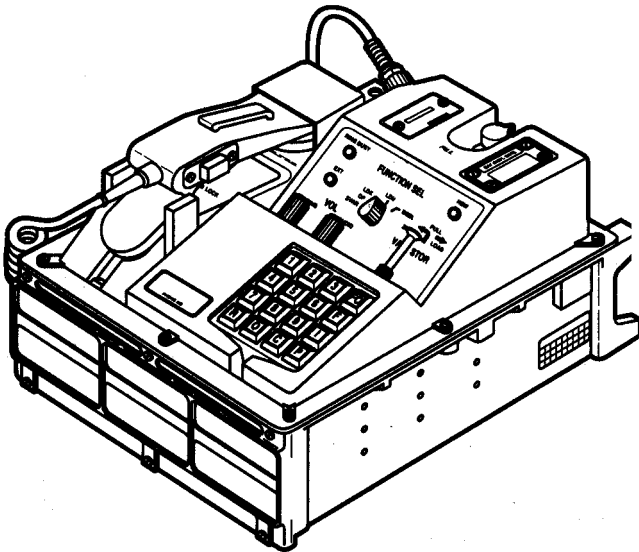


OPERATOR'S MANUAL
FOR
DIGITAL SUBSCRIBER
VOICE TERMINAL
TSEC/KY-68
(NSN 5810-01-082-8404)
(EIC: HXV)



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Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

***This manual supersedes TM 11-5810-329-10, dated 1 January 1986**

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Headquarters, Department of the Army, Washington, D.C., 3 June 1996

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Page 3-1

WARNING SUMMARY

EXPLANATION OF SINGLE HAZARD SYMBOLS



The rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.



The symbol of a flame shows that the material can ignite and burn personnel.



The foot with a heavy object on top shows that heavy parts can crush and harm.



The electrical wire to the arm with the electricity symbol running through the body shows that a shock hazard is present.

FOR FIRST AID PROCEDURES SEE FM 21-11.

FOR OFFICIAL USE ONLY (FOUO) INFORMATION

The For Official Use Only (FOUO) marking on COMSEC technical manuals is not a security classification. FOUO is a protective-handling designation. In accordance with AR 25-55, Department of the Army Freedom of Information Act, the following requirements are provided for safeguarding FOUO technical manuals:

During Duty Hours. During normal working hours, FOUO manuals shall be placed in an out-of-site location if the work area is accessible to non-government personnel.

During Nonduty Hours. At the close of business, FOUO manuals shall be stored so as to preclude unauthorized access. Filing manuals with other UNCLASSIFIED records in unlocked files or desks, etc. is adequate when normal U.S. Government or Government-contractor internal building security is provided during nonduty hours. When such internal security control is not exercised, locked buildings or rooms (or communications shelters) normally provide adequate after-hours protection. If such protection is not considered adequate, FOUO material shall be stored in locked receptacles such as file cabinets, desks, or bookcases.

NOTE

Storing FOUO information in a security container is not a regulatory requirement.

Refer to AR 25-55 for handling and destruction requirements.



5

Safety Steps to Follow if Someone is the Victim of Electrical Shock

1

Do not try to pull or grab the individual

2

If possible, turn OFF the electrical power

3

If you cannot turn off the electrical power, pull, push, or lift the person to safety using a wooden pole or a rope or some other insulating material

4

Send for help as soon as possible

5

After the injured person is free of contact with the source of electrical shock, move the person a short distance away and, if required, immediately start artificial resuscitation

INCENDIARY DEVICES



WARNING

DEMOLITION MATERIALS used to destroy equipment can cause injury or death.



CAUTION

DROPPED EQUIPMENT can cause injury to personnel and/or damage to the equipment.

ALTERNATING & DIRECT CURRENT VOLTAGE



WARNING

Ac and dc VOLTAGE used by the equipment can kill you.

LITHIUM BATTERIES



WARNING

LITHIUM batteries used by the equipment can explode or start a fire if they are mishandled or abused.

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OPERATOR'S MANUAL
FOR
DIGITAL SUBSCRIBER VOICE
TERMINAL TSEC/KY-68
(NSN 5810-01-082-8404)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Director, U.S. Army Communications-Electronics Command, Communications Security Logistics Activity, ATTN: SELCL-EP-C, Fort Huachuca, AZ 85613-7090. You may also forward it via e-mail to epco@csla.army.mil, FAX at DSN 879-6036 or MSG DIRUSACCSLA FT HUACHUCA AZ. A reply will be furnished you. For a quicker response, call us at DSN 879-8260.

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HOW TO USE THIS MANUAL

A front cover index has been provided to guide you to the most-used sections of this TM. A black bar on each front cover index tab corresponds to another black tab on the page inside the manual. Line up these bars to find the indexed portion.

Throughout the TM you will find Notes, Cautions, and Warnings:



Notes are used to draw attention to information of special importance or interest or which aids job performance.

Cautions warn about conditions, practices, or procedures which could damage or destroy the equipment or lead to long-term health hazards.

Warnings note conditions, practices, or procedures which could lead to personal injury or loss of life.

Always read through a complete procedure/task before you actually perform the procedure/task.

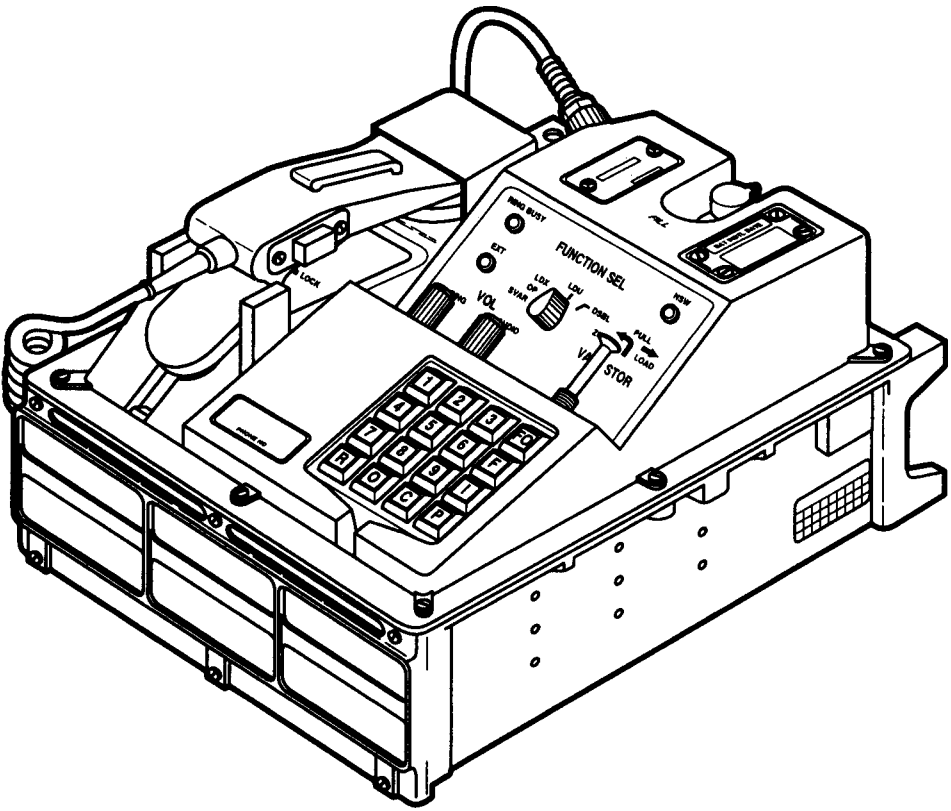


Figure 1-0. KY-68 Front View.

CHAPTER I INTRODUCTION

Section I. GENERAL INFORMATION

1.1 SCOPE.

1.1.1 **Type of Manual:** Operator's.

1.1.2 **Model Number and Equipment Name:** KY-68, Digital Subscriber Voice Terminal (DSVT).

1.1.3 **Purpose of Equipment:** The KY-68 is used for encrypting/decrypting voice traffic and provides secure digitized data traffic when used with various communications devices.

1.2 MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those as directed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1.3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at Director, U.S. Army Communications-Electronics Command, Communications Security Logistics Activity, ATTN: SELCL-EP-A, Fort Huachuca, Arizona, 85613-7090. We'll send you a reply.

1.4 CORROSION PREVENTION AND CONTROL

1.4.1 Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

1.4.2 While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

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1.4.3 If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Use of keywords such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem.

1.4.4 The SF 368 should be submitted to the address specified in DA PAM 738-750.

1.5 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

1.5.1 **Authorization.** Destruction of equipment, and associated keying materiel and devices, to prevent further use will be accomplished in accordance with the Communications Security (COMSEC) basic emergency plan for your unit. If time will not permit implementation of the emergency plan, destruction will be accomplished upon the order of the senior person present.

1.5.2 **Priorities.** In an emergency where it is neither possible to afford continued protection to COMSEC materiel, nor to evacuate it to a secure area, the highest priority must be given to the destruction of keying materiel to prevent its falling into unauthorized hands. The general priority for emergency destruction of COMSEC materiel is as follows:

1.5.2.1 All superseded and currently effective keying materiel. Destruction of keying materiel includes zeroizing all keyed equipment.

1.5.2.2 TOP SECRET and multiholder keying materiel which is to become effective within the next 30 days.

1.5.2.3 SECRET and CONFIDENTIAL multiholder keying materiel which is to become effective within the next 30 days.

1.5.2.4 Sensitive pages of equipment maintenance manuals (or the complete manual).

1.5.2.5 Classified printed circuit boards and module boards.

1.5.2.6 Remaining classified COMSEC materiel, including all remaining future keying materiel.

1.5.3 **Methods and Materials.** The selection of adequate destruction materials to be used in an emergency is the responsibility of the Commander, and should be based on a comprehensive evaluation of conditions.

1.5.4 **Keying Materiel and COMSEC Documents.** In an emergency situation, keying materiel and other classified COMSEC publications may be destroyed by any means which, in the judgment of the person(s) involved, and in due consideration of time resources available, will result in the least likelihood of unauthorized recovery. Any of the devices or methods approved for routine destruction are acceptable. Refer to TB 380-41.

