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28 March 1946

JOINT COMMUNICATIONS BOARD

AD HOC COMMITTEE ON SECURITY OF COMMUNICATIONS

EDUCATION IN COMMUNICATIONS SECURITY

Note by the Secretary

Attached herewith and circulated for the consideration of the Ad Hoc Committee on Security of Communications are the studies made by all three Services on Education in Communications Security.


C. L. GRISWOLD

Secretary, ad hoc
Committee on Security
of Communications

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## ENCLOSURE

## EDUCATION IN COMMUNICATIONS SECURITY

Report by the ad hoc Committee on Security of Communications

### THE PROBLEM

1. To consider the state of training in communications security in the A my and Navy, and to make recommendations concerning a joint program of education in communications security matters.

### FACTS BEARING ON THE PROBLEM

2. Appendices "A", "B" and "C" outline the various types of training in communications security given in the Army Ground Forces, Service Forces, Air Forces, and in the Navy. Included in the outline are the texts and pamphlets used as guides in the courses. The outline covers training given to specialists, both enlisted and officer, the general instruction in security matters given to all personnel, and the advanced or "post-graduate' training given in such installations as the Army War College.
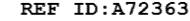
3. It is impossible to estimate accurately the amount of informal training (such as warnings, comments, lectures, instruction to individual groups, etc.) given to non-communications personnel in Naval units afloat, Army field installations, etc.

4. The recent war revealed instances of jeopardy to the security of communications created by the habits and actions of all categories of personnel. Such failings can be attributed largely to inadequate training in communications security and misconceptions as to its importance and purpose.

5. The least satisfactory aspects of communications from a security point of view were the following:

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a. Aircraft communications. Circuit discipline, procedure, monitor control, and use of plain language fell short of acceptable minimum standards.

b. Use of voice radio by surface craft. Plain language disclosures were frequent, numerous, and serious. Failure to realize the range of possible interception at frequencies of 30-100 mc. was one of the reasons, and failure to write or think out messages before transmission was another. Circuit discipline was unsatisfactory in many instances.

c. Message length, both on voice nets and radio-telegraph circuits. The resulting overloads affected the security of crypto systems and fatigued communication personnel to the point where efficiency and alertness were impaired. The only conceivable solution is briefer messages, better operation especially on voice circuits, and elimination of unnecessary procedure. Studies during the war showed that message length could be reduced up to 40% or 50%.
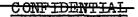
d. Overclassification and use of excessively high precedence. These were widespread violations. Over-classification tended to destroy respect for all classifications, and excessive use of precedence may have facilitated enemy traffic analysis somewhat, in addition to delaying messages of great urgency and destroying the values of precedence.

e. Transmission violations, especially off-frequency operation and incorrect authentication. Unauthorized conversation and incorrect procedure were also prominent among "violations to be eliminated in peacetime training."

f. Service messages. The percentage rose to 20 and above in certain areas. It was substantially reduced through the efforts of security units but remained un-necessarily high.

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g. Errors in encryption. The number remained high.
A majority were unnecessary and could have been avoided
readily. The practice of assigning new and inexperienced
officers to crypto duty appears to have been a major
cause of such errors.

h. Physical security. The number of occasions of
loss of cryptographic documents were unnecessarily high
in both services, and was due largely to carelessness and
lack of understanding of the importance of close safe-
guarding on the part of using and responsible personnel.

6. In many cases the least satisfactory aspects of commu-
nications security, as regards non-specialists, resulted from or
were aggravated by a lack of appreciation of the importance of
communications security by officers in command assignments.

## CONCLUSIONS

7. In general, it is considered that the scope and
quantity of communication security literature and training
aids, and the number of hours devoted to training communication
specialists in approved security practices are adequate. In the
main, the weaknesses noted in the activities of communication
specialists, as listed above, stem from laxity and carelessness
which develop on the job after specialist training has been
completed.

8. The training in security given to general personnel,
both enlisted and officer is inadequate. There is currently no
vehicle for disseminating such information to enlisted or officer
personnel in either service. In certain schools, namely the
United States Military Academy, and the Army-Navy Staff College
no formal instruction in security matters is given except to
specialists.

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## RECOMMENDATIONS

9. In order to achieve high standards of security in joint communications, it is recommended that the Joint Communications Board:

a. Transmit to the Secretary of the Joint Security Committee a memorandum concerning a general security pamphlet designed for enlisted personnel, this memorandum to be substantially as set forth in Appendix "D".

b. Transmit to the Secretary of the Joint Security Committee a memorandum concerning a general security pamphlet designed for officer personnel, this memorandum to be substantially as set forth in Appendix "E".
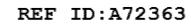
c. Transmit to the War and Navy Departments a recommendation, substantially as set forth in Appendix "F".

## COORDINATION

10. No coordination is deemed necessary.

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## APPENDIX "A".

Report by AAF ACO

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APPENDIX "A"

DISCUSSION OF EDUCATION IN SECURITY OF COMMUNICATIONS

Prepared by AAF ACO for J.C.B. Purposes

      .In general, curricula of AAF schools pertaining to
security of communications are based on such fundamental
publications as AR 380-5, TM 11-469, etc., but consist largely
of lectures developed individually at each of the several
schools.  In amplification of the fundamental requirements for
security in communications, subject matter of these lectures
has been obtained from many sources.  In some cases, books of
general circulation have been employed as sources of material.
These include "Cryptography, the Science of Secret Writing" by
Smith; "Elementary Cryptanalysis" by Gaines; "Secret and Urgent"
by Pratt; and "The American Black Chamber" by Yardley.  In other
cases, additional material has been drawn from instructions in
cryptography, such as TM 11-484 (Elementary Military Crypto-
graphy), TM 11-485 (Advanced Military Cryptography), etc.  This
has resulted in various curricula, each vitalized with under-
standable and informative examples, which are not readily
adaptable to portrayal in chart form. ·For that purpose, a
resume of instructions in security at representative AAF schools
is presented, as well as a chart listing basic publications, their
nature and their use.


2 Attachments:
  1 - Resume
  2 - Summary

## RESUME OF EDUCATION IN SECURITY OF COMMUNICATIONS

### Prepared by AAF ACO for J.C.B. Purposes

### AAF Communications Unit Training Center, Pinedale, California.

In the course for Cryptographic Technicians (SSN 805), 13 hours were devoted to security of communications. Various phases of security were presented in other courses as pertained to the system, device, etc., under study. In general, the enlisted men enrolled in this course were earmarked for overseas duties. The 13-hour course on "Safeguarding of Military Information" was based on AR 380-5 and TM 11-469. *(Comm. Security)*

### 4530 AAF Base Unit (Signal School), Kelly Field, San Antonio,Texas.

This school was one of three operated during the past wars by the Air Technical Service Command for the training of personnel to be assigned to overseas air force service commands. In the course for Cryptographic Technicians (SSN 805), 21 hours were devoted to "Safeguarding Military Information". This course was based on AR 380-5, TM 11-469, FM 24-5, CIRP (Current Instructions Registered Publications), registered instructional documents pertaining to cryptographic systems and devices, Training Circulars, etc. *signal communications*

### AAF Technical School, Scott Field, Illinois.

In the course for Message Center Officers, Cryptographic (MOS 0224), 48 hours were devoted to cryptographic security and duties of the cryptographic security officer, and 72 hours to the background of cryptography and military cryptographic systems. The purpose of this course was to instruct officers earmarked for assignment to such organizations as the Army Airways Communications System, AAF, the numbered air forces and AAF commands. The course was based on AR 380-5, technical manuals, field manuals, training films, registered instructional documents pertaining to systems and devices, SOI and SOP received from overseas organizations, etc.

In the course for Cryptographic Technicians (SSN 805), 12 hours are devoted to security of communications, with the basic publications being AR 380-5, training manuals, training films. Security was stressed throughout the remainder of the course during instruction on cryptographic systems and devices.

