

**MOS**

**93C**

**AIR TRAFFIC  
CONTROL**

**SOLDIER'S MANUAL  
SKILL LEVELS 2, 3, AND 4,  
AND TRAINER'S GUIDE**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

SOLDIER TRAINING PUBLICATION  
1-93C24-SM-TG

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 4 June 2002

## SOLDIER'S MANUAL AND TRAINER'S GUIDE

### MOS 93C

### AIR TRAFFIC CONTROL SKILL LEVELS 2/3/4

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\*This publication supersedes STP 1-93C24-SM-TG, 28 December 1994.

**NOTE:** Effective 30 September 2004, MOS 93C24 is scheduled for conversion/reclassification to MOS 15Q24.

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## PREFACE

This publication supports the Army's revised enlisted and noncommissioned officer education system that focuses training on force standardization. It supports the training and enrichment soldiers need to pursue and enhance their military careers. Specifically, it covers operations-based individual tasks required of the specific Aviation MOS to perform proficiently. Appendix A provides an aviation school recommended professional reading list. Appendix B provides a sample DA Form 5164-R (Hands-on Evaluation). Appendix C provides a sample DA Form 5165-R (Field Expedient Squad Book). Appendix D provides a noncommissioned officer career progression for career management field 93, aviation operations. Soldiers will use the manual as a professional development and self-evaluation tool. Soldiers should gain high proficiency in performing the tasks in this publication. Therefore, their responses will become automatic when they perform these tasks, even under the most stressful circumstances.

All tasks in this guide are about specific CMF 93 duties and responsibilities. Reserve soldiers in the Army National Guard and Army Reserve will use this publication in the same self-development and evaluation method as their active duty counterparts.

The proponent of this publication is HQ TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, US Army Aviation Center, ATTN: ATZQ-TDS-T, Fort Rucker, Alabama 36362-5000.

This publication has been reviewed for operations security considerations.

Unless this publication states otherwise, masculine nouns and pronouns do not refer only to men.

# CHAPTER 1

## INTRODUCTION

### GENERAL

This Soldier Training Publication identifies the individual MOS training requirement for soldiers in MOS 93C. Commanders, trainers, and soldiers should use it to plan, conduct, and evaluate individual training in units. This manual is the primary MOS reference to support the self-development and training of every soldier. It standardizes performance steps, measures, and evaluation guidance for all individual critical tasks for skill levels 2, 3, and 4.

Use this manual with the soldier's manuals of common tasks (STPs 21-1-SMCT and 21-24-SMCT), ARTEPs, and FM 7-10(FM 25-101) to establish effective training plans and programs that integrate soldier, leader, and collective tasks.

### TASK SUMMARIES

Task summaries outline the wartime performance requirements of each critical task. They provide the soldier and the trainer with the information necessary to prepare, conduct, and evaluate critical task training. As a minimum, task summaries include information you must know and the skills that you must perform to standard for each task. The format for the task summaries included in this SM is as follows:

**Task Title.** The task title identifies the action to be performed.

**Task Number.** Each task is identified by a specific number sequence. This task number, along with the task title, will be included in any correspondence relating to the task.

**Conditions.** The task conditions identify all the equipment, tools, references, job aids, and supporting personnel that the soldier needs to perform the task in wartime. This section identifies any environmental conditions that can alter task performances such as visibility, temperature, and wind. This section also identifies any specific cues or events—a chemical attack or identification of a threat vehicle—that trigger task performance.

**Standards.** The task standards describe how well and to what level soldiers must perform a task under wartime conditions. Standards are typically described in terms of accuracy, completeness, and speed.

**Training and Evaluation.** This section may contain all or part of the training information outline, evaluation preparation subsection, and evaluation guide. The training information outline includes detailed training information. The evaluation preparation subsection indicates necessary modifications to task performance to train and evaluate a task that cannot be trained to the wartime standard under wartime conditions. It also may include special training and evaluation preparation instructions to accommodate these modifications and any instructions that should be given to the soldier before evaluation. The evaluation guide identifies the specific actions, known as performance measures, that the soldier must do to successfully complete the task. These actions are listed in a *Pass/Fail* format for easy evaluation. Each evaluation guide

contains a feedback statement that indicates the requirements—for example, number of performance measures *passed*—for receiving a *GO* on the evaluation.

**References.** This section identifies references that provide more detailed and thorough explanations of task performance requirements than that given in the task summary description.

Additionally, some task summaries include safety statements and notes. Safety statements (warning and caution) alert users to the possibility of immediate death, personal injury, or damage to equipment. Notes provide a small, extra supportive explanation or hint relative to the performance measures.

## **FORCE PROTECTION (SAFETY/RISK MANAGEMENT)**

Safety is a component of force protection. Commanders, leaders, and soldiers use risk assessment and management to tie force protection into the mission. Risk management assigns responsibility, institutionalizes commander's review of operational safety, and leads to decision making at a level of command appropriate to the risk. The objective of safety is to help units protect combat power through accident prevention, which enables units to win fast and decisively with minimum losses. Safety is an integral part of all combat operations. Safety begins with readiness, which determines a unit's ability to perform its METL to standard.

Risk management is a tool that addresses the root causes of accidents (readiness shortcomings). It helps commanders and leaders to identify *what* the next accident will be. It also helps identify *who* will have the next accident. Risk management is a way to put more realism into training without paying the price in deaths, injuries, or damaged equipment.

Safety demands total chain of command involvement in planning, preparing, executing, and evaluating training. The chain of command responsibilities include the following:

### **Commanders.**

- Seek optimum, not adequate, performance.
- Specify the risk they will accept to accomplish the mission.
- Select risk reductions provided by the staff.
- Accept or reject residual risk, based on the benefit to be derived.
- Train and motivate leaders at all levels to effectively use risk management concepts.

### **Staff.**

- Assists the commander in assessing risks and develops risk reduction options for training.
- Integrates risk controls in plans, orders, METL standards, and performance measures.
- Eliminates unnecessary safety restrictions that diminish training effectiveness.
- Assesses safety performance during training.
- Evaluates safety performance during an AAR.

### **Subordinate Leaders.**

- Apply effective risk management concepts and methods consistently to operations they lead.
- Report risk issues beyond their control or authority to their superiors.

**Individual Soldiers.**

- Report unsafe conditions, and act and correct the situation when possible.
- Establish a buddy system to keep a safety watch on one another.
- Take responsibility for personal safety.
- Work as team members.
- Modify their own risk behavior.

Risk management is a five step cyclic process that is easily integrated into the decision-making process outlined in FM 5-0(FM 101-5). The five steps are identifying hazards, assessing hazards, developing controls and making risk decisions, implementing controls, and supervising and evaluating.

**Identify Hazards.** Identify hazards to the force. Consider all aspects of current and future situations, the environment, and known historical problems.

**Assess Hazards.** Assess hazards using the risk assessment matrix in Figure 1-1. Assess the impact of each hazard in terms of potential loss and cost based on probability and severity, and then find the block where the two intersect to determine the risk level. For example, if the hazard probability is *LIKELY* and the severity is *MARGINAL* then the risk level is *MODERATE*.

**Develop Controls and Make Risk Decisions.** Develop controls that eliminate the hazard or reduce its risk. As control measures are developed, risks are reevaluated until all risks are reduced to a level where benefits outweigh potential costs. Accept no unnecessary risks and make any residual risk decisions at the proper level of command.

**Implement Controls.** Put controls in place that eliminate the hazards or reduce their risk.

**Supervise and Evaluate.** Enforce standards and controls. Evaluate the effectiveness of controls and adjust/update as necessary.

**Note:** The risk management training support package for soldiers, developed by the U.S. Army Safety Center, should be used to train personnel on the five-step risk management process and the risk assessment matrix. To obtain this training support package, contact the U.S. Army Safety Center, ATTN: CSSC-RA, Fort Rucker, AL 36362-5363. (E-mail address: [http://\"CSSC\"@safety.army.mil](http://\)).

**SOLDIER'S RESPONSIBILITIES**

Each soldier is responsible for performing individual tasks that the first-line supervisor identifies based on the unit's METL. The soldier must perform the task to the standards listed in the SM. If a soldier has a question about how to do a task or which tasks in this manual he must perform, he must ask the first-line supervisor for clarification. The first-line supervisor knows how to perform each task or can direct the soldier to the appropriate training materials.



			HAZARD PROBABILITY				
			FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
			A	B	C	D	E
<b>SEVERITY</b>	CATASTROPHIC	I	EXTREMELY HIGH				
	CRITICAL	II	HIGH				
	MARGINAL	III	MODERATE				
	NEGLIGIBLE	IV	LOW				

**Severity**

**Catastrophic**      Death or permanent total disability, system loss, major property damage.

**Critical**            Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.

**Marginal**            Minor injury, lost workday accident, compensable injury or illness, minor system damage, minor property damage.

**Negligible**          First aid or minor supportive medical treatment, minor system impairment.

**Probability**

**Frequent**            Individual soldier/item ..... Occurs often in career/equipment service life.

**Likely**                All soldiers exposed or item inventory ..... Continuously experienced.

                              Individual soldier/item ..... Occurs several times in career/equipment service life.

**Occasional**        All soldiers exposed or item inventory ..... Occurs frequently.

                              Individual soldier/item ..... Occurs sometime in career/equipment service life.

                              All soldiers exposed or item inventory ..... Occurs sporadically, or several times inventory service life.

**Seldom**             Individual soldier/item ..... Possible to occur in career/equipment service life.

                              All soldiers exposed or item inventory ..... Remote chance of occurrence.

**Unlikely**            Individual soldier/item ..... Can assume will not occur.

                              All soldiers exposed or item inventory ..... Possible, but improbable; occurs rarely.

**Risk Levels**

**Extremely High**    Loss of ability to accomplish mission.

**High**                 Significantly degrades mission capabilities in terms of required mission standards.

**Moderate**           Degrades mission capabilities in terms of required mission standards.

**Low**                  Little or no impact on mission accomplishment.

Figure 1-1. Standard risk assessment matrix.

## SELF-DEVELOPMENT

Self-development is one of the key components of the leader development program. It is a planned progressive and sequential program followed by leaders to enhance and sustain their military competencies. It consists of individual study, research, professional reading, practice, and self-assessment. Under the self-development concept, the soldier or NCO, has the responsibility to attain proficiency and remain current in all phases of the MOS. The SM is the primary source for the NCO to use in maintaining MOS proficiency.

Another important resource for self-development is the Army Correspondence Course Program, which can be accessed through the Internet at <http://www.atsc.army.mil/accp/aipd.htm>. Refer to DA Pamphlet 350-59 for information on enrolling in this program and for a list of courses, or write to: Army Institute for Professional Development, US Army Training Support Center, ATTN: ATIC-IPS, Newport News, VA 23628-0001.

## TRAINING SUPPORT

This manual includes the following information, which provides additional training support information.

**Glossary.** The glossary is a single comprehensive list of acronyms, abbreviations, definitions, and letter symbols.

**References.** This section contains two lists of references, required and related, which support training of all tasks in this SM. Required references are listed in the conditions statement and are required for the soldier to do the task. Related references are materials, which provide more detailed information and a more thorough explanation of task performance.

## DISTRIBUTION

Electronic versions of this manual can also be downloaded from the Internet at the web sites listed below.

**Reimer Digital Library.** The RDL web site (<http://155.217.58.58.atdls.htm>) contains the latest SM task summaries. Currently, this site does not contain graphics for all manuals, but it will in the near future. For more information, call 1-800-ASK-ATSC.

**Army Doctrinal and Training Digital Library Data Repository.** The ADTDL DR web site (<http://155.217.58.100>) serves to gather and disseminate training and doctrinal information. It acts as a bridge between proponent schools and units, with data flowing among the Army proponent schools, from proponent schools to units, and from units to proponent schools. The system contains hundreds of MTPs, STPs, drills, TSPs, OFSs, and collective and individual tasks developed within the proponent schools using the Automated Systems Approach to Training.

## RECOMMENDED CHANGES

As a user of this soldier's manual, you are encouraged to recommend changes and make comments for improvement. In your comments, note the specific page, paragraph, and line where changes should be made. Give reasons for each comment so your recommended

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change will be understood and completely evaluated. Fill out the questionnaire at the back of this manual and mail it. If you have detailed changes to recommend, prepare your comments on DA Form 2028 (Recommended Changes to Publications and Blank Forms) or write them on plain paper and forward to Commander, U.S. Army Aviation Center, ATTN: ATZQ-TDS-T, Training Division, Fort Rucker, Alabama 36362; or E-mail address: ASAT@rucker.army.mil. If you send it by e-mail, request the e-mail be forwarded to the Chief, Enlisted Training Branch, DOTDS-Training Division.

**NOTE:** Your name, rank, and unit address must be printed clearly to receive a prompt reply.

## CHAPTER 2

### TRAINER'S GUIDE

#### GENERAL

The MOS training plan identifies the essential components of a unit-training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MOS training plan should be used as a guide for conducting unit training and not a rigid standard. The MOS training plan consists of two parts. Each part is designed to assist the commander in preparing a unit-training plan, which satisfies integration, cross training, training up, and sustainment training requirements for soldiers in this MOS.

Part One of the MOS training plan shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

Section I lists subject area numbers and titles used throughout the MOS training plan. These subject areas are used to define the training requirements for each duty position within an MOS.

Section II identifies the total training requirement for each duty position within an MOS and provides a recommendation for cross training and train-up/merger training.

**Duty Position Column.** This column lists the duty positions of the MOS, by skill level, which have different training requirements.

**Subject Area Column.** This column lists, by numerical key (see Section I), the subject areas a soldier must be proficient in to perform in that duty position.

**Cross Train Column.** This column lists the recommended duty position for which soldiers should be cross-trained.

**Train-up/Merger Column.** This column lists the corresponding duty position for the next higher skill level or MOSC the soldier will merge into on promotion.

Part Two lists, by general subject areas, the critical tasks to be trained in an MOS and the type of training required (resident, integration, or sustainment).

**Subject Area Column.** This column lists the subject area number and title in the same order as Section I, Part One of the MOS training plan.

**Task Number Column.** This column lists the task numbers for all tasks included in the subject area.

**Title Column.** This column lists the task title for each task in the subject area.

**Training Location Column.** This column identifies the training location where the task is first trained to soldier training publications standards. If the task is first trained to standard in the unit, the word *Unit* will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ANCOC, BNCOC), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

<b>BNCOC</b>	Basic Noncommissioned Course
<b>ANCOC</b>	Advanced Noncommissioned Officer Course
<b>UNIT</b>	Trained in the Unit

**Figure 2-1. Training Locations**

**Sustainment Training Frequency Column.** This column indicates the recommended frequency at which the tasks should be trained to ensure soldiers maintain task proficiency. Figure 2-2 identifies the frequency codes used in this column.