1.5.5 Destruction of CCI Equipment. As a last resort, to prevent the equipment from falling into unauthorized hands, the equipment should be destroyed. Destruction may be by any means which will render the equipment unusable and unrepairable. If practical, destruction should be sufficiently thorough to result in the least likelihood of reconstruction of the logic circuits. This can be accomplished by removing and destroying the CCI portions of the equipment, such as certain printed circuit boards. If these CCI elements are destroyed, it is not absolutely necessary to completely destroy the remainder of the equipment. The following are approved and effective methods for emergency destruction:



Use of demolition materials can cause injury or death.

Get to know the rules of FM 5-25.

1.5.5.1 Incendiary hand grenades may be authorized for use outside the Continental United States. Check your local emergency destruction procedures.

1.5.5.2 Incinerators may be used for destruction of printed circuit boards. However, it may be necessary to break up the boards after they have been removed from the incinerator.

1.5.5.3 Acetylene torches, sledgehammers, fire axes, etc., may be used to render printed circuit boards unusable. The pieces should be scattered.

1.5.6 **Action Subsequent to Loss or Destruction.** See AR 380-40 or DA PAM 25-380-2 for actions required when equipment has been lost or destroyed.

1.6 PREPARATION FOR STORAGE OR SHIPMENT.

Ship your equipment through normal supply channels in accordance with DA PAM 710-2-1.

1.7 WARRANTY INFORMATION.

There is no warranty on the KY-68.

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1.8 NOMENCLATURE CROSS-REFERENCE LIST.

COMMON NAME	NOMENCLATURE
Digital Subscriber Voice Terminal (DSVT) KY-68	

1.9 LIST OF ABBREVIATIONS AND ACRONYMS.

CCI Controlled	Cryptographic Items
COMSEC	Communications Security
CPC	Corrosion Prevention and Control
DSVT	Digital Subscriber Voice Terminal
EIR	Equipment Improvement Recommendations
TAMMS	The Army Maintenance Management System

1.10 SECURITY INFORMATION.

Be aware of security procedures for Controlled Cryptographic Items (CCI) equipment in accordance with TB 380-41.

Section II. EQUIPMENT DESCRIPTION AND DATA

1.11 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

The KY-68 has the following characteristics, capabilities, and features:

- 1.11.1 Operates as a full-duplex or half-duplex voice/data subscriber terminal.
- 1.11.2 Handles 16 kilobits per second (kbps) to 32 kbps traffic.
- 1.11.3 Provides secure and non-secure access to switched networks.
- 1.11.4 Provides secure access to non-switched networks.
- 1.11.5 Can be operated with a COMSEC parent or COMSEC subordinate switch.
- 1.11.6 Can be operated as sole-user without intervening devices.
- 1.11.7 Is a ruggedized tactical unit for field use.
- 1.11.8 Operated from a common battery or a local power source.
- 1.11.9 Is normally supplied with an H-350/U military handset.

1.11.10 Can use headset H-349 with an M-138G microphone.

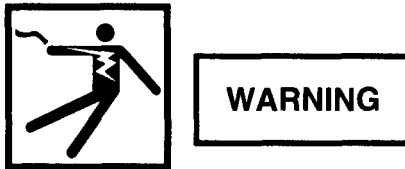
1.11.11 Can use a KYK-13, KYX-15/15A, KOI-18, or AN/CYZ-10 fill device for key loading.

1.12 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

See paragraph 2.1 and figure 2-1 for location and description of major components.



Dropped equipment can cause injury to personnel and/or damage to the equipment.



Ac and dc VOLTAGE used by the equipment can kill you.

1.13 EQUIPMENT DATA.

1.13.1 Height: 6.67 inches.

1.13.2 Width: 9.73 inches.

1.13.3 Depth: 12.81 inches.

1.13.4 Weight: 14 pounds.

1.13.5 Power requirements: -21 V dc to -56 V ac.

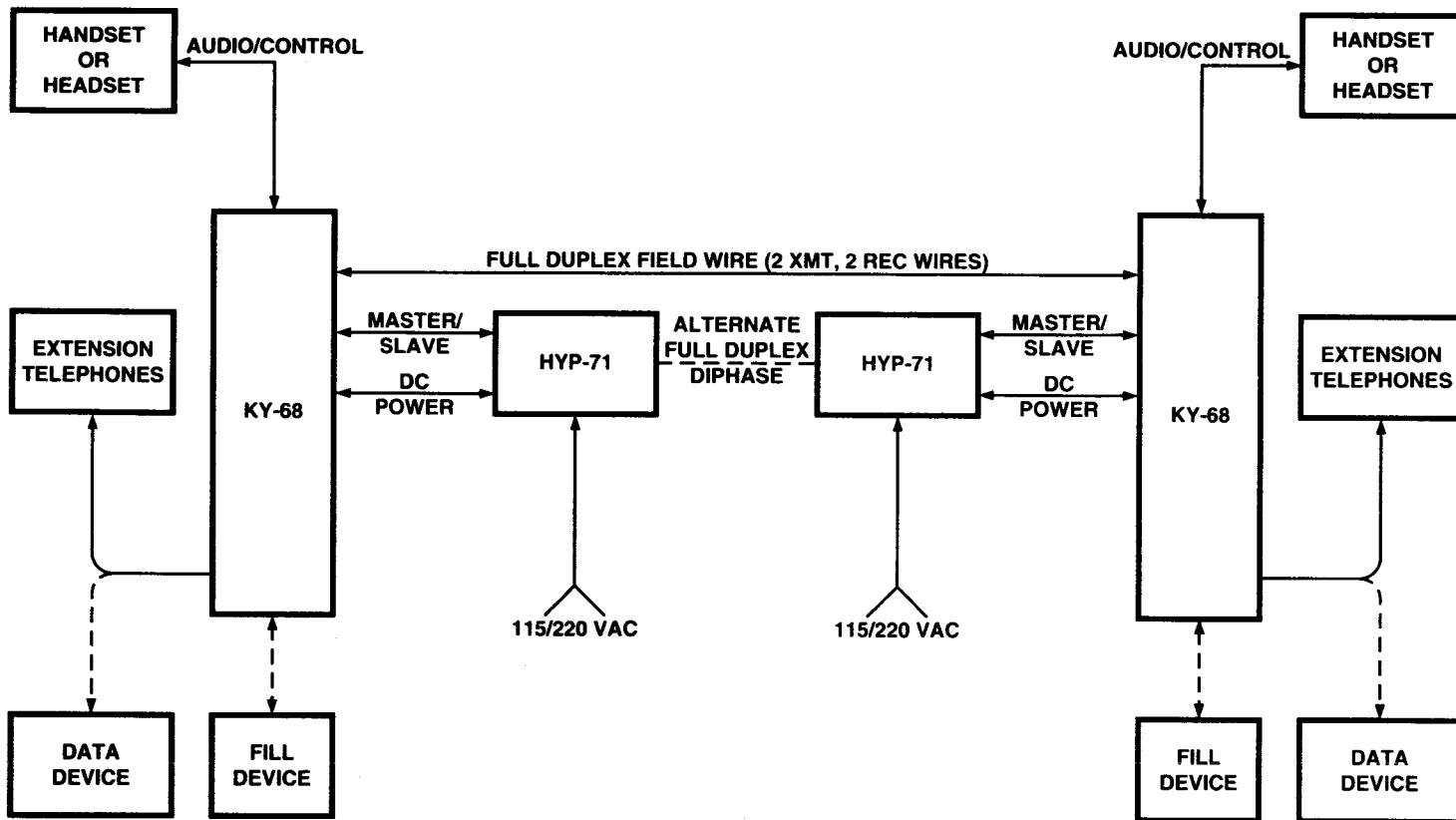
1.13.6 Circuit protection: dc, 4 fuses, 1/2 ampere

Section III. PRINCIPLES OF OPERATION

1.15 FUNCTIONAL DESCRIPTION.

NOTE

Because the HYP-71 power supply was produced in very limited quantities, the HYP-71 will be issued only for "special" KY-68 sole-user applications.



NOTE: Master/Slave software on at least one of the HYP-71 should be in the MASTER position.

Figure 1-1. KY-68 Simplified Block Diagram.

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CHAPTER 2

OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2.1 CONTROLS AND INDICATORS.

See figure 2-1.

- ① **EXT (extension) indicator:** ON when KY-68 and one or more extension telephones or data devices are off-hook at the same time.
- ② **RING/BUSY indicator:** OFF when KY-68 is in standby mode. FLASHES when KY-68 is being rung in voice mode. ON when KY-68, or any connected extension telephone or data device is off-hook.
- ③ **Fill connector (with cap on):** Used to load keys from a fill device.
- ④ **BAT INSTL DATE:** Shows date fill battery was installed.
- ⑤ **FUNCTION SEL switch:** Along with the VAR STOR switch, controls operation of the KY-68.
 - SVAR Used for loading the S key and permits S mode operation.
 - OP Puts KY-68 into normal operation when initialization is complete.
 - LDX Used for loading the X key.
 - LDU Used for loading the U key.
 - DSBL Forces and unconditional on-hook state which disables all local operation(s) of the KY-68 and its extensions and/or data device. Can be used to deny network access to extension phones. Gives LOGIC RESET to internal circuitry.
- ⑥ **NSW (non-secure warning) indicator:** FLASHES when an off-hook KY-68 is operating in a non-secure mode. ON if a KY-68, which has not been initialized, is off-hook.
- ⑦ **VAR STOR (key storage) switch:** Along with FUNCTION SEL switch, controls operation of the KY-68. When in:
 - CENTER position, allows normal operation.
 - LOAD position (momentarily pushed to the right -LOAD), allows key loading.

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ZERO position (pulled upward and moved to the left), zeroizes all stored keys. Plain text can be kept in operation in emergency access or at the command of the circuit switch.

⑧ **Keyboard matrix:** Used to enter ADDRESS PRECEDENCE and OTHER CALL SET-UP information.