Appendix "A"

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SUMMARY OF INSTRUCTION IN SECURITY OF COMMUNICATIONS

I. GENERAL INSTRUCTIONS.

    A. Officers.

                            : Normally, Army personnel receive security instructions : in specialized schools

    B. Enlisted Personnel.

II. SPECIALIZED INSTRUCTIONS.

    A. Officers.

| ITEM | NATURE | USE |
|---|---|---|
| AAF Manual 100-46-2 (CIRP) *(handwritten note)* | A ready reference on matters pertaining to communications security. In general, it deals with the broad principles of security; specifically, it is designed to preserve security of cryptographic systems and classified communications. | Constitutes a basic instructional publication in schools, as well as a procedural guide. |
| Radio & Cryptographic Security Bulletin | A wartime publication of the AAF, prepared by the Office of the Air Communications Officer to keep field units abreast of current requirements and changes in directives pertaining to communications security. | Textbook purposes and inclusion in courses. |
| AR 380-5 | An Army regulation encompassing detailed requirements for safeguarding of military information. | Constitutes a basic instructional publication in schools, as well as a procedural guide. |
| TM 11-469 | A technical manual (Communication Security) setting forth basic information concerning security of | Constitutes a basic instructional publication in |

| ITEM | NATURE | USE |
|------|--------|-----|
|  | communications and presenting established procedures for pre- serving that security. | schools, as well as a procedural guide. |
| FM 24-17 | A field manual designed to furnish information regarding handling of messages and to indicate duties and responsibilities of personnel assigned to duties involving the handling of messages. | Textbook purposes and inclusion in courses. |
| FM 24-5 | A field manual to furnish basic information governing communica- tions essential to officers and enlisted personnel of all arms engaged on communications acti- vities. | Textbook purposes and inclusion in courses. |
| TM 11-484 | A technical manual for the in- formation and guidance of officer and enlisted personnel in the fundamentals of military crypto- graphy (elementary). | Textbook purposes and inclusion in courses. |
| TM 11-485 | A technical manual for the in- formation and guidance of officers and enlisted personnel in the fundamentals of military crypto- graphy (advanced). | Textbook purposes and inclusion in courses. |
| TF 11-321 | A training film pertaining to pre- cautions against revealing information to the enemy taken in bivouac area as unit moves forward; search for and confiscation of articles which might | Visual training aid. |

| ITEM | NATURE | USE |
|------|--------|-----|
| | betray information to the enemy, and costly results of disobedience of security discipline. | |
| TF 11-324 | A training film designed to impress the necessity for safeguarding of military information. | Visual training aid. |
| TF 11-2044 | A training film stressing violations of transmission security in task-force operations. | Visual training aid. |
| TC 71 | A training circular pertaining to the maintenance of security in the operation of radio facilities. | Textbook purposes and inclusion in courses. |
| B.  Enlisted Personnel. | Items listed above also used for purposes as stated above. | |

III. ADVANCED SPECIALIZED INSTRUCTIONS.

    A.  Officers.

| ITEM | NATURE | USE |
|------|--------|-----|
| AR 380-5 | An Army regulation encompassing detailed requirements for safeguarding of military information. | Basis for lecture at Senior Staff Officers School at Orlando, Florida. |

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APPENDIX "B"

Report by ASA, ASF and AGF

APPENDIX "B"

COMMUNICATION SECURITY TRAINING

(Army Security Agency, Army Service Forces and Army Ground Forces)

I.  Officers' Courses, General

    1.  Officer Candidate Courses, ASF

        a.  Corps of Engineers

        Signal Communication (including Signal security) 8 hou

            FM 24-5*        TC-74, 1944
            FM 24-18        TF 11-2044

        b.  Corps of Military Police

        Classified Military Information           1 hou

            AR 380-5        FM 101-10
            AR 380-10

        c.  Ordnance Department

        Safeguarding Military Information        1 hou

            AR 380-5

        d.  Signal Corps

        Safeguarding Military Information        4 hour

            AR 380-5

        Cryptographic Security        2 hou

            TM 11-469        AR 380-5
            TM 11-484        TB SIG 62
            CCBP-7

        Cipher and Code Systems (Brevity Codes and
           Converter M-209)        8 hou

            TM 11-484        TB 11-380-2
            TM 11-485        TC 72, 1944
            TM 11-380

        Signal Center Procedure (including functions
           of Communication Watch Officer and Crypto-
           graphic Security Officer)        2 hou

            FM 24-17

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* For resumes of references, see Appendix.

SOI's (including authentication systems
and other cryptographic items)      2 hours

     FM 24-5        TC 74, 1944
     TC 72, 1944

Radio Code and Procedure (including Trans-
mission Security)      3 hours

     TM 11-454        TF 11-2044
     TB SIG 2         TF 11-2068
     TB SIG 5

    e.   Transportation Corps

Signal Communication (including correct
message writing, cryptographic and
security measures)      1 hour

     FM 24-5

Safeguarding Military Information      3 hours

     TF 11-205        AR 380-5
     TF 11-325

2.   Officer Candidate Courses, AGF

    a.   General - All AGF Courses include:

Safeguarding Military Information      2 hours

Military Censorship      2 hours

    b.   Armored Corps

Operations and Prearranged Message Codes      1 hour

     TC 5, 1945

Converter M-209      3 hours

     TF 11-1400        TM 11-380

Communication Security      1 hour

     FM 24-5        TM 11-469
     FM   24-18      AR 380-5
     FM 101-10       TF 11-2044

Authentication Systems      1 hour

     TC 74, 1944

SOI's and SSI's      1 hour

     FM 24-5        TC 72, 1944

Safeguarding Military Information      2 hours

     WD Cir 407, 1944    TC 99, 1942
     AR 380-5

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    c.  Field Artillery

        Communication Principles (including
          Converter M-209, SOI's, operations
          codes, prearranged message codes)       13 hours

            TM 11-380           FM 24-5

3.  Signal Officer, Basic (MOS 0251)

        Signal Center Procedure and Operation
          (included duties of cryptographic
          personnel, operation, and use of
          cryptographic systems and devices,
          preparation of SOI's and SSI's, and
          communication security)          44 hours

            AR 380-5          Classified docu-
            FM 24-17          ments and equipment

4.  Officer Courses, AGF

    a.  General - All AGF Officer Courses include:

        Military Censorship               1 hour

    b.  Field Artillery Officer

        Message Handling (including Converter
          M-209, cryptographic security,
          operations codes)           10 hours

            FM 24-17          TM 11-280
            TM 11-469          TC 5, 1945

        Communications Countermeasures        2 hours

          Specially prepared material

    c.  Anti-aircraft and Artillery Officer

        Cryptography                  1 hour

        Converter M-209              1 hour

        Authentication Systems          1 hour

        SOI's and SSI's              1 hour

        Transmission Security           1 hour

    d.  Armored Officer

        Communication Security (including
          operation and prearranged message
          codes, authentication systems,
          Converter M-209)           8 hours

            FM 24-5           AR 380-5
            TM 11-380          TC 5, 1945
            TB 11-380-2        TC 74, 1944

    e.  Cavalry Officer (horse and Mechanized)
        Cavalry Officer (Horse)

        Military Cryptography (including use of
          Converter M-209)           4 hours

            TM 11-380          TC 33, 1945
            TC 74, 1944              Appendix "B"

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f. Signal Corps Course for U.S.M.A.
Graduates

Signal Center Procedure and Operation
(including duties of Cryptographic
personnel, and communication security)     42 hours

| | |
|---|---|
| CCBP-7 | TC 72, 1944 |
| AR 380-5 | TC 74, 1944 |
| FM 24-5 | TC 5, 1945 |
| TM 11-380 | TB SIG 19 |
| TM 11-469 | WD Cir 21 |
| TM 11-485 | |

Division Field Problem (including
cryptographic duties)                      32 hours

(references as above)

Higher Echelon Field Problem (including
use of WD Cryptographic Systems)          3 hours

(references as above plus classified
documents and equipment)

Morse Code and Procedure (including
familiarization with authentication
systems)                                  49 hours

TC 74, 1944       TC 33, 1945

5. United States Military Academy

(Post War Curricula, 1945, which lists the broad
phases of academic and tactical training contains
no references to specific security subjects.)