<b>BA</b>	- Biannually
<b>AN</b>	- Annually
<b>SA</b>	- Semiannually
<b>QT</b>	- Quarterly
<b>MO</b>	- Monthly
<b>BW</b>	- Biweekly
<b>WK</b>	- Weekly

**Figure 2-2. Sustainment Training Frequency Codes**

**Sustainment Training Skill Level Column.** This column lists the skill levels of the MOS for which soldiers must receive sustainment training to ensure they maintain proficiency to soldier's manual standards.

**SUBJECT AREA CODES**

**Skill Level 2**

- 12 COMMUNICATIONS
- 13 SHIFT SUPERVISOR TRAINING ADMINISTRATION
- 14 SUPERVISION OF TACTICAL ATC OPERATIONS
- 15 SUPERVISION OF FACILITY ADMINISTRATION
- 16 MANAGEMENT OF TACTICAL OPERATIONS
- 18 AIRSPACE MANAGEMENT PROCEDURES

**Skill Level 3**

- 12 COMMUNICATIONS
- 15 SUPERVISION OF FACILITY ADMINISTRATION
- 16 MANAGEMENT OF TACTICAL OPERATIONS
- 17 MANAGEMENT OF ATC FACILITIES
- 18 AIRSPACE MANAGEMENT PROCEDURES

**Skill Level 4**

- 17 MANAGEMENT OF ATC FACILITIES
- 18 AIRSPACE MANAGEMENT PROCEDURES

**DUTY POSITION TRAINING REQUIREMENTS**

Table 2-1 shows the training requirements for MOS 93C24.

**Table 2-1. Duty position training requirements.**

SKILL LEVEL	DUTY POSITION	SUBJECT AREAS	CROSS-TRAIN	TRAIN-UP/MERGER
2	SHIFT LEADER	12-16, 18	N/A	ATC STAFF NCO, FACILITY CHIEF
	TACTICAL TEAM LDR	12-16, 18	N/A	ATC STAFF NCO, FACILITY CHIEF
3	ATC STAFF NCO	12, 15, 17, 18	N/A	ATC EVAL/TNG SGT, LIAISON SGT, PLT SGT, STAFF NCO
	FACILITY CHIEF	12, 15, 17, 18	N/A	ATC EVAL/TNG SGT, LIAISON SGT, PLT SGT, STAFF NCO  FIRST SGT
4	ATC EVAL/TNG SGT	17-18	N/A	FIRST SGT
	ATC LIAISON SGT	17-18	N/A	FIRST SGT
	PLATOON SERGEANT	17-18	N/A	FIRST SGT
	ATC STAFF NCO	17-18	N/A	

\*See Part II, Sustained Training Column, for tasks within subject areas that apply at this skill level.

**MOS TRAINING PLAN**

Table 2-2 lists the critical tasks for the MOS 93C24 Training Plan.

**Table 2-2. Critical tasks list.**

Subject Area	Task Number	Title	Training Location	Sustained Training Frequency	Sustained Training Skill Level
<b>Skill Level 2</b>					
12. COMMUNICATIONS	113-573-5002	Check Implementation of Electronic Counter-Countermeasures Procedures	UNIT	SA	2-4
13. SHIFT SUPERVISOR TRAINING	011-143-2002	Conduct Controller Training	UNIT	AN	2-4

ADMINISTRATION					
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**Table 2-2. Critical tasks list (continued).**

Subject Area	Task Number	Title	Training Location	Sustained Training Frequency	Sustained Training Skill Level
	011-143-2003	Assign Controllers to Operating Positions	UNIT	AN	2-4
	011-143-2004	Perform the Responsibilities of a Shift Supervisor During or after an Aircraft Accident or Incident	UNIT	AN	3-4
14. SUPERVISION OF TACTICAL ATC OPERATIONS	011-143-3001	Supervise the Emplacement of Tactical Equipment	UNIT	QT	2-4
	011-143-3002	Supervise the Operation of Tactical Equipment	UNIT	SA	2-4
	011-143-5061	Operate Theodolite	UNIT	SA	2-4
15. SUPERVISION OF FACILITY ADMINISTRATION	011-143-3011	Retain Records, Logs, and Recorder Tapes	UNIT	SA	2-4
16. MANAGEMENT OF TACTICAL OPERATIONS	011-143-7002	Prepare the AN/TSQ-198 (Tactical Terminal Control System) for Movement	UNIT	SA	2-4
18. AIRSPACE MANAGEMENT PROCEDURES	011-143-5059	Identify Airspace Control Measures	UNIT	SA	2-4
<b>Skill Level 3</b>					
12. COMMUNICATIONS	113-587-2073	Operate SINGARS-V Retransmission	UNIT	AN	3-4
	113-587-2077	Operate SINGARS-V Securable Remote Control Unit (SRCU)	UNIT	AN	3-4
15. SUPERVISION OF FACILITY ADMINISTRATION	011-143-3004	Perform the Responsibilities of an ATC Chief During or After an Aircraft Accident or Incident	BNCOC	AN	3-4
	011-143-3005	Determine the Requirements for an Individual's Facility Rating	BNCOC	AN	3-4
	011-143-3012	Develop an Operations Letter	BNCOC	AN	3-4
16. MANAGEMENT OF TACTICAL OPERATIONS	071-332-5000	Prepare an Operation Overlay	ANCOC	SA	3-4
17. MANAGEMENT OF ATC FACILITIES	011-143-3006	Develop a Letter of Agreement	BNCOC	SA	3-4
18. AIRSPACE MANAGEMENT PROCEDURES	011-143-3015	Develop Instrument Approach Procedures (ASR, PAR, NDB)	BNCOC	AN	3-4
	011-143-7005	Integrate Airspace Control Measures	BNCOC	SA	3-4

Table 2-2. Critical tasks list (continued).

Subject Area	Task Number	Title	Training Location	Sustained Training Frequency	Sustained Training Skill Level
<b>Skill Level 4</b>					
17. MANAGEMENT OF ATC FACILITIES	011-143-3014	Coordinate Facility Flight Inspection	BNCOC	AN	4
	011-143-5058	Supervise the Establishment of Terminal Instrument Approach	ANCOC	SA	4
18. AIRSPACE MANAGEMENT PROCEDURES	011-141-0004	Control Battle Staff Functions Within a Tactical Operations Center	ANCOC	QT	4
	011-143-3008	Coordinate Aircraft Movement and Identification with Local Air Defense Units	BNCOC	SA	4
	011-143-4003	Implement Airspace Management Procedures (NAS)	ANCOC	SA	4
	011-143-5062	Determine Army Airspace Command and Control Procedures	ANCOC	SA	4



## CHAPTER 3

### MOS/SKILL LEVEL TASKS

#### SKILL LEVEL 2

#### SUBJECT AREA 12: COMMUNICATIONS

#### Check Implementation of Electronic Counter-Countermeasures Procedures 113-573-5002

**Conditions:** Operating in a field environment, you will be given an operational radio set that is being jammed and a CEOI KTV 1600\* with KAV SUPPL 2.

**Standards:** This task has been performed correctly when performance measures 1 through 7 have been completed.

#### Performance Steps

1. A close relationship exists between electronic counter-countermeasures and communications security. Both defensive arts are based on the same principle. An enemy who does not have access to our essential elements of friendly information is a much less effective foe. The major goal of COMSEC is to ensure that friendly use of the electromagnetic spectrum for communications is unexploitable by the enemy. The major goal of practicing sound ECCM techniques is to ensure the continued use of the electromagnetic spectrum. ECCM techniques are designed to ensure commanders some degree of confidence in the continued use of these techniques. Our objective must be to ensure that all communications equipment can be employed effectively by tactical commanders in spite of the enemy's concerted efforts to degrade such communications to its tactical advantage. Equipment modification and development to make our communications less susceptible to enemy exploitation are expensive processes. Equipment is being developed and fielded that will provide an answer to some of our ECCM problems. Commanders, staff, planners, and operators remain responsible for the security and continued operation of all communications equipment.
  - a. Operators of communications equipment must be taught what jamming and deception can do to communications. They must be made aware that incorrect operating procedures can jeopardize the unit's mission and ultimately increase unit casualties. Preventive and remedial ECCM techniques must be employed instinctively. Maintenance personnel must be made aware that unauthorized or improperly applied modifications may cause equipment to develop peculiar characteristics that can be readily identified by the enemy.
  - b. Electronic counter-countermeasures should be preventive in nature. They should be planned and applied to force the enemy to commit more jamming, interception, and deception resources to a target than are worth it or are available. ECCM techniques must also be applied to force the enemy to doubt the effectiveness of the jamming and deception efforts.
  - c. Before we can begin to prevent electronic countermeasures, we must first be certain of what we are trying to prevent. Enemy use of ECM is discussed below.

- (1) Jamming. Jamming is the deliberate radiation, reradiation, or reflection of electromagnetic energy with the objective of impairing the use of electronic devices, equipment, or systems. The enemy conducts jamming operations to prevent us from effectively employing our radios, radars, navigational aids, satellites, and electro-optics. Obvious jamming is normally very simple to detect. The more commonly used jamming signals of this type are described below. Do not try to memorize them; just be aware that these and others exist. When experiencing jamming, recognizing it and taking action to overcome it is much more important than identifying it formally.
  - (a) Random noise. This noise is random in amplitude and frequency. It is similar to normal background noise and can be used to degrade all types of signals.
  - (b) Stepped tones. These are tones transmitted in increasing and decreasing pitch. They resemble the sound of bagpipes.
  - (c) Spark. The spark is easily produced and is one of the most effective forms of jamming. Bursts are of short duration and high intensity. Sparks are repeated at a rapid rate and are effective in disrupting all types of communications.
  - (d) Gulls. A quick rise and a slow fall of a variable radio frequency generate the gull signal. It is similar to the cry of a sea gull.
  - (e) Random pulse. In this type of interference, pulses of varying amplitude, duration, and rate are generated and transmitted. Random pulses are used to disrupt teletypewriters, radars, and all types of data transmission systems.
  - (f) Wobbler. The wobbler is a single frequency that is modulated by a low and slowly varying tone. The result is a howling sound that is a nuisance in voice radio communications.
  - (g) Recorded sounds. Any audible sound, especially of a variable nature, can be used to distract radio operators and disrupt communications. Examples of these sounds are music, screams, applause, whistles, machinery noise, and laughter.
  - (h) Preamble jamming. This type of jamming occurs when the synchronization tone of speech security equipment is broadcast over the operating frequency of secure radio sets. Preamble jamming results in radios being locked in the receive mode. It is especially effective when employed against radio nets using speech security devices.
  - (i) Subtle jamming. This type of jamming is not obvious. With subtle jamming, no sound is heard from our receivers. The receivers cannot receive incoming friendly signals, but everything appears normal to the radio operator.
- (2) Meaconing. Meaconing is a system of receiving radio beacon signals from NAVAIDs and rebroadcasting them on the same frequency to confuse navigation. The enemy conducts meaconing operations to prevent our ships and aircraft from arriving at their intended targets or destinations.
- (3) Intrusion. Intrusion is intentional insertion of electromagnetic energy into transmission paths with the objective of deceiving equipment operators or causing confusion. The enemy conducts intrusion operations by inserting false information into our receiver paths. This false information may consist of voice instructions, ghost targets, coordinates for fire missions, or even the rebroadcasting of prerecorded data transmissions.
- (4) Interference. Interference is any electrical disturbance that causes undesirable responses in electronic equipment. Interference refers to the unintentional disruption of the use of radios, radars, NAVAIDs, satellites, and electro-optics. This interference may be of friendly, enemy, or atmospheric origin. For example, the interruption of military communications by a civilian radio broadcast is interference.

2. Properly applied ECCM techniques will deny the enemy valuable intelligence sources and eliminate much of the threat that the enemy poses to our combat operations. The discussion that follows describes practical ways to protect communication systems.
  - a. The siting of the transmitting antenna is critical in the ECCM process. Before a decision is made about a proposed site for either a single-channel or multichannel antenna, two basic questions must be answered:
    - (1) Are communications possible from the proposed site?
    - (2) Are there enough natural obstacles between the site and the enemy to mask transmission?
  - b. The final decision on site selection will often be a trade-off between the answers to these two questions. The communications mission must be the first priority in determining actual antenna sites. There are additional actions that must be taken to limit the enemy's chances of interception and successful location. Transmitters and antennas should be located away from the headquarters. The two locations should be separated by more than 1 kilometer (0.62 mile). Erroneous radio direction finder data used in conjunction with observation data may favor the targeting of a decoy site instead of the actual transmitter site. The success of this ploy depends on good camouflage at the actual site. Transmitters grouped in one area indicate the relative value of the headquarters. Directional antennas reduce radiation exposure to enemy receivers and enhance the intended signal. (For instruction on directional antennas, refer to TC 24-21.)
  - c. Use the lowest possible transmitter power output. Lower power means less radiated power reaches the enemy and thus increases the enemy's difficulty in applying ECM.
  - d. Use only approved code systems. Never use unauthorized (homemade) codes. The use of codes other than those generated by the National Security Agency can provide a false sense of COMSEC that can be exploited by enemy radio intercept operators. Only when absolutely necessary should traffic be passed in the clear.
  - e. Rather than assuming that equipment is defective, assume that it is operational. Operators must not contact other stations for equipment checks simply because no message has been transmitted in a set time frame.

**Evaluation Preparation:** Setup: A radio set operating in a radio net with interference applied to the system.

**Brief the Soldier:** As the supervisor of an operator, you must check to ensure that the operator is applying proper tactics to a jammed system.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Locate transmitters and antennas away from the headquarters (use remotes).	_____	_____
2. Employ decoy antennas at predictable communication sites that can be observed by enemy surveillance.	_____	_____
3. Disperse transmitters rather than concentrating them in a group around headquarters elements.	_____	_____
4. Construct and use directional antennas at selected sites when possible.	_____	_____
5. Use the lowest possible transmitter output consistent with good communications.	_____	_____
6. Use terrain features such as hills, vegetation, and buildings to mask transmissions.	_____	_____

**Performance Measures**

**GO   NO GO**

- |   |   |   |
|---|---|---|
| 7. Use on-line cryptographic security devices when they are available for both single-channel and multichannel radios.                | — | — |
| 8. If on-line systems are not available, use only off-line manual code systems supplied by a COMSEC material direct support activity. | — | — |
| 9. Minimize message length. Preplan voice transmissions and keep radio teletypewriter transmissions short and to the point.           | — | — |
| 10. Eliminate unnecessary equipment checks and discourage operator chatter.   | — | — |
| 11. Insert a 5- to 7-second break in transmissions for each 15 seconds of transmitting time.  | — | — |

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.