Pushbuttons:

- 0-9 Enters ADDRESS data
- FO Enters PRECEDENCE data-FLASH OVERRIDE
- F Enters PRECEDENCE data-FLASH
- I Enters PRECEDENCE data-IMMEDIATE
- P Enters PRECEDENCE data-PRIORITY
- C Enters CONFERENCE, CONFERENCE RELEASE, and END OF DIAL KEY
- R Used in certain NET radio interface calls
- O Used in EMERGENCY access

⑨ **Audio volume:** Adjusts audio level.

⑩ **PHONE NO (number) surface:** Used to record the assigned phone number for the KY-68. Use grease pencil only.

⑪ **Ring volume:** Adjusts volume of KY-68 ring.



The cradle hookswitch can be locked ONLY in the ON-HOOK position. DO NOT try to lock the switch in any other position. Damage to the switch could result.

⑫ **Cradle hookswitch:** Puts the KY-68 in the:

⑬ **Handset with push-to-talk switch:** Used only when the KY-68 is operating in the half-duplex mode. Allows for voice transmission when pushed IN.

⑭ **Operate mode label:** Indicates the operating mode for which the KY-68 is preset.

⑮ **Headset with push-to-talk switch:** Used only when the KY-68 is operating in the half-duplex mode. Allows for voice transmission when pushed IN.

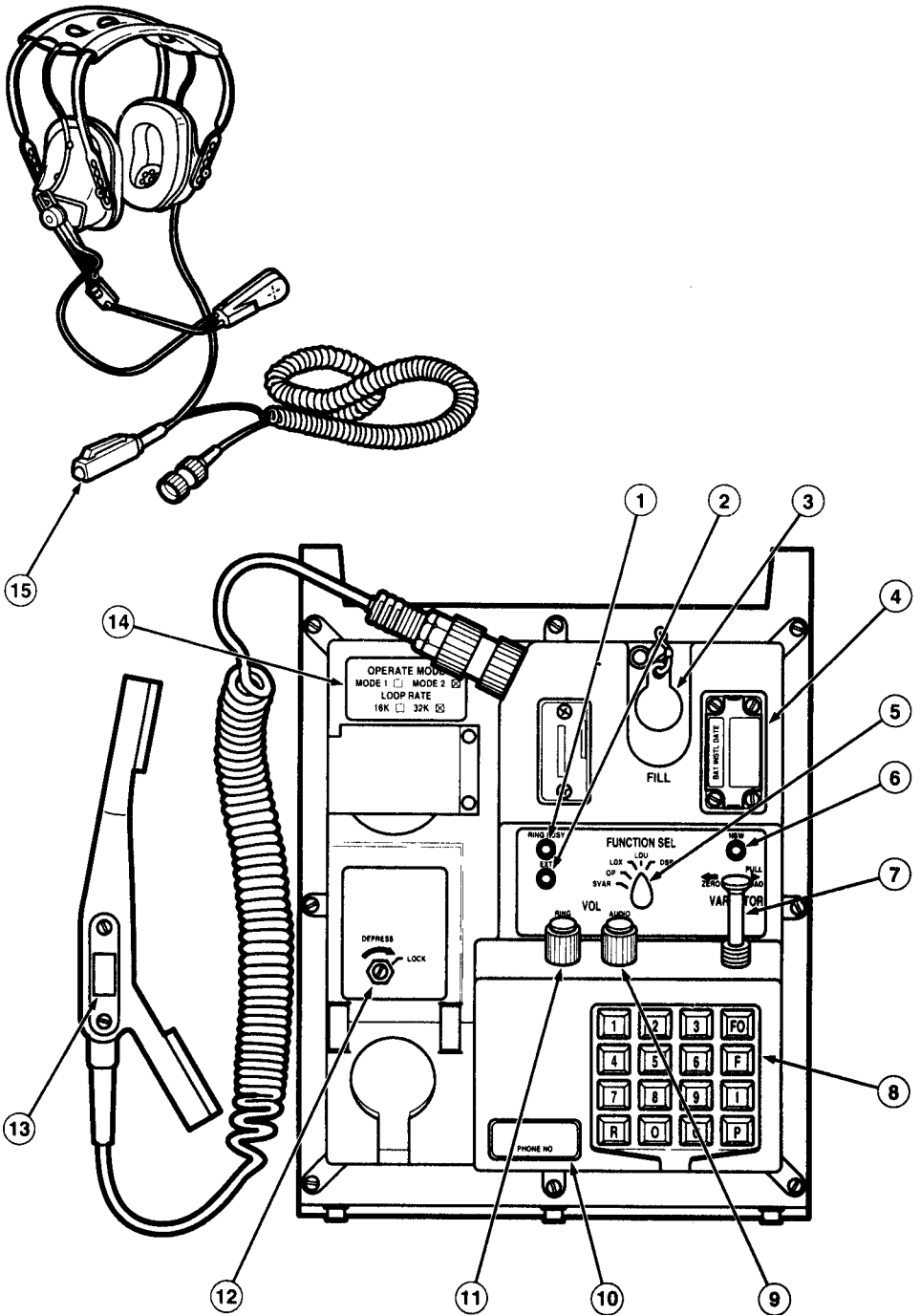


Figure 2-1. KY-68 Controls and Indicators.

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16. **Audible tones:** The following is a list of audible tones heard either from the annunciator of the KY-68 or in the earpiece of the handset/headset:

NOTE

Audible tones will indicate KY-68 operating conditions.

a. **Annunciator tones:**

- (1) Ring - Bursts of high frequency tones at a 2-second ON, 4-second OFF rate. This tells you that you have an incoming call.
- (2) Parity - A 1/2-second medium frequency tone heard during key transfer. When VAR STOR switch is moved to LOAD position, the tone will be heard. When switch is returned to CENTER position, tone will be heard again. This indicates that you have good parity (transfer). A 10-second steady medium frequency tone will be heard if bad parity occurs. No tone indicates an incomplete transfer.

b. **Tones heard from earpiece:**

- (1) Ring-back - Bursts of medium frequency tones at a 2-second ON, 4-second OFF rate. This tells you that the number you dialed is ringing.
- (2) Non-secure - A medium frequency beep that occurs every 6 seconds. This tells you that you are operating in a non-secure condition.
- (3) Crypto alarm - Continuous bursts of medium frequency tones. This tells you that secure operation of your KY-68 is not possible.
- (4) Preempt - Bursts of medium frequency tones at a 1/2-second ON, 1/2-second OFF rate. This tells you that your KY-68 has been preempted by a higher priority call.
- (5) Digit sidetone - A medium frequency tone that you hear when you press a key while dialing or when R, 0, or C keys are pressed during traffic.
- (6) Plain text alert - Two low frequency bursts repeated every 1/2-second. This tells you to switch to PT mode or that the PT switch is in the wrong position.
- (7) Push-to-talk - When PTT switch is pushed, a 1/2-second medium frequency tone will be heard. When PTT switch is released, a 1/2-second high frequency tone will be heard.
- (8) Information tones - Tones such as DIAL, BUSY, ERROR will vary depending on interfacing switches. Information tones are generated by the interfacing switches.

17. **Operating instructions plate:** Abbreviated operating instructions are affixed to the underside of your KY-68.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

NOTE

If your KY-68 must be in USE ALL THE TIME, check and service those items that can be checked and serviced without stopping operation. Make your COMPLETE PMCS when the KY-68 is finally SHUT DOWN.

2.2 GENERAL.

2.2.1 A PMCS table has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

2.2.2 Routine checks (such as cleaning, washing, checking for frayed cables, tightening loose nuts, bolts and screws, correct seating of connectors, and completeness of equipment, etc.) are not listed as PMCS. These tasks should be done anytime you see they are needed.

2.2.3 All PMCS must be done as scheduled and also under the following conditions:

2.2.3.1 Before a mission.

2.2.3.2 When first installed.

2.2.3.3 When reinstalled after being removed for any reason.

2.3 WARNINGS AND CAUTIONS.

Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. They appear before applicable procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others, or to prevent your equipment from being damaged.

2.4 EXPLANATION OF TABLE ENTRIES.

2.4.1 **Item Number.** Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet) include the item number for the check/service indicating a fault. Item numbers also appear in the order you must do checks and services for the intervals listed.

2.4.2 **Interval Column.** This column tells you when you must do the procedure in the procedure column.

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- a. BEFORE procedures must be done before you operate or use the equipment for its intended mission.
- b. DURING procedures must be done during the time you are operating or using the equipment for its intended mission.
- c. AFTER procedures must be done immediately after the time you have operated or used the equipment.
- d. WEEKLY procedures must be done once a week.

2.4.2.1 **Location, Check/Service Column.** This column provides the location and the item to be checked or serviced. The item location is underlined.

2.4.2.2 **Procedure Column.** This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

2.4.2.3 **Not Fully Mission Capable If: Column.** Information in this column tells you that faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

NOTE

Be sure to observe all special information and notes that appear in your table.

If your KY-68 is not working, refer to Chapter 3, Troubleshooting, for possible solutions. Report any problems or failures on DA Form 2404. If need be, refer to DA PAM 738-750.

Section III. OPERATION UNDER USUAL CONDITIONS

2.5 GENERAL.

Your KY-68 can be used in full duplex or half duplex, and has two operating modes. An operating mode label is on the upper left corner of the KY-68 (see figure 2-1, item 14).

Operating mode 1 - Operates with a COMSEC parent switch.

Operating mode 2 - Operates with either a COMSEC parent switch or a COMSEC subordinate switch. This mode also permits operation as a sole-user (one KY-68 to another KY-68).

Table 2-0. Preventive Maintenance Checks and Service for KY-68.

ITEM	INTERVAL	LOCATION ITEM TO CHECK/SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
1	Before	Fuses	Check for proper resistance. See paragraph 3.3.	Meter readings are not 7 ohms.
2	Before	Fill battery	Check for signs of corrosion and clean if necessary. Check BAT INSTL DATE and replace if outdated. See paragraph 3.4.	Battery outdated.
3	Before	Ground wire	Be sure power is OFF when checking the ground wire. See that it is free from rust, fungus, or corrosion and that firm connection is made with KY-68 ground terminal and earth ground. Clean as required with a dry cheesecloth and dust with a painter's dusting brush.	Proper ground is not available.
4	Before	Modifications	Check TB 750-38 for any MWOs. All URGENT MWOs must be applied.	MWOs have not been applied.