II. OFFICER COURSES, SPECIALIZED

1. Army Security Agency

a. Radio Traffic Analysis Officer (MOS 9605)

Basic Military Cryptography

TM 11-484        TM 11-485

Security (Safeguarding Military Information
and Cryptographic Security)

| | |
|---|---|
| TM 11-469 | CCBP-7 |
| AR 380-5 | TBSIG 2 |
| TC 74, 1944 | SIGNAN-2 |
| TC 5, 1945 | SIGMAP-1 |
| TC 33, 1945 | |
| TF 11-205 | |
| TF 11-324 | |
| TF 11-2044 | |

b. Cryptanalytic Officer, General (MOS 9600)

Subjects and references same as Radio Traffic
Analysis Officer, above, plus the following:

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War Department Systems and Systems
    Analysis                                175 hours

| | |
|---|---|
| AR 380-5 | TB 11-380-2 |
| TM 11-380 | TF 11-1400 |
| TM 11-460 | SIGNAN-2 |
| TM 11-469 | SIGMAP-2 |
| TC 74, 1944 | SIGINFO |
| TC 5, 1945 | Classified docu- |
| TC 33, 1945 | ments and devices |

c. Cryptographic Equipment Maintenance and
    Repair Officer (MOS 9606-C1)

    Security                                    36 hours

| | |
|---|---|
| AR 380-5 | SIGNAN-2 |
| TM 11-469 | Classified docu- |
| | ments and devices |

d. Cryptographic Equipment Maintenance and
    Repair Officer (MOS 9606-C2)

    Security                                    30 hours

| | |
|---|---|
| AR 380-5 | TB 11-380-2 |
| TM 11-380 | SIGNAN-2 |
| TM 11-469 | Classified docu- |
| | ments and devices |

e. Cryptographic Equipment Maintenance and
    Repair Officer (MOS 9606-C3)

    Security                                    30 hours

| | |
|---|---|
| AR 380-5 | TM 11-469 |
| SIGNAN-2 | Specially prepared |
| | material |

f. Program of instruction for Communication
    Security Instructors (ASF and AAF)

    Physical, cryptographic and transmission
    security, War Department Cryptographic
    Systems and systems analysis, traffic
    analysis and radio deception              183 hours

| | |
|---|---|
| AR 380-5 | TM 11-460 |
| TM 11-469 | TB 11-380-2 |
| SIGNAN-2 | TF 11-1400 |
| TB SIG 2 | TC 74, 1944 |
| TM 11-454 | TC 5, 1945 |
| TF 11-2044 | TC 33, 1945 |
| FM 24-10 | TM 11-380 |
| TM 11-460 | Classified documents |
| | and devices |

g. Program of instruction for Communication
    Security Instructors (AGF)

    Physical, cryptographic and transmission
    security Converter M-209, field codes,
    traffic analysis and radio deception.

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| | |
|---|---|
| AR 380-5 | TC 33, 1945 |
| TM 11-460 | FM 24-5 |
| TM 11-380 | TF 11-1400 |
| TB 11-380-2 | TB SIG 2 |
| FM 24-10 | TM 11-454 |
| TC 74, 1944 | TF 11-2044 |
| TC 5, 1945 | |

2. Army Service Forces, Signal Corps

    a. Signal Center Officer, Cryptographic
        (MOS 0224) and
      Signal Center Officer, Fixed Station
        (MOS 0222)

      Preparation of SOI's and SSI's        8 hou:

| | |
|---|---|
| TC 72, 1944 | FM 24-5 |
| TC 74, 1944 | AR 380-5 |
| TC 5, 1945 | |

      Signal Center Procedure (including safe-
      guarding military information and com-
      munication security)        81 hours

| | |
|---|---|
| TM 11-469 | AR 380-5 |
| TM 24-17 | |

      Military Cryptography (War Department
      Systems)        158 hours

| | |
|---|---|
| TM 11-469 | TB 11-380-2 |
| TM 11-484 | AR 380-5 |
| TM 11-485 | Classified docu- |
| TM 11-380 | ments and devices |

      Signal Center Operation (use of systems)  136 hours

| | |
|---|---|
| FM 24-5 | AR 380-5 |
| FM 24-17 | Classified docu- |
| TM 11-469 | ments and devices |

      Combined Field Problem (similar to Signal
      Center Operation, above, but in the
      field)        66 hou:·s

    b. WAC Message Center Officer

      Military Cryptographic Systems        86 hours

| | |
|---|---|
| TM 11-380 | Classified docu- |
| AR 380-5 | ments and devices |
| TF 11-205 | |

      Preparation of SOI Items        7 hou:·s

| | |
|---|---|
| FM 24-5 | TC 72, 1944 |

      Operation of Tactical Message Center

| | |
|---|---|
| AR 380-5 | Classified docu- |
| | ments and devices |

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c. Telephone and Telegraph Officer, Inside
Plant (MOS 0410)

Signal Center Procedure (including message
drafting and traffic processing)                    13 hours

AR 380-5

d. Radio Officer, Field (MOS 0501)

Signal Center Procedure (including message
drafting and traffic processing)                    16 hours

AR 380-5           TM 11-469
FM 24-17           CCBP-7

Preparation of SOI                                  14 hours

TB SIG 51          TC 72, 1944
TM 11-462

e. Supply Officer, Depot (MOS 4410)
Supply Officer, Administrative (MOS 4411)

Safeguarding Military Information                   2 hours

AR 380-5           MISC 929
TF 30-950

3. Other ASF courses

a. All officers of the Transportation Corps
receive:

Security Measures

AR 380-5           TF 11-325
TF 11-205

b. Military Policy Investigators Course

Censorship and Safeguarding Military
Information                                          1 hour

AR 380-5           FM 30-28

4. Army Ground Forces

a. Communication Officer, Infantry (MOS 0200)

Communication Procedures and Security
(including Converter M-209, crypto-
graphic, physical, and transmission
security)                                           69 hours

FM 24-17           TB 11-380-2
TM 11-469          TB SIG 2
TM 11-380

b. Communication Officer, Armored Corps
(MOS 0220)

Message Center Procedure (including
handling of classified messages)                    3 h

FM 24-17           FM 24-5

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| | |
|---|---|
| Authentication | 4 hours |

        TC 74, 1944        TM 11-454
        FM 24-5           FM 24-6

| | |
|---|---|
| Codes and Ciphers | 10 hours |

        TB 11-380-2      TC 5, 1945
        TM 11-380

| | |
|---|---|
| Communication Security | 2 hours |

        FM 24-5           TB SIG 5
        TM 11-469        AR 380-5

## III. ENLISTED COURSES, GENERAL

1. ASF basic training - The courses for all services include:

   | | |
   |---|---|
   | Safeguarding Military Information and Military Intelligence | 2 hours |

           TF 11-324          AR 380-5

   | | |
   |---|---|
   | Basic Signal Communication (including protection of communication facilities and security) | 3 hours |

           · FM 24-5

2. AGF basic training - The courses of all Arms include:

   | | |
   |---|---|
   | Safeguarding Military Information and Censorship | 1 hour |

           AR 380-5          TF 11-205

3. AGF Noncommissioned Officer training

   a. Field Artillery

   | | |
   |---|---|
   | Safeguarding Military Information | 1 hour |
   | SOI's | 1 hour |

   b. Cavalry

   | | |
   |---|---|
   | Military Cryptography (including general principles, prearranged message codes and operations codes, authentication systems) | 3 hours |

           TC 74, 1944      TC 33, 1945
           FM 24-5

   c. Armored Corps

   | | |
   |---|---|
   | Communication Security (including Converter M-209, Authentication systems, and security in general) | 8 hours |

           TC 5, 1945       TM 11-380
           TC 74, 1944     TM 11-469
           TB 11-380-2    AR 380-5

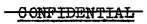Appendix "B"