**References**

**Required**

CEOI

**Related**

FM 6-02(FM 24-1)  
 FM 6-02.18(FM 24-18)  
 FM 6-02.33(FM 24-33)  
 SS0652  
 TC 24-21

## SUBJECT AREA 13: SHIFT SUPERVISOR TRAINING ADMINISTRATION

### Conduct Controller Training

011-143-2002

**Conditions:** You are assigned as a training or shift supervisor in a fixed Army ATC facility and given a DA Form 3479-R (Training and Proficiency Record - Air Traffic Controller), facility training manual, and FM 3-04.303(FM 1-303).

**Standards:** Conduct and monitor all phases of the facility's controller training program according to FM 3-04.303(FM 1-303).

### Performance Steps

1. Qualification Training. Newly assigned personnel must complete this training before they can obtain a facility rating. Personnel also receive qualification training when new procedures are instituted or when new ATC equipment is installed.
  - a. Indoctrination. Indoctrination is the first phase of the facility-training program for all newly assigned personnel. It consists of—
    - (1) A briefing on what is expected of the trainee.
    - (2) An introduction to AR 95-2.
    - (3) A discussion of training time limits.
    - (4) Issuance of the FTM.
    - (5) A comprehensive review of Chapter 1 of the FTM and a general review of the remaining chapters.
    - (6) A review of the training schedule.
    - (7) A tour of the ATC facility and other airfield facilities and, if possible, a local orientation flight.
    - (8) A CTO verification.
    - (9) A written or an oral examination on Chapter 1 of the FTM.
    - (10) A Class II medical verification.
  - b. Primary knowledge.
    - (1) Trainees may complete this phase of training in a classroom or while assigned to a shift. During this phase, trainees learn general subjects needed to begin training at control positions. Trainees must complete a written examination on Chapters 2, 3, and 4 of the FTM at the end of this phase.
    - (2) Trainees also must complete a Class II flight physical before entering the next phase of training.
  - c. Position qualification.
    - (1) Position qualification consists of hands-on training at each control position, examinations on the FTM chapters that apply to the different control procedures, and evaluations on each control position. The supervisor evaluates trainees using DA Form 3479-1-R (Trainee/Controller Evaluation).
    - (2) This training should begin at the least complex control position and advance to the most complex position. To be qualified at a control position, trainees must complete a review of all FTM chapters that apply to the position. They also must receive a satisfactory evaluation on DA Form 3479-1-R and a recommendation from the shift supervisor that they be designated position-qualified. The shift supervisor makes this recommendation in the Remarks block of the DA Form 3479-1-R. After the shift

supervisor recommends a trainee for position qualification, the facility chief or training supervisor evaluates the trainee to determine if the trainee is qualified. The facility chief or training supervisor also may give the trainee a written or an oral examination.

- d. Facility rating.
  - (1) Pre-FAA/ATCS examination. This examination should consist of 50 to 100 questions on the FTM, AIM, FAA Order 7110.65, letters of agreement, operations letters, approach charts, FLIPs, SIDs, maps, and other charts. Questions in the examination pertain only to those topics that trainees must know as controllers at the facility to which they are assigned. The examination presents the types of questions that are in the final FAA/ATCS written examination and points out areas that trainees may need to review. Trainees who fail this examination will continue classroom study and will be scheduled to retake the examination in about one-week.
  - (2) Final FAA/ATCS facility rating examination. This examination shall consist of 50 to 100 questions on topics required at the facility to which the trainee is assigned.
  - (3) Facility rating evaluation. This evaluation, which is recorded on DA Form 3479-1-R, covers all operational positions pertaining to the rating. It should be conducted under normal air traffic conditions.
2. Administration and Management Training. On completion of facility training, all personnel in grades E5 or GS-9 and controllers in other grades who routinely perform duties as the controller in charge shall receive training in facility administration and management.
3. Proficiency Training. This training ensures that a facility-rated or position-qualified controller remains current and proficient on ATC policies, procedures, and equipment. It covers areas in which the individual has previously qualified but needs refresher training; for example, weather certification or updates on changes to Army regulations, field manuals, handbooks, and operational procedures.
4. Remedial Training. The purpose of remedial training is to correct a controller's demonstrated weakness. Only those controllers who have shown that they can no longer perform satisfactorily at a control position for which they previously qualified must undergo remedial training. The ATC chief or facility chief determines time limits for this training. Remedial training may consist of classroom instruction, additional time at the position under direct supervision, or both.
5. Initial and Annual Weather Certification Training (Tower Personnel Only).
  - a. Controllers who are required to perform limited weather observations must complete certification before they obtain a facility rating. They must renew this certification annually at each facility. The supervisor records the results of initial and annual weather certification training on DA Form 3479-R.
  - b. Local weather service authorities will provide a practical training program to certify air traffic controllers as limited weather observers. If there is no servicing weather station, the requesting agency shall ensure that limited weather observer training is provided. Weather observation is a secondary function of controllers; ATC is their primary function.
6. Time Limits for Facility Ratings. The time limits for facility ratings are as follows: Type of facility control tower; calendar months 7. Type of facility control tower with nonradar approach control; calendar months 9. Type of facility ground-controlled approach; calendar months 4. Type of facility radar approach facility; calendar months 24. Type of facility army flight-following service; calendar months 4. Type of facility tactical phase I qualification; calendar months 3. Type of facility tactical phase II rating; calendar months 3. See NOTE below.

**NOTE:** The ATCS examiner will set the time limits for a tactical Phase II rating after considering the time available to evaluate the controller's performance in a tactical environment.

**Evaluation Preparation:** SETUP: This task may be conducted in an actual or simulated environment by the supervisor. Give the soldier the situation and have him perform the duties of a training or shift supervisor in a fixed Army ATC facility.

**Brief Soldier:** Tell the soldier that he will be evaluated on his ability to conduct controller training.

<b>Performance Measures</b>	<u>GO</u>	<u>NO GO</u>
1. Conduct qualification training.	_____	_____
a. Indoctrination.		
b. Primary knowledge.		
c. Position qualification.		
d. Facility rating.		
2. Conduct administration and management training.	_____	_____
3. Conduct proficiency training.	_____	_____
4. Conduct remedial training.	_____	_____
5. Monitor weather certification training.	_____	_____
6. Determine the time limits for a facility rating.	_____	_____

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-04(FM 1-303)

**Related**

AR 40-8

AR 420-90

AR 95-2

DA Form 2404 (Equipment Inspection and Maintenance Worksheet)

FAA Order 7110.65

## Assign Controllers to Operating Positions 011-143-2003

**Conditions:** You are assigned duty in an ATC facility as a supervisor and required to assign subordinate personnel to operating positions.

**Standards:** Assign rated and nonrated subordinate personnel to the appropriate positions in an ATC facility. Combine positions as the amount of activity and the qualifications of the controller make this feasible.

### Performance Steps

1. Rated Controllers. Man the positions with ATC personnel who are qualified to perform the required duties. Make assignments based on air traffic, equipment, facility function, and individual qualifications.
2. Position-Qualified Trainees. Assign position-qualified trainees to one position at a time and provide direct (one-on-one) supervision. Do not assign trainees to combined positions except as specified in 3a below.
3. Nonposition-Qualified Trainees.
  - a. Unless you provide direct supervision, do not assign trainees to positions for which they are not qualified. In addition, do not assign trainees to more than one position at a time unless they are qualified at both positions.
  - b. Do not assign facility-rated controllers to more than one position while they are providing direct supervision. Facility-rated controllers providing one-on-one supervision of a trainee or noncurrent rated controller are directly responsible for the operation of the position. During facility rating examinations, examiners may assume position responsibility if they are facility-rated and current at the facility. Do not assign facility-rated controllers who are not current to a position unless you provide direct supervision.
  - c. At your discretion, you may allow non-position-qualified trainees to conduct precision and surveillance approaches during IFR conditions if—
    - (1) One-on-one supervision is maintained.
    - (2) Direct communications override is available at the position of operation.
    - (3) Weather conditions are not less than a 500-foot ceiling or 1 mile visibility.
4. Combined Positions. You may combine positions; however, you must consider not only the activity, equipment, and facility function but also the qualifications of the personnel involved. A facility memorandum must identify those positions that cannot be combined.

**Evaluation Preparation:** Setup: The supervisor may simulate this task. Ensure the soldier knows how to assign a rated controller to a control position, assign a position-qualified trainee to a control position, assign a nonposition-qualified trainee to a control position, and combine positions as appropriate.

**Brief Soldier:** Tell the soldier to perform the duties of a shift supervisor/CIC during normal shift operations and assign controllers as appropriate according to FAA Order 7110.65



and FM 3-04.303(FM 1-303). Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

GO NO GO

**NOTE:** Applicable performance measures are determined by local conditions and mission requirements.

- |   |       |       |
|---|-------|-------|
| 1. Assigns nonposition-qualified trainee to a control position. | _____ | _____ |
| 2. Assigns position-qualified trainee to a control position.    | _____ | _____ |
| 3. Assigns rated controller to a control position.              | _____ | _____ |
| 4. Consolidates operating positions.                            | _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

DA Form 3503-R (Air Traffic Control Position Log)

**Related**

AR 40-501  
 AR 40-8  
 AR 95-2  
 DA Form 3479-1-R  
 FM 3-04.303(FM 1-303)

## **Perform the Responsibilities of a Shift Supervisor During or after an Aircraft Accident or Incident**

**011-143-2004**

**Conditions:** As a shift supervisor in an ATC facility, when an aircraft accident or incident occurs, you are given local weather information and aircraft location, DA Form 3502-R (Daily Report of Air Traffic Control Facility), FAA Form 7230-21 (Flight Progress Strip), FAA Form 7230-8 (Flight Progress Strip), and a crash alarm system. You are assigned as the shift supervisor during or after an aircraft accident or incident.

**Standards:** Obtain, record, remove, and safeguard information, notify essential personnel as appropriate, and continue to provide ATC services.

### **Performance Steps**

1. Continue Operations as Applicable. When a facility, service, or NAVAID is suspected to have been involved in an aircraft accident or incident, the shift supervisor must ensure that the safe, orderly, and expeditious movement of all air traffic operating under the jurisdiction of the ATC facility continues.
2. Obtain Information. The shift supervisor must obtain accurate and complete information to be used as the basis for detailed investigations. This information includes written statements about the incident or accident from all controllers and supervisory personnel involved.
3. Notify the ATC Chief or Facility Chief. Notify the ATC chief or facility chief and other designated personnel.
4. Request Weather Observation. Request a local weather observation unless there has been an intervening record or record-special observation.
5. Record Details. Record all appropriate details, including the local weather observation, on a DA Form 3502-R.
6. Remove and Safeguard Tapes. Remove and safeguard recorder tapes that are or may be pertinent to the accident or incident as soon as possible. Handle these tapes according to FM 3-04.303(FM 1-303). In case of a complaint about ATC services or an emergency that does not result in an accident or incident, you do not have to remove the recorder tapes before the normal rotation time.

**Evaluation Preparation:** Setup: In an actual setting, have the soldier direct ATC services as required after an aircraft accident or incident. If you must simulate the requirements, give the soldier a description of an aircraft accident or incident and have the soldier describe the actions required.

**Brief Soldier:** Tell the soldier to perform the duties of a shift supervisor during or after an aircraft accident or incident. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Continue operations.	—	—
2. Obtain the necessary information.	—	—
3. Notify the ATC chief or facility chief and other designated personnel.	—	—
4. Request a local weather observation unless there has been an intervening record or record-special observation.	—	—
5. Record appropriate details, including the local weather observations on DA Form 3502-R.	—	—
6. Remove and safeguard recorder tapes pertinent to the accident or incident.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

- DA Form 3502-R
- FAA Form 7230-21
- FAA Form 7230-8

**Related**

- DA Form 3503-R (Air Traffic Control Position Log)
- FAA Order 7110.65
- FM 3-04.303(FM 1-303)

## SUBJECT AREA 14: SUPERVISION OF TACTICAL ATC OPERATIONS

### Supervise the Emplacement of Tactical Equipment

011-143-3001

**Conditions:** You are a tactical team supervisor, and you are given the appropriate personnel, equipment, a training site, and applicable TMs.

**Standards:** Ensure that the equipment is emplaced according to the applicable TMs and SOP.

#### Performance Steps

1. Designate personnel to set up the equipment according to the appropriate TMs.
2. Provide the appropriate TMs.
3. Brief the team on the emplacement site requirements according to the appropriate TMs.
4. Provide assistance to the team. Assist team members if they have problems or questions about the equipment.
5. Inspect the site and the equipment setup. Check for proper grounding, adequate drainage, and obstructions.
6. Provide status reports. When the equipment is set up, report the status to the chain of command as required by SOP.

**Evaluation Preparation:** SETUP: Have the soldier supervise the emplacement of the ATC TOE equipment during normal operations in a tactical environment or provide a training site.

**Brief Soldier:** Tell the soldier to supervise the emplacement of the ATC TOE equipment. Also, tell the soldier that you will not inform him of his progress during performance of the task.

#### Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Designate personnel to set up the equipment.	—	—
2. Provide the applicable TMs.	—	—
3. Brief the team on emplacement site requirements.	—	—
4. Provide assistance to the team.	—	—
5. Inspect the site and the equipment setup.	—	—
6. Provide status reports to the chain of command.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

None

**Related**

None

## Operate Theodolite 011-143-5061

**Conditions:** As a GCA team supervisor, you are required to use a theodolite to determine the glide slope angle for a precision approach. You are given a theodolite, a pencil, paper, a calculator, a tape measure, FM 3-04.303(FM 1-303), and radio communications with a GCA facility. An ATC equipment repairer (MOS 35D) will be available to assist you.

**Standards:** Set up the theodolite, prepare the theodolite for leveling, and level the theodolite. Make the necessary major adjustments to the theodolite and determine the positioning of the theodolite for a PAR approach. Prepare for flight check commissioning. Complete all procedures according to FM 3-04.303(FM 1-303).

### Performance Steps

1. Set up the Theodolite. The accuracy of theodolite measurements depends on proper setup and adjustment of the instrument. Personnel must be careful when removing the theodolite from its carrying case and when mounting it onto the tripod.
  - a. Remove the theodolite from the carrying case.
    - (1) Place both hands under the base plate (the part containing the azimuth scale) and slide the instrument out of its case.
    - (2) With one hand (reaching from above), grasp the two adjacent leveling screws at the narrow part of the column and cradle the instrument carefully against your body with your forearm.
    - (3) With the other hand, unscrew the baseboard.
  - b. Mount the theodolite onto the tripod.

**NOTE:** When mounting the theodolite onto the tripod, do not turn the theodolite by the upper part when the azimuth tangent screw is engaged. This may cause damage to the threads.

- (1) With both hands on the column, carefully screw the instrument onto the tripod head.
- (2) Remove the dust cap and install the sunshade on the telescope.
- (3) Screw the tripod cap onto the baseboard, replace the baseboard in the carrying case, and close the door.

2. Prepare the Theodolite for Leveling.

**NOTE:** You may omit steps a through c below if the theodolite is not positioned over a point such as a marker stake or bench marker.