NOTE

If your KY-68 is preset for one operating mode and you need to change to the other mode (e.g., from mode 1 to mode 2), have Direct Support maintenance make the internal adjustment.

2.6 START-UP PROCEDURES.

2.6.1 **Power.** Check signal lines and power line for proper connection.

2.6.2 Initialization.

NOTE

Initialization (cold start) is required when a zeroized KY-68 is to be put into operation.

- a. Your KY-68 must be on-hook during initialization.
- b. If you are using a headset, press the hookswitch and turn it to the right. The hookswitch will lock. Do not lock in UP position as this is the OFF-HOOK state.
- c. Check that the KY-68 VAR STOR switch is in the normal (center) position.
- d. Set KY-68 FUNCTION SEL switch to DSBL.

NOTES

You can use a KYK-13 Electronic Transfer Device, a KYX-15/15A Net Control Device, a KOI-18 Tape Reader, or an AN/CYZ-10 to load keys into your KY-68.

See Appendix F for information on loading keys with an AN/CYZ-10.

2.7 LOADING WITH A KYK-13.

- a. Attach a fill cable to the fill connector of the KY-68. Attach the other end of the FILL cable to the J1 connector end of the KYK-13.
- b. Set KYK-13 Mode to OFF CHECK.
- c. Turn the ADDRESS SELECT switch to the storage location (1 thru 6) where the key is located.
- d. Press the KYK-13 INITIATE pushbutton. The KYK-13 PARITY indicator will flash-this tells you that the KYK-13 has a good key ready to use.
- e. Set the KYK-13 Mode to ON.

NOTE

Do not press KYK-13 INITIATE pushbutton!

- f. Set the KY-68 FUNCTION SEL switch to LDU. NOTE: The LDU must be loaded first.
- g. KY-68 RING/BUSY indicator should be lit.

- h. KY-68 NSW indicator should be lit.
- i. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone.
- j. Release KY-68 VAR STOR switch. It will return to the normal (center) position. The annunciator will again sound the parity tone. This tells you that the U key has been loaded successfully into your KY-68 .

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

NOTE

Do not press KYK-13 INITIATE pushbutton!

- k. Set KYK-13 Fill selector to the position containing key to be transferred.
- l. Set KY-68 FUNCTION SEL switch to LDX.
- m. KY-68 NSW indicator should be lit.
- n. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone.
- o. Release KY-68 VAR STOR switch. It will return to the normal (center) position. The annunciator will again sound the parity tone. This tells you that the X key has been loaded into your KY-68 .

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

- p. Set KY-68 switch to OR The RING/BUSY and NSW indicators go OFF. Your KY-68 is now initialized.

2.8 LOADING WITH A KYX-15/15A.

- a. Set KYX-15/15A Mode switch to OFF CK.
- b. Set the KYX-15/15A Address Select switch which contains the U key to ON.

NOTE

All other Fill switches must be turned off.

- c. Press KYX-15/15A INITIATE button: Parity indicator of KYX-15/15A will flash. This tells you the KYX-15/15A has a good key ready to use.
- d. Set the KYX-15/15A Mode switch to LD.

NOTE

DO NOT press the KYX-15/15A INITIATE pushbutton!

- e. Set KY-68 FUNCTION SEL switch to LDU. NOTE: The LDU must be loaded first.
- f. KY-68 RING/BUSY indicator should be lit.
- g. KY-68 NSW indicator should be lit.
- h. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone.
- i. Release KY-68 VAR STOR switch. It will return to the normal (center) position. The annunciator will again sound the parity tone. This tells you that the U key has been loaded into your KY-68.

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

- j. Set KYX-15/15A Mode switch to OFF CK.
- k. Set the KYX-15/15A Address Select switch which contains the X key to ON.

NOTE

All other Address Select switches must be turned off.

- l. Press KYX-15/15A INITIATE button: Parity indicator of KYX-15/15A will flash. This tells you the KYX-15/15A has a good key ready to use.
- m. Set the KYX-15/15A Mode switch to LD.

NOTE

DO NOT press the KYX-15/15A INITIATE pushbutton!

- n. Set KY-68 FUNCTION SEL switch to LDU.
- o. KY-68 RING/BUSY indicator should be lit.
- p. KY-68 NSW indicator should be lit.
- q. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone.
- r. Release KY-68 VAR STOR switch. It will return to the normal (center) position. The annunciator will again sound the parity tone. This tells you that the U key has been loaded into your KY-68.

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

- s. Set KY-68 FUNCTION SEL switch to OR
- t. See that the RING/BUSY and NSW go OFF.
- u. Your KY-68 is now initialized.

2.9 LOADING WITH A KOI-18.

- a. Set KY-68 FUNCTION SEL switch to LDU. NOTE: LDU must be loaded first.
- b. KY-68 RING/BUSY indicator should be lit.
- c. KY-68 NSW indicator should be lit.

NOTE

Do your fill action as quickly as possible! Battery life of the KOI-18 is shortened when tape is left too long on the reader head.

- d. Select tape containing the U key and insert tape leader into KOI-18 IN slot. Line up tape feeder holes with white dots on KOI-18.
- e. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone,
- f. Release KY-68 VAR STOR switch. It will return to the normal (center) position.

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NOTE

Tape must be pulled through the KOI-18 within 10 seconds after VAR STOR switch has been released!

g. Pull leader tape through KOI-18. The annunciator will again sound the parity tone. This tells you that the U key has been loaded into your KY-68.

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

h. Set KY-68 FUNCTION SEL switch to LDX.

i. KY-68 RING/BUSY indicator should be lit.

j. KY-68 NSW indicator should be lit.

NOTE

Do your fill action as quickly as possible! Battery life of the KOI-18 is shortened when tape is left too long on the reader head.

k. Select tape containing the X key and insert tape leader into KOI-18 IN slot. Line up tape feeder holes with white dots on KOI-18.

l. Move KY-68 VAR STOR switch to load and hold: annunciator will sound parity tone.

m. Release KY-68 VAR STOR switch. It will return to the normal (center) position.

NOTE

Tape must be pulled through the KOI-18 within 10 seconds after VAR STOR switch has been released!

n. Pull leader tape through KOI-18. The annunciator will again sound the parity tone. This tells you that the X key has been loaded into your KY-68.

NOTE

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

- o. Set KY-68 FUNCTION SEL switch to OR See that RING/BUSY and NSW indicators go OFF
- p. Your KY-68 is now initialized.

2.10 LOADING THE S KEY.

NOTE

The S key is used only for providing additional security between a select group of users on a per-call basis. Before loading the S key, your KY-68 must be in secure end-to-end traffic.

- a. Check to see that FUNCTION SEL switch of KY-68 is in the OP position.
- b. After all users agree to use the S key, each must attach a fill device containing the S key to their KY-68 .
- c. All users must verify that their fill device has good parity:
 - KYK-13, see paragraph 2.7.
 - KYX-15/15A, see paragraph 2.8.
 - KOI-18, see paragraph 2.9.
- d. If your KY-68 is talking to a radio subscriber through a KY 90 (Secure Net Radio Interface Unit), you must do the following procedures before loading the S key. (If KY-68 to KY-68, go to paragraph e next.)
 - (1) Press and hold the R key on your KY-68 .
 - (2) Press and then release the handset push-to-talk switch.
 - (3) Release the R key.
- e. All users then inform each other that they are now ready to load the S key.
- f. All users momentarily move the KY-68 FUNCTION SEL switch to SVAR than back to OR NOTE: The switch is spring loaded for the SVAR position and will automatically return. When both end have successfully loaded the S key, a new end-to-end sync will occur and communications can resume.

NOTE

Annunciator will emit 1/2-second tone when FUNCTION SEL switch is moved to SVAR position. Another 1/2-second tone will sound upon release of the FUNCTION SEL switch (same as heard when using the VAR STOR switch).

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- g. KY-68 RING/BUSY indicator should be lit.
- h. KY-68 NSW indicator should be lit.

NOTES

If a 10-second tone, or no tone, is heard, the key has not been properly loaded. Return KY-68 FUNCTION SEL switch to DSBL and repeat loading steps. If a key still does not load properly, try a new fill device.

Unless all users have properly loaded the S key, NO user can communicate in the S key mode.

- i. All users must now place their fill device mode switch to OFF/CK and disconnect the fill device from the KY-68 .

NOTE

If the S key is erased because of a power outage, a new call must be made and the S key reloaded.

2.11 LOADING THE R KEY.

NOTE

A re-entry (R) key can be used to re-enter a network if your
used in place of the current X key.

To re-enter a network perform the following procedures:

- a. Set the KY-68 FUNCTION SEL switch to LDU.
- b. Load the U key as shown in paragraph 2.10.1.
- c. Load the R key as shown for loading the X key in paragraph 2.10.2.

2.12 VOICE COMMUNICATIONS.

NOTE

The following steps are for placing and receiving a secure call in normal switched operation with a circuit switch.

2.12.1 Placing a Call.

- a. Your KY-68 must be properly loaded with keys. See paragraph 2.6.2.

b. Check to ensure that:

- (1) AUDIO and RING VOL controls are at desired level.
- (2) FUNCTION SEL switch is set to OP position.
- (3) Handset is in its cradle.

NOTE

If you are using a headset, place hookswitch in the lock position. Press switch and turn to the right; hookswitch will lock.

- (4) VAR STOR switch is in its normal (center) position.
- (5) RING/BUSY indicator is not lit.
- (6) NSW indicator is not lit.
- (7) Remove handset from cradle.

NOTE

If you are using a headset, unlock hookswitch and allow it to return to the middle (off-hook) position.

- (8) KY-68 will now power up and RING/BUSY indicator will go on.
- (9) NSW indicator may flash.
- (10) Listen for dial tone in handset or headset.
- (11) You are now ready to place your call.

NOTE

If you are in sole-user mode (KY-68 to KY-68), no dialing is required. Ring-back will be heard.

- (12) If your KY-68 has been given PRECEDENCE rights, you must press the desired precedence button on the keyboard before dialing the number you wish to reach. The FO, F, I, & P buttons on your KY-68 keyboard are used for precedence dialing.