SOI's and SSI's                                    2 hours

　　TC 72, 1944　　　　FM 24-5

IV. ENLISTED COURSES, SPECIALIZED

　　1.　Army Security Agency

　　　　a.　Traffic Analyst (Radio) (SSN 709)      72 hours

　　　　　　(Same subjects and references as Radio
　　　　　　Traffic Analysis Officer, par. la,
　　　　　　Sect II, above.)

　　　　b.　Intercept Operator, Fixed Station
　　　　　　(SSN 799)

　　　　　　Safeguarding Military Information       3 hours

　　　　　　　　AR 380-5          TF 11-324
　　　　　　　　AR 380-10         TM 11-469
　　　　　　　　TC 99, 1942

　　　　　　Communication Security                 10 hours

　　　　　　　　AR 380-5          TB SIG 2
　　　　　　　　TM 11-469         TC 74, 1944
　　　　　　　　TC 33, 1945       TC 5, 1945
　　　　　　　　CCBP-7            TF 11-1400
　　　　　　　　TF 11-205

　　　　　　NOTE:　Intercept operators and Control
　　　　　　　　Chiefs, SSN's 538, 543, 738 and 739
　　　　　　　　receive this instruction also.

　　　　c.　Intercept Operator, Fixed Station (SSN 799)
　　　　　　(Short Course)

　　　　　　Safeguarding Military Information       3 hours

　　　　　　(Same references as in b, above)

　　　　d.　Cryptographic Repairman (SSN 801-C1)    36 hours

　　　　　　(Same subjects and references as in
　　　　　　　in par. 1c, Sect II, above)

　　　　e.　Cryptographic Repairman (SSN 801-C2)    30 hours

　　　　　　(Same subjects and references as in
　　　　　　　par. 1d, Sect II, above)

　　　　f.　Cryptographic Repairman (SSN 801-C3)    30 hours

　　　　　　(Same subjects and references as in
　　　　　　　par. 1e, Sect II, above)

　　　　g.　Cryptographer (Code Compiler) (SSN 807)

　　　　　　Basic cryptography, War Department systems,
　　　　　　　Systems analysis, SOI items of crypto-
　　　　　　　graphic nature, physical, cryptographic
　　　　　　　and transmission security, communication
　　　　　　　security organization, code and cipher
　　　　　　　compilation, production, distribution
　　　　　　　and accounting)                      390 hours

　　　　　　　　　　　　　　　　　　　　　　Appendix "B"

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| | |
|---|---|
| AR 380-5 | TB SIG-2 |
| FM 24-5 | TB 11-380-2 |
| FM 24-10 | TF 11-1400 |
| FM 24-17 | TF 11-324 |
| TM 11-469 | TF 11-205 |
| TM 11-380 | SIGNAN-2 |
| TM 11-484 | SIGINFO |
| TM 11-485 | TF 11-2044 |
| TM 11-454 | CCBP-7 |
| TM 11-460 | WD Cir 91, 1944 |
| TC 5, 1945 | WD Cir 163, 1944 |
| TC 74, 1944 | Classified documents |
| TC 33, 1945 | and devices |

h. Cryptanalysis Technician (SSN 808)          175 hours

(Same subjects and references as in
par. 1b, Sect II, above)

2. Army Service Forces, Signal Corps

a. General - All enlisted specialists training
at Eastern Signal Corps School, Fort Mon-
mouth, N.J., receive:

Safeguarding Military Information and
Military Censorship                          2 hours

AR 380-5               TF 11-324
TF 30-1315

All enlisted specialists trained at
Central Signal Corps School, Camp
Crowder, Mo., have received:

Safeguarding Military Information             1 hour

AR 380-5               TC 99, 1942

b. Teletype Operator (SSN 237)

Signal Center Operations, Signal Security     3 hours

CCBP-7                TF 11-2044
AR 380-5              WD Cir 342, 1944

Elementary Military Cryptography             30 hours

FM 24-5               TM 11-380
CCBP-7                TM 11-484
AR 380-5              TM 11-485
AR 380-10             TF 11-205

c. Message Center Clerk (SSN 667)

Elementary Military Cryptography
(including normal operations of
authorized low level codes and
ciphers, and Safeguarding Military
Information)                                 68 hours

CCBP-7                TF 11-1400
TM 11-380             TB 11-380-2
TM 11-484             TF 11-205
TM 11-485             AR 380-5
AR 380-10

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d. Facsimile Operator (SSN 893)

Signal Center Operations (including signal
    security)                                        6 hours

        AR 380-5          WD Cir 342, 1944
        TF 11-2044

e. Cryptographic Technician (SSN 805)

Signal Center Procedure (including handling
    of classified messages)                   36 hours

        FM 24-5           FM 24-17
        FM 24-10

Elementary Military Cryptography
    (including authentication and Con-
    verter M-209)                          45 hours

        CCBP-7            TF 11-205
        TB 11-380-2      TF 11-1400
        FM 24-5            WD TC 74, 1944
        TM 11-380        TM 11-485
        TM 11-484        AR 380-5

Advanced Military Cryptography (WD
    Cryptographic systems)                 196 hours

        Classified documents and devices

f. Radio Operator, High Speed, Manual (SSN 766)

Radio Procedure (including authentication
    and communication security)            34 hours

        CCBP-7            TF 11-2044
        FM 24-5            TM 11-454
        TM 11-469       WD TC 74, 1944
        TB SIG 5

NOTE: Radio Operators SSN's 740, 777, and
792, Radio Repairman, Single Channel Tele-
type, receive the same instruction.

g. Radio Repairman, RCM (SSN 1648) and
Radio Operator, RCM (SSN 1766)

Safeguarding Military Information            4 hours

        AR 380-5          TF 11-324
        TF 11-205       TF 11-325

3. Other ASF courses

a. Military Policeman (SSN 677)

Transmission Security (in connection with
    voice radio instruction)                2 hours

        TF 11-2044

b. Physical Therapy Technician (WAC) (SSN 072)

Safeguarding Military Information            1 hour

        AR 380-5

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4. Army Ground Forces

   a. Communication Chief, Infantry (SSN 542)     69 hours

      (Same subjects and references as in
      par 4a, Sect II, above)

   b. Radio Operator, Infantry (SSN 776 and 740)  69 hours

      (Same subjects and references as in
      par 4a, Sect II, above)

   c. Radio Repairman, Infantry (SSN 648)

      Transmission Security          1 hour

   d. Basic Communications Course, Parachute
      School

      SOI's          2 hours

      Converter M-209         8 hours

      Security and authentication    1 hour

   e. Radio Operators' Course, Parachute School

      Converter M-209         4 hours

      Security         1 hour

      SOI's         1 hour

      Authentication         2 hours

   f. Message Center Course, Parachute School

      Cryptography        32 hours

      SOI's         1 hour

      Security         1 hour

      Converter M-209 Exercise     12 hours

   g. Communication Chief, Armored Corps (SSN 542)

      SOI's and SSI's         3 hours

         TC 72, 1944     FM 24-5

      Message Center Procedure (including handling
        of classified messages)     8 hours

      Authentication Systems     4 hours

         TC 74, 1944     FM 24-5
         FM 24-6       TM 11-454

      Codes and Ciphers (including Converter M-209,
        operations and prearranged message codes) 10 hours

         TM 11-380     TC 5, 1945
         TB 11-380-2

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Communication Security                                 2 hours

    FM 24-5        TB SIG 5
    TM 11-469     AR 380-5

h.  Radio Repairman, Armored Corps (SSN 648)