- a. If the theodolite is to be located over a point such as a marker stake, suspend the plumb bob by its string from the eye accessible through the hole in the bottom of the leveling plate.
- b. Keeping the theodolite as level as possible, center the plumb bob over the marker by moving the tripod legs.
- c. Accurately center the plumb bob over the marker by loosening the two adjacent leveling screws and shift the instrument laterally by moving its shifting plate. (If this moves the theodolite too near the edge of the base plate, reposition the tripod legs.)
- d. Ensure that the theodolite is approximately level (as gauged by the eye).
- e. Disengage the elevation scale tangent screw by pushing it down.
- f. Point the telescope straight up.
- g. Reengage the elevation scale tangent screw by pushing it up.
- h. Lower the battery box to provide a better view of bubble levels.
- i. Disengage the azimuth scale tangent screw by pulling it out.

- j. Set the horizontal azimuth scale to 0 degrees.
  - k. Reengage the azimuth scale tangent screw by pushing it in.
  - l. Loosen the lower clamp.
  - m. Loosen the leveling screws slightly and slide the instrument until centered or until the plumb bob (if used) is exactly over the marked observation point. Then retighten the leveling screws.
  - n. Rotate the instrument so that each bubble level is parallel to a diagonally opposite pair of leveling screws. Then retighten the lower clamp.
3. Level the Theodolite. The proper theodolite level is indicated when the leveling bubbles are centered and the ends of the bubbles are an equal distance from the corresponding graduation marks. Follow the steps below to level the theodolite.
- a. Using both hands, grasp one pair of diagonally opposite leveling screws between thumbs and forefingers.
  - b. With a smooth and steady motion, turn the screws simultaneously so that your thumbs move either toward or away from each other. This ensures that the screws are tightened or loosened an equal amount. The bubble will move in the same direction as your left thumb.

**NOTE:** Do not loosen any screw to a point that will allow the instrument to wobble on the mount.

- c. Using the techniques in a and b above, bring one bubble near the center. Then move to the opposite pair of leveling screws and bring the other bubble near the center. The bubble levels should now be nearly centered, and all leveling screw should be fairly snug.
  - d. To center the bubbles exactly, carefully adjust one screw of a pair at a time, alternating pairs until both bubbles are exactly centered. All leveling screws should be firm, and both bubbles should be centered.
  - e. Disengage the azimuth scale tangent screw and rotate the instrument to exactly 180 degrees. If the bubbles remain centered, the instrument is level.
  - f. If the bubbles are slightly off center, center them again using the techniques in d above.
  - g. Rotate the instrument to 0 degrees.
  - h. If the bubbles are centered, the instrument is level. If the bubbles are off center, a vertical axis adjustment is required. (Refer to paragraph 4a below for the procedure for this major adjustment.)
4. Make the Necessary Major Adjustments to the Theodolite. The accuracy of the theodolite depends on proper adjustment of four points. These points are the vertical axis, the line of collimation, the horizontal axis, and the elevation scale fiducial mark. These adjustments and their purpose are described separately below. However, each adjustment relates to the others. You must not make one adjustment without making the others. You also must make the four adjustments in the sequence in which they are described.
- a. Vertical axis adjustment. The vertical axis is the axis of horizontal rotation of the base plate and consequently of the telescope. The purpose of this adjustment is to make the axis of each bubble level perpendicular to the vertical axis of the theodolite. In other words, it makes the axis of each level exactly parallel with the plane of the base plate. When the adjustment is completed, the bubble in each level will remain centered during a complete horizontal rotation of the instrument and the axis of that rotation will be vertical. Each time the theodolite is set up, the vertical axis should be checked and, if necessary, the adjustment made.

**CAUTION**

The vertical axis adjustment is a complex procedure. Only operators who know how should make the adjustment.

- (1) Set the azimuth scale to 0 degrees and leave the tangent screw in mesh.
- (2) Level the theodolite.
- (3) When both bubbles indicate that the instrument is level, disengage the azimuth scale tangent screw and rotate the azimuth scale exactly 180 degrees. If the bubbles remain centered, the vertical axis adjustment is correct.
- (4) If the bubbles are not centered, turn the adjusting screw at the back of the levels so that the bubbles return halfway to center. If a bubble is displaced far enough to be against the end of the bubble case, turn the adjusting screw only until the bubble starts to move. Rotate back to 0 degrees azimuth and center the bubble with diagonally opposite leveling screws. Continue this procedure until at 180 degrees azimuth the bubble is away from the end of the bubble case.
- (5) Return the azimuth scale to 0 degrees and adjust each pair of diagonally opposite leveling screws to center the bubbles.
- (6) Rotate the azimuth scale to 180 degrees. If the bubble in each level remains centered, the adjustment is satisfactory.
- (7) If the bubbles again move off center, remove one half of the error by adjusting the bubble level screws. Return the azimuth scale to 0 degrees and relevel the instrument. Continue the above procedure until the bubbles remain centered for all positions of the azimuth scale.

**CAUTION**

Always relevel the theodolite and rotate the azimuth scale 180 degrees before making any correction. To avoid confusion, always level at 0 degrees and correct at 180 degrees.

- b. Line of collimation adjustment. The line of collimation is a line through the optical center of the object lens, the prism, and the crosshairs intersection of the telescope. The line of collimation should make a 90-degree angle in the prism. The purpose of this adjustment is to make the line of sight through the telescope correspond to the line of collimation. If the vertical crosshair does not fall on the target after rotating the azimuth 180 degrees and the apparent error exceeds two-tenths of a degree, a correction is required. Follow the procedures below to make the line of collimation adjustment.

**NOTE:** This adjustment is not as necessary in flight inspection work as the elevation scale adjustment. The line of collimation error is constant throughout azimuth as long as the elevation angle does not exceed 90 degrees. The alignment of the azimuth scale to a reference bearing compensates for this error.

- (1) Correct half of the error by turning the azimuth scale tangent screw until the azimuth scale is set exactly one half the distance back to 180 degrees.
- (2) Correct the other half of the error by turning the two capstan screws of the prism adjustment until the vertical crosshair is lined up on the target.
- (3) Use the two capstan pins and turn both screws simultaneously.



- (4) Again measure the error, repeating the above procedure until the apparent error is two-tenths of a degree or less. The procedure for measuring the error is described in paragraph d below.

**CAUTION**

Do not use excessive pressure on the screws or turn them too far. This could cause the prism or its mount to break.

- c. Horizontal axis adjustment. The horizontal axis is the axis of the vertical rotation of the telescope. The purpose of this adjustment is to make the horizontal axis of the telescope perpendicular to the vertical axis. After adjusting the vertical axis and the line of collimation, follow the procedures below to adjust the horizontal axis.
- (1) Set up the theodolite about 20 feet from the end of a building or a high wall.
  - (2) Level the theodolite by setting the azimuth scale to 0 degrees and leave the tangent screw in mesh.
  - (3) Loosen the lower clamp and disengage the elevation scale tangent screw.
  - (4) Sight the telescope on a well defined point as high as possible on the building or wall.
  - (5) Tighten the lower clamp and engage the elevation scale tangent screw.
  - (6) Accurately set the crosshairs intersection on the target by using the elevation scale tangent screw and the slow-motion screw. Make the final setting of the slow-motion screw by turning it clockwise.
  - (7) Disengage the elevation scale tangent screw and depress the object end of the telescope until the crosshairs intersection falls at the base of the building or wall.
  - (8) Place a mark on the building or wall at this point. Then disengage the azimuth scale tangent screw.
  - (9) Rotate the azimuth scale to exactly 180 degrees and engage the tangent screw.
  - (10) Swing the object end of the telescope up and sight on the upper target again.
  - (11) If necessary, use the slow-motion screw to place the crosshairs intersection at the proper adjustment.
  - (12) Depress the object end of the telescope to sight on the lower target. If the crosshairs intersection again falls on the target, the horizontal axis of the instrument is properly adjusted.
  - (13) Turn the azimuth scale tangent screw to move the crosshairs intersection back to the point of the original lower target.
  - (14) Record the reading of the azimuth scale. The deviation from 180 degrees is the apparent error of the horizontal axis and is double the real error.
  - (15) Turn the tangent screw to set the azimuth scale at exactly half the distance back to 180 degrees and raise the telescope to the level of the upper point.
  - (16) Turn the adjustment nuts on the adjustable standard. (The adjustable standard is on the supporting pillar on the opposite side from the eyepiece.) If moving the crosshairs intersection in the direction away from the adjustable standard toward the nonadjustable standard, loosen the bottom nut and turn the top nut until the intersection falls on the point. Tighten the top nut to lock the adjustment.
  - (17) Check the adjustment by repeating the entire procedure, as necessary, to get the points to coincide.

**CAUTION**

It is important that you adjust the adjustable standard while the telescope is pointing toward the top target. Only while the telescope is in this position will you be able to see how moving the horizontal axis affects the crosshairs intersection. Also check the elevation tangent screw backlash adjustment during and after the horizontal axis adjustment.

d. Elevation scale fiducial mark adjustment. The purpose of this adjustment is to make the elevation scale indicate 0 degrees when the horizontal axis of the theodolite lies in the horizontal plane. The adjustment should be checked each time the theodolite is set up to measure vertical angles such as in glide slope flight checks. If the indicated error exceeds two-tenths of a degree, the adjustment should be made. Follow the steps in (1) below to measure the error. Follow the steps in (2) below to make the adjustment.

(1) Measure the error.

- (a) Set up and level the theodolite.
- (b) Set the azimuth scale and the elevation scale exactly to 0 degrees and leave the tangent screws in mesh.
- (c) Loosen the lower clamp wing screw and rotate the instrument horizontally while looking through the eyepiece until you select a target some distance away. (This target must lie on the horizontal crosshair, be well defined in the vertical plane, and permit reidentification.)
- (d) Tighten the wing screw and adjust the slow-motion screw until both crosshairs lie exactly on the target.

**NOTE:** Make the final adjustment of the slow-motion screw by turning the screw clockwise.

- (e) Disengage the elevation scale tangent screw and rotate the telescope 180 degrees.
  - (f) Engage the tangent screw and set it exactly to 180 degrees.
  - (g) Disengage the azimuth scale tangent screw and rotate the base plate to 180 degrees.
  - (h) Engage the tangent screw and set it exactly to 180 degrees. If the crosshairs again fall exactly on the target, no error exists.
  - (i) If the horizontal crosshair does not fall exactly on the target, turn the elevation scale tangent screw until it does.
  - (j) Note the reading of the elevation scale. The deviation from 180 degrees is the apparent error of the fiducial mark and is double the real error.
  - (k) If the vertical crosshair does not fall on the target, you must readjust the line of collimation and the horizontal axis.
- (2) Make the adjustment.
- (a) If the apparent error of the fiducial mark is excessive, correct half the error by turning the elevation scale tangent screw half the distance back to 180 degrees. The next step depends on whether the remaining half of the error of the fiducial mark exceeds 1 degree.

**CAUTION**

Use the eccentrics to move the fiducial plate. Do not touch the fiducial plate with your fingers or tools.

- (b) If the remaining error exceeds one degree, correct by loosening the two fillister-head screws holding the fiducial plate and move the fiducial plate to align the fiducial mark exactly with the 180-degree graduation.
  - (c) Tighten the fillister-head screws, ensuring that a minimum clearance exists between the fiducial plate and the elevation scale.
  - (d) Loosen the setscrew in the end of the elevation scale tangent screw drum and reset the tangent screw to 0 degrees. Then retighten the setscrew.
  - (e) Again measure the error using a new target.
  - (f) Repeat steps (a) through (e) above as necessary until the error is 1 degree or less.
  - (g) If the remaining error is 1 degree or less, correct the error by loosening the set screw in the end of the elevation scale tangent screw drum while holding the tangent screw stationary.
  - (h) With the setscrew loose, turn the tangent screw to 0 degrees. Then retighten the setscrew.
  - (i) Again measure the error using a new target.
  - (j) Repeat the procedure as necessary until the apparent error is two-tenths of a degree or less.
  - (k) Reposition the fiducial scale as outlined in the preceding steps until it is aligned with the 180-degree graduation when the tangent screw is set at 0 degrees.
5. Determine Positioning of the Theodolite for a PAR Approach.
- a. Positioning.
    - (1) Position the theodolite according to the criteria for the precision approach radar. If an aircraft equipped with the automatic flight inspection system is not used for the commissioning inspection, a theodolite shall be used to determine glide angles, including lower safe limits. For a PAR facility performance evaluation, place the theodolite as close to the runway as possible. However, you must place the instrument forward of the runway point of intercept (touchdown) to minimize or eliminate elevation differences between the RPI and the theodolite location; this difference includes the height of the theodolite eyepiece. The touchdown reflector usually is abeam the RPI, but not always. Aircraft operations will dictate how close to the runway you can place the theodolite. The formula for computing marked reference points and examples of computations are in Figure 5061-1.

**Formula:**      Opposite = Adjacent x Tangent ( $O = A \times T$ )  
                          Adjacent = Opposite/Tangent ( $A = O/T$ )  
                          Tangent = Opposite/Adjacent ( $T = O/A$ )

For example, a 5-foot/3-degree tangent (0.524078) equals 95.4 feet. Therefore, the theodolite would be placed 95.4 feet forward of the RPI.

**Sample Problem 1:** 1,200-foot ceiling/3-degree angle = \_\_\_\_\_ distance.

**Solution:** 1,200 feet/3 degrees (0.524078) = 22897.365/6076.1 = 3.76 nautical miles. Is this acceptable? No.

**Sample Problem 2:** 2,000-foot ceiling/3-degree angle = \_\_\_\_\_ distance.

**Solution:** 2,000 feet/3 degrees (0.524078) = 38162.275/6076.1 = 6.28 nautical miles. Is this acceptable? Yes.

**Figure 5061-1. Formula for computing marked reference points.**

- (2) The elevation and azimuth scales are graduated in whole degrees. The elevation and azimuth tangent screws are graduated in tenths of a degree. Therefore, angles may be read in degrees and tenths of a degree.
  - b. Orientation. The theodolite is oriented on the actual glide slope angle (for example, 2.5 degrees) on the vertical scale when set up on the observation point and viewing the approach end of the runway. Follow the steps below to orient the theodolite properly.
    - (1) With a lensatic compass, select a prominent object. Record the bearing of the object from the observation point.
    - (2) Place the theodolite at the observation point.
    - (3) Level the theodolite.
    - (4) Set the azimuth scale and azimuth scale tangent screw to read the exact azimuth of the established reference point.
    - (5) Loosen the lower clamp and sight the reference point as close to the vertical cross hair as possible.
    - (6) Retighten the lower clamp. Then adjust the slow-motion screw until the vertical cross hair is exactly on the reference point. Make the final adjustment by turning the slow-motion screw clockwise.
  - 6. Assist During the Flight Inspection.
    - a. Communications with the GCA facility are essential during PAR flight inspection. Record only "on glide path" calls. Do not record calls inside the decision height. Radar shall be capable of detecting an aircraft a minimum of 7.5 nautical miles from touchdown and within the azimuth and elevation sector portrayed on the radarscope.
    - b. The flight check is a team effort; therefore, good communications are vital. The aircrew will continuously advise the theodolite operator of their intentions. The theodolite operator should ask questions if doubt exists and request assistance if problems arise.
- NOTE 1:** Because of the prism arrangement in the theodolite telescope, objects viewed through the proper plane will be presented to the operator upside down. When the aircraft appears in the bottom half of the scope, it is high. When it appears in the top half, it is low.
- NOTE 2:** To correctly evaluate the equipment, you should record at least 15 to 20 "on glide path" calls.
- c. Three approaches for each runway and one lower safe limit check are required for commissioning. The lower safe limit is normally five-tenths of a degree less than the glide path angle; however, obstacle clearance is all that is required.
  - d. To evaluate bends on the approach, range shall be given at least once each mile.

