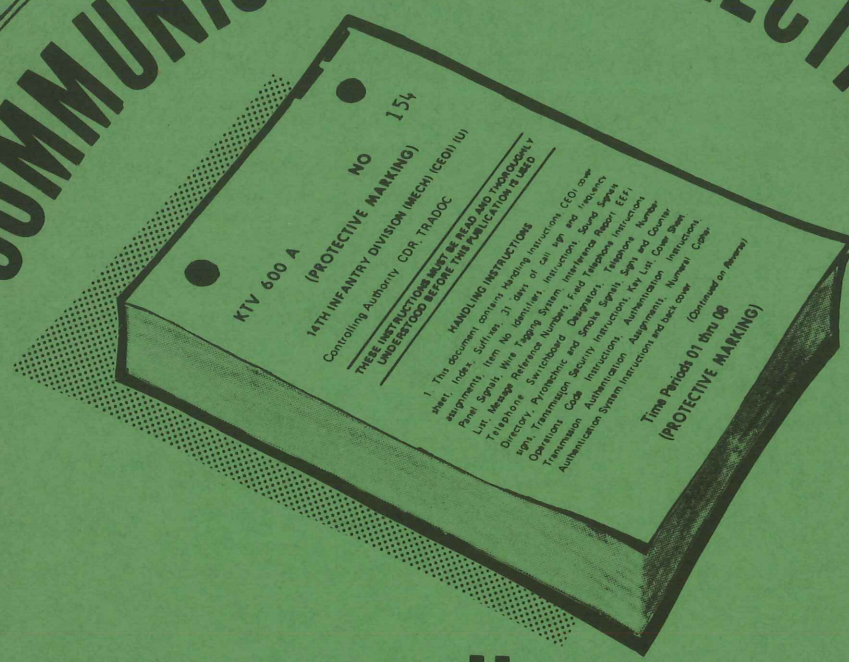
TC 24-2

COMMUNICATIONS - ELECTRONICS



THE AUTOMATED "CEOI"

OPERATION INSTRUCTIONS

31 December 1975

ARTEP And This Training Circular

This Training Circular is designed for easy adaptability to the Army Training and Evaluation Program (ARTEP). For example, ARTEP 11-35, Signal Battalion, Armored, Infantry or Infantry (Mechanized) Division, identifies the task of coordinating problems on radio frequency interference. In this TC, specific guidance is given on how to accomplish this task. ARTEP's that list specific tasks relating to the Communications-Electronics Operation Instructions will be annotated to show this Training Circular as a reference document.

Training With The CEOI

It's important to understand that this Training Circular is not an end in itself. It is designed to be used with the Training CEOI (KTV 600 A). Its ultimate training objective is to equip the communicator in the field with the skills and knowledges needed to use a CEOI 100% accurately in actual operations.

In setting up a training program, interim training objectives can be geared to key items in the CEOI. An operator must be able to use both full and abbreviated call signs, and must locate the call signs, frequencies, and suffixes to use the CEOI. An operator must use proper authentication techniques and submit accurate interference reports to function with the CEOI.

The best way to train personnel in the use of the CEOI is to incorporate it into actual training exercises as quickly as possible. In that way, the CEOI becomes a tool to be used in the field, rather than the subject of a series of classroom lectures.

Preface

This Training Circular describes the new automated Communications-Electronics Operation Instructions (CEOI) and shows how to use it. The guidance contained in this text is based on two major DA documents:

- Headquarters, Department of the Army, Letter 105-74-6, 22 May 74, which established the practice of changing call signs and frequencies daily, and
- Headquarters, Department of the Army, Letter 105-75-2, 27 May 75, which built upon changes made in the first letter.

These documents contain the major decisions on the CEOI, such as the requirement to change all call signs, suffixes, and frequencies on a daily basis. They also clearly describe the objectives behind all recent CEOI changes.

Tactical units that now prepare their CEOI's manually may begin incorporating the automated procedures into their manual system with ASA assistance. They may also incorporate these procedures into any training they conduct. Priorities for complete conversion to the new system are being worked out between DA and major commands.

Army service schools should make this TC and the specially developed Training CEOI (KTV 600 A) the basis for CEOI instruction. Tactical units may take the TC apart and use its illustrations as training aids.

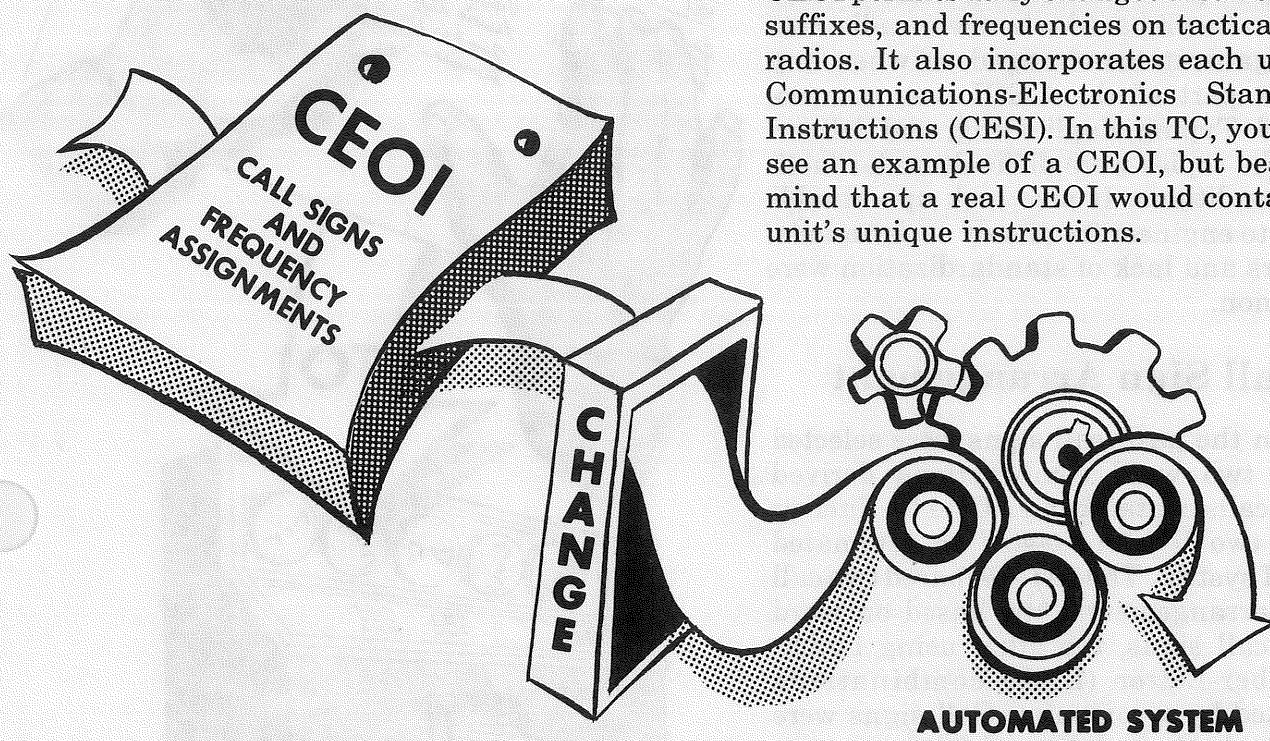
Since the Automated CEOI and this Training Circular are both new, user comments are needed and welcomed. Submit your comments on this TC, and the reasons for them, to Commandant, US Army Signal School (ATTN: ATSN-DTD-TL), Fort Gordon, GA 30905. DA Form 2028 should be used for submitting comments, but comments will be accepted in any format.

Table Of Contents TC 24-2

The Automated Communications-Electronics Operation Instructions (CEOI)

Purpose And Scope

This training circular describes the new automated Communications-Electronic Operation Instructions (CEOI) and tells how to use it. The new CEOI permits daily changes of call signs, suffixes, and frequencies on tactical net radios. It also incorporates each unit's Communications-Electronics Standing Instructions (CESI). In this TC, you will see an example of a CEOI, but bear in mind that a real CEOI would contain a unit's unique instructions.



Part 1 goes into some background on the new automated CEOI. It tells how the new call signs are constructed and how the frequencies are programmed and assigned.

Part 2 deals with the typical instructions found in a CEOI. It tells how to put the CEOI to use in a unit.

Part 3 tells how to use items in the CEOI to help beat the enemy's interference. It goes into the proper procedures for Transmission Security and the use of Authentication.

Part 4 tells how the CEOI is distributed, who is responsible for its handling, and how it should be protected from compromise.

Part 5 gives a close look at the contents of a typical CEOI. It lays out, page by page, the highlights of the automated CEOI.

Part 1: The New Automated CEOI

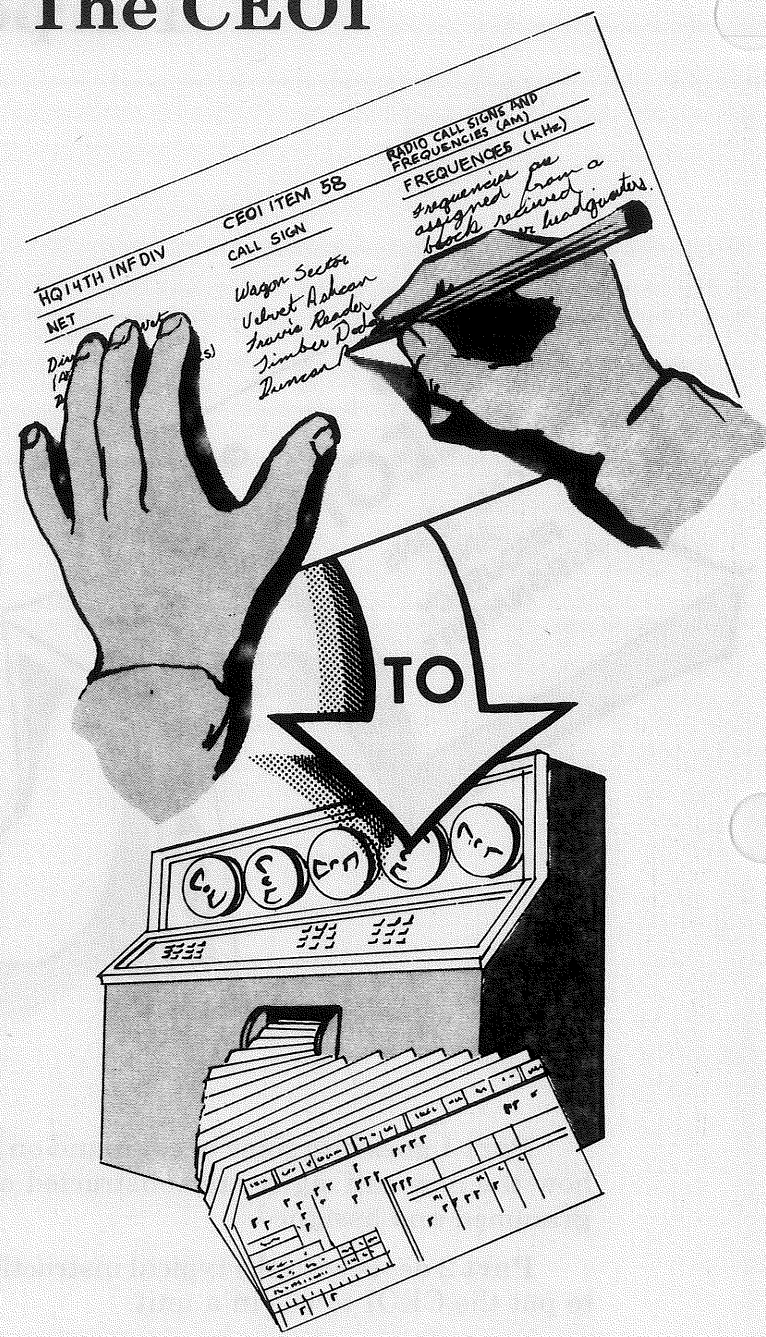
Production Of The CEOI

☐Manual Technique

In the past, communicators prepared a CEOI manually. This was always a problem, because a new CEOI had to be prepared whenever radio nets or organizations changed, or when any major part of the CEOI was compromised. Typing, duplicating, and delivering the copies were difficult under tactical conditions. It also took up valuable time to engineer frequency assignments. Errors and lack of standardization were common.

☐Call Sign Arrangement

In the past, call signs were selected from two word combinations derived from calls contained in ACP-110. Then in 1973, two divisions tested an automated CEOI system. The test compared two call sign arrangements, one based on word type call signs, the other using Letter-Number-Letter (LNL) combinations selected by a computer. Call signs were changed at least daily and, in some cases, more often. The result showed that both arrangements would work in the field, both yielding improved SIGSEC. However, the LNL call signs from the computer were preferred and were established as the system to be used in the future.



☐The "Automated" CEOI

The "automated" CEOI is the heart of the new system of assigning call signs, suffixes, and frequencies. The automated system does not provide any additional frequencies, but it makes more effective use of the ones that are available. The automated CEOI assigns random LNL call signs to individual units or activities rather than to radio nets. This system greatly improves communications security, and enables radio users to enter any authorized net in an orderly manner. It takes much of the burden off C-E officers because they no longer have to produce the CEOI.

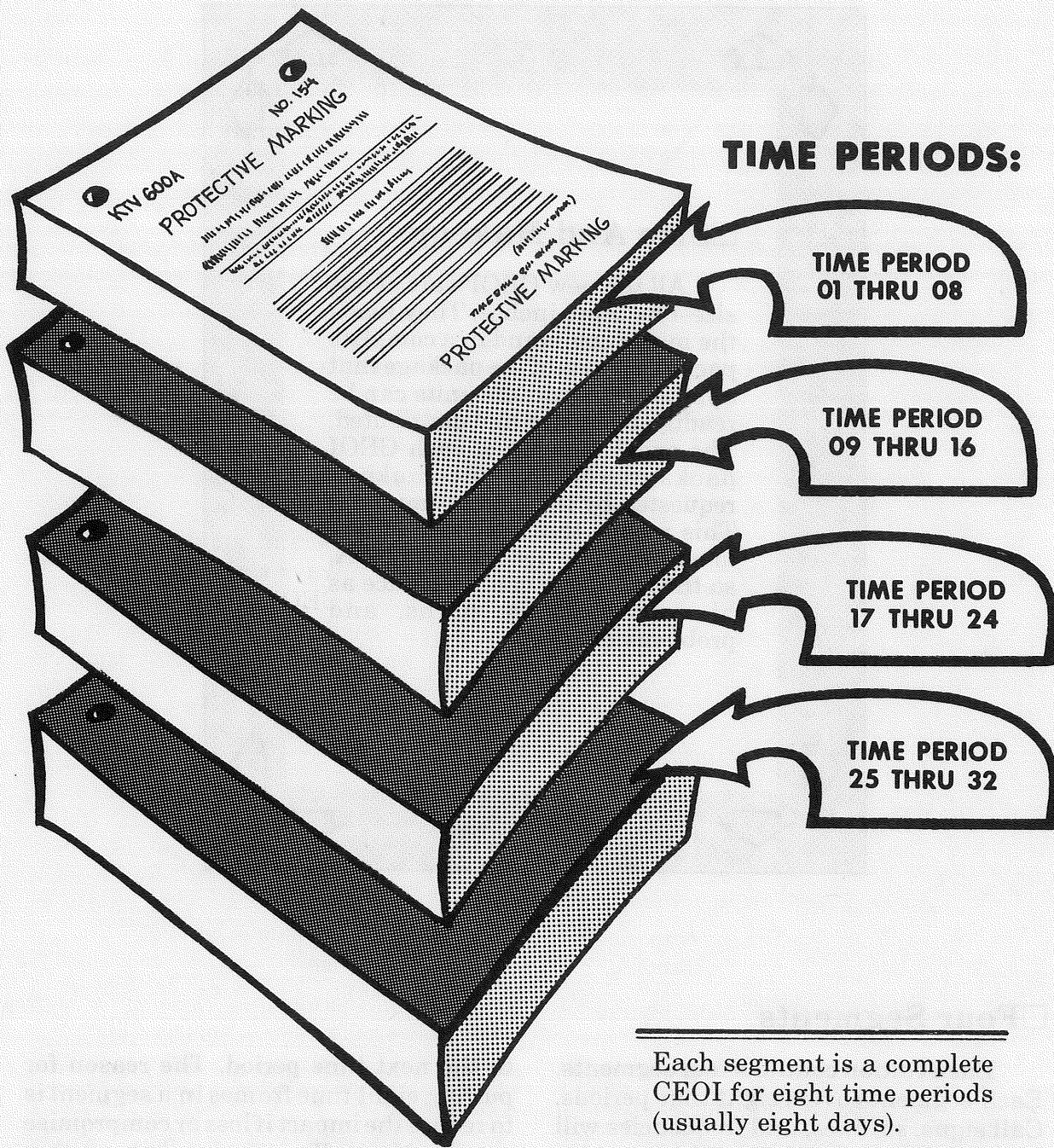
Description Of The CEOI

☐Size And Makeup

All the new CEOI's are of one size-4 by 5-1/4 inches. They reach the major command in a complete package. Parts of the package that apply to subordinate units can be readily separated and distributed. The exact makeup of each CEOI package reflects the makeup requested by the using command. This means that each C-E officer must promptly feed data to NSA, so the computer can keep pace as his organization, plans, and problems change.

☐Four Segments

Each edition contains four segments. Each segment covers eight time periods. Call signs, suffixes, and frequencies will normally change each day. This provides enough CEOI materials for a month. If loss or compromise occurs at any time during a day, the command merely shifts to the next time period. The reason for putting eight time frames in a segment is to reduce the impact if loss or compromise occurs. Normally, time period number one is used with the first day of the month.



Each segment is a complete CEOI for eight time periods (usually eight days).

Numbering And Contents Of The CEOI

☐Numbering

Each CEOI carries its own unique numbers for these reasons:

The computer instantly recognizes this number.

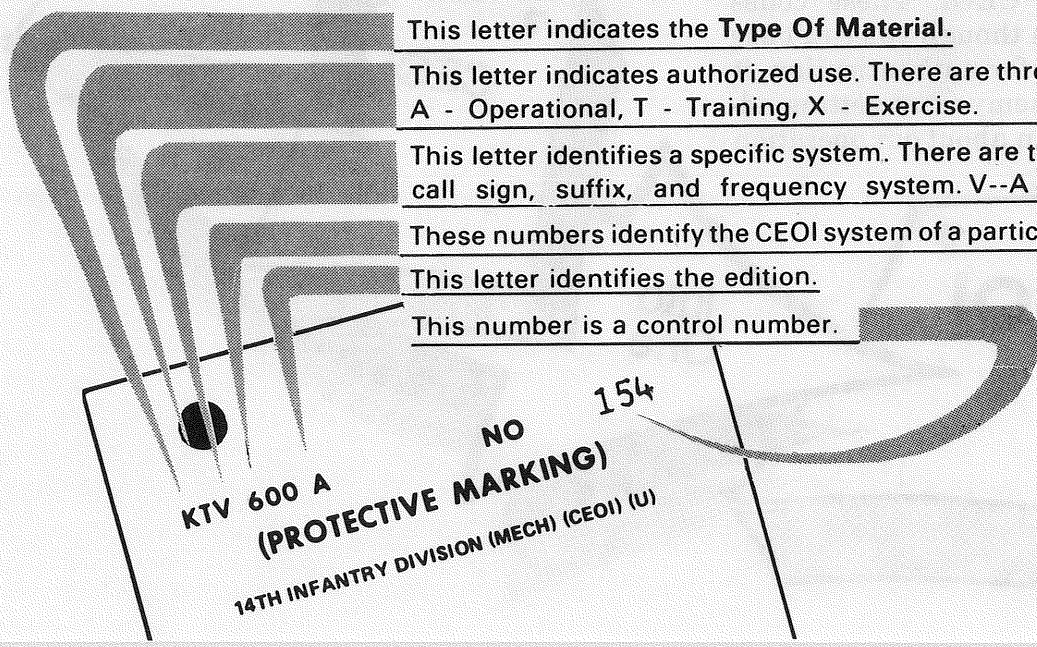
It rules out duplication.

It provides an easy short title for CEOI. The training edition has the CEOI No. "KTV 600." This number is assigned to the CEOI for the fictitious 14th Inf Div (M). This number remains unchanged.

☐Editions

The various editions of the CEOI are indicated by a letter after the three letters and three numbers in the short title. The first edition always carries the suffix A. The training CEOI is numbered KTV 600 A. Later editions would show B thru Z, and then double letters (AA) when they are needed.