NOTE

If you have pressed a button for a precedence with a higher priority than you have been given, a recorded message will be heard in your handset or headset.

(13) Continue now to place your call in the normal manner below:

NOTE

Use of precedence buttons FO, F, I, & P is not required for normal operation.

- (a) Press keyboard buttons in the proper order of the number you are dialing (as in any other common telephone).
- (b) Listen for a ring-back tone or busy signal. Call will be completed when the called number goes off-hook.
- (c) If a busy signal is heard, replace the handset in the cradle (if wearing a headset, place the hookswitch in the lock position).

NOTE

On a non-secure call, a local plain text (PT) alert tone (low frequency double-pulse tone) will be heard.

- (d) When you hear the PT alert you must go into PT operation by raising the hookswitch to its uppermost (unlocked) position. This will allow you to complete the call in PT.

NOTE

The NSW indicator will flash when you are in PT operation.

2.12.2 Receiving a Call.

NOTE

If you are receiving a non-secure call, you will hear the PT alert tone as soon as you go off-hook.

- a. When the annunciator on you KY-68 rings, RING/BUSY indicator should be lit. If needed, adjust the VOL RING control for the desired level.
- b. Remove the handset from the cradle.

NOTE

If you are using a headset, unlock hookswitch and allow it to return to the middle (off-hook) position.

- c. The annunciator will stop ringing.
- d. RING/BUSY indicator will stop flashing but will stay lit.

- e. NSW indicator will go off. If needed, adjust the VOL AUDIO control for the desired level.
- f. If the connection is non-secure, you will hear the PT alert tone. You must then go into PT operation by raising the hookswitch to its uppermost (unlocked) position.
- g. NSW indicator will flash.
- h. NSW tone will be heard.

2.12.3 Conference Call.

2.12.3.1 To Place a Conference Call.

NOTE

A conference call can be made only if your KY-68 has been classmarked for conference calling. Conferences can be set up by a KY-68 subscriber or can be pre-programmed.

- a. Set FUNCTION SEL switch to OP position.
- b. RING/BUSY indicator is not lit
- c. NSW indicator is not lit.
- d. Remove handset from cradle.

NOTE

If you are using a headset, unlock hookswitch and allow it to return to the middle (off-hook) position.

- e. KY-68 will now power up and RING/BUSY indicator will go on.
- f. NSW indicator may flash.
- g. NSW tone will be heard in handset or headset.

NOTE

If desired and authorized, you may establish the call as a precedence call by pressing the appropriate FO, F, I, or P button. However, precedence is not required for calling.

- h. Press the C button on the keyboard, and then dial buttons in the proper order for the number of the first conferee.

NOTES

If you are calling a pre-programmed conference, press the two address digits assigned for the call, then press the C button. This indicates end of dialing to the Circuit Switch. No other number needs to be dialed.

If you are in Mode 1 operation using an AN/TTC-42, after you have pressed the C button, the Circuit Switch will set up the conference connections automatically.

If a particular KY-68 is not classmarked for pre-programmed conference call, an error signal will be heard in your handset or headset.

- i. If the first conferee is busy (busy tone heard in handset or headset), press C button to terminate the first conferee, then dial the next conferee.
- j. If the called conferee is ringing:
 - (1) The RING/BUSY indicator will be lit.
 - (2) The NSW indicator will be flashing.
- k. You will hear a ring-back tone mixed with a NSW tone.
- l. When the called conferee answers the ring (goes off-hook), the ring-back tone will stop.
- m. If the call is non-secure, the NSW tone will remain in the earpiece.
- n. Inform the conferee of the conference set-up.
- o. Continue setting-up the conference by pressing the C button and calling the remaining conferees in the same manner.

NOTE

As the originator of the conference call, you can add another party at any time during the conference by pressing the C button of your (originating) KY-68 and by dialing the number of the add-on party. If the add-on party called is busy, you must press the C button to clear the line.

2.12.3.2 To Terminate a Conference Call.

- a. Return the handset to its cradle (or if using a headset, place the hookswitch in the lock position).
- b. RING/BUSY indicator goes off.

NOTE

If a conference party other than the originator hangs up, a short tone burst will be heard by all conference parties. The conference will still be on line for the remaining parties. However, if the originating KY-68 hangs up, the entire conference set-up will be ended.

2.12.3.3 To Receive a Conference Call.

NOTE

A receiving KY-68 must be loaded with the proper keys to receive a secure call.

- a. The KY-68 annunciator will ring.
- b. The RING/BUSY indicator will flash.
- c. Remove the handset from its cradle (if using a headset, place the hookswitch in the center (unlocked) position).
- d. Acknowledge the call and observe that the annunciator stops ringing.
- e. RING/BUSY indicator stops flashing but stays lit.
- f. NSW indicator does not light.
- g. To terminate the call, replace the handset in its cradle (if using a headset, place the hookswitch in the lock position).

NOTE

When the conference originator hangs up (goes on-hook), the conference set-up will end. Return the handset to its cradle (if using a headset, place the hookswitch in the lock position).

2.13 SOLE-USER OPERATION.

In the sole-user encrypted mode of operation, two KY-68 s are connected directly (back-to-back) with each other. (Plain text mode is not available.)

NOTES

Because the HYP-71 power supply was produced in very limited quantities, the HYP-71 will be issued only for "special" KY-68 sole-user applications.

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To make a sole-user call, both KY-68 s must contain the same X key. See paragraph 2.10.2.

- a. Remove the handset from its cradle (if using a headset, place the hookswitch in the center (unlocked) position).
- b. The receiving KY-68 will ring.
- c. The call will be answered when the receiving KY-68 goes off-hook.
- d. Both KY-68 s will power down when either KY-68 returns handset to cradle (if using headset, hookswitch in the lock (on-hook) position).

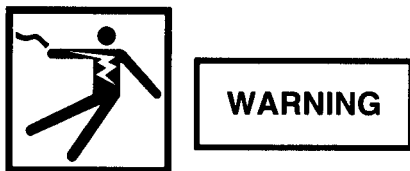
NOTE

Voice and data communication, rekeying to change X key, and zeroizing may all be performed in the sole user mode.

2.14 DATA COMMUNICATIONS.

NOTE

Data terminal equipment with built-in data adapters (or a data adapter) is required for use with a KY-68.



During normal operation, the switch provides power to the KY-68 at 300 mA at 56 V dc. Use care to avoid direct contact with bare wires at the KY-68 transmit and receive binding posts.

- a. Connect the data terminal equipment or data adapter cable to the EXT connector or your KY-68. See figure 2-2.
- b. Place a call to the desired party. See paragraph 2.13 for to place a call information.
- c. When a call has been answered, both KY-68 s must place their data adapter or data terminal equipment in the DATA MODE.
- d. When you are finished sending data, both KY-68 s must place their data adapter or data terminal equipment back into the COMMUNICATION MODE and hang up their KY-68.

2.15 EMERGENCY ACCESS.

Emergency access to the circuit switch is possible (except in sole-use configuration) when encrypted communications are not possible. The following steps give you several ways to gain emergency access:

2.15.1 If your KY-68 does not have X and U keys loaded:

- a. Remove the handset from its cradle (if using a headset, place the hookswitch in the center (unlocked) position).
- b. After 10 seconds, the terminal will automatically go into Emergency Access and you will hear the Plain Text Alert tone.
- c. The RING/BUSY and NSW indicators will be lit.
- d. You may also gain emergency access by pressing the 0 button on the dial as soon as you go off-hook.

2.15.2 If your KY-68 has keys, press the 0 button before you go off-hook.

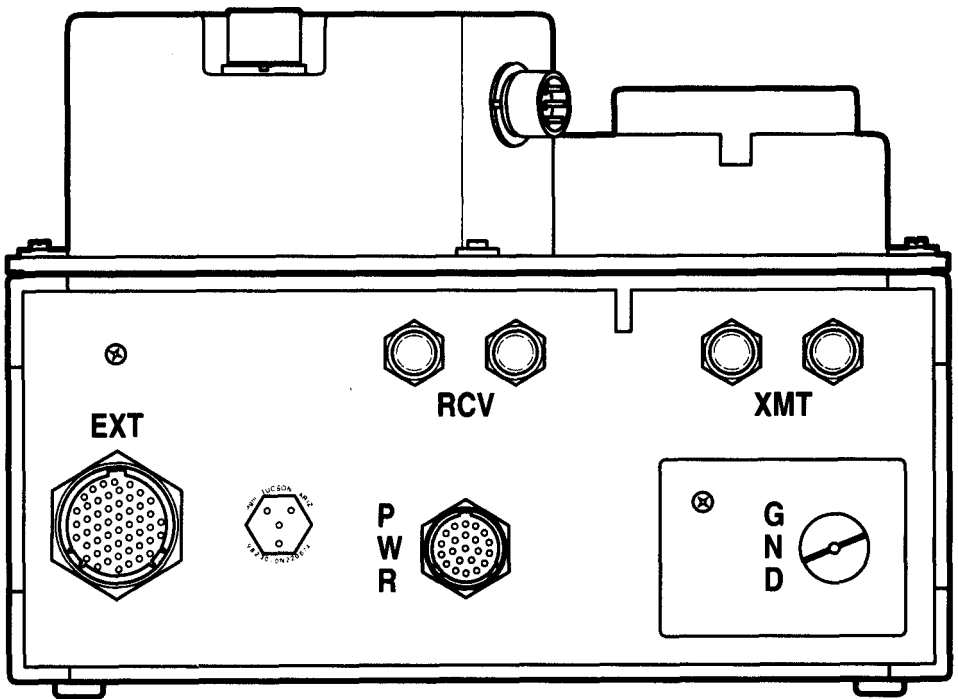


Figure 2-2. KY-68 Rear View.

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2.16 ZEROIZING.

To zeroize (erase stored keys) your KY-68, raise the VAR STOR switch slightly and move it to the ZERO position.

2.17 REMOTE COOPERATIVE REKEYING.

For remote cooperative rekeying, see KAO-193/TSEC and NAG-16.

2.18 MANUAL COOPERATIVE KEY TRANSFER.

For manual remote cooperative key transfer, see KAO-193/TSEC and NAG-16.