**Evaluation Preparation:** Setup: This task may be evaluated using an operational theodolite.

**Brief Soldier:** Tell the soldier he will be evaluated on his ability to operate the theodolite.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Set up the theodolite.	_____	_____
2. Prepare the theodolite for leveling.	_____	_____
3. Level the theodolite.	_____	_____

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
4. Make the necessary major adjustments to the theodolite.	—	—
a. Vertical axis adjustment.		
b. Line of collimation adjustment.		
c. Horizontal axis adjustment.		
d. Elevation scale fiducial mark adjustment.		
5. Determine positioning of the theodolite for a PAR approach.	—	—
6. Assist during the flight inspection.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-04.303(FM 1-303)

**Related**

TM 11-5840-281-12-1

## Supervise the Operation of Tactical Equipment 011-143-3002

**Conditions:** As a shift supervisor /tactical team leader in a field environment, you are given Antenna OE 254/GRC, Air Traffic Control Central AN/TSW-7A, FM 3-04.303(FM 1-303), TM 11-5825-255-12, TM 11-5895-469-12, TM 11-5895-474-12, TM 11-5895-579-12, TM 11-5895-800-12, and TM 11-5895-801-12. [You are assigned as the tactical team supervisor and will supervise the emplacement and operation of the ATC TOE equipment.]

**Standards:** Designate the correct number of soldiers to set up the equipment. Provide assistance, as necessary. Supervise operation of the equipment and accurately report the status of the equipment.

### Performance Steps

1. Assign and direct all phases of the subordinates' work.
2. Ensure that on-the-job training is available for assigned personnel.
3. Assist and advise controllers during emergencies.
4. Maintain facility records.
5. Ensure that assigned personnel are proficient and current.
6. Notify search and rescue facilities of aircraft in distress and provide assistance and advice.
7. Delegate responsibility to subordinates and assist the training supervisor.
8. Evaluate the operational effectiveness of facility systems, subsystems, and equipment.
9. Record and report outages. Take action to correct discrepancies.
10. Provide status reports to the chain of command as required by local SOP.
11. Designate personnel to set up the tactical equipment.

**Evaluation Preparation:** Setup: Provide the soldier with the appropriate personnel, ATC TOE equipment, and manuals. Have the soldier perform the task in an actual setting or provide a training site.

**Brief Soldier:** Tell the soldier to supervise the emplacement and operation of the ATC TOE equipment. Also tell the soldier that you will not inform him of his progress during performance of the task.

### Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Designate personnel to set up the tactical equipment.	—	—
2. Provide assistance.	—	—
3. Supervise operation of the tactical equipment.	—	—

**Performance Measures****GO   NO GO**

4. Provide status reports

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References****Required**

FM 3-04.303(FM 1-303)  
 TM 11-5825-255-12  
 TM 11-5895-469-12  
 TM 11-5895-474-12  
 TM 11-5895-579-12  
 TM 11-5895-800-12  
 TM 11-5895-801-12

**Related**

TM 11- 5895-474-12

## SUBJECT AREA 15: SUPERVISION OF FACILITY ADMINISTRATION

### Retain Records, Logs, and Recorder Tapes

011-143-3011

**Conditions:** As a shift supervisor, facility chief, or tactical team leader in a field environment or fixed ATC facility, you are given recording equipment with recorder tapes and DA Form 3501-R (GCA Operations Log), DA Form 3502-R, DA Form 3503-R, DA Form 3479-6-R (ATC Facility and Personnel Status Report), DA Form 2404 (Equipment Inspection and Maintenance Worksheet), and FAA Forms 7230-21 or 7230-8. [You are the facility chief in an ATC facility and must retain the facility's records, logs, and recorder tapes.]

**Standards:** Review all records, logs, and recorder tapes, which are part of the facility's official record, for completeness, accuracy, and appropriate signatures. Retain this material and make it available (as directed by FM 3-04.303[FM 1-303]).

### Performance Steps

1. Review DA Forms for Accuracy. Entries on all facility operating forms must be neat and accurate. Entries should be typewritten when practical; however, entries printed in ink are permissible. Computerized forms also may be used. Incorrect entries will not be erased or struck over. When an entry must be corrected, lines will be typed or drawn through the incorrect portion and the correct entry inserted. The controller correcting the error must initial the correction.
  - a. Review each completed DA Form 3501-R for accuracy and sign in the authentication block.
  - b. Review each DA Form 3502-R for accuracy and sign in the authentication block.
2. Retain DA Forms.
  - a. File DA Forms 3501-R, 3502-R, and 3503-R daily. Retain them at least one calendar month.
  - b. Keep DA Form 3479-6-R in the active file for one calendar year.
3. Retain Flight Progress Strips. Keep flight progress strips for 15 days.
4. Retain Weather Data (if applicable). Controllers do not need to retain weather data received over recorded voice lines or through television, teletypewriters, or teleautographs. However, they must retain, with DA Form 3502-R, weather data received over unrecorded voice lines and on notepaper. Both the observer and the controller must initial each observation they receive.
5. Retain Recorder Tapes. Assign and attach permanent identification numbers to each reel in service. Keep routine recorded information for 15 days; then erase it.
6. Retain Accident or Incident Records, Logs, and Recorder Tapes.
  - a. Retain tapes containing information about an emergency or alleged violation for 30 days unless you receive a verbal or written request for further retention.
  - b. Retain records, logs, and recorder tapes containing accident information at least six months.



**Evaluation Preparation:** Setup: Have the soldier review DA forms for accuracy and retain DA forms, flight progress strips, weather information, recorder tapes, accident or incident records, logs, and recorder tapes.

**Brief soldier:** Tell the soldier that you will evaluate him on his performance as an ATC chief or a facility chief and his ability to retain records, logs, and recorder tapes. Also tell the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Maintains DA Forms.	_____	_____
a. Reviews forms for completeness, accuracy, and appropriate signatures.		
b. Retains forms for three calendar months.		
2. Maintains weather data.	_____	_____
a. For 15 days, retains the forwarded limited weather observations and weather data recorded on notepads or reverse side of flight progress strips.		
b. For 15 days, retains the weather information received by direct reading equipment, teletype, or other weather dissemination systems. (Exception: A letter of agreement may be drawn up between the official weather reporting station and the facility. The letter may specify that the weather station personnel will maintain this file and make it available to the facility as needed.)		
3. Files Completed Flight Progress Strips.	_____	_____
4. Retains Recorder Tapes.	_____	_____
a. Assigns and attaches a permanent identification number to each tape reel in service.		
b. Retains normal recorded information for 15 days and then erases it.		
5. Retains Written and Recorded Records. Retains written and recorded records pertaining to accidents or incidents.	_____	_____

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

None

**Related**

AR 25-400-2

DA Form 3501-R

DA Form 3502-R

DA Form 3503-R

DA Form 2404

FAA Form 7230-8

FAA Form 7230-21

FAA Order 7110.65

FM 3-04.303(FM 1-303)

**SUBJECT AREA 16: MANAGEMENT OF TACTICAL OPERATIONS**

**Prepare the AN/TSQ-198 (Tactical Terminal Control System) for Movement  
011-143-7002**

**Conditions:** As an ATC Tower operator, tactical team leader in a field environment, you are given AN/TSQ-198 TTCS, TM 11-5895-1568-14, and TM 11-5985-357-13. [You are assigned as a member of an air traffic control team with an operational AN/TSQ-198 TTCS, and you are ordered to prepare your equipment for movement.]

**Standards:** Shutdown and disconnect all power and cables and disassemble and pack components of the AN/TSQ-198 TTCS according to TM 11-5895-1568-14.

**Performance Steps**

1. Shutdown Procedures.
2. Radio System Shutdown.
3. TTCS Cables Removal.
4. MMS Removal.
5. HF Whip Antenna Removal.
6. HF NVIS Antenna Removal.
7. VHF-FM Antenna Removal.
8. VHF/UHF-AM Antennas Removal.

**Evaluation Preparation:** Setup: Applicable performance measures are determined by local conditions, mission requirements, and the assigned equipment.

**Brief Soldier:** Tell the soldier that he or she will be evaluated on preparing the AN/TSQ-198 TTCS for movement according to the appropriate TMs.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Shutdown Procedures.	—	—
2. Radio System Shutdown.	—	—
3. TTCS Cables Removal.	—	—
4. MMS Removal.	—	—
5. HF Whip Antenna Removal.	—	—
6. HF NVIS Antenna Removal.	—	—
7. VHF-FM Antenna Removal.	—	—
8. VHF/UHF-AM Antennas Removal.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

TM 11-5895-1568-14

TM 11-5985-357-13

**Related**

AR 95-2

DA Form 2404

DA Form 3479-1-R

DA Form 3503-R

FAA Order 7110.65

FM 3-52(FM 100-103)

FM 3-04.303(FM 1-303)

**SUBJECT AREA 18: AIRSPACE MANAGEMENT PROCEDURES**

**Identify Airspace Control Measures**

**011-143-5059**

**Conditions:** As a tower/GCA/FOC/FCC facility chief, ATC chief or A<sup>2</sup>C<sup>2</sup> LNO, with assigned duties at a brigade or division, you are given the appropriate ATC equipment and deployment of ATC unit to an area without existing airspace control measures. You are required to provide ATC expertise in a combat or simulated combat environment.

**Standards:** Identify all tasks that are required at the battalion, brigade, or division level.

**Performance Steps**

1. Identify the methods of airspace C<sup>2</sup>.
  - a. Positive control.
  - b. Procedural control.
    - (1) Orders.
    - (2) Overlays.
    - (3) SOPs.
  
2. Identify the six jointly approved procedural control measures and their purposes.
  - a. High-density airspace control zone.
  - b. Coordinating altitude.
  - c. Airspace restricted area, restricted operations area, or restricted operations zone.
  - d. Minimum risk route.
  - e. Standard-use Army aircraft flight route.
  - f. Low-level transit route.
  
3. Identify Army-specific procedural control measures.
  - a. Air control point.
  - b. Air corridor.
  - c. Weapons control status.

**Evaluation Preparation:** Setup: In an actual setting, require the soldier to determine the level of airspace C<sup>2</sup> as appropriate to the combat environment. The supervisor, requiring that the controller identify airspace control measures may simulate this task.

**Brief Soldier:** Tell the soldier that he will be evaluated on his ability to identify airspace control measures. The will not be informed of his progress during the performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Identify the methods of airspace C <sup>2</sup> .	_____	_____
2. Identify the six jointly approved procedural control measures and their purposes.	_____	_____

**Performance Measures**

GO NO GO  
—— ———

- 3. Identify Army-specific procedural control measures.

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-52(FM 100-103)

**Related**

FM 3-04.303(FM 1-303)

**SKILL LEVEL 3**  
**SUBJECT AREA 12: COMMUNICATIONS**

**Operate SINCGARS-V Securable Remote Control Unit (SRCU)**  
**113-587-2077**

**Conditions:** You are given a SINCGARS ICOM operating a net, SRCU C-11561, battery BA-1372, battery BA-5590, battery case CY-8346, flat-tip screwdriver, installed field wire line WF-16, pack frame, cable CX-13298, distant station, TM 11-5820-890-10-1, and TM 11-5820-890-20-1.

**Standards:** The standards are met when an operational message is sent and received from the SRCU.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Prepare SRCU for operation.	—	—
2. Operate SRCU single channel.	—	—
3. Operate SRCU frequency hopping.	—	—

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until he can correctly perform the task.

**References**

**Required**

TM 11-5820-890-10-1  
 TM 11-5820-890-20-1

**Related**

None

**Operate SINCGARS Retransmission  
113-587-2073**

**Conditions:** You are given an operational AN/VRC-92, Cable CX-13298, distant station, distant station (NCS), fill device MX-10579 with keys, KYK-13 or KOI-18 with keys, Unit SOI, TM 11-5820-890-10-1.

**Standards:** Standard is met when retransmission operations are established in all modes, and the distant stations can send and receive an operational message.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Perform starting procedures.	_____	_____
2. Operate SC retransmission.	_____	_____
a. Prepare radio D for SC operation using F2 frequency.		
b. Prepare radio C for SC operation using F1 frequency.		
c. Confirm communications between radios C and A.		
d. Confirm communications between radios D and B.		
e. Instruct radio B to communication with radio A.		
f. Set both RT FCTN switches to RXMT.		
3. Operate FH retransmission.	_____	_____
a. Prepare RTs for cold start net opening.		
b. Cue NCS.		
c. Request cold start for for 2 hopsets and any lockout sets.		
d. Store lockout set and hopset 1 in both RTs, store 2d hopset in RT C.		
e. Cold-start distant station.		
f. Set both RT FCTN switches to RXMT.		
4. Operate SC and FG (mixed mode) retransmission.	_____	_____
5. Perform stopping procedures.	_____	_____

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.

**References**

<b>Required</b>	<b>Related</b>
ACP 125 U.S. SUPPL-1	None
DA PAM 738-750	
FM 6-02.18(FM 24-18)	
FM 6-02.19(FM 24-19)	
TM 11-5820-890-10-1	
UNIT SOI	



## SUBJECT AREA 15: SUPERVISION OF FACILITY ADMINISTRATION

### Develop an Operations Letter

011-143-3012

**Conditions:** As a facility or ATC chief in an ATC facility, you are given FMs 3-04.303(FM 1-303) and 3-04.300(FM 1-300) and a requirement to prepare or review an operations letter. [Determine the requirements to establish a working agreement between two or more agencies on the same airfield.]

**Standards:** Determine the requirements to establish a working agreement between two or more agencies on the same airfield and prepare or review an operations letter according to FM 3-04.303(FM 1-303).