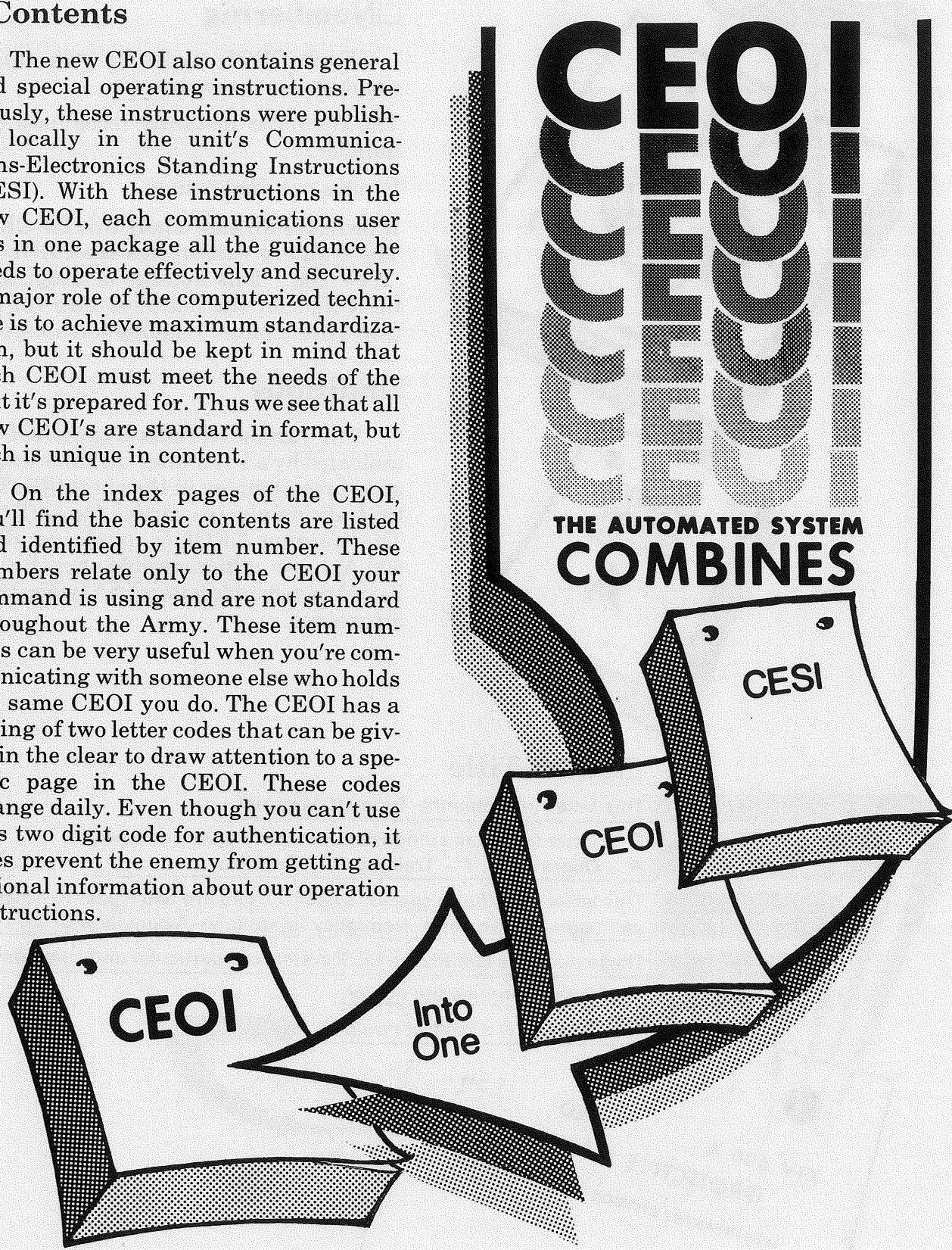
☐Short Title



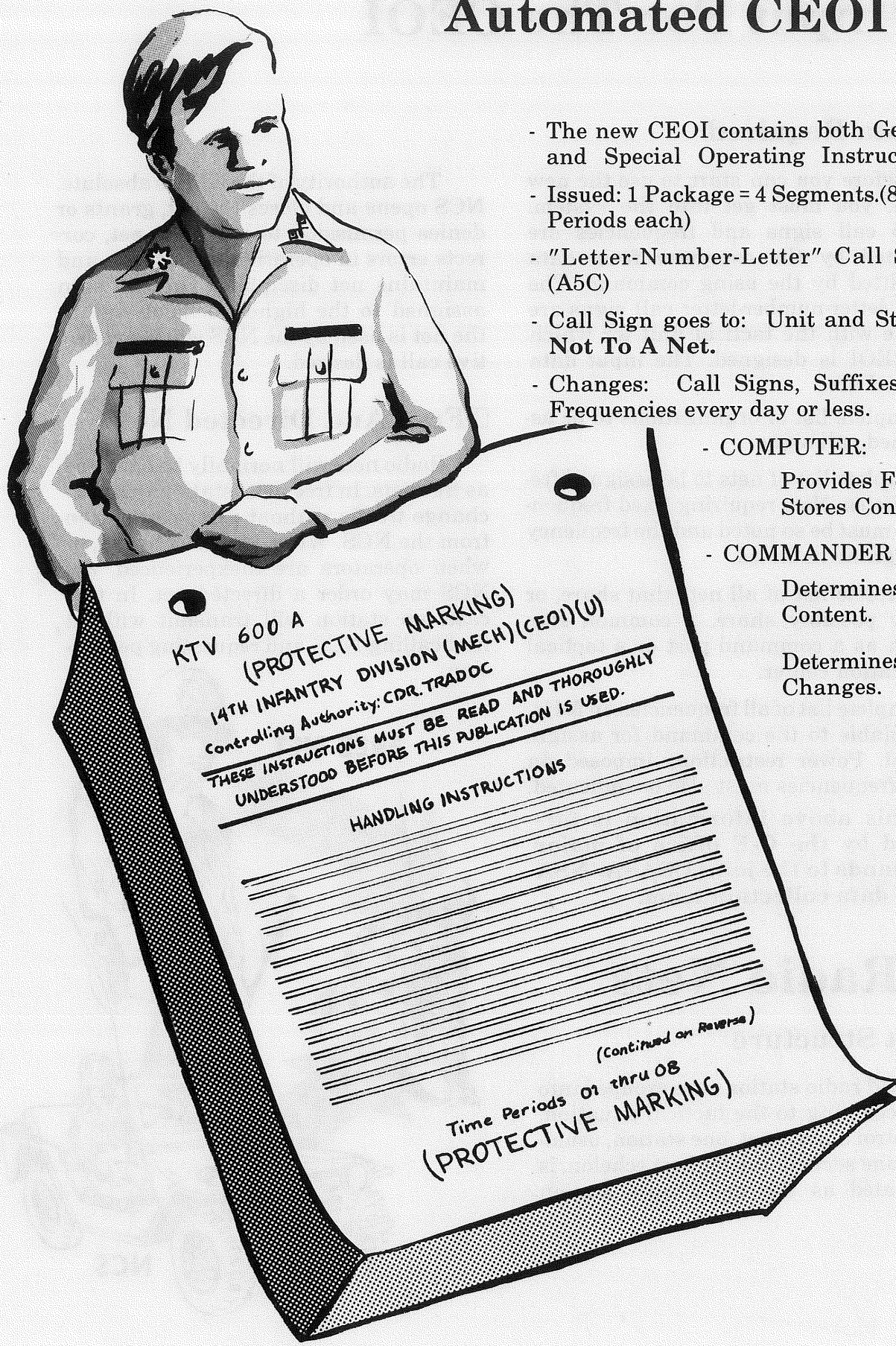
□Contents

The new CEOI also contains general and special operating instructions. Previously, these instructions were published locally in the unit's Communications-Electronics Standing Instructions (CESI). With these instructions in the new CEOI, each communications user has in one package all the guidance he needs to operate effectively and securely. A major role of the computerized technique is to achieve maximum standardization, but it should be kept in mind that each CEOI must meet the needs of the unit it's prepared for. Thus we see that all new CEOI's are standard in format, but each is unique in content.

On the index pages of the CEOI, you'll find the basic contents are listed and identified by item number. These numbers relate only to the CEOI your command is using and are not standard throughout the Army. These item numbers can be very useful when you're communicating with someone else who holds the same CEOI you do. The CEOI has a listing of two letter codes that can be given in the clear to draw attention to a specific page in the CEOI. These codes change daily. Even though you can't use this two digit code for authentication, it does prevent the enemy from getting additional information about our operation instructions.



Highlights Of The Automated CEOI



- The new CEOI contains both General and Special Operating Instructions.
- Issued: 1 Package = 4 Segments.(8 Time Periods each)
- "Letter-Number-Letter" Call Signs (A5C)
- Call Sign goes to: Unit and Station, **Not To A Net.**
- Changes: Call Signs, Suffixes, and Frequencies every day or less.

- COMPUTER:

  Provides Format.
  Stores Content.

- COMMANDER:

  Determines Content.

  Determines Changes.

Part 2: Using The Automated CEOI

Input For The CEOI

☐Data Required

Before you can start to use the new CEOI, you must get into the system. Radio call signs and frequencies are assigned by the computer from data submitted by the using command. The CEOI letter-number-letter call signs are unique with the tactical unit for which the CEOI is designed. The input data required are:

- Complete list of organzations to be assigned call signs.
- Complete list of nets to be assigned frequencies. Nets requiring fixed frequencies must be so noted and the frequency assignments listed.
- Complete list of all nets that share, or may possibly share, a common site, such as a command post or a tactical operation center.
- Complete list of all frequencies, in MHz, available to the command for assignment. Power restrictions imposed on the frequencies must also be indicated.

This above information is furnished by the C-E office of major commands to the joint USASA/NSA CEOI data collection team.

Radio Nets

☐Net Structure

Field radio stations are grouped into nets according to the tactical situation. To control a radio net, one station, usually the one serving the highest echelon, is designated as the net control station (NCS).

The authority of the NCS is absolute. NCS opens and closes the net, grants or denies permission to enter the net, corrects errors in operation procedures, and maintains net discipline. The call sign assigned to the highest echelon within the net is used by the NCS when a collective call is desired.

☐Free And Directed Nets

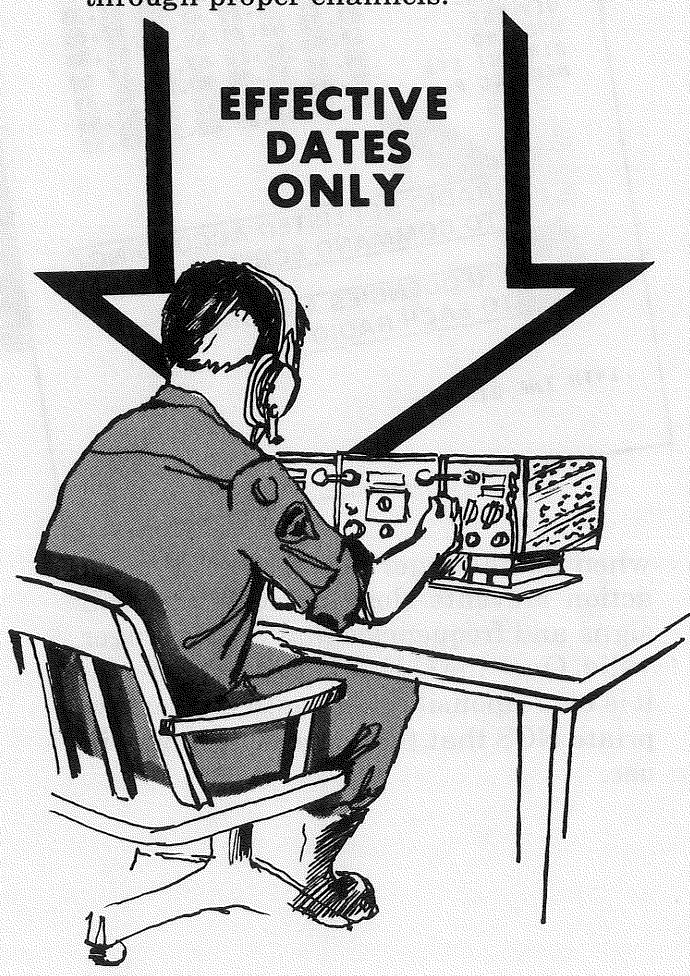
Radio nets will normally be operated as free nets. In free nets, stations may exchange traffic without prior permission from the NCS. When traffic is heavy, or when operators are inexperienced, the NCS may order a directed net. In this case, no station will transmit without first calling NCS and requesting permission.

Call Signs And Frequencies

☐Call Sign Use

A call sign must be used only during its effective time period. At no time will a new call sign be used on an old frequency. By the same token, an old call sign will not be used on a new frequency.

As we've seen, radio call signs used in the new CEOI have a LNL arrangement. The two-word call sign prescribed in ACP 119(A) is no longer authorized for use. Call signs and frequencies are changed simultaneously throughout the organization at least once every 24 hours. The time to change is specified in the General Instructions item. If you are required to change at a different time, you will be informed through proper channels.



☐Call Signs And Net Structure

The new call signs are being assigned to specific units and stations, not to nets. Instead of following the old rigid net structure, stations are now permitted to operate in other nets, as required, using their own call signs. This permits net flexibility and provides a greater degree of Signal Security (SIGSEC).

Since the new CEOI does not reveal unit and station assignments to specific nets, the C-E officer determines whatever net structures are needed and publishes the results in operation orders or signal annex, SOP, etc.

☐Call Sign Construction

A call sign has two parts. Both parts change on a daily basis. The first part (L-N-L) is the basic call sign. The second part is the suffix. Normally, it consists of two numbers, but if the command contains more than ninety nine users, extender letters are added, such as A, B, and so on. The last letter of the basic part is unique to the echelon at which the user operates. For example, in a battalion, no two stations would have the same last letter. The reason for this is that it permits unique abbreviated call signs for routine use in a functioning net.

Note:

A complete call sign must be used any time a station tries to enter a net in which it does not normally operate (higher or lower).

☐Frequency Assignment

A frequency is assigned to a radio net for a stated period of time. The block of frequencies allocated to the command are assigned to designated nets by the computer. This permits a daily change of frequencies. It does not provide more frequencies but does allow better frequency utilization.

☐Spare Call Signs And Frequencies

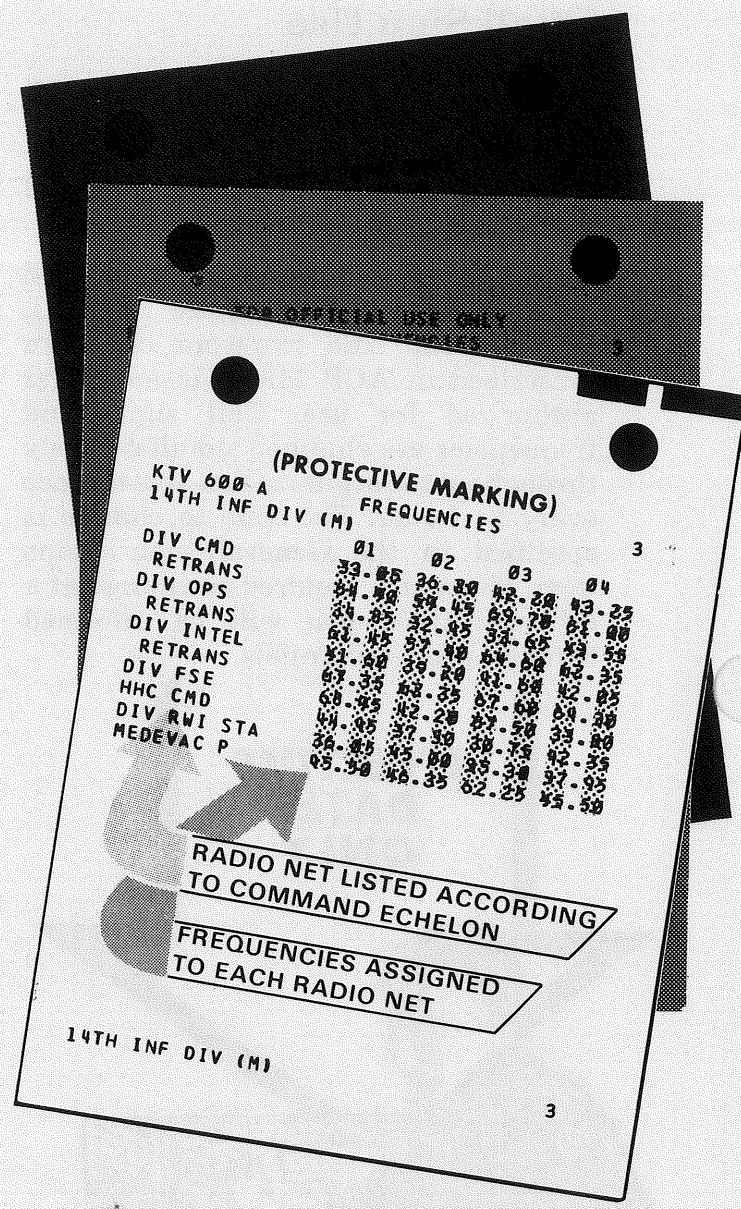
The new CEOI provides spare call signs. For example, the C-E Officer can authorize their use when the command gains a new unit or when human error results in the compromise of a specific call sign.

When a spare call sign is required, the user must give the C-E office:

- The CEOI item number.
- Organization that needs the new call sign.
- Period of time a call sign is needed and the dates.

Don't ask for call sign in the clear. **Use** a secure circuit or an OPS code.

Note:
This information must be transmitted over secure circuits or must be encoded.



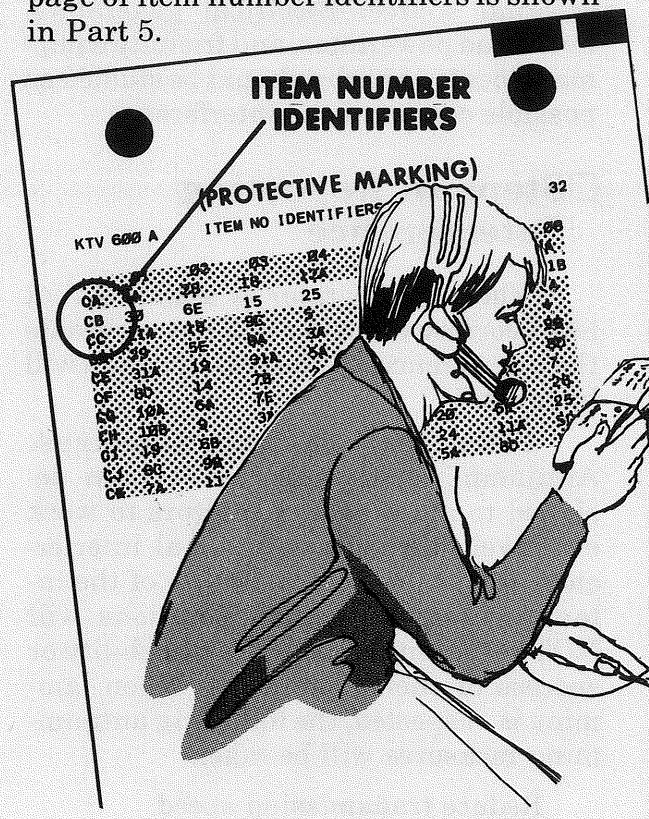
You must take the same action with spare frequencies that you take with spare call signs, plus you must give the name of the net that will use the new frequency.

It is the user's responsibility to give up any spare call signs or frequencies when he no longer needs them. Prompt action prevents clogging nets with call signs and frequencies that are no longer valid. Once the C-E Officer gets the word, it is his responsibility to notify the appropriate NCS that the spare is no longer in use.

Item Number Identifiers

☐Use Of Item Number Identifiers

The identification of a unit or station in the clear is prohibited. Item number identifiers are included in the CEOI to provide a secure means of identifying your radio net and station. A sample page of item number identifiers is shown in Part 5.



Item number identifiers are used when you're entering a net in which you do not normally operate, or to otherwise identify your station. To find your identifier, read down the "time period" column until you find your CEOI item number. Then follow that horizontal row to the extreme left-hand column. The two letters found there are your item number identifier for that time period.

When asked to identify your station, simply provide your two-letter identifier and the asking station will be able to identify you by referring to the item number identifier list and reading across to the proper time period column. This provides him with your CEOI item number and by referring to that item, he can readily identify your station.

☐Example

The Cdr, A Co, needs to enter the brigade command net, a net in which he does not normally operate. It is the fifth day of the month and the brigade NCS has the call sign "R7G28." The Cdr, A Co, has the call sign "T3F07." A correct transmission would sound like this:

"Romeo Seven Golf Two Eight" THIS IS "Tango Three Foxtrot Zero Seven" -REQUEST PERMISSION TO ENTER NET--OVER.....

"Tango Three Foxtrot Zero Seven" THIS IS "Romeo Seven Golf Two Eight"--IDENTIFY YOUR STATION--OVER.....

"Romeo Seven Golf Two Eight" -- THIS IS "Tango Three Foxtrot Zero Seven"--REFER TO CHARLIE BRAVO--BREAK--I AM PREPARED TO AUTHENTICATE--OVER.....

The NCS identifies* the calling station, then requests the calling station to authenticate.

***Warning**

The item number identifier is only a method of identifying a unit. It is not a substitute for authentication.

Interference Report

☐Types Of Interference

The reception of radio signals can be hindered, confused, or prevented by the interference of unwanted signals reaching the receiver. The interference may be unintentional (from friendly or natural sources) or intentional (from unfriendly sources).

The following types of interference may be experienced:

MEACONING. - The transmission by the enemy of false navigational signals to confuse or hinder the navigation of aircraft and ships and to confuse ground stations.

INTRUSION. - The intentional insertion of radio signals into friendly transmissions to deceive or confuse friendly operations, i.e., imitative communications deception (ICD) and imitative electronics deception (IED).

JAMMING. - The deliberate obliteration or disruption of friendly use of a particular frequency or portion of the spectrum. Jamming is intended to prevent the use of the friendly communications systems or devices.

INTERFERENCE. - Any natural or manmade radiation of electrical energy that causes difficulty in the reception of signals. For the purpose of this report, interference is any unidentified radiation that causes an undesirable effect on friendly communications or noncommunications equipment.

☐Responsibility For Reporting Interference

The individual who experiences interference is responsible for reporting the incident. Before initiating an interference report, however, the receiving antenna should be disconnected to insure that the interference is coming from an external source. Electrical generators, over-head powerlines, and friendly equipment located nearby should be studied as possible causes of the interference.

☐Steps In Reporting Interference

When the operator is satisfied that local corrective action will not eliminate the interference, the following action will be taken:

Take Antijamming Measures. Antijamming measures have been designed to allow radio operators to work effectively through intentional interference. Regardless of the nature of the interfering signal, radio operations will NOT reveal in the clear the possibility or success of enemy jamming. When jamming is suspected, the following antijamming measures will be taken.

Reduce transmission speed.

Remain calm.

Continue to operate.

Observe radio discipline.

Do not admit to being jammed.

Adjust the fine tuning, gain (or volume) control, band width selector, crystal filter, and/or other controls peculiar to the equipment being used.

Increase transmitter power.

Reorient or resite the antenna; or change antenna polarization.

[If these measures are unsuccessful, request that the C-E officer provide you a spare frequency.]

The Initial Report. Quickly report the incident, whether or not you are successful in working through the interference.

Incident Analysis. Prompt, accurate, and complete reporting is imperative for C-E and intelligence officials to evaluate and correct the interference. Incidents must be reported via secure means to the Net Control Station ASAP, that means within 10 minutes of the incident. NCS delivers the report to the C-E officer who coordinates with the EW officer, intelligence officer, and the supporting ASA element to solve the problem or to make alternate plans. Reports will be marked UNCLAS EFTO (Encrypted for Transmission Only).

Means Of Transmitting The Report. Transmission by electrical means is authorized, however, transmission must be secured by an on-line or off-line (manual) system. If it cannot be transmitted, the information must be provided in writing to the C-E officer through the NCS within 12 hours.

☐The Contents Of The Full Interference Report, Plus Brevity Lists

The report will contain the following information and will be prepared using the brevity list provided below. For security, these brevity list numbers must be encrypted in the numeral cipher/authentication system, which we'll cover later.

Line 1 - Type Of Report

1. Meaconing
2. Intrusion
3. Jamming
4. Interference

Line 2 - Affected Station

Give the NCS the last letter of your call sign and your suffix.

Note:
This line need not be encrypted.