2.19 STANDBY.

No special steps are needed to place your KY-68 in standby. It is in standby when the handset is in its cradle (if using headset, when hookswitch is in the lock (on-hook) position).

2.20 SHUTDOWN.

NOTE

Do not zeroize your KY-68 if you are shutting down because of normal operating schedules; you may want to keep the stored keys for your next operation.

To shut down your KY-68 for maintenance, shipping, or storage; perform the following procedures:

- a. Pull upward and move the KY-68 VAR STOR switch to ZERO position.
- b. If using a power supply, place the power switch to OFF. Also turn off input power to the power supply.
- c. Disconnect the power cable from the PWR connector of the KY-68.

NOTE

When using a power supply, if the power cable is not removed, power will still be applied to the power supply.

- d. If an extension network or data device is being used, disconnect from the KY-68 EXT terminal.



During normal operation, the switch provides power to the
KY-68 at 300 mA at 56 V dc. Use care to avoid direct
contact with bare wires at the KY-68 transmit and receive
binding posts.

- e. If your KY-68 is powered by the common battery from the switch, disconnect the field wire leads at the RCV and XMT binding posts. See figure 2-2.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

NOTE

Operation under unusual conditions may be found in the manual for the communications system(s) with which the

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CHAPTER 3

OPERATOR MAINTENANCE

Section I. TROUBLESHOOTING PROCEDURES

3.1 GENERAL.

This section lists problems you may find while operating or doing preventive maintenance.

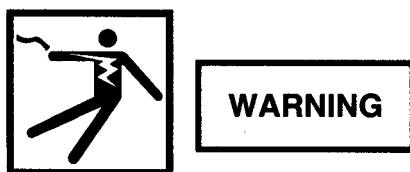
3.1.1 Don't skip over steps. You must follow the steps in the order they are listed.

3.1.2 This section does not list all of the problems that could happen to your KY-68. If a problem is not listed, or if a problem is not fixed by the steps given; notify your superior or the next higher-level maintenance.

NOTE

Troubleshooting procedures take for granted that you KY-68 is getting power. Be sure to check the power source to see that it is in good working order before you troubleshoot.

3.2 TROUBLESHOOTING TABLE.



In normal operation with the switch, your KY-68 is powered by a common battery source capable of supplying 300 mA at 56 V dc. Use care to avoid coming in contact with bare wires from binding posts.

Table 3-0. Troubleshooting.

Fault	Probable Cause	Remedy
Zeroized unit does not initialize properly.	Bad key or no key.	<ol style="list-style-type: none"> 1. Perform check operation on keys in fill device. (See paras. 2.6, 2.7, 2.8, & 2.9, and app. F.) 2. Load with a good key.
Indicators not lit and no tone present when you go off-hook.	No power or open fuse.	<ol style="list-style-type: none"> 1. Check power source and cable. Replace power source or notify higher-level maintenance. 2. Check fuses. Remove wirelines from XMT and RCV and verify they are labeled and correctly connected. Connect wirelines to proper terminal posts. (See fig. 2.2 & para. 2.22e.)

Section II. MAINTENANCE PROCEDURES

3.3 CLEANING.

Remove dust or loose dirt from the outside of your KY-68 with a soft cloth.

3.4 FILL BATTERY REPLACEMENT.

NOTE

Do not remove the fill battery if your KY-68 is powered-down. If power is not applied when the fill battery is removed, you will lose all stored keys.

If the BAT INSTL DATE on the fill battery cover is over 360 days, replace the battery as follows:

- a. Loosen the four retaining screws on the fill battery cover and remove the cover (screws will remain attached to the cover).
- b. Remove the old battery and dispose of it in accordance with your unit SOP.



Batteries can explode if they are mishandled or abused. Battery explosions can cause death or severe injury, equipment damage, and environmental contamination. Be sure you understand how to correctly handle, and dispose of, lithium batteries. Be familiar with FM 21-11, First Aid for Soldiers.

DO NOT heat, incinerate, crush, puncture, disassemble, or mutilate the battery.

DO NOT test the battery for capacity.

DO NOT short circuit the battery or bypass the internal fuse.

NEVER attempt to recharge the battery.

NEVER attempt to reuse a battery that has been overheated or that appears to be damaged in any way.

DO NOT allow your batteries to get wet.

- c. Insert fill battery, BA-5372/U, so that the pointed end of the battery aligns with the groove slot of the battery cavity. Verify matching polarity.
- d. Replace fill battery cover and tighten retaining screws.
- e. Write the new date on the BAT INSTL DATE plate with a grease pencil.

3.3 FUSE INSPECTION.



During normal operation, the switch provides power to the KY-68 at 300 mA at 56 V dc. Use care to avoid direct contact with bare wires at the KY-68 transmit and receive binding posts. Check the KY-68 fuses for proper resistance as follows:

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- a. Set multimeter to X10 range.
- b. Connect the two meter leads to the two RCV terminals in the back of the KY-68. The meter should read 7 ohms.
- c. Connect the two meter leads to the two XMT terminals in the back of the KY-68. The meter should read 7 ohms.
- d. If you do not get the proper 7-ohm readings, forward the KY-68 to higher-level maintenance.

APPENDIX A

REFERENCES

A-1 SCOPE.

Following is a list of all forms, Army regulations, technical bulletins, technical manuals, and maintenance manuals required for maintenance and operation of this equipment.

A-2 FORMS.

DA Form 2404	Equipment Inspection and Maintenance Worksheet
SF 364	Report of Discrepancy
SF 368	Product Quality Deficiency Report
DA Form 2028	Recommended Changes to Publications and Blank Forms

A-3 ARMY REGULATIONS.

AR 380-40	Department of the Army Policy for Safeguarding and Controlling COMSEC Material
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A-4 DA PAMPHLETS.

DA PAM 25-380-2	Security Procedures for Controlled Cryptographic Items (CCI).
DA PAM 25-35 (C)	Index of Communications Security (COMSEC) Publications (U)
DA PAM 738-750	The Army Maintenance Management System (TAMMS)
DA PAM 710-2-1	Using Unit Supply Systems, (Manual Procedures)

A-5 TECHNICAL BULLETINS.

TB 380-41	Procedures for Safeguarding, Accounting, and Supply Control of COMSEC Material
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TB 750-38 (C) Alteration of Communications Security Equipment (U)
TB MED 502 Occupational and Environmental Health Respiratory
Protection Program

A-6 TECHNICAL MANUALS.

TM 11-5810-292-13&P Operator's, Unit, and Direct Support Maintenance
Manual (including RPSTL) for General Purpose Tape
Reader KOI-18, Electronic Transfer Device KYK-13, and
Net Control Device KYX-15/15A.

A-7 NSA MANUALS.

(C) KAO-193 Guidelines for the Use and Operation of TRI-TAC
COMSEC Equipment (U)

NAG-16 Field Generation and Over-the-Air Distribution of
COMSEC Key in Support of Tactical Operations and
Exercises

A-8 OTHER PUBLICATIONS.

FM 5-25 Explosives and Demolitions

FM 21-11 First Aid for Soldiers

APPENDIX B

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

Section I. INTRODUCTION

B-1 SCOPE.

This appendix lists components of end item and basic issue items for your equipment to help you inventory items required for safe and efficient operation.

B-2 GENERAL.

The COEI AND BII lists are divided into the following sections:

a. **Section II, Components of End Item.** This listing is for informational purposes only and is not authority to requisition replacements. These items are part of the end item. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Item of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help, you find and identify the items.

b. **Section III, Basic Issue Items.** These essential items are required to place the end item in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the end item during operation and when it is transferred between property accounts. This list is your authority to request/requisition replacement BII based on your table of , organization and equipment/modified table of organization and equipment (TOE/ MTOE) authorization of the end items. Illustrations are furnished to help you find and identify the items.

B-3 EXPLANATION OF COLUMNS.

The following information provides an explanation of columns found in the tabular listings:

a. **Column (1), Illustration Number (Illus Number).** This column gives you the number of the item illustrated.

b. **Column (2), National Stock Number (NSN).** This column identifies the stock number of the item to be used for requisitioning purposes.

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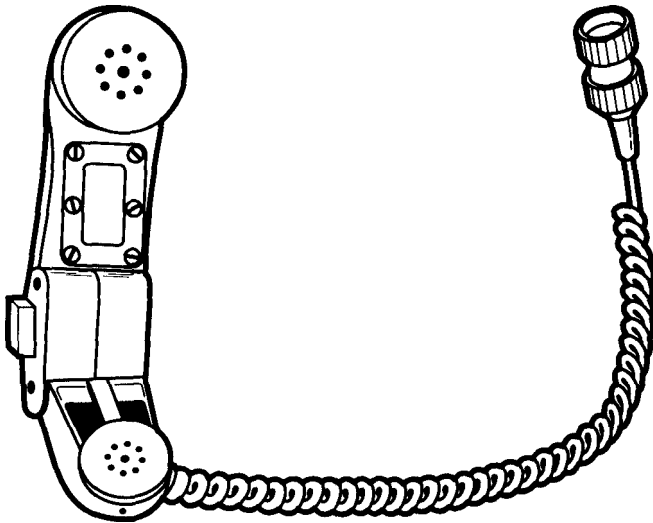
- c. **Column (3), Description, CAGEC, Part Number, and Used On Code.** This column identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the Commercial and Government Entity (CAGE) code (in parentheses) and the part number. The Used On Code is used to indicate the different models of the equipment.
- d. **Column (4), Unit of Issue (U/I).** This column indicates how the item is issued for the NSN shown in column 2.
- e. **Column (5), Quantity Required (Qty Rqr).** This column indicates the quantity required.

Section II. COMPONENTS OF END ITEM

There are no COEI for this end item.

Section III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	Used On Code	(4) U/M	(5) Qty Recm
	5965-01-128-3944	Handset (80058), H-350/U		EA	1



APPENDIX C

ADDITIONAL AUTHORIZATION LIST (AAL)

Section I. INTRODUCTION

C-1 SCOPE.

This appendix lists additional items you are authorized for the support of your equipment. The items listed are not issued with the end item, not listed on the end item engineering drawing as part of the end item configuration, not required to be turned in with the end item, separately authorized, and provided for information only.