### Performance Steps

1. Determine the Requirements. The ATC chief, facility chief, or operations chief responsible for developing the operations letter shall—
  - a. Ensure that the letter is properly prepared and coordinated with the airfield commander before effecting any other coordination.
  - b. Confine the material in each letter to a single subject or purpose.
  - c. Describe the responsibilities and procedures that apply to the facility and organization involved.
  - d. Enclose charts or other visual presentations to depict the conditions of the agreement as appropriate.
  - e. Coordinate the letter with other facilities, agencies, or authorities as required.
2. Prepare an Operations Letter.
  - a. Prepare the letter in final form.
  - b. Establish an effective date that allows participating facilities and agencies to familiarize personnel with the contents of the operations letter and to complete other actions before implementation.
  - c. Sign the letter and obtain the signatures of other authorities as required.
3. Review an Operations Letter.
  - a. Annual review. All parties concerned will retain a copy of the operations letter and will review the letter on its anniversary. At the time of the annual review, the ATC chief, facility chief, or operations chief will annotate the letter with the date and his signature.
  - b. Change in requirements. If the requirements of any party signing the operations letter change, rewrite or revise the letter. However, a change in key personnel does not require rewriting or revision of the letter. Process the rewritten or revised portions as page replacements and coordinate them the same as the original letter. Mark the revisions as follows:
    - (1) Place an asterisk to the left of each new or revised paragraph or section to show that it is new material.
    - (2) Identify page revisions by the revision number; for example, Rev 1. Enter the effective date in the lower right corner of each revised page.

**Evaluation Preparation:** Setup: The supervisor may simulate this task. Have the soldier determine the requirements for an operations letter, prepare an operations letter, and review the operations letter.

**Brief Soldier:** Tell the soldier to perform the duties of the facility chief/training NCO and develop an operations letter. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Determines requirement.	—	—
2. Prepares operations letter.	—	—
3. Reviews operations letter.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-04.303(FM 1-303)

**Related**

FM 3-04.300(FM 1-300)

## Determine the Requirements for an Individual's Facility Rating

**011-143-3005**

**Conditions:** As an ATC chief or a facility chief, you have a newly assigned controller and are given DA Form 3479-R, AR 95-2, and FM 3-04.303(FM 1-303).

**Standards:** Determine the requirements and time limits for the individual's facility rating. Verify that the controller meets the prerequisites for obtaining an ATCS and/or a CTO rating. Review the DA Form 3479-R as appropriate.

### Performance Steps

1. Determine the Facility Rating Requirements for a Newly Assigned Controller.
  - a. Verify that the individual—
    - (1) Has a current Class II physical.
    - (2) Is qualified for each operating position that applies to the facility rating.
    - (3) Has completed the training within the time limits.
  - b. Verify that the training supervisor has pretested the individual for the facility rating.
  - c. Review the controller's training and proficiency record.
2. Verify that the Controller Meets the Prerequisites for an ATCS and/or a CTO Rating. The individual must have been certified—
  - a. As an FAA control tower operator or air traffic control specialist.
  - b. To make limited weather observations (tower operator only).
3. Determine the Time Limits for Facility Ratings. Type of facility fixed-base: Type of facility control tower; calendar months 7. Type of facility control tower with nonradar approach control; calendar months 9. Type of facility ground-controlled approach; calendar months 4. Type of facility radar approach facility; calendar months 24. Type of facility army flight-following service; calendar months 4. Type of facility tactical: type of facility phase I qualification; calendar months 3. Type of facility phase II qualification; calendar months (see NOTE below).

**NOTE:** The ATCS examiner will determine this time limit after considering the time available to evaluate the controller's performance in a tactical environment.

4. Review the DA Form 3479-R.
  - a. Each fixed-base and tactical ATC facility shall maintain a complete and current DA Form 3479-R for all military and civilian controllers. To do this, one training folder with a divider to separate the fixed-base from the tactical is used. Sections I and II of the form are combined and maintained in the front of the folder to avoid duplications. Tactical facilities do not have to take DA Forms 3479-R on short-term field exercises. However, on completion of the exercises, appropriate entries must be made on the forms. The DA Form 3479-R is used to document all ratings as well as the proficiency, qualification, and remedial training conducted during field exercises.
  - b. The DA Form 3479-R is a comprehensive record of training, certification, qualification, proficiency, ratings, and duty assignments. It consists of seven sections. The seven sections and their uses are explained in FM 3-04.303(FM 1-303).

**Evaluation Preparation:** Setup: The supervisor may simulate this task. Ensure the soldier has enough information to accurately determine the facility rating requirements for a newly

**STP 1-93C24-SM-TG**

assigned controller, verify that the controller meets the prerequisites for an ATCS and/or a CTO rating, determine the time limits for a facility rating, and review the DA Form 3479-R.

**Brief Soldier:** Tell the soldier to perform the duties of a facility chief/training NCO and determine the requirements for an individuals facility rating. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

1. Determine the facility rating requirements for a newly assigned controller.
2. Verify that the controller meets the prerequisites for an ATCS and/or a CTO rating.
3. Determine the time limits for a facility rating.
4. Review the DA Form 3479-R.

**GO**    **NO GO**

\_\_\_\_    \_\_\_\_  
\_\_\_\_    \_\_\_\_  
\_\_\_\_    \_\_\_\_  
\_\_\_\_    \_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

AR 95-2  
FM 3-04.303(FM 1-303)

**Related**

None

**Perform the Responsibilities of an ATC Chief During or  
After an Aircraft Accident or Incident**  
**011-143-3004**

**Conditions:** As an ATC or facility chief, during or after an aircraft accident or incident, in a fixed facility or a field environment, you are given recording equipment, AR 95-2, FAA Order 7110.65, FM 3-04.303(FM 1-303), DA Forms 3502-R, and DA Form 3503-R.

**Standards:** Relieve controllers when warranted. Obtain written statements, inspect equipment, forward NOTAM information, and retain accident or incident records. Submit reports and notify all personnel as appropriate.

**Performance Steps**

1. Continue Operations as Applicable. When a facility, service, or NAVAID is suspected to have been involved in an aircraft accident or incident, the shift supervisor must ensure that the safe, orderly, and expeditious movement of all air traffic operating under the jurisdiction of the ATC facility continues.
2. Obtain Information. The shift supervisor must obtain accurate and complete information to be used as the basis for detailed investigations. This information includes written statements about the incident or accident from all controllers and supervisory personnel involved.
3. Notify the ATC Chief or Facility Chief and Other Designated Personnel. Forward information for NOTAMs to the airfield commander.
4. Request Local Weather Observation. Request a local weather observation unless there has been an intervening record or record-special observation.
5. Record Details. Record all appropriate details, including the local weather observation, on DA Form 3502-R.
6. Remove and Safeguard Tapes. Remove and safeguard recorder tapes that are or may be pertinent to the accident or incident as soon as possible. Handle these tapes according to FM 3-04.303(FM 1-303). In case of a complaint about ATC services or an emergency that does not result in an accident or incident, you do not have to remove the recorder tapes before the normal rotation time.
7. Inspect Equipment. Inspect the equipment along with maintenance personnel to determine if it could have contributed to the accident or incident.
8. Reliever Controllers (when warranted). Relieve controllers and refer them for evaluation when warranted.

**Evaluation Preparation:** Setup: In an actual setting, have the soldier direct air traffic services as required during or after an aircraft accident or incident. If you must simulate the requirement, give the soldier a description of an aircraft accident or incident and have the soldier describe the actions required.

**Brief Soldier:** Tell the soldier that you will evaluate him on his performance as an ATC chief or a facility chief during or after an aircraft accident or incident. Also tell the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Assigns controllers to positions.	—	—
2. Directs subordinates.	—	—
3. Conducts on-the-job training for controllers.	—	—
4. Maintains facility records.	—	—
5. Provides assistance in emergencies.	—	—
6. Remove and safeguard recorder tapes pertinent to the accident or incident.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

- AR 95-2
- DA Form 3502-R
- FAA Order 7110.65
- FM 3-04.303(FM 1-303)

**Related**

- DA Form 3501-R
- DA Form 3503-R

## SUBJECT AREA 16: MANAGEMENT OF TACTICAL OPERATIONS

### Prepare an Operation Overlay

071-332-5000

**Conditions:** Given a complete copy of the operation order that your unit is to execute, a commander's or a battalion operations officer's (S3) guidance (to include time available for preparation), overlay paper, tape, a map of the operational area, colored pencils (red, black, blue, green, and yellow), a number 2 pencil, a coordinate scale, and FM 1-02(FM 101-5-1).

**Standards:** Within the time specified, the overlay must—

1. Be identified by map reference data, effective date, and purpose.
2. Contain classification markings and downgrading instructions, if applicable.
3. Contain distribution instructions and authentication, if distributed separately.
4. Be prepared according to overlay techniques outlined in FM 1-02(FM 101-5-1).
5. Be prepared with boundaries and unit locations plotted to within 50 meters and tactics and fire support measures to within 25 meters.

### Performance Steps

**NOTE:** Overlay techniques involve the use of military symbols to portray, in a condensed form, the plans, orders, and information concerning a military operation.

1. Registering the overlay.
  - a. Orient the overlay material over the map area to the annotated portion and temporarily attach it to the map with the tape.
  - b. Trace the grid intersections nearest the opposite corners of the overlay and label each with the proper grid coordinates.
2. Plotting of new detail. Use colored pencils or markers in standard colors, when available, to plot any detail (FM 1-02[FM 101-5-1]); otherwise, plot the activity you wish to show with a pen or pencil that makes a lasting mark without cutting the overlay. Use standard military symbols where possible. When nonstandard symbols are invented by the author, they must be identified on the edge of the overlay. Show only that detail with which the document is directly concerned. Standard colors are--
  - a. Blue or black. Friendly units, installations, equipment, and activities.
  - b. Red. Enemy units, installations, equipment, and activities.
  - c. Yellow. Any areas of chemical, biological or radiological contamination.
  - d. Green. Any man-made obstacle.

**NOTE:** If only one color is available, enemy symbols is depicted with double lines.

3. Classification. The classification of the overlay is dependent upon classification of the order being used to prepare the overlay. Mark the based top and bottom of the overlay with the classification.
4. Overlay techniques.
  - a. Use of solid and broken lines. When the location of a unit or installation or coordinating detail (for example, line of departure or boundary) is in effect and will continue or is made effective by the order being prepared, the appropriate symbol is shown by solid

lines. The symbol indicating any proposed or future location or coordinating detail to become effective later, is shown by broken lines.

b. Boundaries.

- (1) Boundaries show areas of tactical responsibility. In the offense, these are referred to as ones of action. In the defense and retrograde, they are referred to as sectors of responsibility. When described orally, lateral boundaries are described from rear to front in the offense and from front to rear in the defense and retrograde.
- (2) Rear boundaries are used when the area of responsibility for forward units must be precisely defined. When a rear boundary is not delineated, the rear limit of a unit's area of responsibility is determined by visualizing a rear boundary drawn generally parallel to the front, preferably along a natural terrain feature, and connecting at the rearward limit of the unit's lateral boundaries.
- (3) If a rear boundary is shown, the size indication along the boundary corresponds to the low unit. Arm or branch is shown when required to prevent confusion (Figure 5000-1).

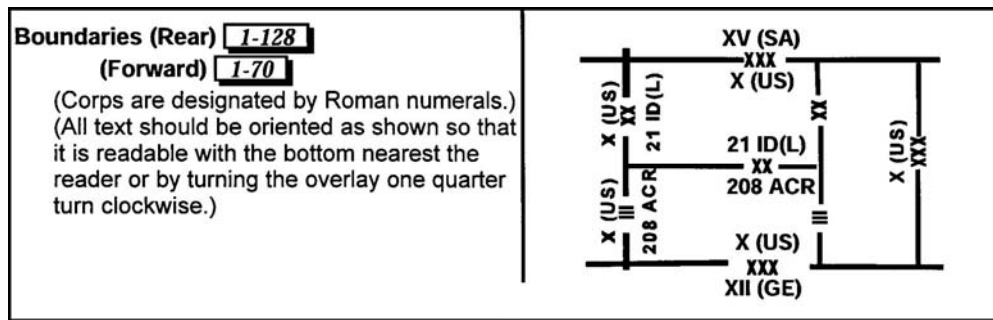


Figure 5000-1. Rear boundary.

- (4) Desirably, boundaries are drawn along terrain features easily recognizable on the ground and are situated, if possible, so that the key terrain features, avenues of approach, and river are wholly inclusive of the one unit. They are shown by a solid line if presently in effect or made effective by the order being prepared. Their use is based on the techniques and tactics peculiar to the type of tactical operation in which they are used.
- (5) Future or proposed boundaries are shown by a broken line and are labeled to indicate the effective time, if appropriate (Figure 5000-2).

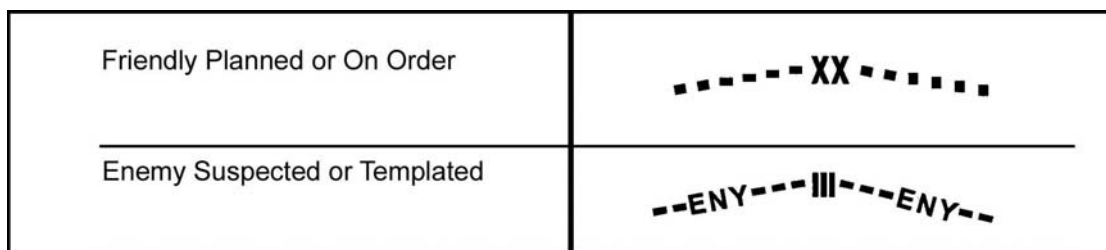
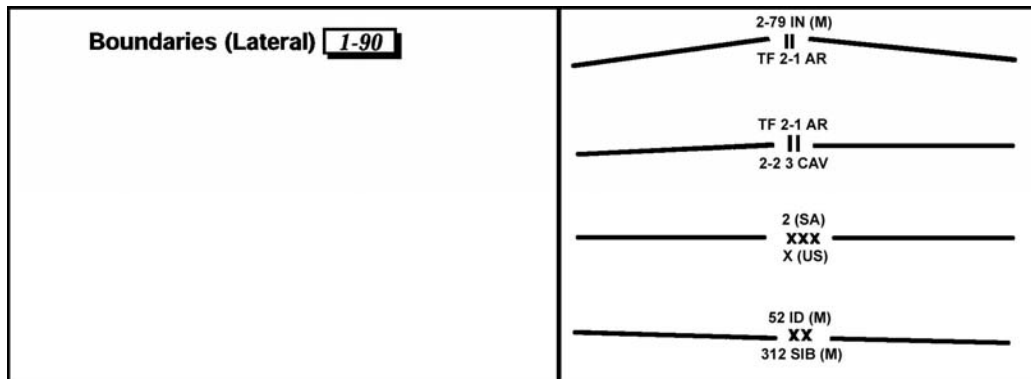


Figure 5000-2. Proposed boundary.

- (6) A symbol is placed on the boundary to show size and designation of the highest units that share the boundary.