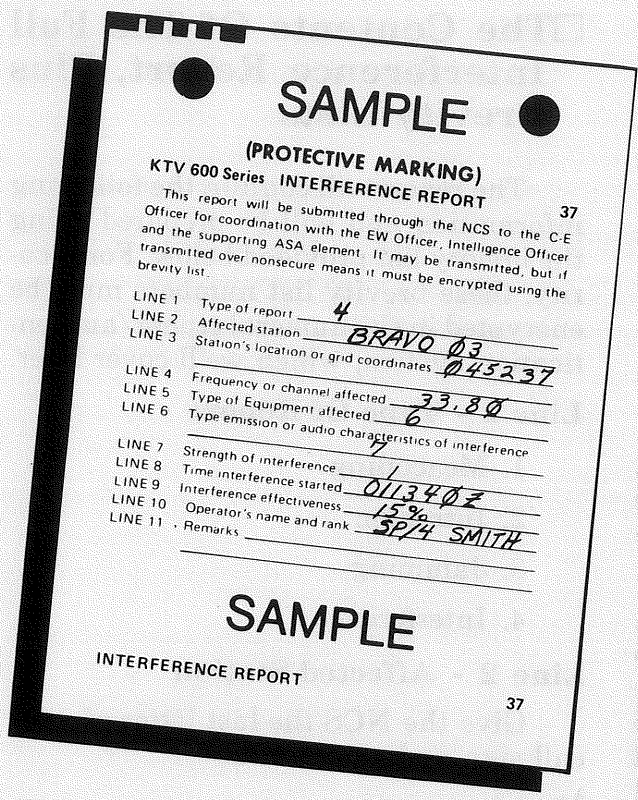
Line 3 - Give Your Station's Location Or Grid Coordinates.

Encrypt the Station's grid coordinates.

Note:
Grid zone letters may be included but only when they are necessary to clarify the location. If you include them, you must note the fact, or they may be confused with the encrypted coordinates.

Line 4 - Frequency Or Channel Affected.

Encrypt the frequency (in MHz) or the channel on which you experienced the interference.



SAMPLE

(PROTECTIVE MARKING)

KTV 600 Series INTERFERENCE REPORT 37

This report will be submitted through the NCS to the C-E Officer for coordination with the EW Officer, Intelligence Officer and the supporting ASA element. It may be transmitted, but if transmitted over nonsecure means it must be encrypted using the brevity list.

LINE 1 Type of report 4
LINE 2 Affected station BRAVO Ø3
LINE 3 Station's location or grid coordinates Ø45237
LINE 4 Frequency or channel affected 33,8Ø
LINE 5 Type of Equipment affected 6
LINE 6 Type emission or audio characteristics of interference 7
LINE 7 Strength of interference 1
LINE 8 Time interference started Ø113ØZ
LINE 9 Interference effectiveness 15%
LINE 10 Operator's name and rank SP/4 SMITH
LINE 11 Remarks

SAMPLE

INTERFERENCE REPORT 37

Line 5 - Type Of Equipment Affected.

5. AM/SSB/RATT
6. FM radio
7. Radar
8. NAVID

Line 6 - Type Of Emission Or The Audio Characteristics Of Interference.

9. Randomly keyed CW/RATT
0. Keyed CW
1. Stepped tones (bagpipes)
2. Modulated tone
3. Random noise/static
4. Gulls
5. Pulse
6. Wobbler
7. Unidentified voice, chatter, traffic, or music.
8. Friendly call sign, chatter, and/or traffic.

Line 7 - Estimate The Strength Of The Interference.

9. Weak
0. Medium
1. Strong

Line 8 - Report The Time Interference Started (Ended).

Line 9 - Interference Effectiveness.

Using the scale 00/100, encrypt the estimated percentage of copy lost or the percentage of time radar/NAVID was ineffective.

Line 10 - Operator's Name And Rank.

Line 11 - Remarks

Report any additional information that might help C-E and intelligence officials to evaluate the interference. The type of mission, prevailing weather conditions, how the affected frequency was being used, flight plan of the aircraft, and the duration of the interference are examples of useful information. This portion may be a narrative explaining exactly what did happen.

Note:

Lines 10 and 11 will be omitted when the report is transmitted electrically. However, a full written report should be forwarded to the C-E officer within 24 hours of the encrypted report.

Transmission Security

☐Importance Of TRANSEC

Transmission security measures are the steps we take to protect transmissions from interception, traffic analysis, direction finding, imitative deception, jamming, and other exploitation by the enemy. Any soldier who picks up a microphone, pushes a teletype key, or uncradles a telephone, automatically becomes responsible for taking all measures to get his message through in a manner that does NOT give away any information that is useful to the enemy.

☐Transmission Security Measures (Item No. 43 In CEOI)

Radio operators will maintain TRANSEC at all times by practicing the following measures:

1. Keep transmissions short.
2. Follow authorized transmission procedures.
3. Maintain circuit discipline.
4. Properly orient the transmitting antenna.
5. Use a dummy antenna when tuning or maintaining transmitters.
6. Avoid unnecessary transmissions and excessive testing.
7. Operate radios at the lowest possible power levels that give satisfactory communications.
8. Use only authorized call signs, procedure words and signs, and operating signals.
9. Authenticate as prescribed in the CEOI.
10. Report all instances of TRANSEC violations.

☐TRANSEC Checklist (Item No. 43 In CEOI)

Radiotelephone operators will check transmission security during every communications period. The transmission security checklist will include the following points. The proper answer for each one is no.

1. Is radio listening silence being violated?
2. Is unofficial conversation being exchanged between operators?
3. Are transmissions taking place in a directed net without permission of the NCS?
4. Is the operator's personal sign being transmitted?
5. Are call signs being compromised by their association with plain language unit designations?
6. Is plain language used instead of authorized prosigns and operating signals?
7. Are the operators using unauthorized and incorrect procedures?
8. Do unnecessary transmissions occur?
9. Is the identification of units and individuals being disclosed in transmissions?
10. Are calls being transmitted excessively?
11. Are transmitting operators sending too fast for receiving operators?
12. Is excessive transmitting power being used?
13. Are transmitters being tuned with the antenna connected?
14. Is excessive time consumed in tuning, testing, changing frequency, and adjusting equipment?
15. Are authentication requirements and procedures being violated?

Numeral Cipher/ Authentication System

☐DRYAD

The numeral cipher system used today is called "DRYAD". DRYAD includes a reader guide (KAL-61) plus a daily numeral cipher insert. This system is provided by your COMSEC material direct support activity (CMDSA). Instructions on how to use this system are contained in the new CEOI.

The DRYAD system is used to encode only numbers and coordinates in a plain text message or with a brevity list. When operations codes are used, the entire message must be encoded. The number of daily inserts issued to the user is kept at a minimum, not to exceed eight days worth of material.

☐Instructions For Using KAL-61 (Item No. 48 In CEOI)

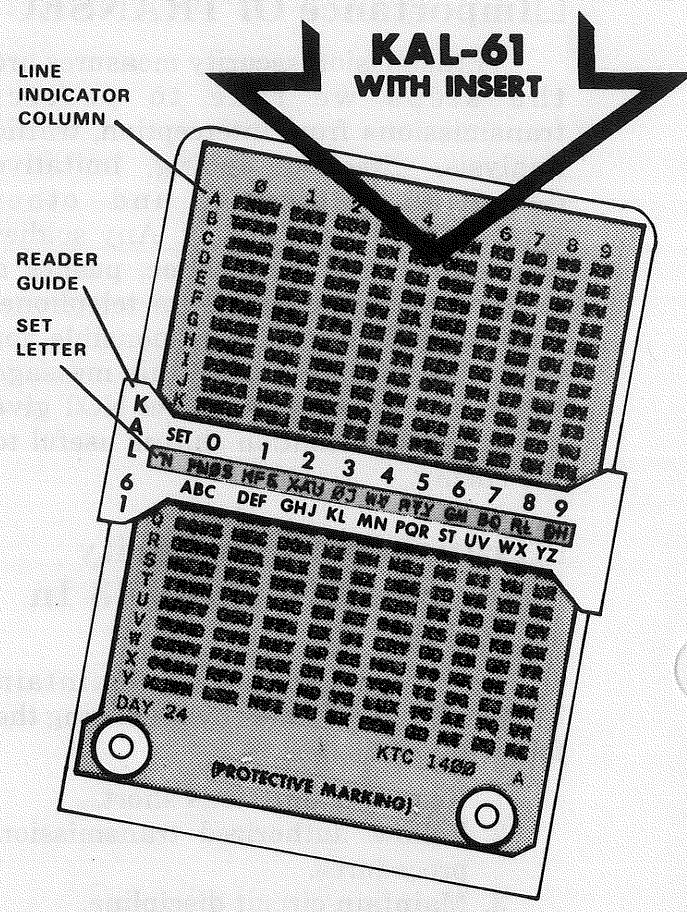
A. To Encrypt

1. Randomly select any two letters (except Z) for the SET INDICATOR(SI). -EXAMPLE: CP

2. Find the first letter of SI ("C") in LINE INDICATOR COLUMN.

3. Find second letter SI ("P") in line indicated by first letter. Letter to the right of the second SI letter is the SET LETTER. (NOTE: If second SI letter is last letter in the line, go to the first letter in the same line for the SET LETTER). Position the reader guide over the line indicated by the SET LETTER.

4. Find the number to be encrypted in the plaintext numbers on the top of the reader guide. For each number, substitute one of the cipher letters from the SET LINE immediately under the numbers.



(NOTE: Use the cipher letters from the SET LINE to encrypt the numbers; do not use the letters on the lower half of the reader guide). Numbers are encrypted in the order they appear in the message. Variants should be used for repeated numbers. Transmission will be in the form "I set CHARLIE PAPA (pause) ROMEO NOVEMBER ALFA MIKE."

5. GRID ZONES are encrypted by finding the grid zone designator letters in the plaintext letters on the lower half of the reader guide. The cipher letter found in the SET LINE directly above the plaintext letter is substituted for the grid zone letter. No other letters will be en-

crypted. Grid zone numbers will be encrypted in the same manner as any other numbers.

B. To Decrypt.

Upon receipt of the SET INDICATOR, find the SET LETTER in the manner described under encryption. Set the READER GUIDE on the line indicated by the SET LETTER and decrypt message by substituting plaintext letters/numbers for the cipher letters.

C. Challenge And Reply Authentication

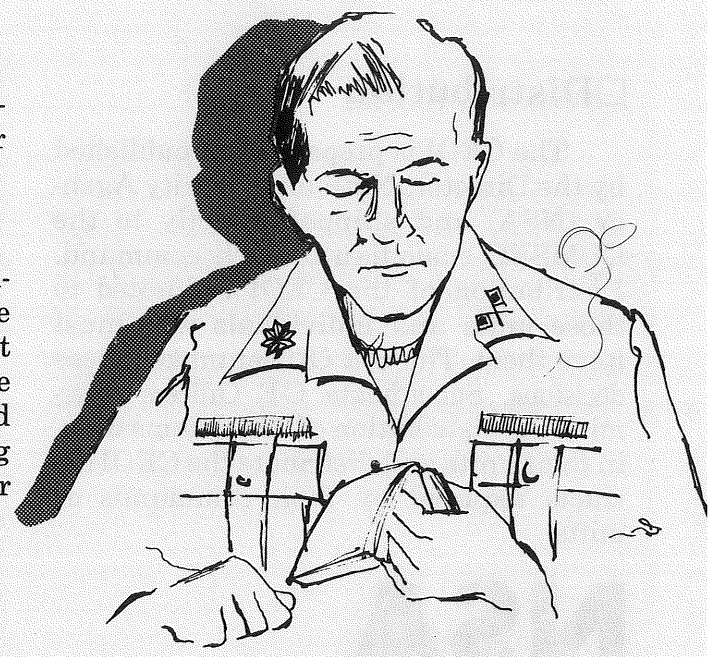
1. To form challenge-Select two letters (except Z) at random.

2. To determine reply-Find the first letter of the challenge in the LINE INDICATOR column. Find the second letter in the line indicated by the first letter. The reply is the cipher letter directly below the second letter of the challenge. (NOTE: If the first letter of the challenge is "Y", the reply should be taken from the "A" line of the table.)

3. When authentication is desired, the CALLED party should challenge first. After giving the appropriate reply, the calling party will then counter-challenge.

D. Transmission Authentication

A Transmission Authentication Table is located on the back of each cipher table. Columns are numbered to aid in allocation of digraphs to selected stations within a net for use on a ONE-TIME basis. Assigned digraphs will be used in order. Assignments are made by the Controlling Authority or his designated representative.



□Responsibility

The commander is the controlling authority of your C-E system. The communications-electronics (C-E) officer insures that the current CEOI is available to those who operate communications systems.

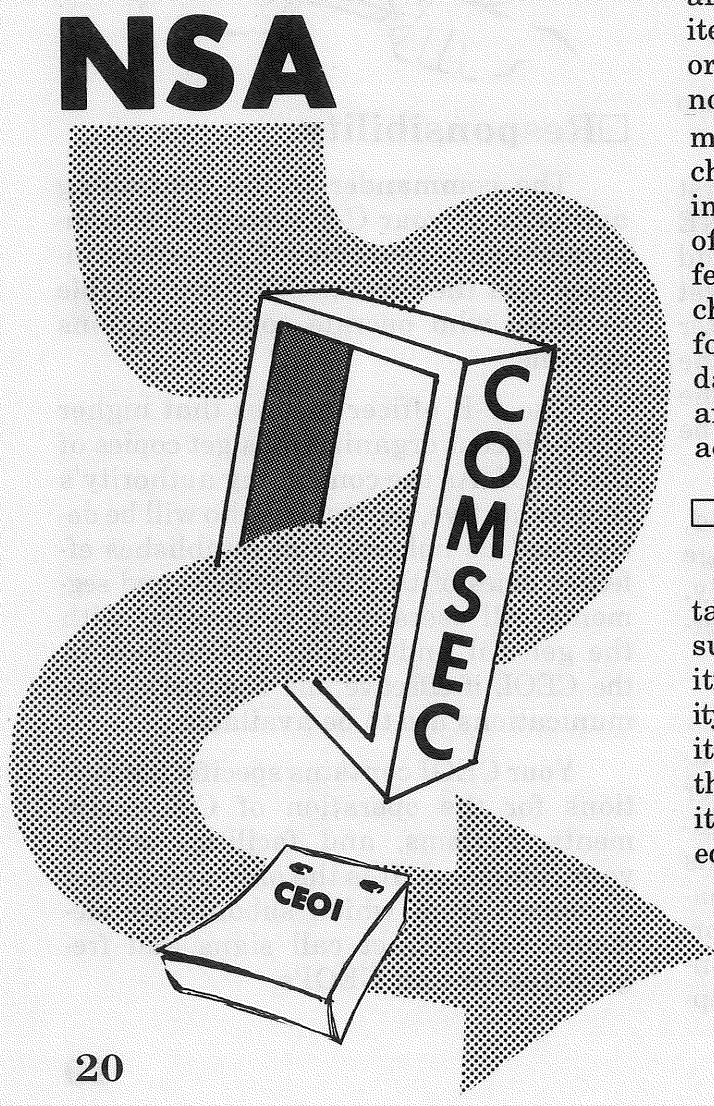
The C-E officer insures that higher and adjacent organizations get copies of the CEOI. As the controlling authority's representative, he decides who will be designated as holders, and establishes effective dates of the CEOI editions and segments. All users must be familiar with the general and special instructions in the CEOI, if effective and responsive communications are to be available.

Your CEOI contains specific instructions for the operation of C-E equipments, systems, and facilities within your command. It is the only authorized document from which subordinate elements will extract call signs and frequencies for unit CEOI's.

Distribution And Requisition Of The CEOI

☐Distribution

The CEOI is prepared and published by the Director, National Security Agency (NSA) and shipped directly to the COMSEC custodian of each command. Distribution of the CEOI is limited to those units and individuals who must have them. The C-E Officer makes these decisions. Subordinate C-E Officers determine the distribution of CEOI items within their units and distribute the CEOI extracts required by their commands or units.



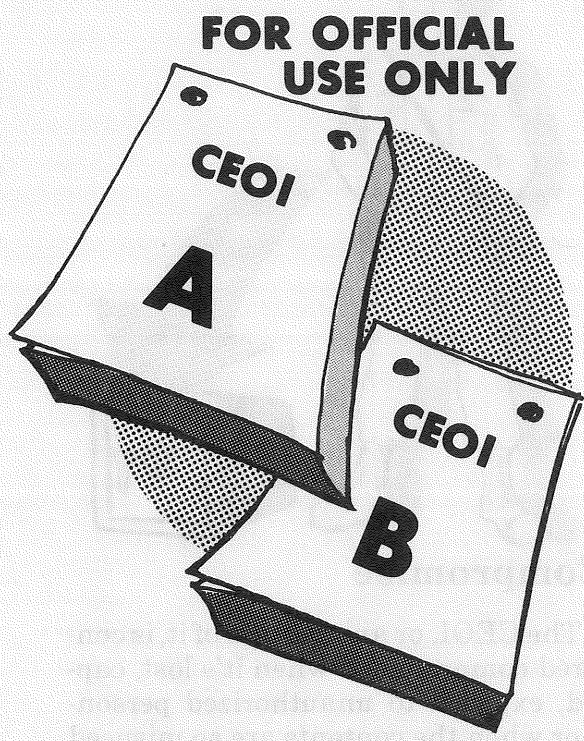
☐Requisition

Requisitions for normal or supplemental material are sent directly to NSA. Requests for resupply are submitted electrically to the Director, NSA, ATTN: S-14, Fort Meade, Maryland 20755. An information copy of the message is furnished the Commander, U.S. Army Communications Security Logistics Agency (USACSLA), ATTN: AMSEL-CCM-NICP-AM, Fort Huachuca, Arizona 85613. When any change occurs that affects the current CEOI, e.g., changes to items, copy count, available frequencies, or organizational structure, NSA must be notified as soon as possible in order to make necessary changes. Emergency changes in the CEOI which require immediate action, e.g., implementation of contingency plans, may be made in a few days. More routine changes, or changes which may be anticipated or forecasted, will take 90-120 days from the date the data is received at NSA to arrival of the new CEOI at the user account.

☐Reserve Editions

Reserve editions of CEOI items are retained by the controlling authority to insure rapid replacement. When reserve editions are issued, the controlling authority (C-E Office) will distribute a second edition of the CEOI to all units who have the first edition. The complete reserve edition must be placed in effect, and a third edition should be held in readiness.

Types Of CEOI

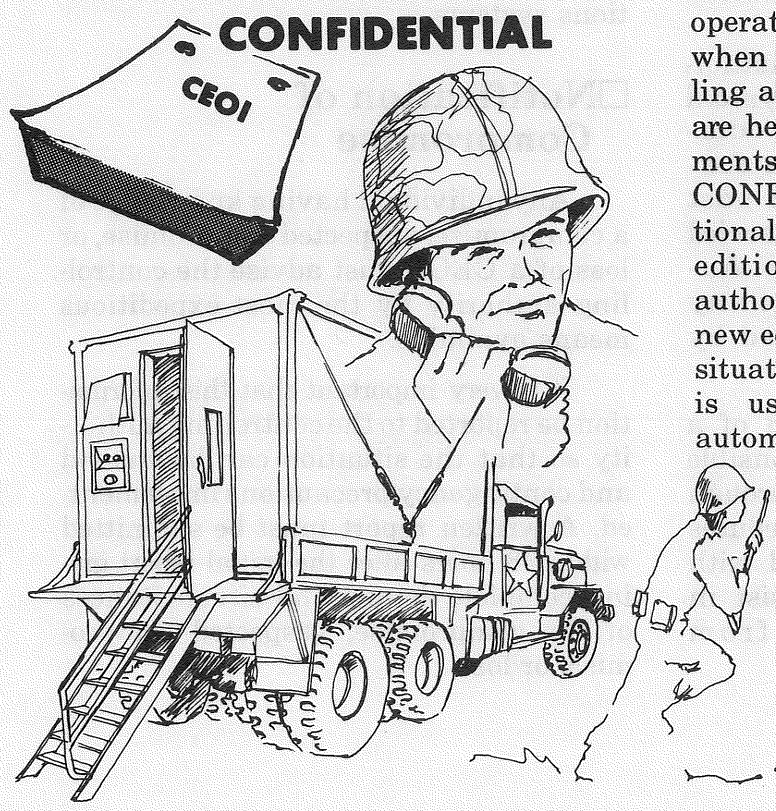


☐Training

Normally, a command will get two types of CEOI materials - Training and Operational. Training materials are used when the command is not engaged against a hostile force. Two training editions are held by each command. These editions are unclassified and marked FOR OFFICIAL USE ONLY. They are reused by recycling them within the command until the copies are worn out. In practice, "A" supersedes "B", and "B" supersedes "A". Replacement editions for training purposes may be requisitioned by the controlling authority when the material is worn out or when major organizational changes occur.

☐Operational

Operational material will be implemented only when a unit is involved in operations against a hostile force, or when instructions are given the controlling authority. Normally, these editions are held in reserve for operational requirements. Operational material is classified CONFIDENTIAL. Resupply of operational editions is made by NSA as the editions are used. The controlling authority will notify NSA at the time a new edition is placed into effect. In those situations where operational material is used routinely, resupply will be automatic.



Physical Security And Compromise

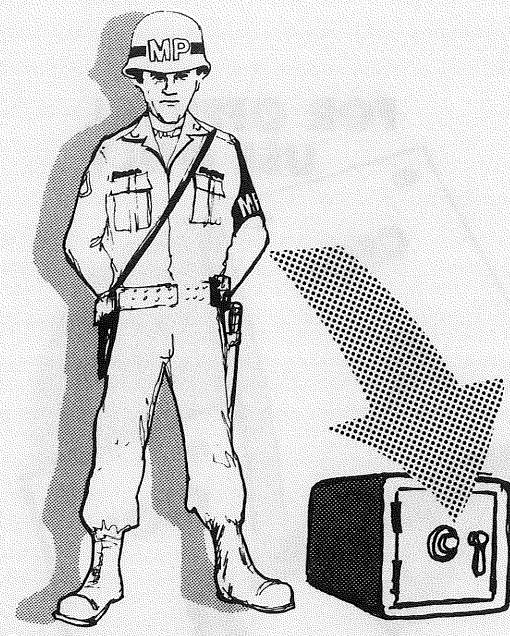
☐Physical Security

The automated CEOI is classified if its contents require it. Normally, operational and contingency CEOI's are classified CONFIDENTIAL, while administrative or training CEOI's are UNCLASSIFIED to make their handling easier. Those CEOI's classified confidential or above must be given the physical security safeguards and requirements set forth in DOD 5200.1-R and AR 380-5.

The CEOI belongs to the organization it was produced for. Handling procedures that insure its efficient and secure use are the responsibility of the commander. Accordingly, the commander is the recognized "Controlling Authority" and under provisions found in Appendix A of AR 380-5, paragraph A-3b (3), the commander has the authority to use unclassified call sign and frequency change programs for training purposes.