C-2 GENERAL.

This list identifies items that do not have to accompany the equipment and do not have to be turned-in with it. These items are authorized to you by CTA, MTOE, TDA, or JTA.

C-3 EXPLANATION OF LISTING.

The following information provides an explanation of columns found in the tabular listings:

- a. **Column (1), National Stock Number (NSN).** This column identifies the stock number of the item to be used for requisitioning purposes.
- b. **Column (2), Description, CAGEC, Part Number, and Used On Code.** This column identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the Commercial and Government Entity (CAGE) code (in parentheses) and the part number. The Used On Code is used to indicate the different models of the equipment.
- c. **Column (3), Unit of Measure (U/M).** This column indicates how the item is issued for the NSN shown in column 2.
- d. **Column (4), Quantity Recommended (Qty Recm).** This column indicates the quantity recommended.

Section II. ADDITIONAL AUTHORIZATION LIST (AAL)

(1) National Stock Number	(2) Description, CAGEC, and Part Number	Used On Code	(3) U/M	(4) Qty Recm
<p>NOTE</p> <p>Because the HYP-71 power supply was produced in very limited quantities, the HYP-71 will be issued only for "special" KY-68 sole-user applications.</p>				
5810-01-082-8404	Auxiliary Power Supply, HYP-71 (98230) ON273807		EA	1
5965-01-128-3943	Headset w/Microphone, (80058) H-349/U		EA	1
5995-01-333-0993	Cable Assembly, Telephone (64237) KDIC (Asynchronous Interface Adapter Cable, RS-232 only)		EA	
<p>NOTE</p> <p>Any of the four fill devices below can be used with your equipment. The KYX-15A must be available if REMOTE KEYING operation is used.</p>				
5810-01-026-9618	*Electronic Transfer Device, KYK-13 (98230) ON190318		EA	1
5810-01-026-9619/ 5810-01-095-1312	*Net Control Device, KYX-15/15A (98230) ON 190303/ON274276		EA	1
5810-01-026-9620	*Tape Reader, General Purpose, KOI-18 (98230) ON190315		EA	1
5810-01-343-1194	*Data Transfer Device, AN/CYZ-10 (98230) ON477400()		EA	1
*Fill devices require the following fill cable:				
5810-01-066-7587	Cable Assembly, Fill (98230) ON512424		EA	1

APPENDIX D

EXPENDABLE AND DURABLE ITEMS LIST

Section I. INTRODUCTION

D-1 SCOPE.

This appendix lists expendable/durable supplies and materials you will need to operate and maintain your equipment. This list is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items.

D-2 EXPLANATION OF COLUMNS.

a. **Column (1), Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material.

b. **Column (2), Level.** Identifies the lowest level of maintenance that requires the listed item.

C	Operator/Crew
O	Unit
F	Direct Support (DS)
H	General Support (GS)
L	Specialized Repair Activity (SRA)

c. **Column (3), National/NATO Stock Number.** Lists the National/NATO Stock Number assigned to the item.

d. **Column (4), Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number.** Lists other information you need to identify the item.

e. **Column (5), Unit of Measure (U/M).** Lists the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (for example, EA, SH, IN). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, and Part Number	(5) U/M
1	C	6135-01-214-6441	Battery, 80058, BA 5372/U	EA
2	C	7920-00-685-3980	Brush, Dusting, Painter's, 81348, H-B-212	EA
3	C	5995-01-411-6719	Cable Assembly, Special Purpose, E, 56853, LOM-941006 (Synchronous, RS-232, Secure only)	EA
4	C	8305-00-267-3015	Cloth, Cheesecloth, 81348, CCCC440	YD

APPENDIX E

HYP-71 DATA

E-1 MODEL NUMBER AND EQUIPMENT NAME.

HYP-71, Auxiliary Power Supply.

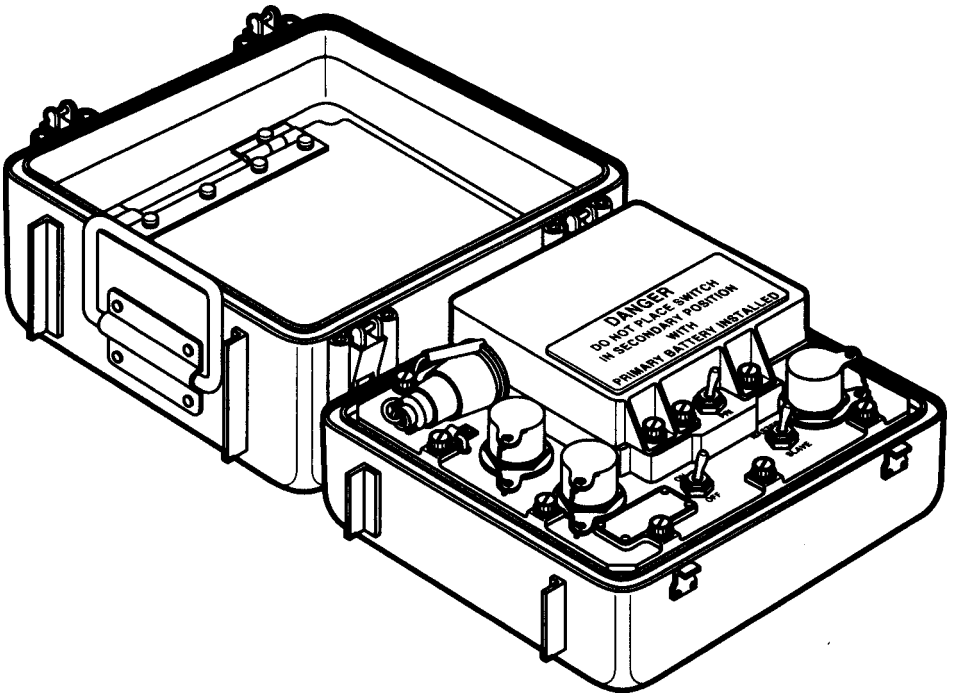


Figure E-1. HYP-71.

NOTE

Because the HYP-71 was produced in very limited quantities, the HYP-71 will be issued only for "special" KY-68 sole-user applications.

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E-2 PURPOSE OF EQUIPMENT.

The HYP-71 is used to supply auxiliary operating power and interface connections for the KY-68.



CAUTION

Dropped equipment can cause injury to personnel and/or damage to the equipment.



WARNING

Ac and dc VOLTAGE used by the equipment can kill you.

E-3 EQUIPMENT DATA.

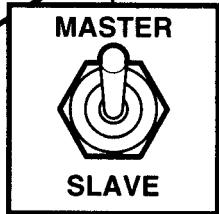
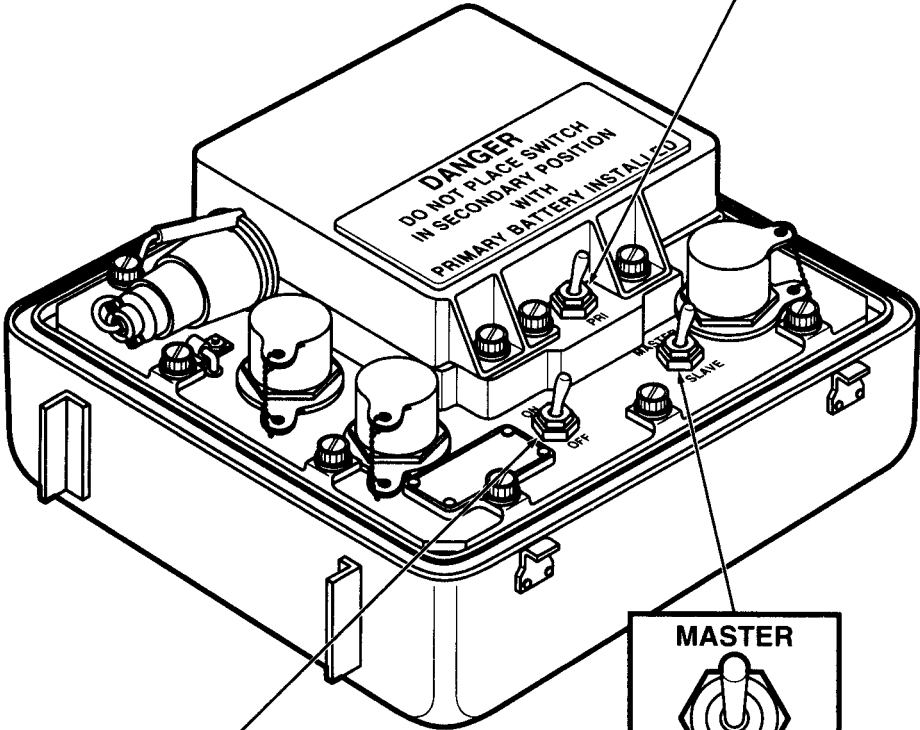
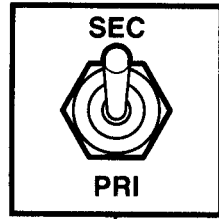
- a. Height: 6.00 inches.
- b. Width: 8.75 inches.
- c. Depth: 9.125 inches.
- d. Weight: 11 pounds.
- e. Power requirements: 115V ac $\pm 10\%$, 45 to 66 Hz, single phase or 220 V ac $\pm 10\%$ to 15%, 45 to 66 Hz, single phase.
- f. Circuit protection: dc, 1 ampere circuit breaker/ac, 1/4 ampere circuit breaker.

E-4 CONTROLS AND INDICATORS.

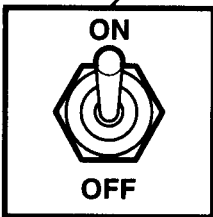
See figure E-2.

- 1 SEC/PRI toggle: Allows for selection of primary or secondary power.
- 2 MASTER/SLAVE toggle: Allows for selection of parent or subordinate operation.
- 3 ON/OFF toggle: Turns output power ON or OFF.

TOGGLE — Allows for selection of primary or secondary power.



TOGGLE — Allows for selection of MASTER or SLAVE operation.



TOGGLE — Turns output power ON or OFF.

Figure E-2. HYP-71 Controls and Indicators.