- (7) If the units are of unequal size, the symbols of the higher unit is shown and the designation of the lower is given completely to show its size. The boundary between the 52d Infantry Division and the 230th Infantry Brigade (Separate) is shown in Figure 5000-3.



**Figure 5000-3. Lateral boundary.**

- (8) On overlays or sketches accompanying written or oral orders that specify task organization, unit designation on battalion boundaries indicate the numerical designation. If the battalion is organized into a task force, the letters TF precedes the numerical designation. A unit symbol is identified as task force by placing the symbol (||) over the unit size designation (||). Company boundaries are labeled with the appropriate letter unless the company is organized into a team. In the latter case, the boundary is labeled with the abbreviation TM and the letter designation or a code name. On other boundaries, only the unit designation needed for clarity are required. Branch designations may be added when necessary for clarity. When unequal-sized units have a boundary in common, the designation of the smaller unit is spelled out.
- c. Axis of advance.
- (1) An axis of advance arrow should extend only as far as this form of control is essential to the overall plan. Normally, it is shown from the line of departure to the objective following an avenue of approach. It indicates that the commander may maneuver his forces and place his freely to either side of the axis to avoid obstacles, engage the enemy, or bypass enemy forces that could not threaten his security or jeopardize the accomplishment of his mission. The commander ensures that such deviation does not interfere with adjacent units, that his unit remains oriented on the objective, and that the location and size of the bypassed enemy forces are reported to higher headquarters. Boundaries may be assigned as an additional control measure when using the axis of advance if the situation so dictates.
  - (2) A commander need not employ his unit in a single column on his assigned axis. He may designate the assigned axis as the axis of advance for one maneuver unit and an additional axis for another maneuver unit, or he may designate two axes of advance following, generally, the assigned axis. To minimize the possibility of interference with adjacent units, care must be exercised in assigning additional axes.
  - (3) In armor and mechanized operations an axis of advance is most frequently used against light, disorganized, or discontinuous enemy resistance, such as may be

encountered in the exploitation or pursuit and where a closely coordinated attack is unnecessary.

- (4) An axis of advance is shown below, identified by a code. It could be identified by a unit designation (Figure 5000-4).

Friendly Ground Axis of Supporting Attack <b>1-147</b>	
Friendly Ground Axis of Main Attack <b>1-94</b>	
Friendly Ground Axis On Order with Date and Time (if known) Effective	
Enemy Confirmed	
Enemy Templated	

Figure 5000-4. Axis of advance.

- (5) To differentiate between a ground axis of advance and an air assault of advance, a twist is placed in the shaft of the open arrow, symbolic of a propeller (Figure 5000-5).

<b>Axis of Advance 1-14</b> (The tip of the arrow should touch the objective or limit of the movement.)	
Friendly Aviation	
Friendly Airborne	
Friendly Attack Helicopter	

Figure 5000-5. Air assault axis of advance.

- d. Direction of attack arrows. This control measure is used when the commander desires to specify the direction in which the center of mass of a subordinate unit must move in an attack to ensure the accomplishment of a closely, coordinated plan of maneuver (for example, in a night attack or counterattack). A direction of attack arrow should extend from the line of departure to the objective and is not labeled (Figure 5000-6).

<b>Direction of Attack <span style="border: 1px solid black; padding: 2px;">1-53</span></b> (The tip of the arrow should touch the objective or limit of the movement.) Friendly Aviation	
Friendly Aviation Planned or On Order	
Enemy Known/Confirmed Aviation	
Templated Enemy Aviation	
Enemy Confirmed/Known Ground	
Templated Enemy Ground	
Friendly Direction of Supporting Attack <span style="border: 1px solid black; padding: 2px;">1-147</span>	
Friendly Planned or On Order	

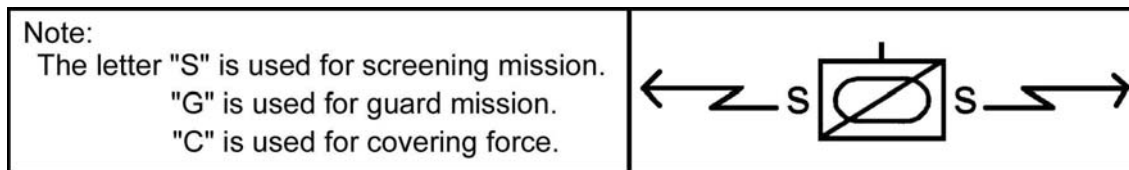
**Figure 5000-6. Direction of attack arrow.**

- (1) The arrow should be used only where necessary because it restricts the maneuver of the subordinate unit.
- (2) When a unit is directed to seize successive objectives with its main attack along a certain line, either one arrow extending through the objectives to the final objective or a series of arrows connecting the objectives may be used.
- (3) The double arrowhead is used to distinguish the main attack for the command as a whole (Figure 5000-07).



**Figure 5000-7. Arrowhead indicating the main attack.**

- e. Graphic portrayal of units assigned a security mission.
  - (1) To show the general location of a unit with a security mission, arrows generally indicate the terrain over which the unit operates and the farthest extension of its mission (Figure 5000-8).




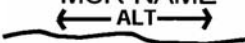



**Figure 5000-8. Unit with security mission.**

- (2) The primary security mission normally is shown on an operation overlay; however, a secondary or proposed mission is not shown.
- f. Graphic portrayal of supply routes.
  - (1) The main supply route is the route designated within an area of operations upon which the bulk of traffic flows in support of military operations. The route is labeled MSR and assigned a code name.



**NOTE:** The term MSR is not used below division level.

- (a) In the defense, the division extends the MSR forward to the brigade trains. The brigade's supply route extends from the battalion trains to a point at the rear of the forward company defense sectors.
- (b) In the offense, the proposed SR may be shown forward to the objective or as far as the battalion supply officer (S4) can visualize the combat service support for the operation. Forward of the LD, it is shown as a broken line.
- (2) The symbols to show the division (offensive action) are shown in Figure 5000-9.

<p><b>Supply Routes</b> <span style="border: 1px solid black; padding: 2px;">1-95</span>                  Main Supply Route</p>	<p style="text-align: center;">MSR NAME</p> 
<p>Alternate Supply Route <span style="border: 1px solid black; padding: 2px;">1-8</span></p>	<p style="text-align: center;">ASR NAME</p> 
<p>One-way Traffic</p>	<p style="text-align: center;">MSR NAME</p> 
<p>Alternating Traffic</p>	<p style="text-align: center;">MSR NAME</p> 
<p>Two-way Traffic</p>	<p style="text-align: center;">MSR NAME</p> 

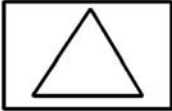
**Figure 5000-9. Division main supply route.**

- (3) At battalion and brigade level, combat service support facilities may be shown on the operation overlay or their location disseminated by the S4, as appropriate.
- g. Graphic portrayal of a unit location.
  - (1) To show the location of a unit on an overlay, the symbol should be drawn so that its center corresponds with the coordinates at which the unit is located (Figure 5000-10).

<p>A solid line symbol represents a present or actual location.</p>	
<p>A broken line symbol indicates a future or projected location.</p>	



**Figure 5000-10. Location of a unit.**

- (2) To show the location of a trains area, observation posts, or logistics activity, the center of the symbol also should correspond with the coordinates at which the element is located. The illustration shown is the location of an observation post (Figure 5000-11).

<p>Observation Post/Outpost <b>1-112</b></p>	
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**Figure 5000-11. Location of an observation post.**

- (3) The offset technique is used for clarity when space precludes normal placement of symbols. Offset staffs may be "bent" as required. The offset staff is dashed for future or proposed locations. Offset staffs extend vertically from the bottom center of the symbol (except for command posts), and the end of the offset staff indicates exact locations of CPs and aid stations and the center of mass for other units or installations. The staff for a CP symbol is always on the left edge (Figure 5000-12).

<p>Basic symbols other than the headquarters symbol (for example, points) may be placed on a staff which is extended or bent. The end of the staff indicates the precise location.</p>	
<p>Since the headquarters symbol already includes a staff, this staff may be extended or bent. The end of the staff, or extension (if used), indicates the exact location of the headquarters.</p>	

**Figure 5000-12. Offset technique.**

- (4) Location of units.
  - (a) The locations of attacking units normally are indicated by boundaries (and CP symbols, when the locations of the CPs are known) or by unit symbols.
  - (b) The location of the reserve is indicated by an assembly area symbol and by a CP or unit symbol.
  - (c) Reserve units of a force assigned defense position or battle position normally are shown by a line enclosing the area occupied or to be occupied--in other words, a "goose egg". These positions may be numbered or lettered for convenient reference. An occupied and unoccupied company assembly area (reserve location) is shown in Figure 5000-13. An occupied and unoccupied reserve company battle position is shown in Figure 5000-14.

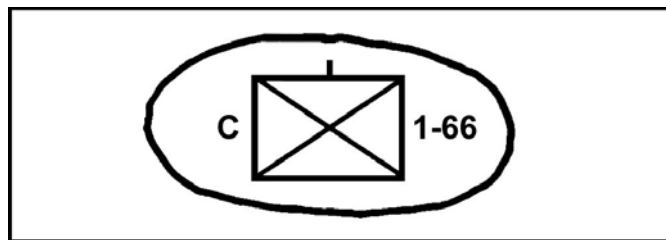


Figure 5000-13. Occupied and unoccupied company assembly area (reserve location).

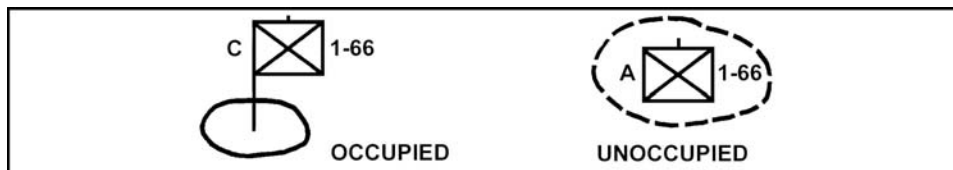


Figure 5000-14. Occupied and unoccupied reserve company battle position.

- h. Objective(s).
  - (1) Each objective is identified by the abbreviation "OBJ" and a number, letter, or name designation (Figure 5000-15).



Figure 5000-15. Objective.

- (2) An objective assigned by higher headquarter may be given entirely to one subordinate unit or may be divided. If divided, the objective may be shown

graphically as separate objectives and numbered accordingly or may be divided into two objectives by a boundary line.

- i. Pinching out a unit.
  - (1) This type operation is indicated by drawing the boundary across the front of the unit, usually along a well-defined terrain feature such as a stream, ridge, or highway.
  - (2) The following example indicates that Company A will be pinched out after seizing OBJ 1; Company B will seize OBJ 2 and continued the attack to seize OBJ 3 (Figure 5000-16).

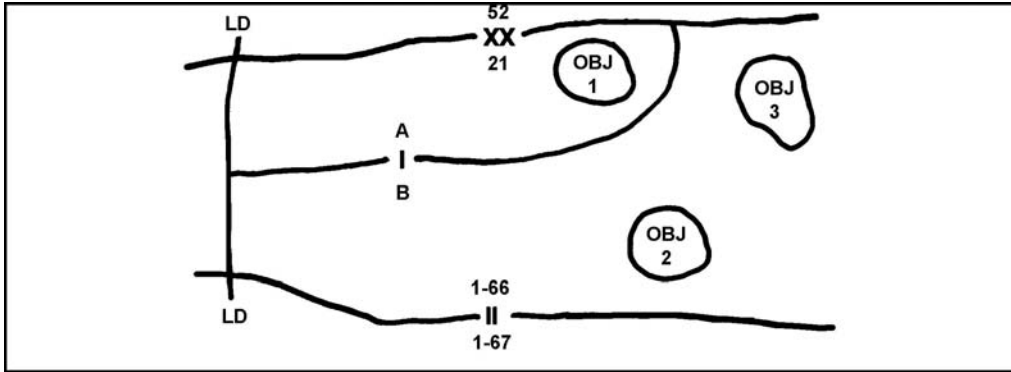


Figure 5000-16. Pinching out a unit.

- j. Defensive battlefield. The defensive battlefield is organized into the covering force area and the main battle area (Figure 5000-17).

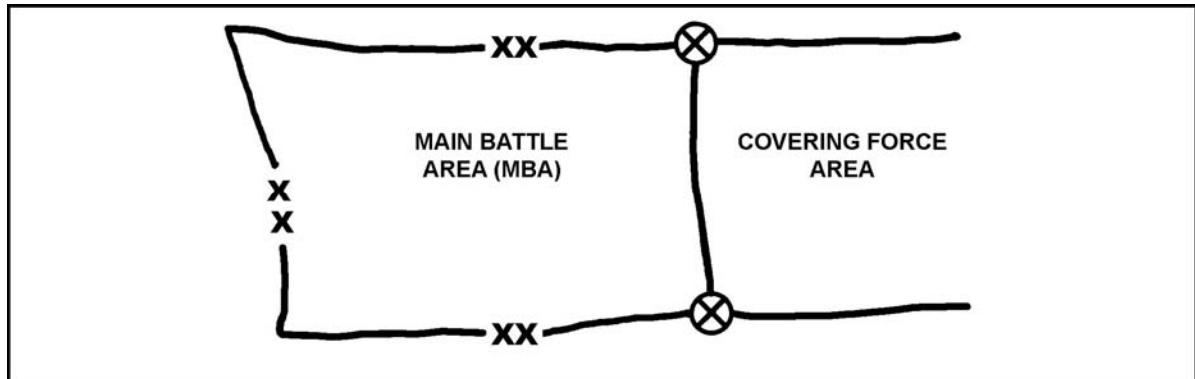


Figure 5000-17. Organizing the defensive battlefield.

- k. Defended areas. If an area is occupied and the defense of the area is prepared, a line (including the size symbol of the defending unit) encloses the area, and the closed side of the symbol is oriented toward the most likely enemy threat. If desired, the military symbols of the unit may be entered in the center of the enclosed area. A defensive area for 2d Platoon, C Company, 1st Battalion, 6th Infantry, and a proposed defensive area for B Company, 3d Battalion, 52d Infantry, are shown in Figure 5000-18.

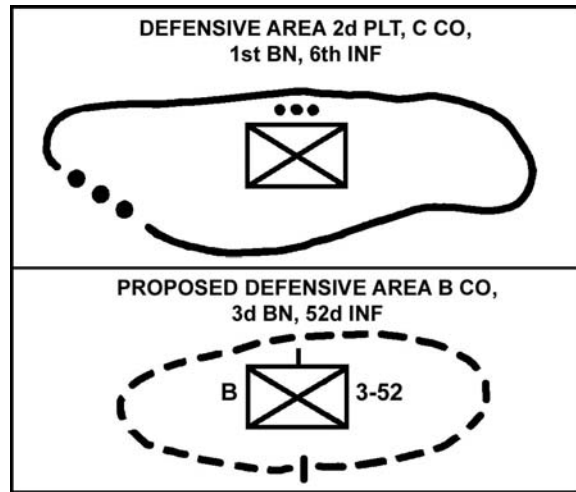


Figure 5000-18. Defensive area.