To lessen the possibility of unauthorized disclosure, additional physical constraints are necessary. **The complete CEOI will not be taken forward of a battlion command post (CP). No more than 8 days material is issued to the user at any time. Authority to reproduce or extract any portion of the CEOI is retained by the controlling authority.**

The individual in possession of a CEOI, or a portion thereof, is responsible for safeguarding its contents. A thorough understanding of handling procedures estblished by the unit, combined with good judgment, will greatly assist in keeping the CEOI away from unauthorized personnel.



☐Compromise

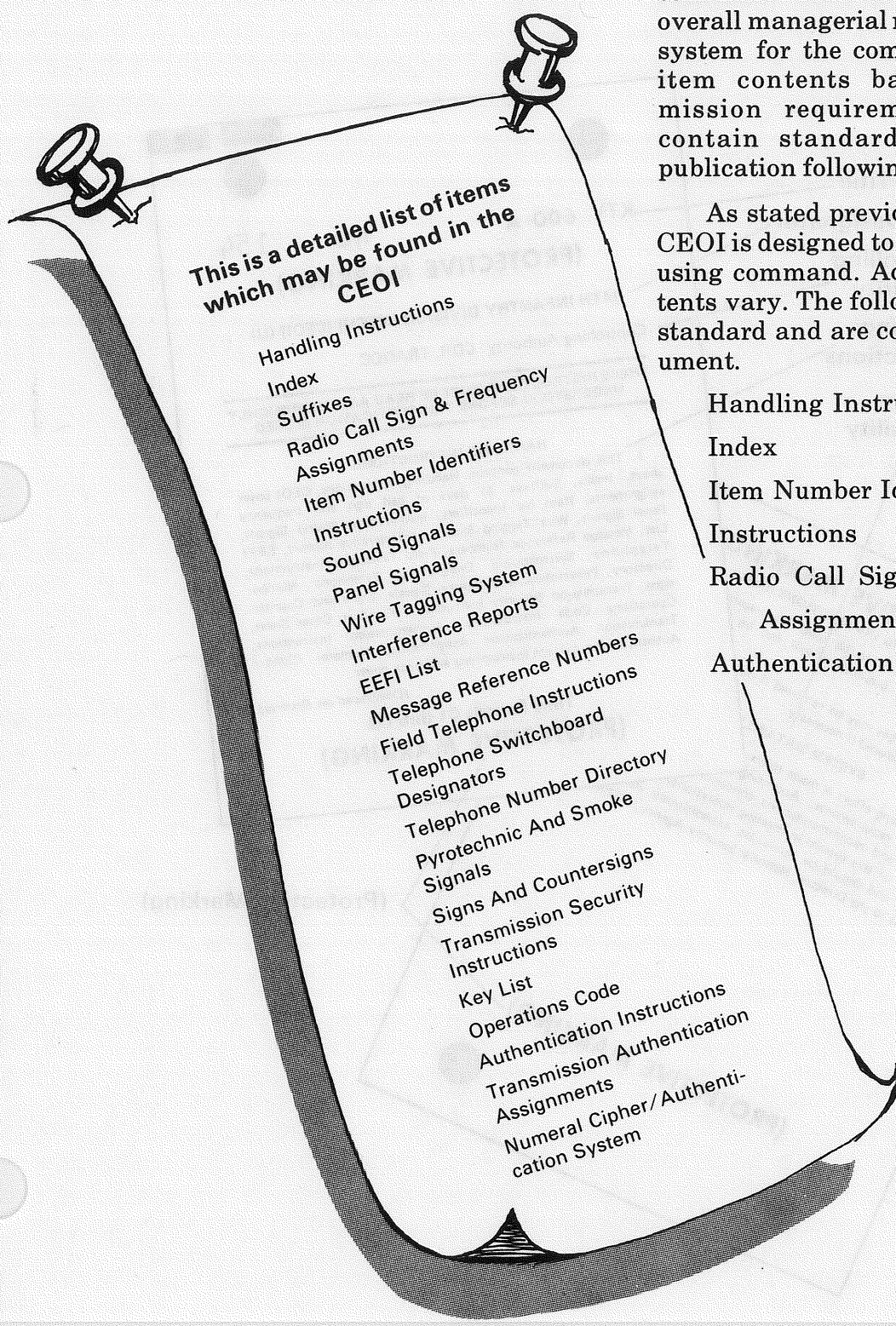
The CEOI, or any portion of it, is considered compromised when it's lost, captured, exposed to unauthorized personnel, or when the contents are so misused they endanger the security of communications systems.

☐Notification of Compromise

Any individual having knowledge of a compromise, suspected compromise, or loss of a CEOI must advise the controlling authority by the most expeditious means available.

It is very important that this information be reported to the controlling authority so that the situation can be studied and contingency precautions implemented. A written report must be submitted within 48 hours after the initial report giving complete details and circumstances of the compromise, suspected compromise, or loss.

Contents Of CEOI



The contents of a specific CEOI depend on the requirements of the using command. The C-E officer, who assumes overall managerial responsibilities of the system for the commander, determines item contents based on command mission requirements. All CEOI's contain standard items with each publication following a standard format.

As stated previously, the automated CEOI is designed to meet the needs of the using command. Accordingly, item contents vary. The following are considered standard and are contained in each document.

Handling Instructions

Index

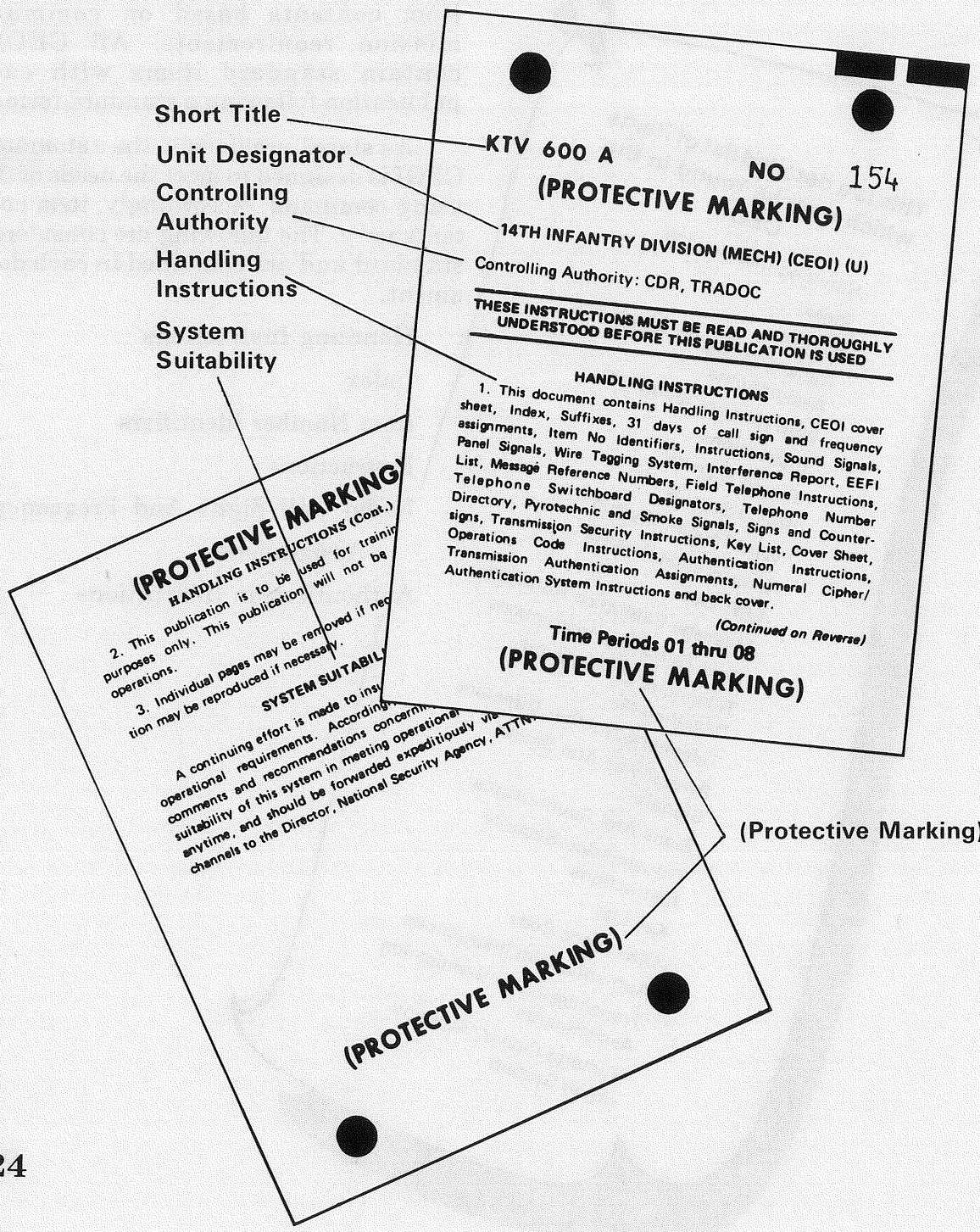
Item Number Identifiers

Instructions

Radio Call Signs And Frequency Assignments

Authentication Instructions

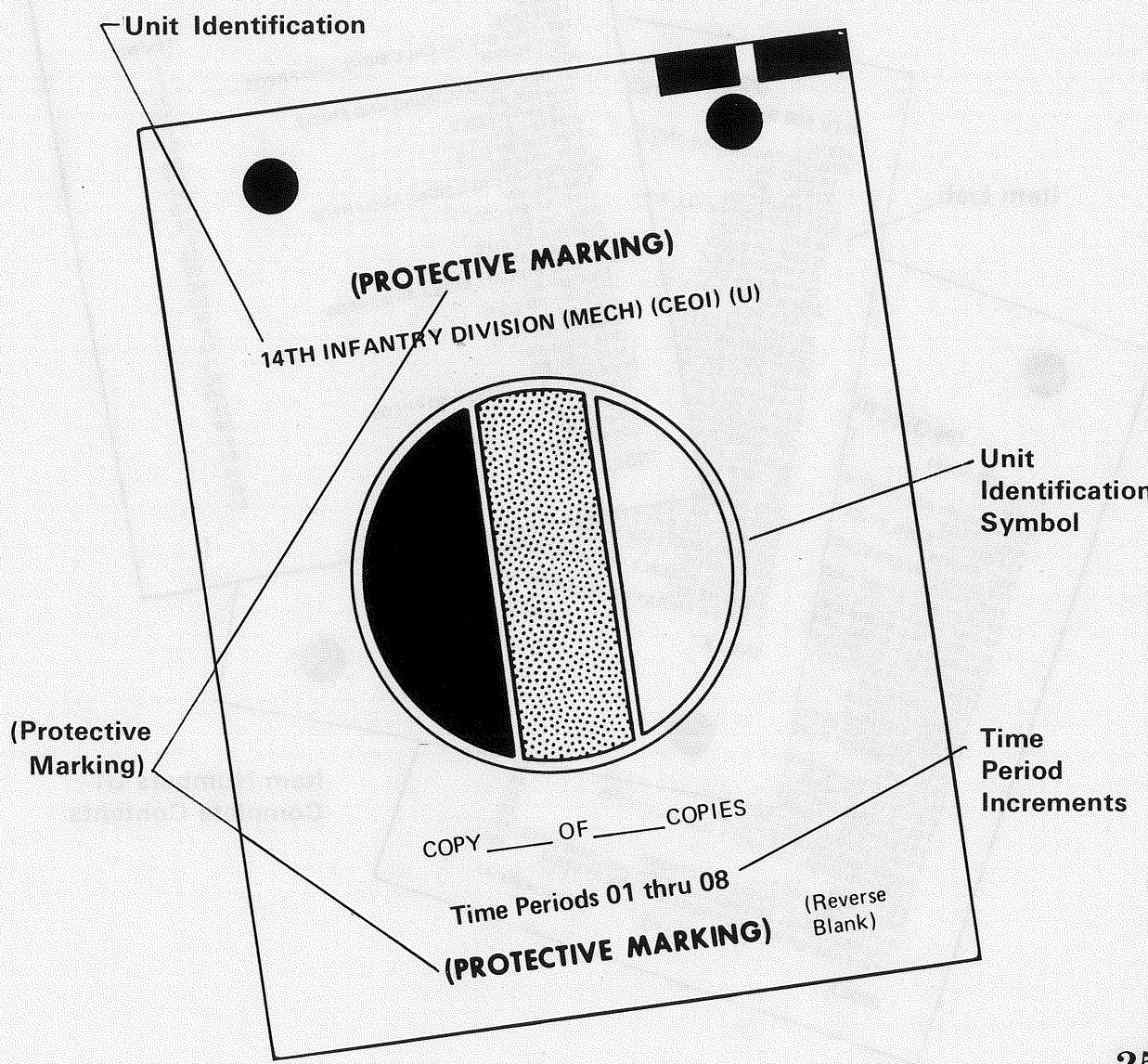
Cover Sheet


Short Title
Unit Designator
Controlling Authority
Handling Instructions
System Suitability
KTV 600 A
NO 154
(PROTECTIVE MARKING)
14TH INFANTRY DIVISION (MECH) (CEOI) (U)
Controlling Authority: CDR, TRADOC
THESE INSTRUCTIONS MUST BE READ AND THOROUGHLY UNDERSTOOD BEFORE THIS PUBLICATION IS USED
HANDLING INSTRUCTIONS
1. This document contains Handling Instructions, CEOI cover sheet, Index, Suffixes, 31 days of call sign and frequency assignments, Item No Identifiers, Instructions, Sound Signals, Panel Signals, Wire Tagging System, Interference Report, EEFI List, Message Reference Numbers, Field Telephone Instructions, Telephone Switchboard Designators, Telephone Number Directory, Pyrotechnic and Smoke Signals, Signs and Counter-signs, Transmission Security Instructions, Key List, Cover Sheet, Operations Code Instructions, Authentication Instructions, Transmission Authentication Assignments, Numeral Cipher/ Authentication System Instructions and back cover.
(Continued on Reverse)
Time Periods 01 thru 08
(PROTECTIVE MARKING)
(PROTECTIVE MARKING)
(PROTECTIVE MARKING)
(Protective Marking)

Title Page

This page is issued with each layered segment when the complete CEOI is disassembled and distributed to the user.

Copy___of___copies is printed on the title page to ease distribution and control, not to designate the CEOI as a registered document.

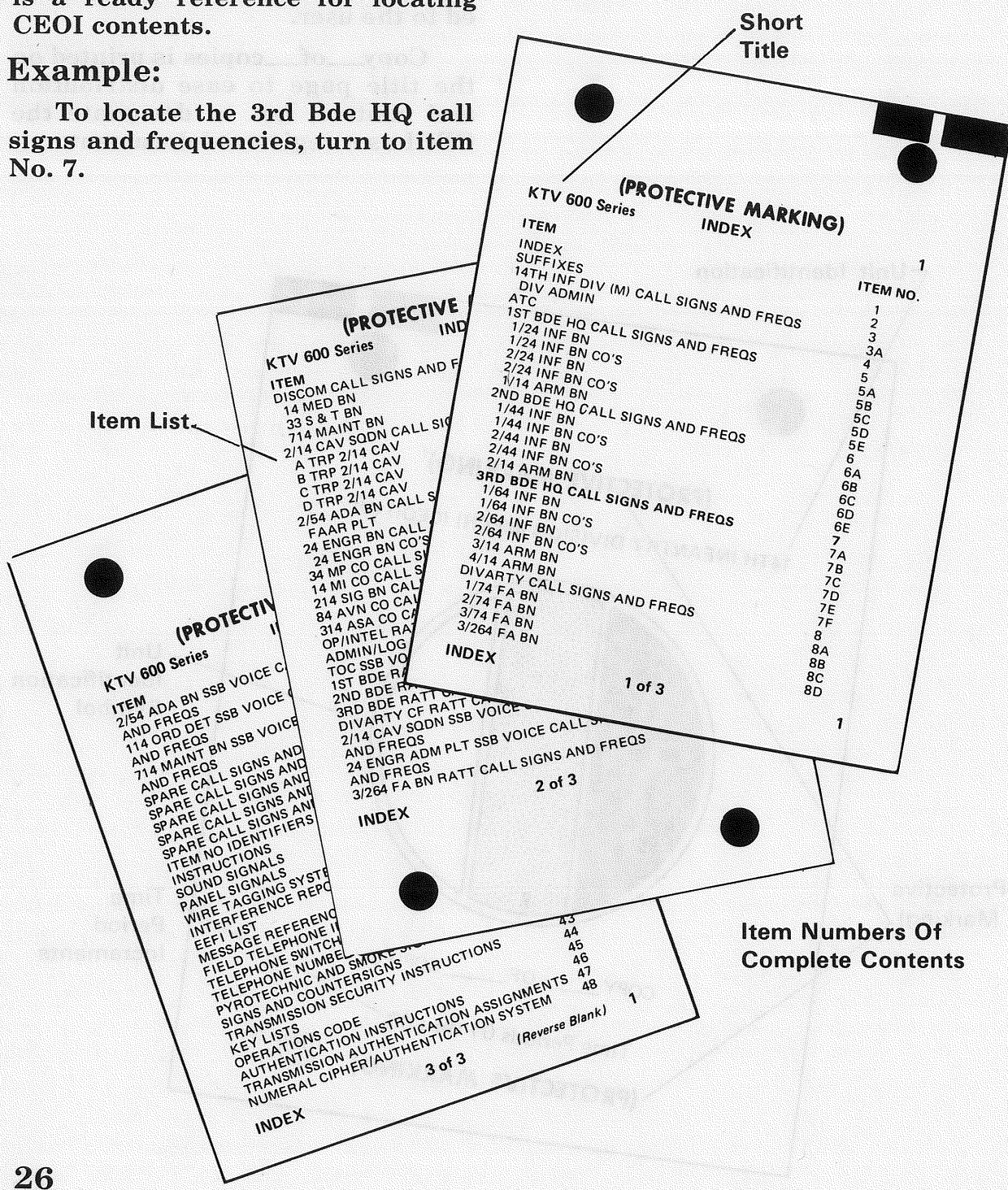


Index

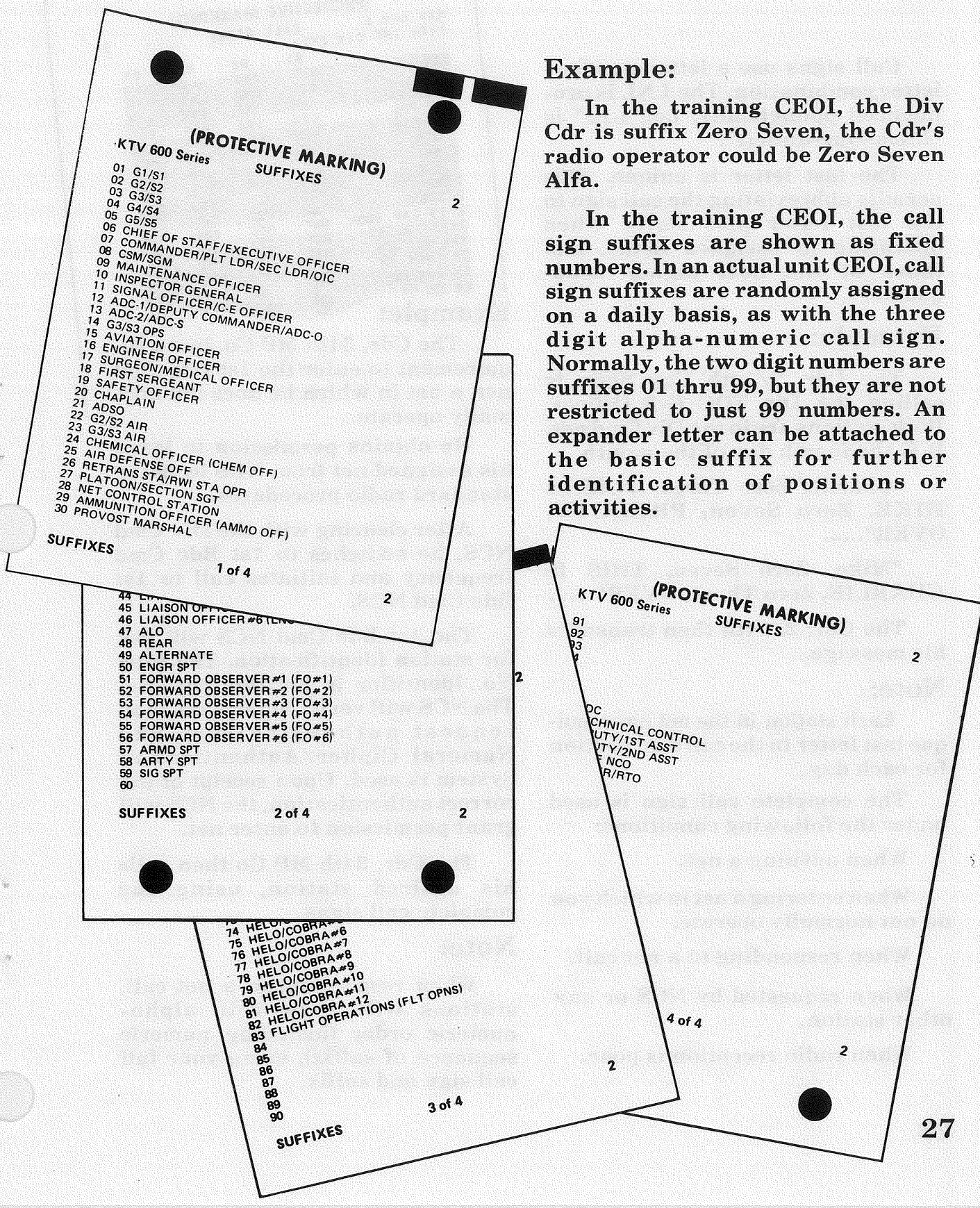
Your CEOI index lists all items which comprise a complete CEOI. It is a ready reference for locating CEOI contents.

Example:

To locate the 3rd Bde HQ call signs and frequencies, turn to item No. 7.



Suffixes



Example:

In the training CEOI, the Div Cdr is suffix Zero Seven, the Cdr's radio operator could be Zero Seven Alfa.

In the training CEOI, the call sign suffixes are shown as fixed numbers. In an actual unit CEOI, call sign suffixes are randomly assigned on a daily basis, as with the three digit alpha-numeric call sign. Normally, the two digit numbers are suffixes 01 thru 99, but they are not restricted to just 99 numbers. An expander letter can be attached to the basic suffix for further identification of positions or activities.