Communication Security and Procedure        14 hours

    FM 24-5        TF 11-2044
    TM 11-469     TC 74, 1944
    AR 380-5      TB SIG 5

## V. POSTGRADUATE TRAINING, BOTH GENERAL AND SPECIALIZED

1.  Command and General Staff School

    a.  Air Course

        Safeguarding Military Information    ½ hour

        Signal Security    1 hour

        Internal Security and Censorship    1 hour

        SOI's and Signal Annexes    1 hour

    b.  Ground Course

        Safeguarding Military Information    ½ hour

        Signal Security    1 hour

        Internal Security and Censorship    1 hour

    c.  Service Course

        Safeguarding Military Information    ½ hour

        Signal Security    1 hour

        Message Security    1 hour

        Censorship    1 hour

    d.  Army-Navy Staff College Course

        No specific communication security subjects

2.  Signal Corps Advanced Officers' Course

Signal Agencies and Orders (including Safeguarding
Military Information, preparation of SOI's and
SSI's        58 hours

    FM 24-5        TC 72, 1944
    AR 380-5     TC 74, 1944
    TM 11-380

Radio Communication (including Transmission
Security)        38 hours

    TB SIG 2        TF 11-2044

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Signal Center Procedure (including communi-
cation security and use of cryptographic
systems)                                          42 hours

AR 380-5                    FM 24-17
CCBP-7                      Classified docu-
                            ments and devices

VI. REMARKS - 1.  It is required under the provisions of War
Department Training Circular 99, 1942, that all military
personnel be given short lectures (15 to 20 minutes duration)
periodically during training on the subject of Safeguarding
Military Information.  For personnel being prepared for overseas
duty, further requirements in this matter are outlined in the War
Department publications, POM and POR.


1 Incl
  Appendix - List of
    References


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APPENDIX

## LIST OF REFERENCES

### I. ARMY REGULATIONS:

1. AR 380-5 -- "Safeguarding Military Information" - the basic regulation on security of military information within the Army.

2. AR 380-10 -- Laws, Executive Orders, etc., Pertaining to Safeguarding Military Information.

### II. FIELD MANUALS:

1. FM 24-5 -- "Basic Signal Communication" - a manual on the fundamentals of signal communication and communication security for all arms and services.

2. FM 24-6 -- "Radio Operator's Manual, Army Ground Forces" - a guide for the training of field radio operators in radiotelegraph procedure. This manual contains a section on station authentication.

3. FM 24-10 -- "Combined Radiotelegraph (W/T) Procedure" - approved transmission procedures for radiotelegraph.

4. FM 24-17 -- "Signal Center and Message Center Procedure" - essentials of signal and message center installation and operation. A large portion of this manual is devoted to cryptographic security.

5. FM 24-18 -- "Radio Communication" - basic information about radio communication essential to all personnel using radio as a means of communication. Each of the components of communication security is treated briefly in this publication.

6. FM 30-28 -- "Military Intelligence" - Regulations governing communications and censorship are covered by this manual.

7. FM 101-10 -- "Organization, Technical and Logistical Data" - a staff officers' manual containing a brief section under Signal Communication devoted to the essentials of communication security.

### III. TECHNICAL MANUALS

1. TM 11-380 -- "Converter M-209, M-209-A, M-209-B (Ciphers)" - general operating and maintenance instructions for the Converter M-209. This manual also contains instructions for the preparation of pin and lug settings.

2. TM 11-454 -- "The Radio Operator" - for use in training radio operators. This manual contains a section on physical, transmission and cryptographic security.

3. TM 11-460 -- "Division Field Code, Training Edition No. 2" - a training edition of a typical two-part field code.

4. TM 11-462 -- "Signal Corps Reference Data" -- a collection of data of general interest including information on the speeds of various cryptographic systems.

5. TM 11-469 -- "Communication Security" - a basic information concerning the security of military communications and established procedures for preserving that security. The individual components of communication security are treated in some detail.

6. TM 11-484 -- "Elementary Military Cryptography" -basic principles and cryptographic systems. This manual contains a comparison between code and cipher systems, procedures for the correction of errors and a list of fundamental rules for safeguarding cryptograms.

7. TM 11-485 -- "Advanced Military Cryptography" advanced military cryptographic systems (double transposition, polygraphic substitution, combined transposition-substitution, code systems in general, enciphered code and cipher machines).

## IV. TECHNICAL BULLETINS

1. TB SIG 2 -- "Think Next Time" - a collection of anecdotes illustrating the consequences of breaches of communication security.

2. TB SIG 5 -- "Defense Against Jamming" - jamming defense for the Commander and his staff, the signal officer and the radio operator, and countermeasures.

3. TB SIG 19 -- "Application of Teletypewriter and Automatic Ciphering Equipment to Fixed Radio and Wire Circuits" - general characteristics, principles and application of radioteletype systems adopted for fixed communications in the Army, and the coordination of these systems with wire teletypewriter facilities.

4. TB SIG 51 -- "Tactical Call Words" - call words recommended for use in tactical communications.

5. TB 11-380-2 -- "Message Keying Instructions for Converter M-209, M-209-A, M-209-B" - general enciphering and deciphering procedures established for the Converter M-209.

## V. TRAINING CIRCULARS:

1. TC 99, 1942 - "Safeguarding Military Information" - a directive on security education containing lecture material on safeguarding military information and a list of topics to be avoided in conversation.

2. TC 72, 1944 - "Signal Operation Instructions" - a guide for division signal officers and their assistants in the preparation of SOI's and SSI's.

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3.  TC 74, 1944 - "Authentication Systems" - emphasizes the importance of authentication as a security measure, explains the rules and regulations governing all authentication systems, and authorizes three specific systems for intra-Army and joint Army-Navy use and three emergency systems for intra-Army use only. The three systems which are authorized for joint Army-Navy use are also described in the Navy publication CSP 900 (A). (Amended by TC 33, 1945, below)

4.  TC 5, 1945 - "Operations Codes and Prearranged Message Codes, Compilation and Use" - establishes uniform procedures for the compilation and use of operations codes and prearranged message codes within division or comparable organization, for separate units, and for AAF units down to and including wing.

5.  TC 33, 1945 (Section II) -"Authentication Systems" - amendments to TC 74, 1944.

## VI. WAR DEPARTMENT CIRCULARS:

1.  WD Cir 91, 1944 - "Security Classifications" - agreement between Combined Chiefs of Staffs on the definition, classification, and handling of matters to be safeguarded.

2.  WD Cir 163, 1944 (Section II) - "Army Courier Service" - instructions for the transmission of matter via Army Courier Service.

3.  WD Cir 342, 1944 (Section III) - "Military Information" - procedure for furnishing classified military information to other government departments, Federal or State, or to corporations or individuals.

4.  WD Cir 407, 1944 (Sections II and III) - "Message" - directions for the classification of communiques, etc., to be released to the public. Transmission of personal recorded messages is forbidden by this circular.

5.  WD Cir 21, 1945 (Section I) - "Message Handling" - definitions of terms used in message handling.

## VII. TRAINING FILMS:

1.  TF 11-205 - "Safeguarding Military Information, Cryptographic" - correct procedures for handling cryptographic materials, disposing of classified waste, and maintaining the security of the code room.

2.  TF 11-324 - "Safeguarding Military Information" - a treatment of the necessity of safeguarding military information in general.

3.  TF 11-325 - "Safeguarding and Proper Handling of Classified Material" - this film deals with the handling of classified matter in general.

4.  TF 11-1400 - "Converter M-209" - operation procedure.

5.  TF 11-2044 - "Radio Transmission Security" - graphic illustrations of the necessity for observing transmission security regulations.

6.  TF 11-2068 - "Defense Against Radio Jamming" - recommended procedure.

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7. TF 30-950 - "Next of Kin" - a film depicting the often fatal results of breaches of general security discipline.

8. TF 30-1315 - "Postal Censorship" - a general treatment of the necessity for censorship and censorship procedure.

9. MISC 929 -- "Private Snafu in 'Spies'" - an animated cartoon treating general security practices.

## VIII. MISCELLANEOUS

1. CCBP-7 - "Combined Communication Instructions" - a treatment of combined communication matters not fully dealt with in other combined communication publications. This manual covers message drafting and communication security in some detail.