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E-5 START-UP PROCEDURE.

Plug in power cord to power source, place ON-OFF switch in the ON position.

APPENDIX F

AN/CYZ-10 KEY TRANSFER PROCEDURES

F-1 KY-68 INTERFACE.

This appendix describes the interface procedures between the AN/CYZ-10 and the KY-68. Two sections follow: one illustrating the controls and indicators on the equipment used in the procedures and one with detailed interface steps. Note that required keys must be in the AN/CYZ-10 database.

F-2 EQUIPMENT CONTROLS AND INDICATORS.

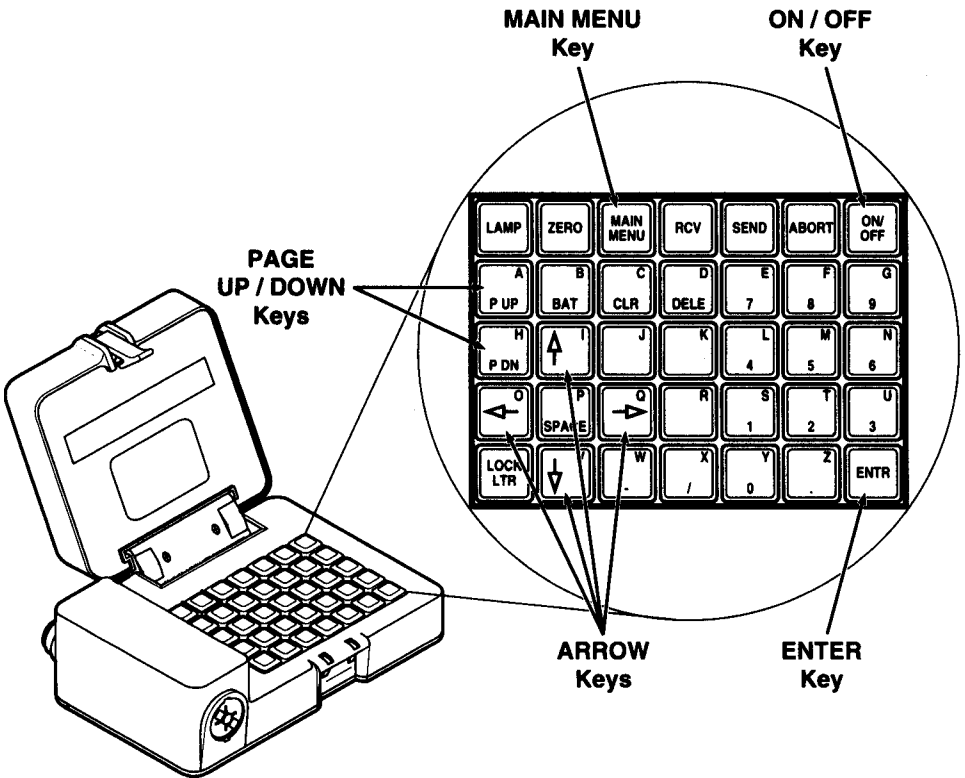


Figure F-0. AN/CYZ-10.

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F-3 KY-68 INTERFACE PROCEDURES.

a. **Transmitting X and U Keys to KY-68.** The following procedures demonstrate the steps needed to load the X and U keys into the KY-68 from the AN/CYZ-10.

(1) From the AN/CYZ-10 Main Menu select the Xmit option.

```
Xmit Recv Data {ANCD
Otad Soi Admin Confg
```

The AN/CYZ-10 will display the following menu and await operator input.

```
Comsec Eplrs {XMT
Smart_fill Dtd
```

(2) Select the **Comsec** option.

```
Comsec Eplrs {XMT
Smart_fill Dtd
```

The AN/CYZ-10 will display the following screen and await operator input.

```
Sel equip Find Quit {XMT
<equip typ> <equip name>
```

(3) Use the AN/CYZ-10 page keys to display the desired equipment, such as **KY-68 NCS DSVT**.

The AN/CYZ-10 will display the following screen and await operator input.

```
Sel equip Find Quit {XMT
KY-68 NCS DSVT
```

(4) Select the **Sel equip** option.

```
Sel equip Find Quit {XMT
KY-68 NCS DSVT
```

The AN/CYZ-10 will display the following message and await operator input.

```
Connect ANCD to KY-68
<ENTR>
```

(5) Connect the AN/CYZ-10 to the KY-68.

(6) Press **<ENTR>** on the AN/CYZ-10.

The AN/CYZ-10 will display the following message and await operator input.

```
Set FUNCT SEL switch to
LDU <ENTR>
```

(7) Set the KY-68 FUNCT SEL switch to LDU.

(8) Press <ENTR> on the AN/CYZ-10.

The AN/CYZ-10 will briefly display **Please stand by...**,

Please stand by...

then display the following message and await operator input.

Set VAR STOR switch to
LOAD <ENTR>

(9) Press the KY-68 VAR STOR switch to the LOAD position, then release.

NOTE

Step 10 must be completed within 10 seconds from completion of step 9.

(10) Within 10 seconds, press <ENTR> on the AN/CYZ-10.

The AN/CYZ-10 will briefly display **Operation in progress....**

Operation in progress...

The AN/CYZ-10 will display the following menu and await operator input.

Check parity on KY-68
Successful? Y / N

NOTE

The KY-68 will sound a continuous tone for 10 seconds if the transfer of key was not successful.

(11) Select the Y option.

Check parity on KY-68
Successful? **Y** / N

The AN/CYZ-10 will display the following menu and await operator input.

Set FUNCT SEL switch to
LDX <ENTR>

(12) Set the KY-68 FUNCT SEL switch to LDX.

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(13) Press <ENTR> on the AN/CYZ-10.

The AN/CYZ-10 will display the following message and await operator input.

```
Set VAR STOR switch to
LOAD                      <ENTR>
```

(14) Press the KY-68 VAR STOR switch to the LOAD position.

NOTE

Step 15 must be completed within 10 seconds from completion of step 14.

(15) Within 10 seconds, press <ENTR> on the AN/CYZ-10.

The AN/CYZ-10 will briefly display
Operation in progress....

```
Operation in progress...
```

The AN/CYZ-10 will display the following menu and await operator input.

```
Check parity on KY-68
Successful? Y / N
```

NOTE

The KY-68 will sound a continuous tone for 10 seconds if the transfer of key was not successful.

(16) Select the Y option.

The AN/CYZ-10 will display the following menu and await operator input.

```
Check parity on KY-68
Successful? Y / N
```

```
Set FUNCT SEL switch to
OP <ENTR>
```

(17) Set the KY-68 FUNCT SEL switch to OR

NOTE

If the load was successful, the RING BUSY and NSW indicators will go out after setting the FUNCT SEL switch to OR

(18) Press <ENTR> on the AN/CYZ-10.

The AN/CYZ-10 will briefly display
Transfer complete,

Transfer complete

then display the following screen and await operator input.

Sel equip Find Quit {XMT
KY-68 NCS DSVT

(19) Press <MAIN MENU> on the AN/CYZ-10.

The AN/CYZ-10 will display the AN/CYZ-10 Main Menu.

Xmit Recv Data {ANCD
Otad Soi Admin Confg

b. **Loading the S Key.** The following procedures demonstrate the steps needed to load the S key into the KY-68.

(1) Place a call from the local KY-68 to the distant-end KY-68 to be involved in call.

(2) From the AN/CYZ-10 Main Menu select the **Xmit** option.

The AN/CYZ-10 will display the following menu and await operator input.

Xmit Recv Data {ANCD
Otad Soi Admin Confg

Comsec Eplrs {XMT
Smart_fill Dtd

(3) Select the **Comsec** option.

The AN/CYZ-10 will display the following screen and await operator input.

Comsec Eplrs {XMT
Smart_fill Dtd

Sel equip Find Quit {XMT
<equip typ> <equip name>

(4) Use the AN/CYZ-10 page keys to display the local KY-68, such as **KY-68 NCS DSVT S.**

The AN/CYZ-10 will display the following screen and await operator input.

Sel equip Find Quit {XMT
KY-68 NCS DSVT-S

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- (5) Select the **Sel equip** option.

The AN/CYZ-10 will display the following message and await operator input.

```
Sel equip Find Quit {XMT
KY-68 NCS DSVT-S
```

- (6) Notify operator at the distant end to load the same S key into the distant-end KY-68.

- (7) Connect the AN/CYZ-10 to the local KY-68.

- (8) Press **<ENTR>** on the AN/CYZ-10.

The AN/CYZ-10 will briefly display **Please stand by...**,

then display the following message and await operator input.

- (9) Set the KY-68 FUNCT SEL switch to SVAR and release.

```
Please stand by...
```

```
Set FUNCT SEL switch to
SVAR <ENTR>
```

NOTE

Step 10 must be completed within 10 seconds from completion of step 9.

- (10) Within 10 seconds, press **<ENTR>** on the AN/CYZ-10.

The AN/CYZ-10 will briefly display **Operation in progress....**

The AN/CYZ-10 will display the following menu and await operator input.

```
Operation in progress...
```

```
Check parity on KY-68
Successful? Y / N
```

NOTE

The KY-68 will sound a continuous tone for 10 seconds if the transfer of key was not successful.

(11) Select the Y option.

```

Check parity on KY-68
Successful?  Y / N
    
```

The AN/CYZ-10 will briefly display **Transfer complete**,

```

Transfer complete
    
```

then display the following screen and await operator input.

```

Sel equip Find Quit {XMT
KY-68   NCS  DSVT-S
    
```

(12) Operator at the distant end loads the same S key into the distant-end KY-68 to secure the call.

NOTE

The load of the S key was successful if both parties can continue the phone call.

(13) Press **<MAIN MENU>** on the AN/CYZ-10.

The AN/CYZ-10 will display the AN/CYZ-10 Main Menu.

```

Xmit  Recv  Data  {ANCD
Otdad Soi  Admin  Confg
    
```

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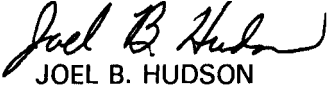
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By Order of the Secretary of the Army:

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Chief of Staff

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JOEL B. HUDSON

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