Call Signs

Call signs use a letter-number-letter combination. The LNL is pronounced phonetically, i.e.,"L1J" is "Lima-One-Juliett".

The last letter is unique. This permits abbreviating the call sign to the last letter *plus suffix* when operating in assigned net(s), and those of the next higher headquarters.

Example:

The Cdr, 2/14th Cav Sqdn is calling the Div TOC G-3 Officer. Both stations are in the Div Cmd net. It is the fourth day of the month.

"Charlie, Zero Three, THIS IS MIKE, Zero Seven, PRIORITY, OVER".....

"Mike, Zero Seven, THIS IS CHARLIE, Zero Three, OVER" ....

The Cdr, 2/14th then transmits his message.

Note:

Each station in the net has a unique last letter in the call sign portion for each day.

The complete call sign is used under the following conditions:

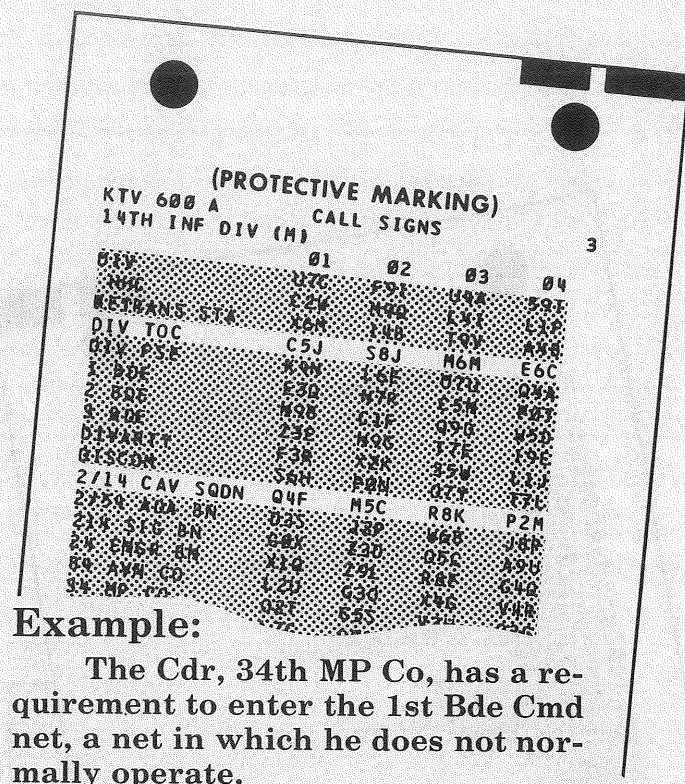
When opening a net.

When entering a net in which you do not normally operate.

When responding to a net call.

When requested by NCS or any other station.

When radio reception is poor.


(PROTECTIVE MARKING)

KTV 600 A CALL SIGNS

14TH INF DIV (M) 3

	01	02	03	04
DIV	U7C	F9I	U9A	59I
MSC	C2V	N4Q	L4I	L1F
DIV TOC	X6M	I4B	I9V	A4B
DIV PSE	C5J	S8J	M6M	E6C
1 BDE	K9M	I6E	D7U	Q4A
2 BDE	E3Q	N7C	F5M	8QI
3 BDE	M9B	C1F	Q9Q	W5D
DIVARTY	Z3E	N9C	I7E	I9C
DISCOM	F3B	X2K	33W	L1J
2/14 CAV SQDN	S4H	P8N	Q7I	I7L
2/5B AGA BN	Q4F	M5C	R8K	P2M
2/1 SIG BN	D3S	J3P	W6B	J6P
2/ ENGR BN	E8X	I3D	Q5C	A9U
84 AVN CO	X14	Z9L	R8E	C4Q
34 MP CO	L2U	G3Q	X4G	Y4R
	Q2T	65S		

Example:

The Cdr, 34th MP Co, has a requirement to enter the 1st Bde Cmd net, a net in which he does not normally operate.

He obtains permission to leave his assigned net from NCS by using standard radio procedures.

After clearing with the Div Cmd NCS, he switches to 1st Bde Cmd frequency and initiates call to 1st Bde Cmd NCS.

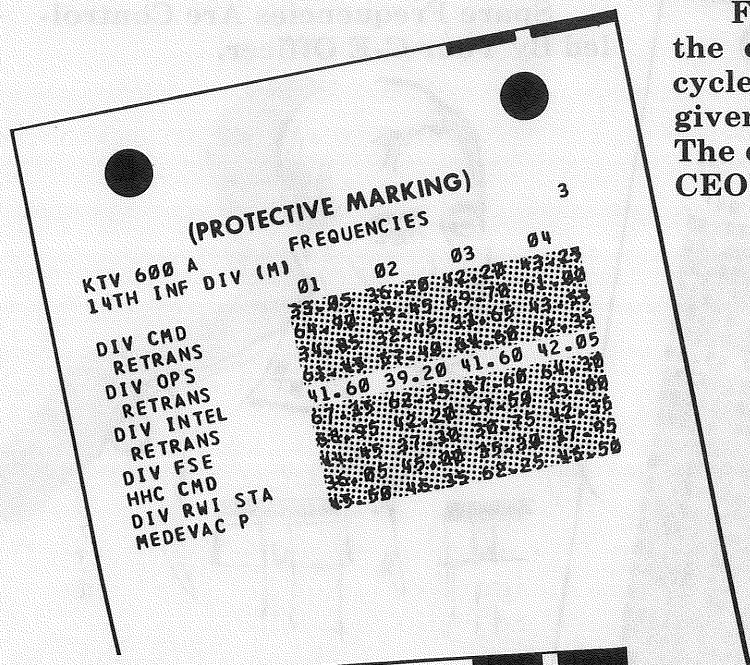
The 1st Bde Cmd NCS will ask for station identification. The Item No. Identifier is for this purpose. The NCS will verify his station, then request authentication. The Numeral Cipher/Authentication System is used. Upon receipt of the correct authentication, the NCS will grant permission to enter net.

The Cdr, 34th MP Co then calls his desired station, using the complete call signs.

Note:

When responding to a net call, stations will answer in alpha-numeric order (including numeric sequence of suffix), using your full call sign and suffix.

Frequency Assignments

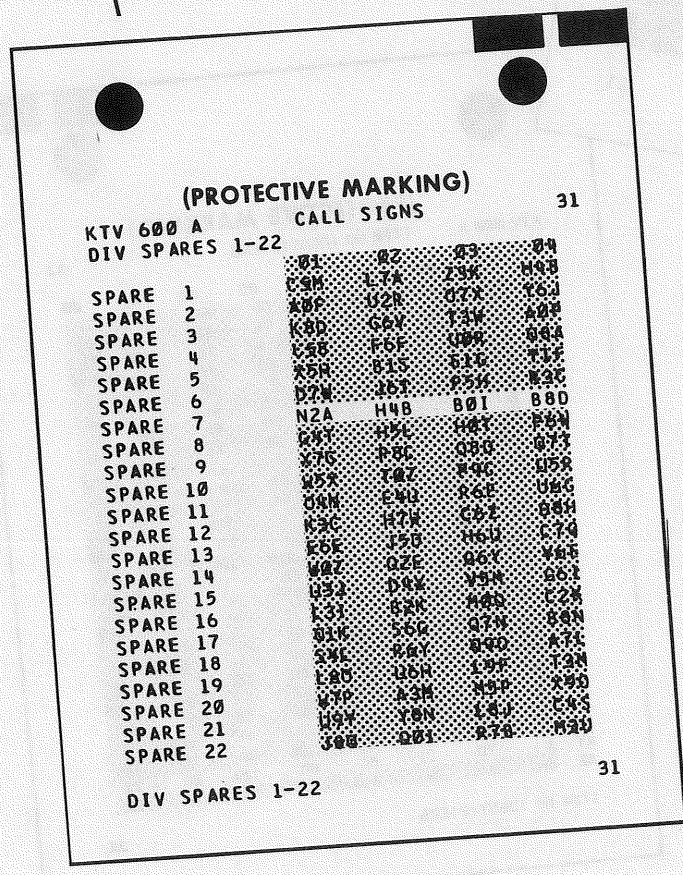

(PROTECTIVE MARKING) 3

KTV 600 A
14TH INF DIV (M) FREQUENCIES

	01	02	03	04
DIV CMD				
RETRANS				
DIV OPS				
RETRANS				
DIV INTEL				
RETRANS				
DIV FSE				
HHC CMD				
DIV RWI STA				
MEDEVAC P				

41.60 39.20 41.60 42.05

Frequencies change throughout the command on a 24 hr. change cycle unless other instructions are given by the controlling authority. The daily change time is included in CEOI special instructions.


(PROTECTIVE MARKING) 31

KTV 600 A
DIV SPARES 1-22 CALL SIGNS

	01	02	03	04
SPARE 1				
SPARE 2				
SPARE 3				
SPARE 4				
SPARE 5				
SPARE 6				
SPARE 7	N2A	H4B	B0I	B8D
SPARE 8				
SPARE 9				
SPARE 10				
SPARE 11				
SPARE 12				
SPARE 13				
SPARE 14				
SPARE 15				
SPARE 16				
SPARE 17				
SPARE 18				
SPARE 19				
SPARE 20				
SPARE 21				
SPARE 22				

DIV SPARES 1-22 31

Spare Call Signs

Report The Following:

CEOI item number.

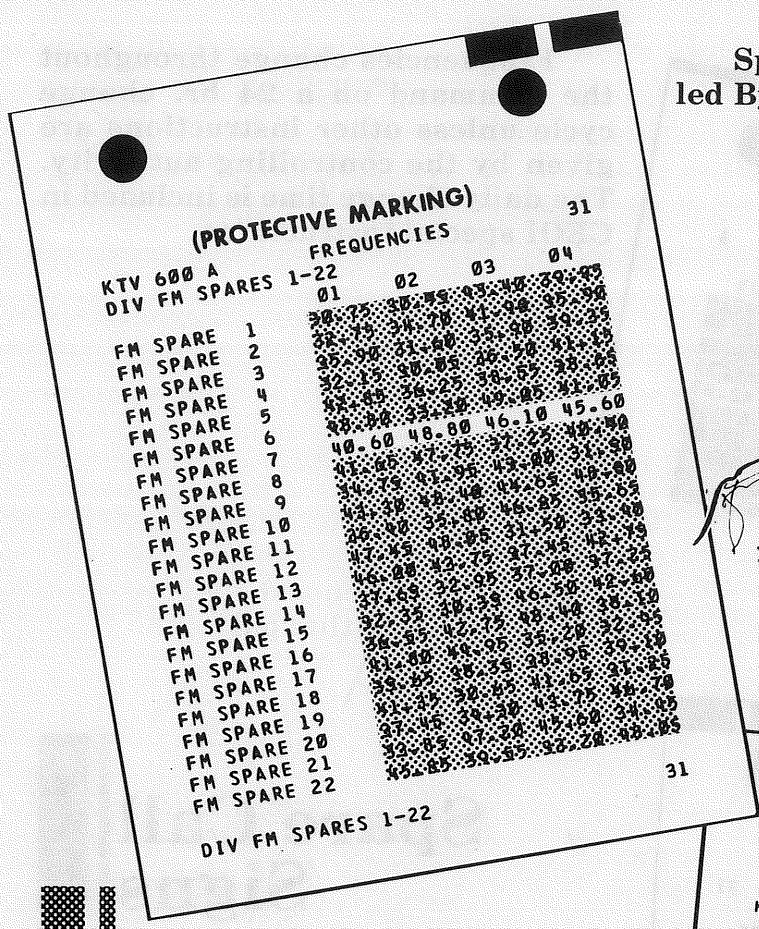
Name of station the call sign will be assigned to.

Date needed and expected length of time required.

Name of your unit.

Contact your C-E Officer for approval before using a spare call sign. A written request must be submitted to the C-E office for a permanent change or an addition to the call signs already assigned.

Spare Frequencies


(PROTECTIVE MARKING)

31

KTV 600 A

DIV FM SPARES 1-22

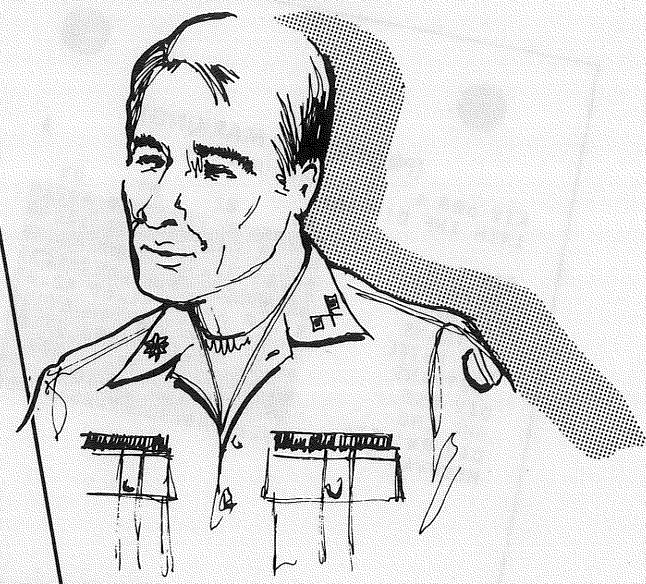
FREQUENCIES

	01	02	03	04
FM SPARE 1	30.75	30.75	03.40	39.45
FM SPARE 2	31.15	34.70	41.90	35.90
FM SPARE 3	35.90	31.60	33.20	39.35
FM SPARE 4	32.15	30.05	40.50	41.15
FM SPARE 5	41.85	36.25	38.55	38.05
FM SPARE 6	38.30	32.20	40.05	41.05
FM SPARE 7	40.60	48.80	46.10	45.60
FM SPARE 8	43.85	47.75	37.25	48.90
FM SPARE 9	34.75	41.35	43.00	31.30
FM SPARE 10	41.20	48.40	44.85	40.00
FM SPARE 11	26.90	32.80	46.85	35.85
FM SPARE 12	47.45	48.85	31.50	33.40
FM SPARE 13	46.00	42.75	37.45	42.15
FM SPARE 14	33.45	32.95	37.00	37.25
FM SPARE 15	32.35	40.35	46.55	42.00
FM SPARE 16	36.95	42.75	48.40	38.10
FM SPARE 17	41.00	40.95	35.20	32.05
FM SPARE 18	38.05	36.35	38.35	39.10
FM SPARE 19	41.45	30.65	41.65	41.25
FM SPARE 20	37.45	38.30	41.75	46.70
FM SPARE 21	33.85	37.20	47.60	34.05
FM SPARE 22	45.85	39.55	33.20	48.05

31

DIV FM SPARES 1-22

Spare Frequencies Are Controlled By Your C-E Officer.

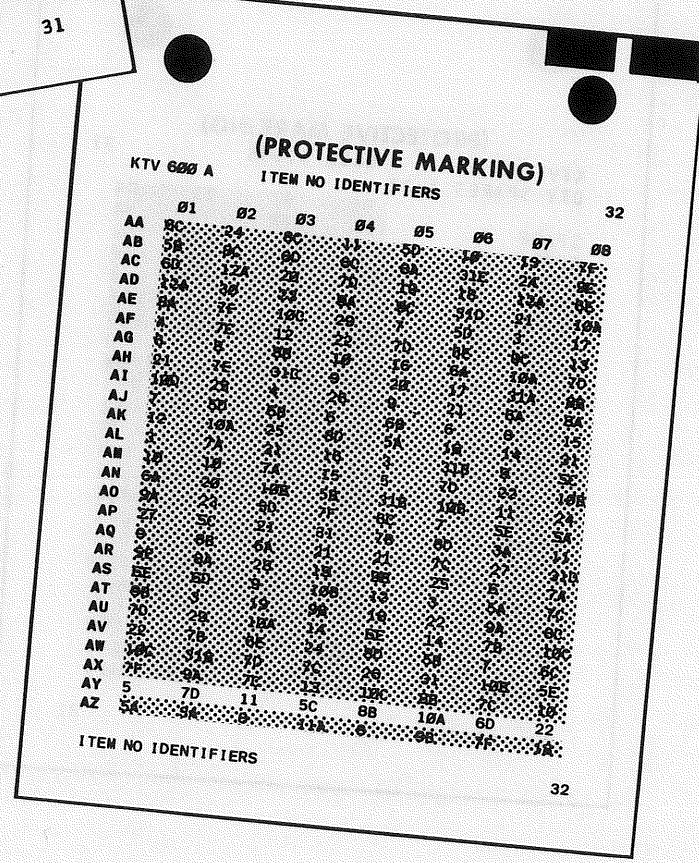


Item Number Identifiers

They provide a rapid, secure means of identifying unit or station designation. Identification of a unit or station in the clear is not authorized.

Example:

1st Bde HQ call signs and frequencies are located on CEOI item No. 5 for the first time period. The item number identifier is AY.


(PROTECTIVE MARKING)

KTV 600 A

ITEM NO IDENTIFIERS

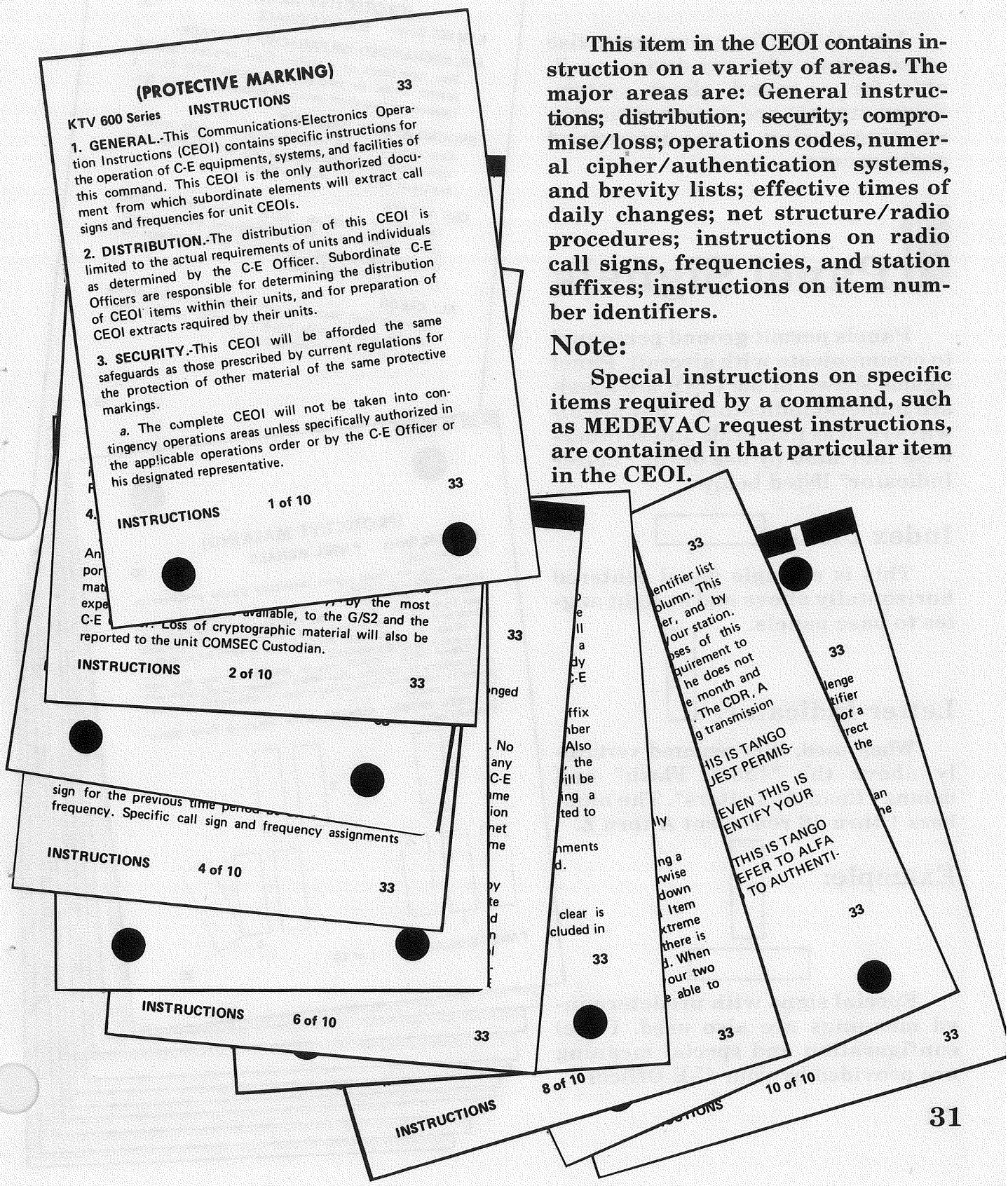
32

	01	02	03	04	05	06	07	08
AA	8C	24	8C	11	5D	1Ø	19	7F
AB	5E	9A	9D	9C	8A	11E	2A	8E
AC	6D	12A	2B	7D	19	1B	12A	8C
AD	12A	3B	2J	5A	8C	51D	21	10A
AE	8A	7E	10C	2B	7	5D	3	17
AF	4	7E	12	22	7D	8E	8C	13
AG	6	5	8B	1Ø	16	8A	17	1D
AH	21	7E	91G	8	2Ø	17	11A	8B
AI	1ØD	2B	4	2B	8	21	8C	8A
AJ	7	5D	5B	5	6B	8	8	15
AK	1C	10A	25	8D	5A	1B	14	21
AL	3	2A	21	1B	3	31B	5	5C
AM	1B	1D	7A	15	5	7D	22	10B
AN	6A	2D	10B	5B	11B	10B	11	14
AO	9A	2B	8D	7F	9C	7	5E	5A
AP	27	5E	21	8J	1B	8D	9A	11
AQ	6	8B	6A	21	21	7K	27	21D
AR	2B	8A	2B	1B	8E	25	5	7A
AS	5E	8D	5	10B	13	5	22	7C
AT	8B	3	1B	9B	1B	22	9A	6C
AU	7D	2B	10A	1A	5E	11	8	10C
AV	2B	7B	8E	5A	8D	6B	7	8C
AW	10C	31B	7D	3C	7B	31	10B	5E
AX	7F	9A	7E	13	12C	8B	7E	1D
AY	5	7D	11	5C	8B	10A	6D	22
AZ	5A	3A	8	11A	8	9B	1F	1A

ITEM NO IDENTIFIERS

32

CEOI Instructions


(PROTECTIVE MARKING)

33

KTV 600 Series INSTRUCTIONS

1. GENERAL.-This Communications-Electronics Operation Instructions (CEOI) contains specific instructions for the operation of C-E equipments, systems, and facilities of this command. This CEOI is the only authorized document from which subordinate elements will extract call signs and frequencies for unit CEOIs.