2. SIGNAN-2 - "Cryptographic Communications, 1943" - a registered cryptographic publication covering principles underlying authorized cryptographic systems, cryptonets and cryptographic systems, cryptographic communication and rules for cryptographic security.

3. SIGMAP-2 - "Reports of Compromise of Cryptographic Material and Violations of Cryptographic Security" - a registered publication outlining procedures for reporting known or suspected compromises, violations of cryptographic security, evaluating violations of cryptographic security and the effect of a compromise on systems, and submitting cryptographed messages to the Army Security Agency for study.

4. SIGINFO - "Monthly Informational Document" - a medium for the dissemination of current miscellaneous information on cryptographic systems, procedures and material.

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APPENDIX "C"

Report by Navy, Op-20-K-23

ad/Sec 1

APPENDIX "C"

SUMMARY OF NAVY TRAINING IN COMMUNICATION SECURITY

Prepared for J.C.B. Purposes By Op-20-K-23

PART I - GENERAL, BASIC TRAINING

A.  GENERAL BASIC TRAINING FOR OFFICERS, REGULAR AND RESERVE

| Item | Nature of Material | Use |
|---|---|---|
| 1. Seamanship Manual (1944) NavPers 16118 | Chapter 20, 18 pages-covers all phases for officers. Classification, physical security, transmission security, cryptography security, preparation of dispatches, and processing of dispatches are treated to extent needed by all officers for action and general information. | Is textbook for NROTC units. Is textbook of Naval Academy. Study of 1944-45 catalog shows that a maximum of 4 or 5 - 90-minute periods out of a total of 2,000 are available for formal study of communication security. This represents .20% to .25% of total class time. |
| 2. Naval Communications (1945) NavPers 16042 | Chapter IV -- 17 pages -- is devoted formally to communication security. It includes 7 pages on handling of registered publications and 5 for Article 76 of Navy Regulations. The remaining 5 pages treat COMINST 4000 and 4010, physical security, cryptographic security, the Navy cryptographic plan, and transmission security in about equal proportions, with a paragraph or two about personal security. A number of other topics are treated incidentally. | It is used for reference and supplementary purposes by NROTC units and the Naval Academy. |

| Item | Nature of Material | Use |
|------|-------------------|-----|
| 3. Naval Orientation (1944) NavPers 16138 | Chapter 14 -- "Security of Naval Information" -- 8 pages -- covers personal security and Article 76 material.<br><br>Chapter 18 -- "Security of Naval Communications" -- 13 pages -- contains espionage material from DNC 10; DNC 10 anecdotes on personal security and telephone admonitions; reports of compromise and anecdotes on physical security; 4 pages on transmission security, and 3 pages of DNC 10 material on cryptographic security. | Used for reference and supplementary purposes by NROTC units and the Naval Academy. |
| 4. Officer's Correspondence Course on Naval Communications | Assignment No. 4 consists of true-false, completion, and other new-type questions covering Chapter 4 of COMINST.<br><br>Assignment No. 3 is based on Chapters 2 and 3 of COMINST, and thus covers the security material in Chapter 2. | Is a familiarity course for all officers but is not required. Was widely used before the war in training reserves. In January of this year over 500 were enrolled. |

B. GENERAL, BASIC TRAINING FOR OFFICERS AND ENLISTED PERSONNEL

| Item | Nature of Material | Use |
|------|-------------------|-----|
| 1. Notes on Communication Security (1943) DNC 10 | Contains popular, general treatment of all phases as understood and emphasized in early 1943. Very readable. Covers processing, radio security, and even deception very briefly. Emphasis is on physical and cryptographic security, with extensive account of methods and successes of cryptanalysis in the first World War. 67 pages.<br><br>(Revision (1945)) now in preparation is more inclusive and more comprehensive, and somewhat more advanced. Embodies much of wartime experience not covered by 1943 edition.) | Widely read and very popular. 100,000 copies were distributed to ships and shore stations. Used in communication, midshipmen, and indoctrination schools for reference and supplementary purposes. Probably reached more enlisted men than any other publication containing security material. |

| Item | Nature of Material | Use |
|---|---|---|
| 2. Security Bulletin OPNav 20-6 | By January 1946, six issues of 24 pages and one of 14 pages had been published. The articles deal with all phases of security in an arresting and readable manner, using current material and wartime experience to make treatment timely and operational. Supplement for originators in three issues covered phases pertaining primarily to originators and drafters of messages | Circulation plateau was 20,000 copies. It went to all ships except LCI(L)'s and a few other small types, to most of the larger shore stations, and to many MarCorps and Coast Guard activities. BuPers distributed 1,000 to selected schools under its cognizance on the basis of one for each instructor.<br>Wide distribution among enlisted personnel in communications was encouraged throughout the Navy, and the classification was kept low in order to permit such use. |
| 3. Film MA552 (TF 11-205) Cryptographic Security | Mostly a lecture. May have been withdrawn. Applicable to all who handle messages. | 381 prints distributed by Navy. |
| 3A. Film MA 553 (TF 11-325) Safeguarding and Proper Handling of Classified Material | Also built around a lecture. General coverage. Applicable to all who handle classified matter. | 693 prints distributed. Now obsolete. |
| C. FOR ENLISTED PERSONNEL | | |
| 1. Handbook for Non-rated Men | Communication security requirements for Q and other specialist ratings are listed, but nothing about security -- not even personal censorship. | |

2. Aside from Navywide posters and perhaps a movie or two such as "Next of Kin" on personal censorship, no general, basic training was provided for all enlisted personnel.

PART II -- SPECIALIZED TRAINING

A.  SPECIALIZED TRAINING FOR OFFICERS

| Item | Nature of Material | Use |
|------|--------------------|-----|
| 1. The Communication Officer (Revised 1945-6 NavPers 16101) | This 76-page pamphlet contains 4 paragraphs on security as such but contains a paragraph or more on each of the following security-related topics: registered publications, recognition signals, codes and ciphers, coding board, paraphrasing, drafting messages, clearing garbles, censorship, radio security, codress, and wave propagation (misleading as to security of VHF). | Is used as the communication officer's text in NROTC units, according to BUPers, and is on initial commissioning allowance list for units afloat. |
| 2. Curriculum for Officers Class, Submarine School, New London, Conn., NavPers 16391 (replacement) October 1945. | Of total of 535 hours of lectures and practical work, 99 are devoted to communications. Lecture No. 1 under communications is devoted primarily to security. Lecture No. 15 covers registered mail and classified files, and Lecture No. 16 is about cryptographic security. Enemy deception is one of the topics in No. 17. About 10 hours of the practical work seems to pertain to security, making a total of $13\frac{1}{2}$ hours presumably devoted to security. | As indicated. Texts are DNC 5, NavPers 16101 Revised, and instruction booklet for crypto systems. |
| 3. Practical Joint Communications (Harvard) NavPers 16398 May 1945 | The topic of publications (3 2-hr. periods), radio in convoy (2 2-hr. periods), codes and ciphers (16 2-hr. periods), and transmitters (6 hrs.) inevitably involve security, but there is no indication of the extent to which security may be covered in the study of Joint, amphibious, advanced base, and other phases of communications. | As indicated. Lists Pac 70(B), DNC 5, DNC 10, RPS 4(B), Security Bulletin and instruction booklets for crypto systems among the texts. |

| Item | Nature of Material | Use |
|---|---|---|
| 4. Dispatch Drafting Manual (1945) NAVMC 1024-DPP | Section 2, "Dispatch Drafting," - 20 pages, covers drafting much as Chapter 2 of COMINST does, with attention to security applications and two pages of play-by-play instructions for paraphrasing, modeled after the material in DNC 10. Appendix I, 20 pages, contains much of Article 76, N.R., and circular letter re top secret control and code words. Appendix II, 4 pages, contains more about code names and related matters. | Compiled by the Marine Corps Schools for general use by message drafters. |
| 4A. Dispatch Drafting and Use of the Field Message Book (Revised Nov. 1944) NAVMC 3589 | Substantially the same as NAVMC 1024-DPP, described above. | Published for instructional purposes chiefly in the Marine Corps School at Quantico (command and staff course). |
| 5. 20-K Lectures and slides | The "Bureau Lecture" for originators and drafters of messages covered the measures applicable and the reasons for the existence of these measures. | It was given dozens of times in the Bureaus of the Navy Department, at Quantico, and at various points in continental United States before 40 to 100 or more officers at a time. |
| 6. 20-K Security School | The course was an advanced course adapted to the needs of the officers attending, but usually ran one or two weeks and covered all phases of security rather intensively. | More than 1,000 officers took this course, especially instructors from communication schools. |