2. DISTRIBUTION.-The distribution of this CEOI is limited to the actual requirements of units and individuals as determined by the C-E Officer. Subordinate C-E Officers are responsible for determining the distribution of CEOI items within their units, and for preparation of CEOI extracts required by their units.

3. SECURITY.-This CEOI will be afforded the same safeguards as those prescribed by current regulations for the protection of other material of the same protective markings.

a. The complete CEOI will not be taken into contingency operations areas unless specifically authorized in the applicable operations order or by the C-E Officer or his designated representative.

33

INSTRUCTIONS 1 of 10

INSTRUCTIONS 2 of 10

INSTRUCTIONS 4 of 10

INSTRUCTIONS 6 of 10

INSTRUCTIONS 8 of 10

INSTRUCTIONS 10 of 10

This item in the CEOI contains instruction on a variety of areas. The major areas are: General instructions; distribution; security; compromise/loss; operations codes, numeral cipher/authentication systems, and brevity lists; effective times of daily changes; net structure/radio procedures; instructions on radio call signs, frequencies, and station suffixes; instructions on item number identifiers.

Note:

Special instructions on specific items required by a command, such as MEDEVAC request instructions, are contained in that particular item in the CEOI.

Sound Signals

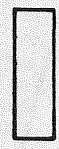
Your C-E Officer may improvise sound signals with any devices available for a sound alarm system. Sound signals are designed to give warnings using a pre-determined audio source.

Panel Signals

Panels permit ground personnel to communicate with aircraft. Panel signals shown in the CEOI are standard numeral indicators. They are always read as numerals unless otherwise indicated by use of the "Letter Indicator" listed below.

Index Flash:

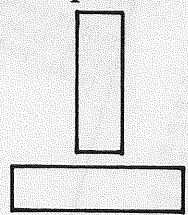
This is a single panel centered horizontally above and at right angles to base panels.



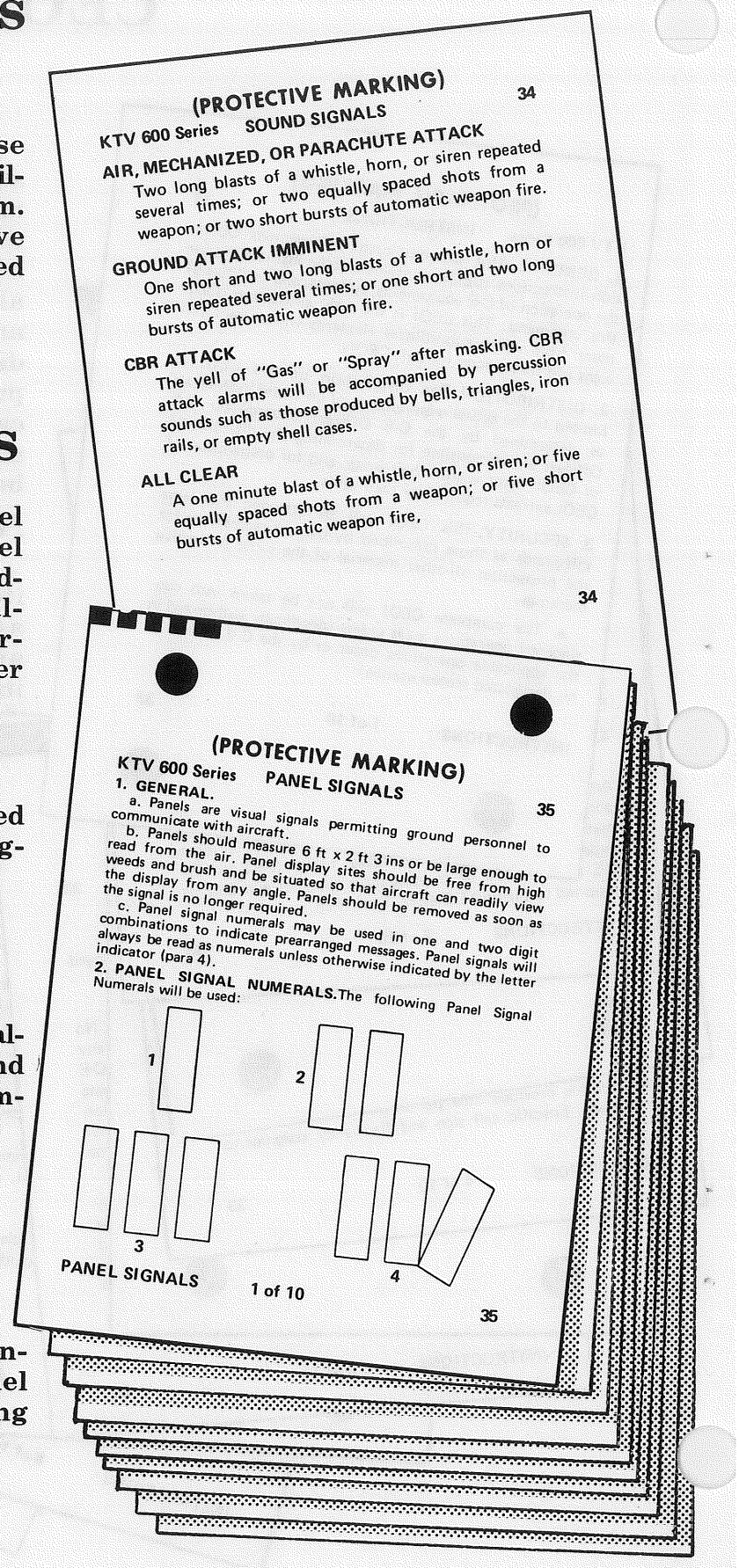
Letter Indicator:

When used, it is centered vertically above the "Index Flash" and means "Read As Letters". The numbers 1 thru 26 represent A thru Z.

Example:



Special signs with predetermined meanings are also used. Panel configuration and special meaning are provided by your C-E Officer.



(PROTECTIVE MARKING)

KTV 600 Series SOUND SIGNALS 34

AIR, MECHANIZED, OR PARACHUTE ATTACK
Two long blasts of a whistle, horn, or siren repeated several times; or two equally spaced shots from a weapon; or two short bursts of automatic weapon fire.

GROUND ATTACK IMMINENT
One short and two long blasts of a whistle, horn or siren repeated several times; or one short and two long bursts of automatic weapon fire.

CBR ATTACK
The yell of "Gas" or "Spray" after masking. CBR attack alarms will be accompanied by percussion sounds such as those produced by bells, triangles, iron rails, or empty shell cases.

ALL CLEAR
A one minute blast of a whistle, horn, or siren; or five equally spaced shots from a weapon; or five short bursts of automatic weapon fire,

34

(PROTECTIVE MARKING)

KTV 600 Series PANEL SIGNALS 35

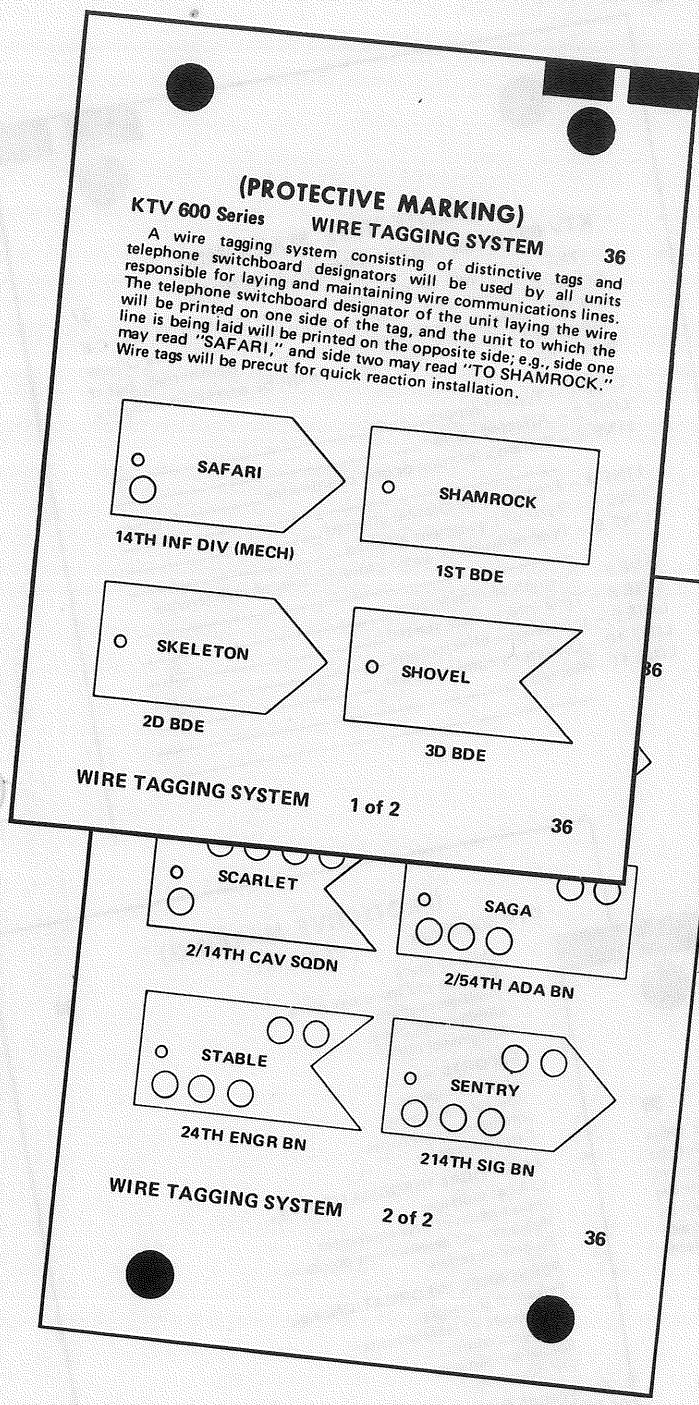
1. GENERAL.
a. Panels are visual signals permitting ground personnel to communicate with aircraft.
b. Panels should measure 6 ft x 2 ft 3 ins or be large enough to read from the air. Panel display sites should be free from high weeds and brush and be situated so that aircraft can readily view the display from any angle. Panels should be removed as soon as the signal is no longer required.
c. Panel signal numerals may be used in one and two digit combinations to indicate prearranged messages. Panel signals will always be read as numerals unless otherwise indicated by the letter indicator (para 4).

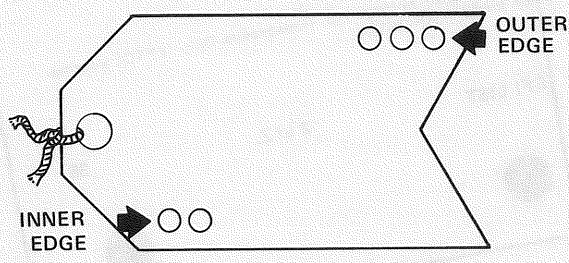
2. PANEL SIGNAL NUMERALS. The following Panel Signal Numerals will be used:

1 2 3 4

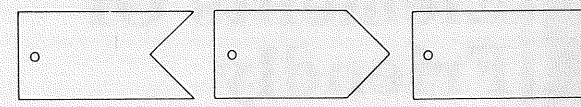
PANEL SIGNALS 1 of 10 35

Wire Tagging System





A wire tagging system consisting of distinctive tags is used by all units responsible for laying and maintaining wire communications. Wire tags are made in three distinctive shapes. They may be pre-cut for quick reaction installation. The three basic wire tag shapes are:



Additional punches or notches beginning at the inner edge of the tag (edge by which the tag is attached to the wire) indicate a major unit. Subordinate units bear the major unit marking as well as markings which begin at the top outer edge of the tag.

Note:

Some major units may not be assigned punched holes in the lower inner margin but will be identified by the lack of holes.

The combination of the shape of the tag plus the punched hole pattern identifies the unit to which the tag belongs. The unit laying the wire prints their telephone switchboard designator on one side of the tag and the unit the wire is going to is identified on the oposite side. For example, one side may read "PINBALL" while the other side will read "TO PINETREE."

Note:

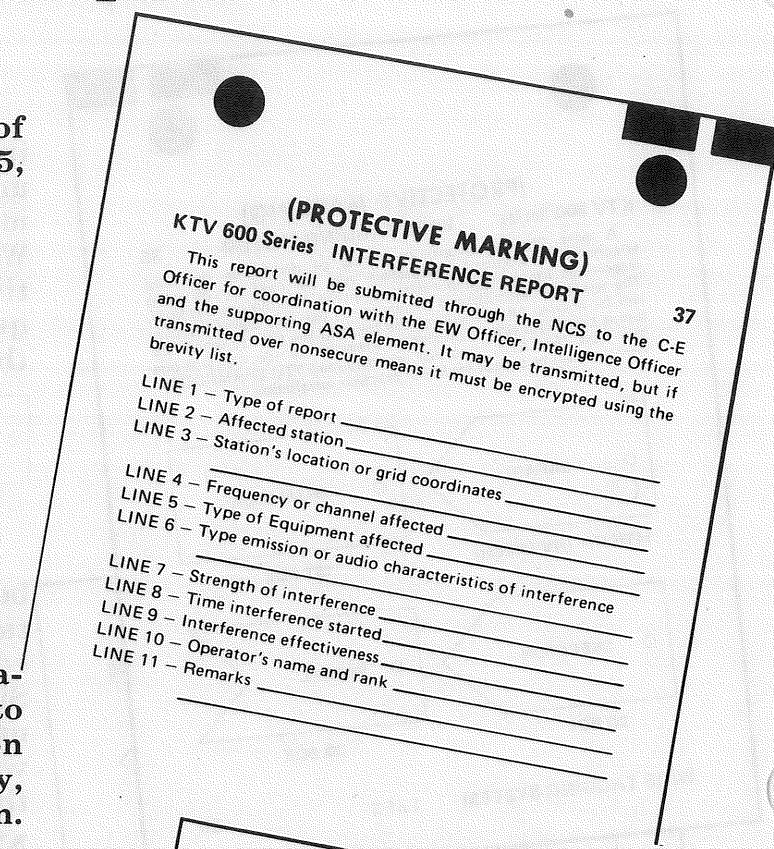
1st and 2nd Bde tags have the same punched hole pattern but the shape of the tag differs.

Interference Report

Detailed instructions on use of this report are found on pages 14, 15, and 16.

Essential Elements Of Friendly Information List

The EEFI list contains information which will be encrypted prior to transmission. If this information were made available to the enemy, it could adversely affect the mission.

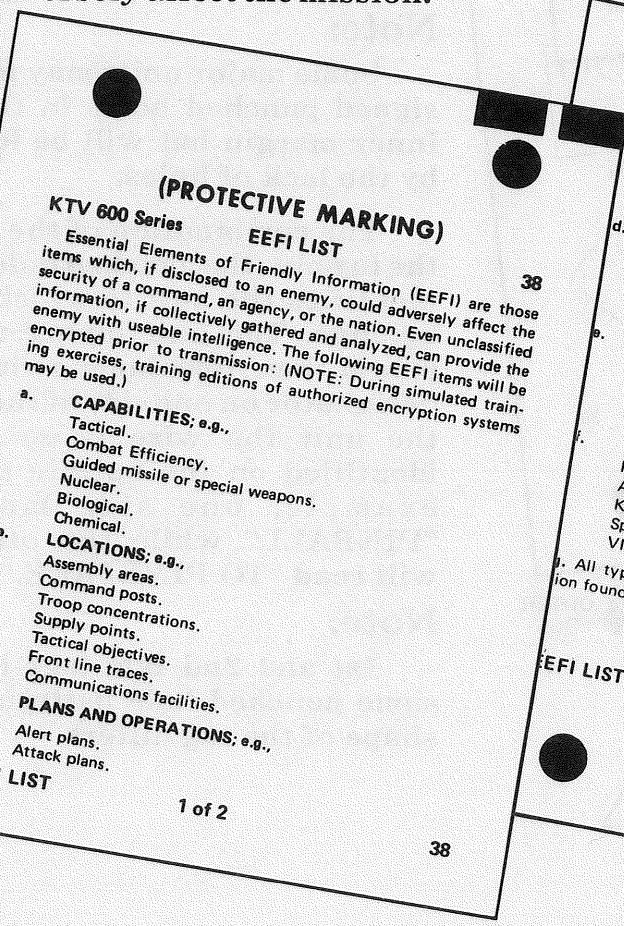


(PROTECTIVE MARKING)

KTV 600 Series INTERFERENCE REPORT 37

This report will be submitted through the NCS to the C-E Officer for coordination with the EW Officer, Intelligence Officer and the supporting ASA element. It may be transmitted, but if transmitted over nonsecure means it must be encrypted using the brevity list.

LINE 1 – Type of report
LINE 2 – Affected station
LINE 3 – Station's location or grid coordinates
LINE 4 – Frequency or channel affected
LINE 5 – Type of Equipment affected
LINE 6 – Type emission or audio characteristics of interference
LINE 7 – Strength of interference
LINE 8 – Time interference started
LINE 9 – Interference effectiveness
LINE 10 – Operator's name and rank
LINE 11 – Remarks



(PROTECTIVE MARKING)

KTV 600 Series EEFI LIST 38

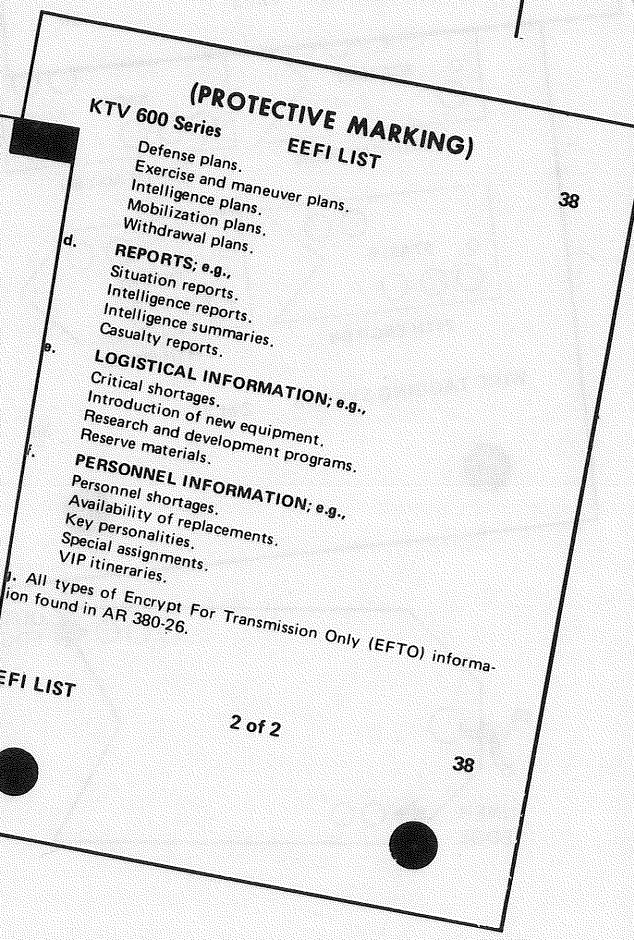
Essential Elements of Friendly Information (EEFI) are those items which, if disclosed to an enemy, could adversely affect the security of a command, an agency, or the nation. Even unclassified information, if collectively gathered and analyzed, can provide the enemy with useable intelligence. The following EEFI items will be encrypted prior to transmission: (NOTE: During simulated training exercises, training editions of authorized encryption systems may be used.)

a. **CAPABILITIES; e.g.,**
Tactical.
Combat Efficiency.
Guided missile or special weapons.
Nuclear.
Biological.
Chemical.

b. **LOCATIONS; e.g.,**
Assembly areas.
Command posts.
Troop concentrations.
Supply points.
Tactical objectives.
Front line traces.
Communications facilities.

c. **PLANS AND OPERATIONS; e.g.,**
Alert plans.
Attack plans.

EEFI LIST 1 of 2 38



(PROTECTIVE MARKING)

KTV 600 Series EEFI LIST 38

Defense plans.
Exercise and maneuver plans.
Intelligence plans.
Mobilization plans.
Withdrawal plans.

d. **REPORTS; e.g.,**
Situation reports.
Intelligence reports.
Intelligence summaries.
Casualty reports.

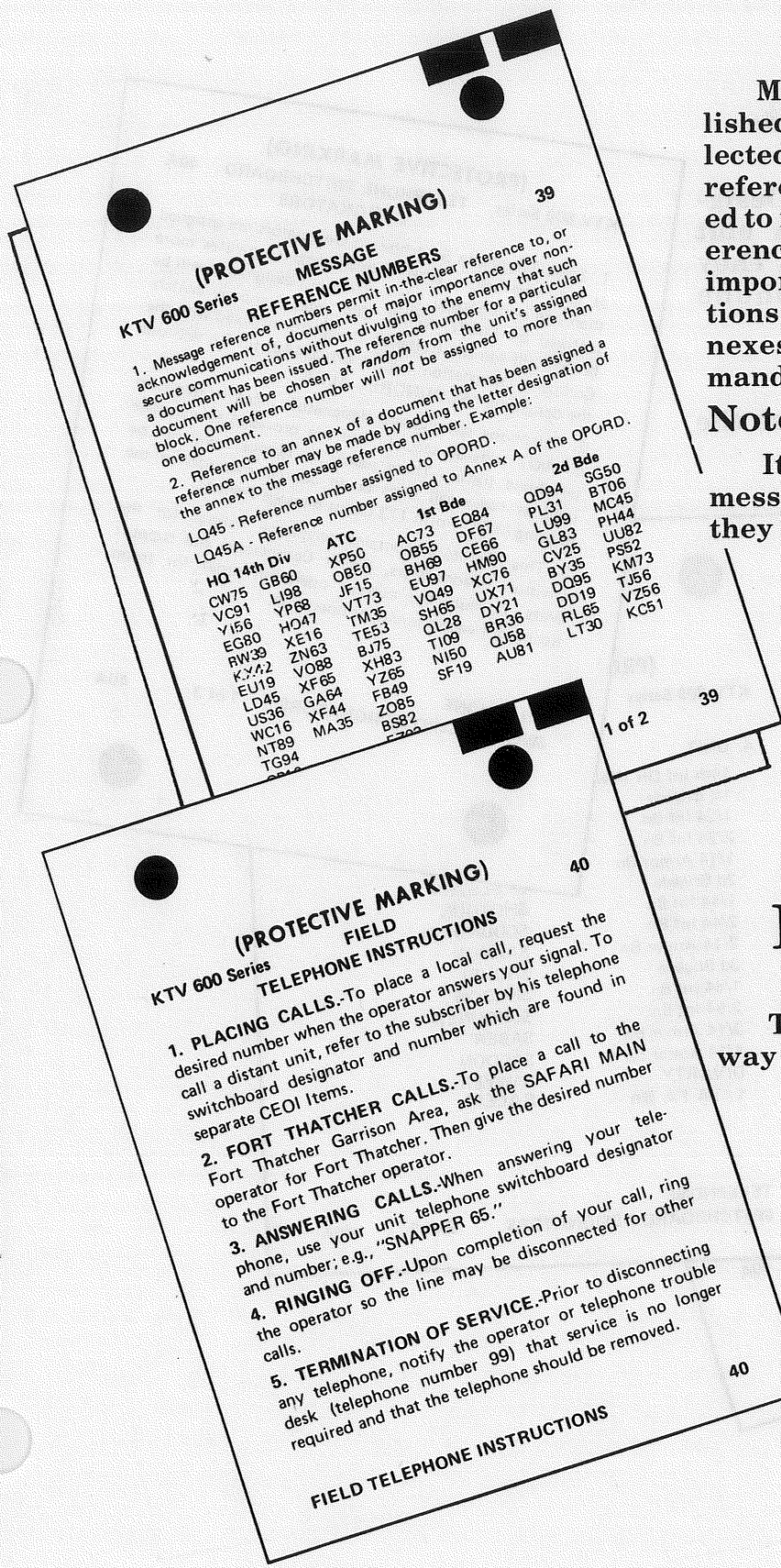
e. **LOGISTICAL INFORMATION; e.g.,**
Critical shortages.
Introduction of new equipment.
Research and development programs.
Reserve materials.

f. **PERSONNEL INFORMATION; e.g.,**
Personnel shortages.
Availability of replacements.
Key personalities.
Special assignments.
VIP itineraries.

g. All types of Encrypt For Transmission Only (EFTO) information found in AR 380-26.

EEFI LIST 2 of 2 38

Message Reference Numbers



(PROTECTIVE MARKING) 39

KTV 600 Series MESSAGE

REFERENCE NUMBERS

1. Message reference numbers permit in-the-clear reference to, or acknowledgement of, documents of major importance over non-secure communications without divulging to the enemy that such a document has been issued. The reference number for a particular document will be chosen at *random* from the unit's assigned block. One reference number will *not* be assigned to more than one document.

2. Reference to an annex of a document that has been assigned a reference number may be made by adding the letter designation of the annex to the message reference number. Example:

LQ45 - Reference number assigned to OPORD.

LQ45A - Reference number assigned to Annex A of the OPORD.

HQ 14th Div	ATC	1st Bde		2d Bde	
CW75	XP50	AC73	EQ84	QD94	SG50
GB60	OB50	OB55	DF67	PL31	BT06
VC91	LI98	BH69	CE66	LU99	MC45
YI56	JF15	EU97	HM90	GL83	PH44
HQ47	VT73	VQ49	XC76	CV25	UU82
EG80	TM35	SH65	UX71	BY35	PS52
XE16	TE53	QL28	DY21	DQ95	KM73
RW39	ZN63	TI09	BR36	DD19	TJ56
KX42	BJ75	NI50	QJ58	RL65	VZ56
VO88	XH83	SF19	AU81	LT30	KC51
EU19	YZ65				
XF65	FB49				
LD45	ZO85				
GA64	BS82				
US36	XF44				
WC16	MA35				
NT89					
TG94					

1 of 2 39

(PROTECTIVE MARKING) 40

KTV 600 Series FIELD TELEPHONE INSTRUCTIONS

1. PLACING CALLS.-To place a local call, request the desired number when the operator answers your signal. To call a distant unit, refer to the subscriber by his telephone switchboard designator and number which are found in separate CEOI Items.

2. FORT THATCHER CALLS.-To place a call to the Fort Thatcher Garrison Area, ask the SAFARI MAIN operator for Fort Thatcher. Then give the desired number to the Fort Thatcher operator.

3. ANSWERING CALLS.-When answering your telephone, use your unit telephone switchboard designator and number; e.g., "SNAPPER 65."

4. RINGING OFF.-Upon completion of your call, ring the operator so the line may be disconnected for other calls.

5. TERMINATION OF SERVICE.-Prior to disconnecting any telephone, notify the operator or telephone trouble desk (telephone number 99) that service is no longer required and that the telephone should be removed.

40

FIELD TELEPHONE INSTRUCTIONS

Message reference numbers published in the CEOI are randomly selected by computer programming. A reference number will not be assigned to more than one document. A reference number may be assigned to important documents such as operations orders, admin orders and annexes issued by the preparing command.

Note:

It's important to line through message reference numbers after they are used!

Field Telephone Instructions

This item explains the proper way to use a field telephone.

Telephone Switchboard Designators

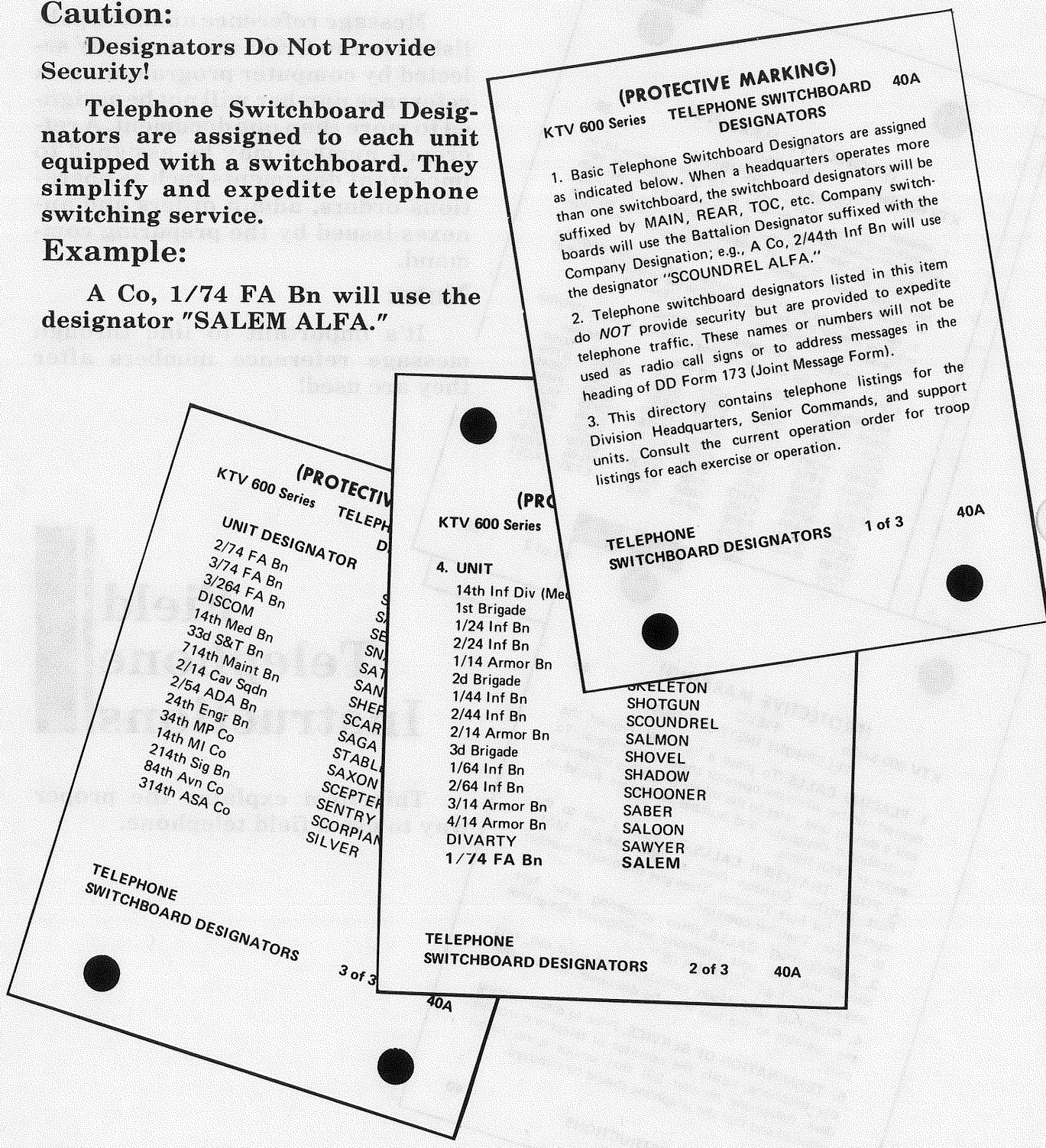
Caution:

Designators Do Not Provide Security!

Telephone Switchboard Designators are assigned to each unit equipped with a switchboard. They simplify and expedite telephone switching service.

Example:

A Co, 1/74 FA Bn will use the designator "SALEM ALFA."



(PROTECTIVE MARKING)

KTV 600 Series TELEPHONE SWITCHBOARD DESIGNATORS 40A

1. Basic Telephone Switchboard Designators are assigned as indicated below. When a headquarters operates more than one switchboard, the switchboard designators will be suffixed by MAIN, REAR, TOC, etc. Company switchboards will use the Battalion Designator suffixed with the Company Designation; e.g., A Co, 2/44th Inf Bn will use the designator "SCOUNDREL ALFA."

2. Telephone switchboard designators listed in this item do *NOT* provide security but are provided to expedite telephone traffic. These names or numbers will not be used as radio call signs or to address messages in the heading of DD Form 173 (Joint Message Form).

3. This directory contains telephone listings for the Division Headquarters, Senior Commands, and support units. Consult the current operation order for troop listings for each exercise or operation.

TELEPHONE SWITCHBOARD DESIGNATORS 1 of 3 40A

(PRO

KTV 600 Series

4. UNIT

14th Inf Div (Me
1st Brigade
1/24 Inf Bn
2/24 Inf Bn
1/14 Armor Bn
2d Brigade
1/44 Inf Bn
2/44 Inf Bn
2/14 Armor Bn
3d Brigade
1/64 Inf Bn
2/64 Inf Bn
3/14 Armor Bn
4/14 Armor Bn
DIVARTY
1/74 FA Bn

SKELETON
SHOTGUN
SCOUNDREL
SALMON
SHOVEL
SHADOW
SCHOONER
SABER
SALOON
SAWYER
SALEM

TELEPHONE SWITCHBOARD DESIGNATORS 2 of 3 40A

(PROTECTIV

KTV 600 Series TELEPH

UNIT DESIGNATOR

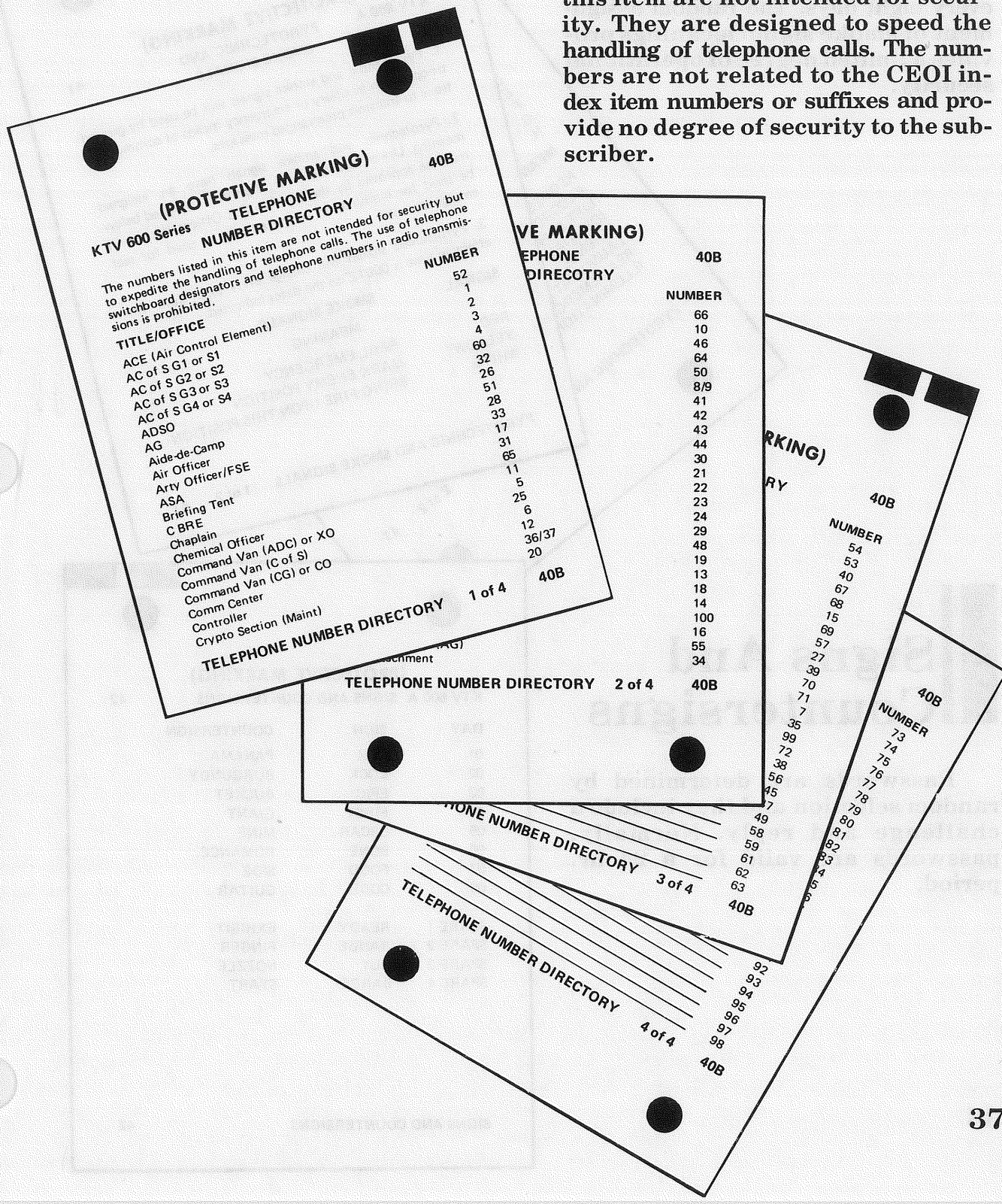
2/74 FA Bn
3/74 FA Bn
3/264 FA Bn
DISCOM
14th Med Bn
33d S&T Bn
714th Maint Bn
2/14 Cav Sqdn
2/54 ADA Bn
24th Engr Bn
34th MP Co
14th MI Co
214th Sig Bn
84th Avn Co
314th ASA Co

SE
SN
SAT
SAN
SHEP
SCAR
SAGA
STABL
SAXON
SCEPTER
SENTRY
SCORPIAN
SILVER

TELEPHONE SWITCHBOARD DESIGNATORS 3 of 3 40A

Telephone Number Directory

The telephone numbers listed in this item are not intended for security. They are designed to speed the handling of telephone calls. The numbers are not related to the CEOI index item numbers or suffixes and provide no degree of security to the subscriber.



(PROTECTIVE MARKING) 40B

KTV 600 Series TELEPHONE NUMBER DIRECTORY

The numbers listed in this item are not intended for security but to expedite the handling of telephone calls. The use of telephone switchboard designators and telephone numbers in radio transmissions is prohibited.

TITLE/OFFICE	NUMBER
ACE (Air Control Element)	52
AC of S G1 or S1	1
AC of S G2 or S2	2
AC of S G3 or S3	3
AC of S G4 or S4	4
ADSO	60
AG	32
Aide-de-Camp	26
Air Officer	51
Arty Officer/FSE	28
ASA	33
Briefing Tent	17
C BRE	31
Chaplain	65
Chemical Officer	11
Command Van (ADC) or XO	5
Command Van (C of S)	25
Command Van (CG) or CO	6
Comm Center	12
Controller	36/37
Crypto Section (Maint)	20

TELEPHONE NUMBER DIRECTORY 1 of 4 40B

VE MARKING)
EPHONE 40B
DIRECOTRY

NUMBER
66
10
46
64
50
8/9
41
42
43
44
30
21
22
23
24
29
48
19
13
18
14
100
16
55
34

TELEPHONE NUMBER DIRECTORY 2 of 4 40B

RKING)
RY 40B

NUMBER
54
53
40
67
68
15
69
57
27
39
70
71
7
35
99
72
38
56
45
7
49
58
59
61
62
63

HONE NUMBER DIRECTORY 3 of 4 40B

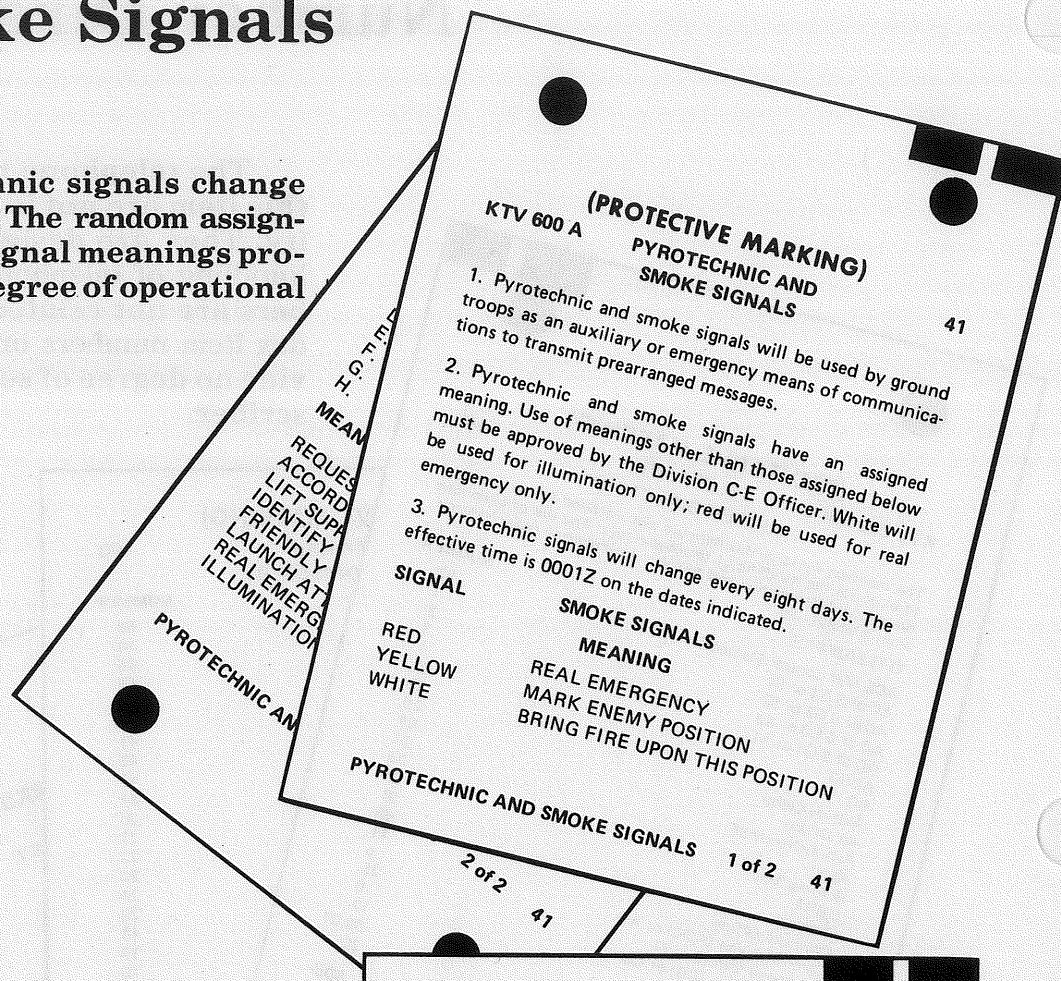
40B

NUMBER
73
74
75
76
77
78
79
80
81
82
83
4
5
6
92
93
94
95
96
97
98

TELEPHONE NUMBER DIRECTORY 4 of 4 40B

Pyrotechnic And Smoke Signals

The pyrotechnic signals change every eight days. The random assignment of smoke signal meanings provides a limited degree of operational security.



(PROTECTIVE MARKING)

KTV 600 A PYROTECHNIC AND SMOKE SIGNALS 41

1. Pyrotechnic and smoke signals will be used by ground troops as an auxiliary or emergency means of communications to transmit prearranged messages.

2. Pyrotechnic and smoke signals have an assigned meaning. Use of meanings other than those assigned below must be approved by the Division C-E Officer. White will be used for illumination only; red will be used for real emergency only.

3. Pyrotechnic signals will change every eight days. The effective time is 0001Z on the dates indicated.

SIGNAL	SMOKE SIGNALS MEANING
RED	REAL EMERGENCY
YELLOW	MARK ENEMY POSITION
WHITE	BRING FIRE UPON THIS POSITION

PYROTECHNIC AND SMOKE SIGNALS 1 of 2 41

PYROTECHNIC AN... 2 of 2 41

Signs And Countersigns

Passwords are determined by random selection and they include a challenge and reply. Normally, passwords are valid for a 24 hr. period.