| Item | Nature of Material | Use |
|---|---|---|
| 7. Exercises. Issued by Commander San Diego Shakedown Group FOTC Pacific. Revised 15 March 1945 | Most of the 400 exercises contain a section on communications and this section contains security overtures even though security is not mentioned. There are 13 communication exercises, which include drills in radio direction finders, TBS, radio, visual methods, and recognition. | Distribution limited mostly to fleet training activities of various kinds and CO's or prospective CO's of all vessels operating or scheduled to operate under FOTC Pacific. |
| 8. Catalog -- U. S. Naval Academy Postgraduate School -- 1945-46 | Out of the 18 courses in communications which are listed, one (N-13) is devoted specifically to communication security and most of the others apparently involve one or more of the four phases of security to some extent. | N-13 and four others (N-7, N-10, N-17-18) are prescribed for the general line curriculum. N-13 is one of three listed for electronics engineering, and it is one of 12required in the applied communications curriculum. N-16 (correspondence) with 10 hours of practical work, is included in the aerological engineering curriculum. |
| 9. War College, Newport Course outlines 1945-46 | Staff Class. References to be read: Art. 76 N.R., Chapters 2and 4 of COMINST, DNC 10, RPS 4 and 6, and the following chapters of Pac 70(B): Chapter 4, Authentication; 9, Radio Silence and Radio Security; 13 Radio Interference; 26, RCM: and 36, Reg. Pubs and Coding Boards. The reading was supplemented by talks (partly from experience) by student officers on various phases of operational communications, demonstrations of crypto aids at NOB communication office, a lecture by officer from CNO, and exercises in message drafting, and study of communication [illegible]. | As indicated. The December class was the second such. None currently in session. |

| Item | Nature of Material | Use |
|---|---|---|
| | <u>Command and Staff Class</u>.  This also runs about five months or 100 days, of which one week early in the course is allocated to communications for familiarity and refresher study, and one day of that week is given to security and includes reading CNO lecture, review of registered publication system, and survey of crypto aid system.  Security enters informally into seminar work and study of communication plans. | As indicated. |

Beginning in July, the course will run 11 months and will cover communications thus:

   I    Instruction and study
        (includes CNO lecture and total of
        day or two formally to security
                    .... 8 working days

  II   Research and analysis -- Studies
        of specific World War II operations
                  .... $4\frac{1}{2}$ working days

 III  Practical application
        Communication planning exercises and
        preparation of communication plans
                   .... 24 hours

| Item | Nature of Material | Use |
|---|---|---|
| 10.  Army-Navy Staff College | The courses are in tentative form, but Capt. William B. Bailey (Navy) has assured 20-F-3 that there is ample coverage of communications and security throughout.  Both topics are woven into the courses, however, instead of being treated apart from other phases of operations as separate units of study. | As indicated. |

B.  SPECIALIZED TRAINING FOR OFFICERS AND ENLISTED PERSONNEL

| Item | Nature of Material | Use |
|------|--------------------|-----|
| 1. Communications Handbook (1944) OpNav 33-N4-17 | "Security of Publications", $2\frac{1}{4}$ pages, treats losses, porting of compromise, use of publications in aircraft and destruction in case of a forced landing. Incidental security topic is the use of hand signals to avoid breaking radio silence -- pages 7-8. Handbook is 176 pages, 4" - 5-3/4", with considerable color work and plastic binder. | For aviation officers and enlisted personnel. |
| 2. Radio Discipline Sense (1945) NavAer 00-80Q-24 | This pamphlet covers radio security only as it pertains to aircraft, especially voice radio. Topics include tuning, phraseology, procedure, plain language disclosure, frequency shifts, and radio silence. 24 pages, breezy style, large type, cartoon-type illustrations. | Primarily for pilots. Used principally by primary, fleet and operational training commands. Special requests within aviation and to some extent outside have totalled 5,000 - 10,000 copies. |
| 3. Security Sense (1944) NavAer 00-80Q-16 | Treats personal censorship forcefully, entertainly, and practically, with wise-cracks, anecdotes, and illustrations. Closes with a list of 10 topics to avoid in wartime. | Same as "Radio Discipline Sense" above. |
| 4. Are Destroyer Radiomen Ready* for Battle? (ComDesPac) | Covers all phases of radio security, especially procedure, but does it informally by emphasis on correct procedure, authentication, call sign generation, tuning, testing, and other skills. Very challenging. Contains illustrations. | Widely distributed by ComDesPac to units afloat. BuPers printed 10,000 copies and sent some to each radio school. |

*Lt. Kloss thinks this is about the only operational one that has much to do with
    communication security, but remembered that a number of commands such as the
    Central Precommissioning Unit in New York got out a number of publications.

| Item | Nature of Material | Use |
|------|-------------------|-----|
| 5. Guide to Communications for the Larger Types of Landing Craft - Atlantic Fleet Training Command, May 1944 | This is an outline rather than a text. One of 14 subjects in the "curriculum" is communication security, and security is involved to some extent in other subjects, such as messages and drafting, publications, encryption and decryption, and radio communications. Treatment is to be found largely <u>in references</u> rather than the booklet itself. For security, these consist of NOTES, Chapter 4 of Cominst, and Article 76 of N.R. Frontispiece is a good cartoon, "Is Your Message Really Necessary?" | The "Communication Curriculum" prescribes security for SM, QM, RdM, RT, RM, and all officers. Messages and drafting is listed for all officers, destruction of publications for communication officers only. |
| 6. Signal Communication in The Marine Infantry Regiment (1945) MCS 3-101 NAVMC 3919 | Contains a reference or two to security phases of message center operation, almost a page on "Security considerations in using radio", and mention on security in connection with a voice radio net. | For both field and instructional use apparently, even though cover says "For Instructional Purposes Only." |
| 7. Combat Intelligence (1945) MCS 3-1 NAVMC 3778 | Section 5, "Counterintelligence", 11 pages, is largely about security. It covers: Secrecy discipline Concealment of troops and their activities Classification of documents Signal communication security, including censorship (3 pages) Counterpropaganda There is a partial recap pp. 159-60 and some mention of security incidentally in earlier sections -- p. 100, for example. | Chiefly instructional - MarCorps schools; some use in the field indicated also. |