(PROTECTIVE MARKING)

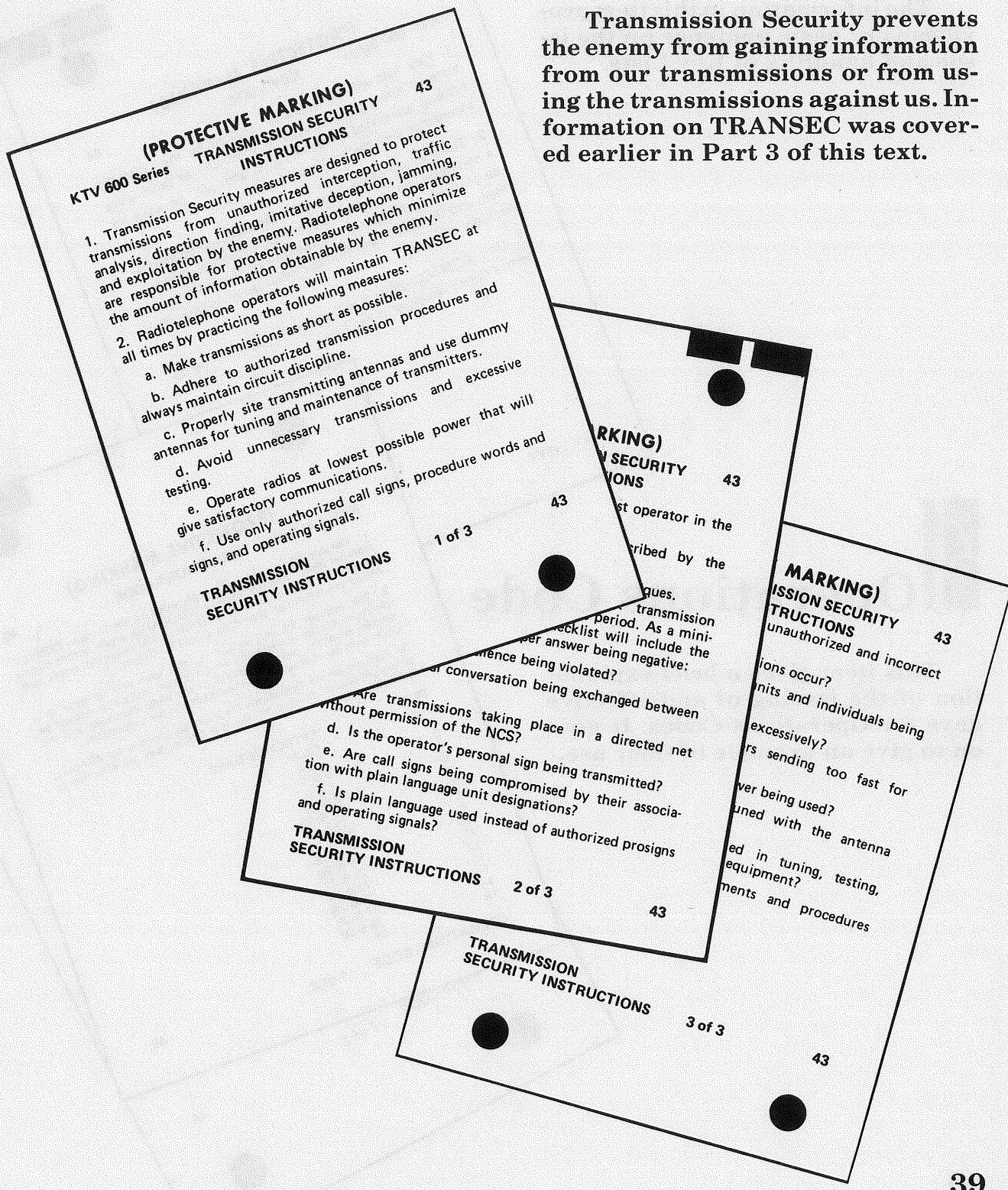
KTV 600 A SIGNS AND COUNTERSIGNS 42

DAY	SIGN	COUNTERSIGN
01	FOX	PANAMA
02	LOCK	BURGUNDY
03	EPIC	BUCKET
04	FIRST	GIANT
05	OSCAR	MINE
06	BONE	ROMANCE
07	FOOD	SIDE
08	CODE	GUITAR
SPARE 1	READY	EXHIBIT
SPARE 2	RANGE	FINGER
SPARE 3	NUT	NOZZLE
SPARE 4	BARGE	START

SIGNS AND COUNTERSIGNS 42

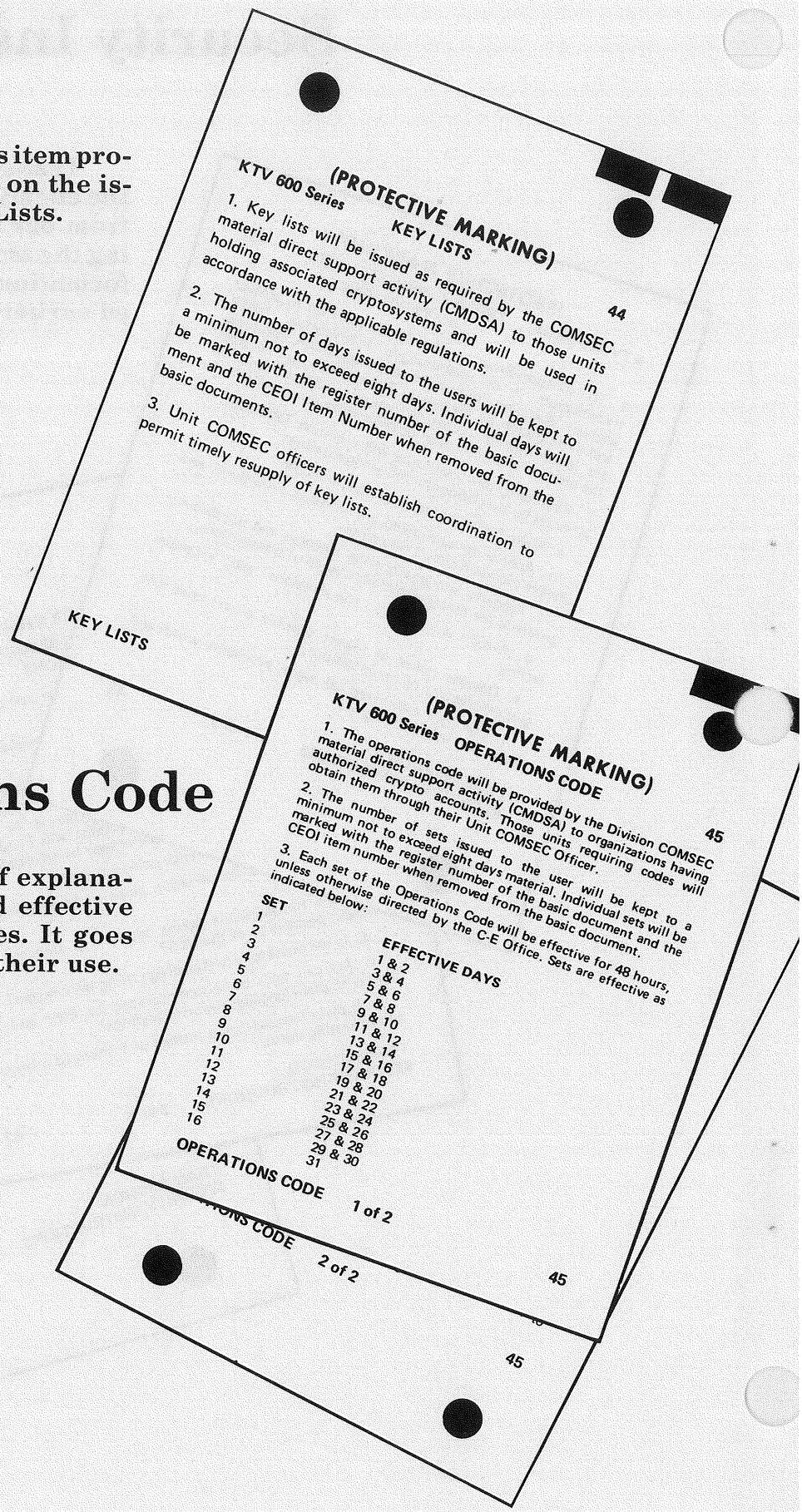
Transmission Security Instructions

Transmission Security prevents the enemy from gaining information from our transmissions or from using the transmissions against us. Information on TRANSEC was covered earlier in Part 3 of this text.



Key Lists

The information in this item provides very basic guidance on the issue and handling of Key Lists.



(PROTECTIVE MARKING)

KTV 600 Series KEY LISTS 44

1. Key lists will be issued as required by the COMSEC material direct support activity (CMDSA) to those units holding associated cryptosystems and will be used in accordance with the applicable regulations.
2. The number of days issued to the users will be kept to a minimum not to exceed eight days. Individual days will be marked with the register number of the basic document and the CEOI Item Number when removed from the basic documents.
3. Unit COMSEC officers will establish coordination to permit timely resupply of key lists.

KEY LISTS

(PROTECTIVE MARKING)

KTV 600 Series OPERATIONS CODE 45

1. The operations code will be provided by the Division COMSEC material direct support activity (CMDSA) to organizations having authorized crypto accounts. Those units requiring codes will obtain them through their Unit COMSEC Officer.
2. The number of sets issued to the user will be kept to a minimum not to exceed eight days material. Individual sets will be marked with the register number of the basic document and the CEOI item number when removed from the basic document.
3. Each set of the Operations Code will be effective for 48 hours, unless otherwise directed by the C-E Office. Sets are effective as indicated below:

SET	EFFECTIVE DAYS
1	1 & 2
2	3 & 4
3	5 & 6
4	7 & 8
5	9 & 10
6	11 & 12
7	13 & 14
8	15 & 16
9	17 & 18
10	19 & 20
11	21 & 22
12	23 & 24
13	25 & 26
14	27 & 28
15	29 & 30
16	31

OPERATIONS CODE 1 of 2

ONS CODE 2 of 2

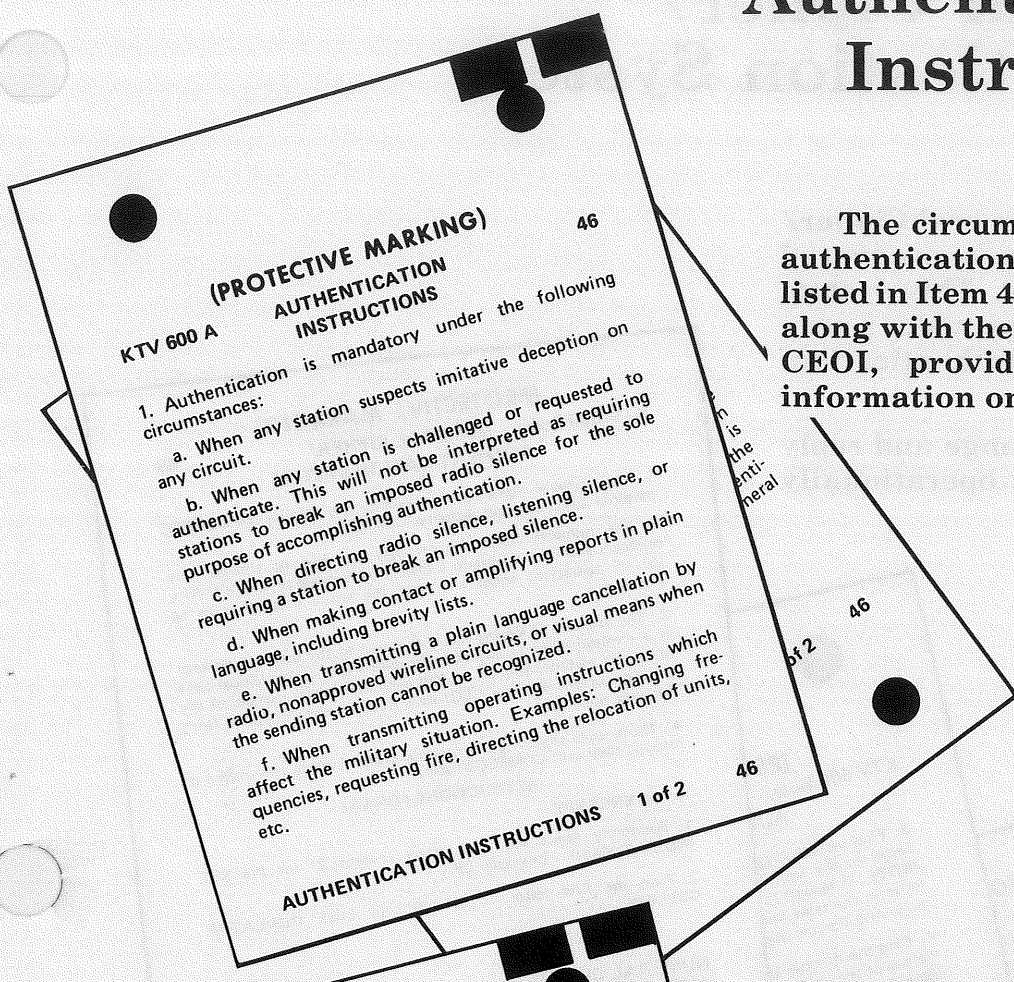
45

45

Operations Code

This item gives a brief explanation of the issuing of and effective days for Operations Codes. It goes on to give an example of their use.

Authentication Instructions



(PROTECTIVE MARKING) 46

KTV 600 A AUTHENTICATION INSTRUCTIONS

1. Authentication is mandatory under the following circumstances:

a. When any station suspects imitative deception on any circuit.

b. When any station is challenged or requested to authenticate. This will not be interpreted as requiring stations to break an imposed radio silence for the sole purpose of accomplishing authentication.

c. When directing radio silence, listening silence, or requiring a station to break an imposed silence.

d. When making contact or amplifying reports in plain language, including brevity lists.

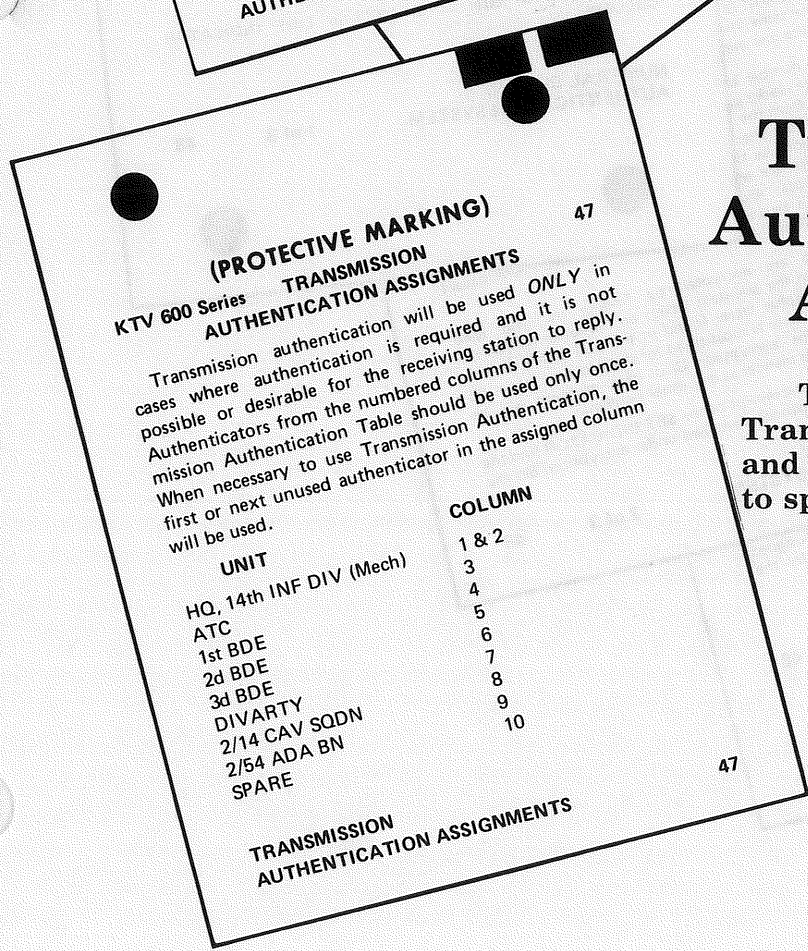
e. When transmitting a plain language cancellation by radio, nonapproved wireline circuits, or visual means when the sending station cannot be recognized.

f. When transmitting operating instructions which affect the military situation. Examples: Changing frequencies, requesting fire, directing the relocation of units, etc.

AUTHENTICATION INSTRUCTIONS 1 of 2 46

The circumstances under which authentication is mandatory are listed in Item 46. These instructions, along with the next two items in the CEOI, provide all of the basic information on authentication.

Transmission Authentication Assignments



(PROTECTIVE MARKING) 47

KTV 600 Series TRANSMISSION AUTHENTICATION ASSIGNMENTS

Transmission authentication will be used *ONLY* in cases where authentication is required and it is not possible or desirable for the receiving station to reply. Authenticators from the numbered columns of the Transmission Authentication Table should be used only once. When necessary to use Transmission Authentication, the first or next unused authenticator in the assigned column will be used.

UNIT	COLUMN
HQ, 14th INF DIV (Mech)	1 & 2
ATC	3
1st BDE	4
2d BDE	5
3d BDE	6
DIVARTY	7
2/14 CAV SQDN	8
2/54 ADA BN	9
SPARE	10

TRANSMISSION AUTHENTICATION ASSIGNMENTS 47

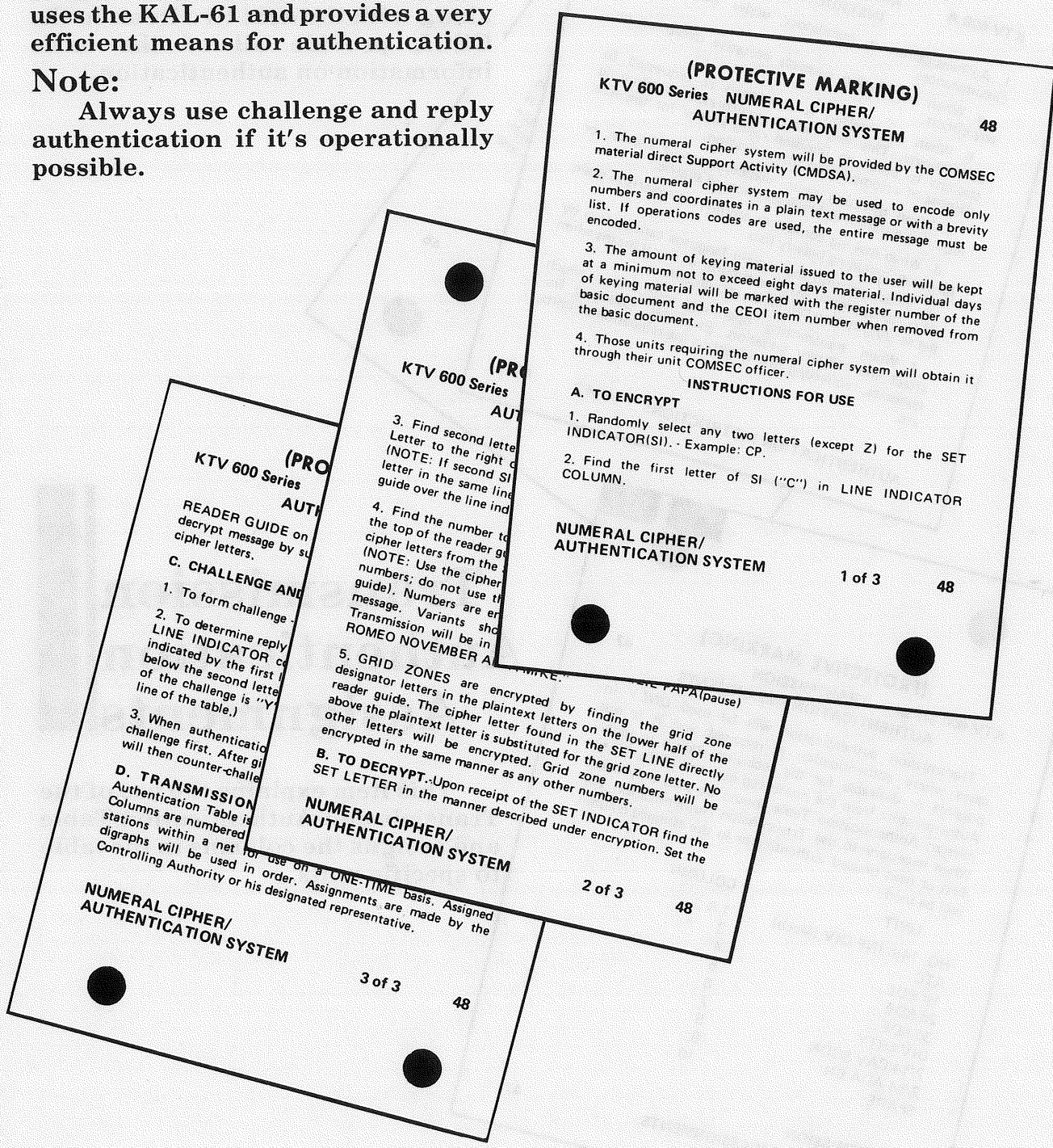
This item explains the use of the Transmission Authentication Table and assigns the columns in the table to specific units.

Numeral Cipher/ Authentication System

The use of the Numeral Cipher/ Authentication System was covered in Part 3 of this text. This system uses the KAL-61 and provides a very efficient means for authentication.

Note:

Always use challenge and reply authentication if it's operationally possible.



(PROTECTIVE MARKING)

KTV 600 Series NUMERAL CIPHER/ AUTHENTICATION SYSTEM 48

1. The numeral cipher system will be provided by the COMSEC material direct Support Activity (CMDSA).

2. The numeral cipher system may be used to encode only numbers and coordinates in a plain text message or with a brevity list. If operations codes are used, the entire message must be encoded.

3. The amount of keying material issued to the user will be kept at a minimum not to exceed eight days material. Individual days of keying material will be marked with the register number of the basic document and the CEOI item number when removed from the basic document.

4. Those units requiring the numeral cipher system will obtain it through their unit COMSEC officer.

INSTRUCTIONS FOR USE

A. TO ENCRYPT

1. Randomly select any two letters (except Z) for the SET INDICATOR(SI). - Example: CP.

2. Find the first letter of SI ("C") in LINE INDICATOR COLUMN.

NUMERAL CIPHER/ AUTHENTICATION SYSTEM 1 of 3 48

(PR

KTV 600 Series

AU

3. Find second lette
Letter to the right
(NOTE: If second SI
letter in the same lin
guide over the line ind

4. Find the number t
the top of the reader g
cipher letters from the
(NOTE: Use the cipher
numbers; do not use t
guide). Numbers are e
message. Variants sh
Transmission will be in
ROMEO NOVEMBER A

5. GRID ZONES are encrypted by finding the grid zone designator letters in the plaintext letters on the lower half of the reader guide. The cipher letter found in the SET LINE directly above the plaintext letter is substituted for the grid zone letter. No other letters will be encrypted. Grid zone numbers will be encrypted in the same manner as any other numbers.

B. TO DECRYPT.-Upon receipt of the SET INDICATOR find the SET LETTER in the manner described under encryption. Set the

NUMERAL CIPHER/ AUTHENTICATION SYSTEM 2 of 3 48

(PRO

KTV 600 Series

AUTH

READER GUIDE on
decrypt message by s
cipher letters.

C. CHALLENGE AND

1. To form challenge

2. To determine reply
LINE INDICATOR c
indicated by the first
below the second lette
of the challenge is "Y
line of the table.)

3. When authenticatio
challenge first. After gi
will then counter-challe

D. TRANSMISSION
Authentication Table is
Columns are numbered
stations within a net for use on a ONE-TIME basis. Assigned digraphs will be used in order. Assignments are made by the Controlling Authority or his designated representative.

NUMERAL CIPHER/ AUTHENTICATION SYSTEM 3 of 3 48

Notes:

Notes:

Notes:

TC 24-2

31 December 1975

By Order of the Secretary of the Army:

FRED C. WEYAND
General, United States Army
Chief of Staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant General

DISTRIBUTION:

Active Army, ARNG, USAR: To be distributed in accordance with DA Form 12-11A, Requirements for Signal Orders, Records and Reports (Qty rqr block no. 213); Field Radio Techniques (Qty rqr block no. 215); DA Form 12-11B, Requirements for Signal Security (SIGSEC) (Qty rqr block no. 322); plus 10 copies each to all DA Form 12-11 accounts.