C.  SPECIALIZED TRAINING FOR ENLISTED PERSONNEL

| Item | Nature of Material | Use |
|---|---|---|
| 1. Recommended Material for a Course in Communication Security for Radio Schools (Revised 1945) NavPers 16400 | A 22-page outline for lectures:<br>1. Personal censorship ............. 2 pages<br>2. Introduction to security -- COMINST 4000 and 4010 plus transmission methods in order of security, methods of achieving radio security, and authentication ................. 3 pages<br>3. Physical security -- handling, stowing, accounting, destroying, and reporting destruction of classified matter ............... 3 pages<br>4. Radio security -- radio security activities, do's and don'ts for operators, radio silence and circuit discipline, protecting call signs, protecting codes and ciphers, foiling deception .........................5 pages<br>Examples and anecdotes -- there are 41, mostly from DNC 10 and Security Bulletin, with additional references to latter ............................ 8 pages | Used in all radio, communication and signal schools under BuPers cognizance. |
| 2. BuPers rating manuals for radio, sonarmen, signalmen, and others; also handbook for non-rated men. | Noted virtually no references to security. Even such security measures as use of minimum aperture for visual and avoiding long call-ups by radiotelegraph are not as a rule presented. Except that this defect will be largely remedied in new series now being prepared. | For advancement in rating. |

| Item | Nature of Material | Use |
|------|--------------------|-----|
| | Communication security requirements are listed for certain Q and other specialist ratings but THERE IS NOTHING ABOUT SECURITY IN THE BASIC BOOK FOR NONRATED MEN, not even personal censorship. | |
| 3. Film MN 2621 - Radio Transmission by Hand Sending | The fourth reel, MN 2621d, depicts several types of operators who are a hazard to the Navy. | These films went mostly to training aid activities to be reissued or loaned to other activities making requisition. The number of prints thus distributed by BuAer was given as follows on 9 January 1946: a. 536    c.  500  b. 534    d.  782 The numbers to whom these films were shown were not obtainable. |
| 4. Film MA 3809-10 (Navy number) TF 2044 (Army number) Radio Transmission Security | Tells the story of an Allied expedition from North Africa to Italy, showing how carelessness and poor circuit discipline on the part of one or two operators almost causes the landing to fail. | 159 prints of MA 3809 were distributed as indicated above, 2 of MA 3810. |
| 5. 20-K lectures and slides | Topic was transmission security -- all phases pertaining to radio. | Lecture was given before large audiences of radio operators and other radio personnel at Bainbridge and several other points in continental United States. |

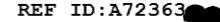| Item | Nature of Material | Use |
|------|-------------------|-----|
| 6. 20-K Training Program | Courses for Q Specialists covered Chapter 4 of COMINST and other security references. | Several hundred took one of these courses in preparation for duties or advancement in rating in one of the sections of CNC or one of their over-seas units. |

APPENDIX "D"

D R A F T

MEMORANDUM FOR:  Secretary, Joint Security Committee

Subject:          Education in Communications Security

1.  At its meeting on _____ 1946, the Joint Communications Board considered the problem of training in communications security and approved the conclusions and recommendations stated in the report of the ad hoc Committee on Security of Communications.  (J.C.B._____)

2.  The Joint Security Committee is directed to consider the various types of training in communications security given in the Army Ground Forces, Service Forces, Air Forces, and in the Navy, an outline of which is appended hereto, and to prepare for publication as a JANP a general security pamphlet designed for enlisted personnel.  This pamphlet should be similar to DNC 10 and the BuAer Sense Pamphlets of the Navy, like publications of the Army, and would draw from the experiences of both services and especially from joint communications during the war.

3.  The Joint Security Committee, in preparing the foregoing pamphlet will consider the following aspects of communications, which from a security point of view, were unsatisfactory during the recent war:

a.  Aircraft communications.  Circuit discipline, procedure, monitor control, and use of plain language fell short of acceptable minimum standards.

b.  Use of voice radio by surface craft.  Plain language disclosures were frequent, numerous, and serious.  Failure to realize the range of possible interception at frequencies of 30-100 mc. was one

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of the reasons, and failure to write or think out messages before transmission was another. Circuit discipline was unsatisfactory in many instances.

c. Message length, both on voice nets and radio-telegraph circuits. The resulting overloads affected the security of crypto systems and fatigued communication personnel to the point where efficiency and alertness were impaired. The only conceivable solution is briefer messages, better operation especially on voice circuits, and elimination of unnecessary procedure. Studies during the war showed that message length could be reduced up to 40% or 50%.

d. Overclassification and use of excessively high precedence. These were widespread violations. Over-classification tended to destroy respect for all classifications, and excessive use of precedence may have facilitated enemy traffic analysis somewhat, in addition to delaying messages of great urgency and destroying the values of precedence.

e. Transmission violations, especially off-frequency operation and incorrect authentication. Unauthorized conversation and incorrect procedure were also prominent among "violations to be eliminated in peacetime training."

f. Service messages. The percentage rose to 20 and above in certain areas. It was substantially reduced through the efforts of security units but remained un-necessarily high.

g. Errors in encryption. The number remained high. A majority were unnecessary and could have been avoided readily. The practice of assigning new and inexperienced officers to crypto duty appears to have been a major cause of such errors.

h. Physical security. The number of occasions
of loss of cryptographic documents were unnecessarily
high in both services, and was due largely to careless-
ness and lack of understanding of the importance of
close safeguarding on the part of using and responsible
personnel.

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APPENDIX "E"

D R A F T

MEMORANDUM FOR:   Secretary, Joint Security Committee

Subject:          Education in Communications Security

1.  At its meeting on _____ 1946, the Joint Communications Board considered the problem of training in communications security and approved the conclusions and recommendations stated in the report of the ad hoc Committee on Security of Communications (J.C.B._____)

2.  The Joint Security Committee is directed to consider the various types of training in communications security given in the Army Ground Forces, Service Forces, Air Forces, and in the Navy, an outline of which is appended hereto, and to prepare for publication as a JANP a general security pamphlet designed for officer personnel. This pamphlet should be similar to the pamphlet for enlisted personnel and should contain in addition, doctrine regarding the preparation of messages with particular emphasis on brevity and clarity, classification of messages, assignment of precedences, etc. Such a pamphlet should be directed at the officer with command responsibilities and should emphasize the purpose and importance of communications security and the danger resulting from inaccurate security.

3.  The Joint Security Committee, in preparing the foregoing pamphlet will consider the following aspects of communications, which from a security point of view, were unsatisfactory during the recent war:

a.  Aircraft communications. Circuit discipline, procedure, monitor control, and use of plain language fell short of acceptable minimum standards.

b.  Use of voice radio by surface craft. Plain

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- 1 -

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language disclosures were frequent, numerous, and serious. Failure to realize the range of possible interception at frequencies of 30-100 mc. was one of the reasons, and failure to write or think out messages before transmission was another. Circuit discipline was unsatisfactory in many instances.

c. Message length, both on voice nets and radio-telegraph circuits. The resulting overloads affected the security of crypto systems and fatigued communication personnel to the point where efficiency and alertness were impaired. The only conceivable solution is briefer messages, better operation especially on voice circuits, and elimination of unnecessary procedure. Studies during the war showed that message length could be reduced up to 40% or 50%.

d. Overclassification and use of excessively high precedence. These were widespread violations. Over-classification tended to destroy respect for all classifications, and excessive use of precedence may have facilitated enemy traffic analysis somewhat, in addition to delaying messages of great urgency and destroying the values of precedence.

e. Transmission violations, especially off-frequency operation and incorrect authentication. Unauthorized conversation and incorrect procedure were also prominent among "violations to be eliminated in peacetime training."
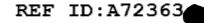
f. Service messages. The percentage rose to 20 and above in certain areas. It was substantially reduced through the efforts of security units but remained un-necessarily high.

g. Errors in encryption. The number remained high. A majority were unnecessary and could have been avoided

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readily. The practice of assigning new ahd inex-
perienced officers to crypto duty appears to have
been a major cause of such errors.

h. Physical security. The number of occasions
of loss of cryptographic documents were unnecessarily
high in both services, and was due largely to careless-
ness and lack of understanding of the importance of
close safeguarding on the part of using and responsible
personnel.

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CONFIDENTIAL

APPENDIX "F"

D R A F T

MEMORANDUM TO WAR AND NAVY DEPARTMENTS

Subject:   Education in Communications Security

1.   On _____ 1946, the Joint Communications Board considered the problem of education and training in communications security and recommends:

<u>a</u>.   The continuation of the training programs in communication security that existed during the war as the minimum desirable.  All courses should place strong emphasis on the lessons learned, the losses suffered, and the disciplinary action taken as the result of breaches of approved security practices in order to help forestall the development, later, of carelessness on the job.

<u>b</u>.   The inclusion of general courses in communications security in the basic training of enlisted personnel, and at all pre-officer and officer schools.

<u>c</u>.   The inclusion in reserve officer training programs of courses in communications security.

2.   The foregoing is sent to the War/Navy Department for necessary action.  A similar memorandum is being sent to the Navy/War Department.

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Appendix "F"

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