I. Control measures.

- (1) Line of departure. The LD is a control measure to coordinate the advance of an attacking unit (Figure 5000-19). The LD should be—
  - (a) Clearly defined on the ground and on the map.
  - (b) Approximately perpendicular to the direction of the attack.
  - (c) Under control of friendly units.
  - (d) Marked on both ends.

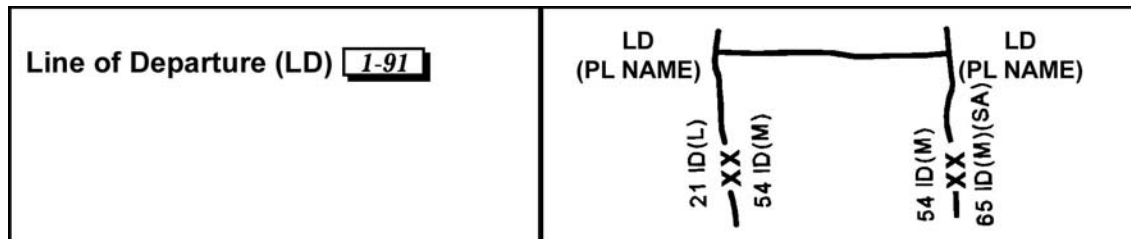
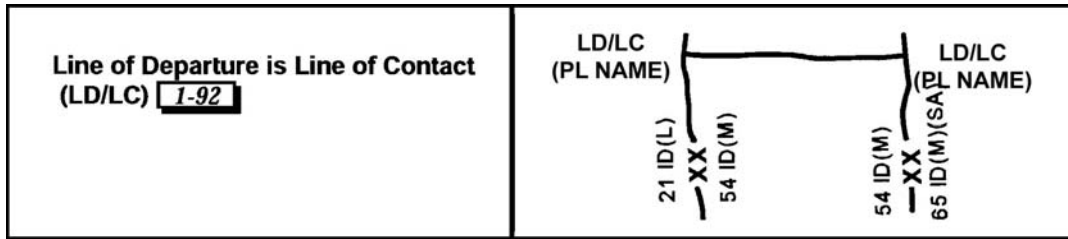


Figure 5000-19. Line of departure.

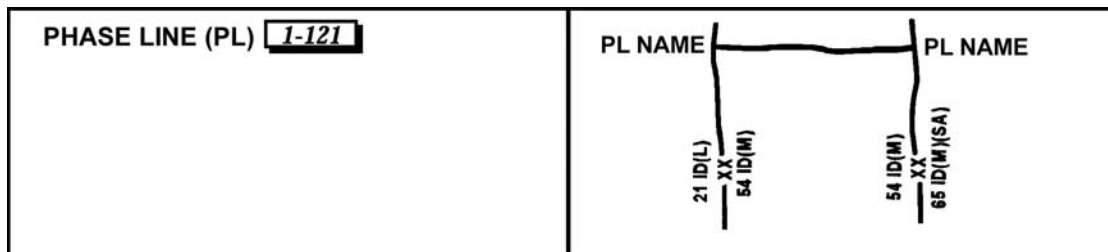
- (2) Line of contact (Figure 5000-20).





**Figure 5000-20. Line of contact.**

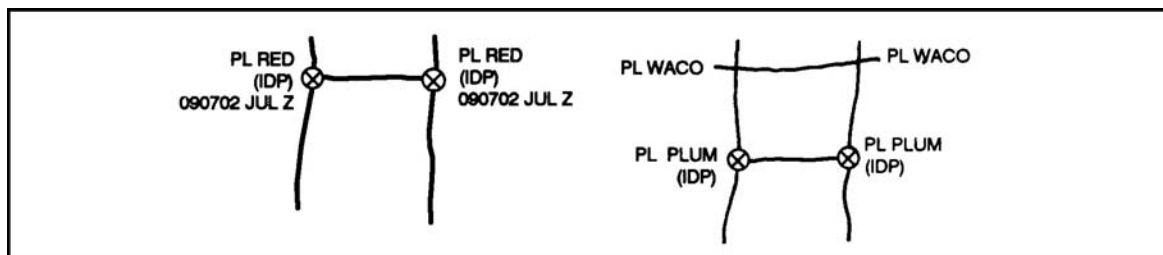
- (a) When units are in contact with the enemy, the frontline is shown as a series of arcs, and the ends of the arced line are labeled "LC."
- (b) If the LC is used as an LD, it is marked LD/LC.
- (c) If the LC is not used, the LD is shown by a solid line marked LD.
- (3) Phase line. PLs are used to control the progress of units for reference in issuing orders or receiving reports. They should be easily recognized terrain features, normally perpendicular to the direction of advance. A PL is also used to control fires and unit movement and even to limit the advance of attacking elements. Units report their arrival at or clearance of a phase line, but they do not halt unless ordered to do so. A PL is drawn as a solid line with the letters PL at each end of the line or where appropriate to allow easy identification. A PL is identified further by a number, a letter, or code name (which can be phonetic letters, colors, flowers, cars, or any other code system) under or beside the PL abbreviation (Figure 5000-21).



**Figure 5000-21. Phase line.**

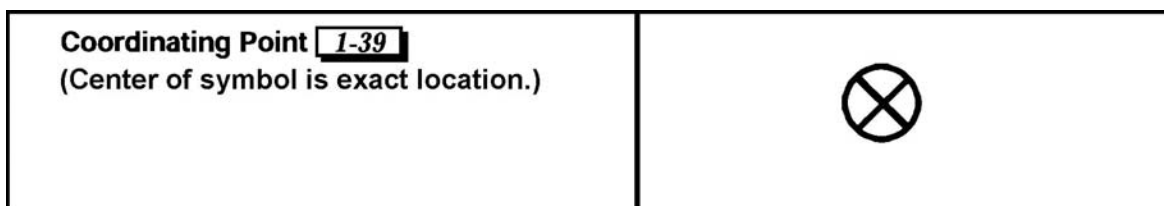
- (4) Initial delay position. An IDP is where a delaying action begins, trading space for time. The delay sector is defined by boundaries. The initial and all subsequent delay positions can be related to a time-phased forward edge of the battle area. The initial and subsequent delay positions are specified, and PLs may be used to report the progress of the battle. The enemy is held forward of delay lines until the specified time or until permission is granted to withdraw. The initial and successive delay positions are shown on boundaries by coordination points with a solid line between them. Although most IDPs are given a code name, they may have a number, letter, or a variety of code names. The letter abbreviation (IDP) can be to the flank of the coordination symbol (when at the flank, it is in parentheses) or on the line itself. Its time phase is indicated as a date-time group having a two-digit day and a four-digit hour, both connected. The month indicator can be a three-letter type or spelled out, depending upon the desires of the commander. The letters IDP should

be placed in parentheses between the line code name, letter, or number and the date-time group (Figure 5000-22).



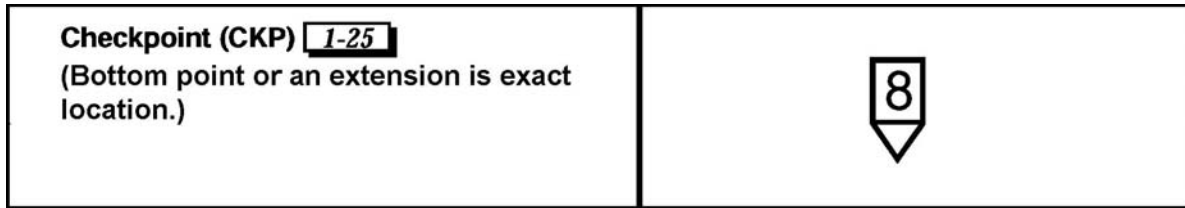
**Figure 5000-22. Initial delay position.**

- (5) Delay lines. These indicate where a succeeding delay position is located. Delay positions (other than initial) are drawn the same, except that the letter abbreviation is along the line, and none are placed to the flanks at the coordinating points.
- (6) Coordinating points.
  - (a) Coordinating points are designated on boundaries as specific points for coordination of fires and maneuver between adjacent units. They are indicated whenever a boundary crosses the FEBA and should be indicated whenever the boundary crosses the covering force. Coordinating points also are used where DLs and internal boundaries intersect.
  - (b) Coordinating points should be located at some terrain feature easily recognizable both on the ground and on a map. Their location on a boundary indicates the general trace of the FEBA, covering force, or DL as visualized by the commander who designates them.
  - (c) The symbol for a coordinating point is shown by a circle with an "X" centered in it (Figure 5000-23). The symbol is labeled as appropriate.



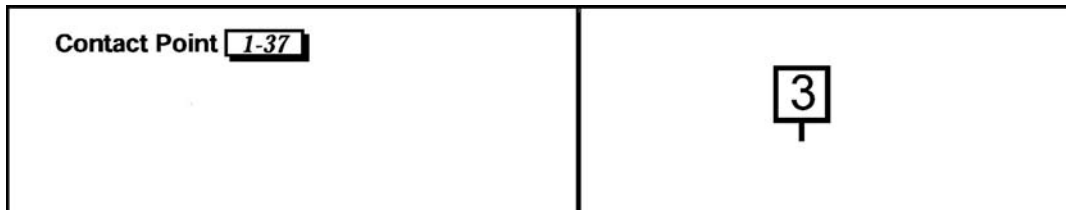
**Figure 5000-23. Coordinating point.**

- (7) Checkpoints. Checkpoints, Figure 5000-24, are shown graphically by a number, letter, or code word inside an upright rectangle with a pointed bottom. They are easily recognizable terrain features or objects, such as crossroads, churches, lone buildings, stream junctions, hills, bridges, and railroad crossings. They may be selected throughout the area of operation. By reference to these points, the subordinate commander may rapidly and accurately report his location; or the higher commander may designate objectives, boundaries, assembly areas, phase lines, and so forth, to his subordinate commanders.



**Figure 5000-24. Checkpoint.**

- (8) Contact points. Contact points, shown graphically by squares with a staff extending from the bottom center, are designated at the units to make physical contact. Contact points also may be used to delineate areas of responsibility in specific localities when boundaries are obviously unsuitable, such as between elements of a flank guard (Figure 5000-25).



**Figure 5000-25. Contact point.**

- (9) Passage points. A passage point, shown similar to a checkpoint with the letters PP and the number or letter designation of the passage point within the symbol, is designated along the LD or the FEBA of the unit being passed through. The PPs will be located where the commander desires subordinate units to pass.
- (10) Linkup points. A linkup point should be an easily identifiable point on the ground and map that is used to facilitate the joining, connecting, or reconnecting of elements of a unit or units. They are used when two or more Army elements are to join each other, when Army and sister service elements are to join each other, and when Army or sister service and allied elements are to join each other. The linkup is an operation in itself and conducted as part of an airborne or airmobile operation, an attack to assist in the breakout of an airborne or airmobile operation, an attack to assist in the breakout of an encircled force, or an attack to join an infiltrating force. The battalion may participate in a linkup as part of a larger force, or it may, itself, conduct a linkup. The symbol for linkup points is similar to a checkpoint with a dot in the center. A number, the name, or code name is placed near the symbol in such a manner as to ensure it is referring to the symbol (Figure 5000-26).

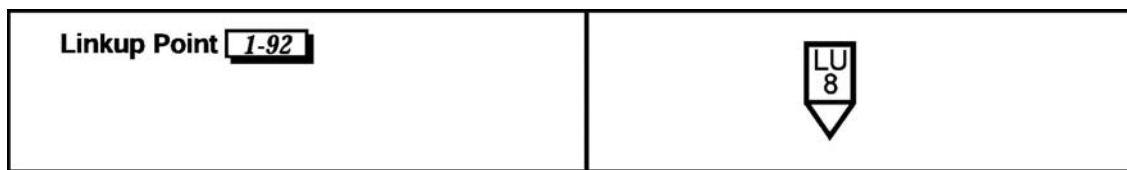


Figure 5000-26. Linkup point.

(11) Points of departure. These normally are shown along the LD for night attacks. They are shown similar to a checkpoint containing the abbreviation PD and a letter or number within the symbol. The point of the arrow is at the bottom of its location.

**Evaluation Preparation:** Setup: Provide the soldier with all the material and equipment listed in the conditions statement.

**Brief Soldier:** Tell the soldier he is to prepare an overlay for the operation indicated in the OPORD.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Places registering marks in opposite corners of the overlay.	—	—
2. Marks information using standard military symbols.	—	—
3. Indicates enemy units, installations, equipment, or activities with either the color RED or with double-lined symbols.	—	—
4. Indicates future locations or coordinating detail with broken-line symbols.	—	—
5. Places symbols indicating size on a boundary to indicate the highest unit sharing the boundary.	—	—
6. Extends the axis of advance arrow from the line of departure to the objective.	—	—
7. Labels the route of march arrows with a code name or unit designation.	—	—
8. Labels the MSR and assigns a code name.	—	—
9. Ensures the center of a unit's symbol corresponds to the coordinates of the unit.	—	—

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

**References**

**Required**

FM 1-02(FM 101-5-1)

FM 3-90.2(FM 71-2)

**Related**

None

## SUBJECT AREA 17: MANAGEMENT OF ATC FACILITIES

### Develop a Letter of Agreement

011-143-3006

**Conditions:** While performing duties as an ATC chief or facility chief, you are required to develop a letter of agreement. FM 3-04.303(FM 1-303) is available for reference.

**Standards:** Develop an LOA that is acceptable between two or more agencies and review the LOA as required by FM 3-04.303(FM 1-303).

### Performance Steps

1. Purpose.
  - a. Letters of agreement are administrative documents. They apply to a specific facility, a group of facilities, or all facilities within a specified geographical area. Examples are agreements between the U.S. Army and a host nation or other services, agreements between centers and towers, agreements between centers and terminal radar facilities, and agreements between ATC facilities on the same or different airfields. Letters of agreement are prepared when—
    - (1) Areas of control jurisdiction and conditions of use must be delegated.
    - (2) Special operating conditions or specific ATC procedures must be defined.
    - (3) Interfacility or interagency responsibilities and coordination requirements must be defined.
  - b. Procedures or minima that deviate from or are not contained in FAA Order 7110.65, FM 3-04.303(FM 1-303), or other pertinent directives must be described.
2. Procedures.
  - a. Determine the requirements. The ATC or facility chief responsible for developing an LOA shall—
    - (1) Ensure that the LOA is properly prepared and coordinated with all concerned facilities.
    - (2) Coordinate with the appropriate DA regional representative before an LOA with a host country is signed.
    - (3) Confine the material in each letter to a single subject or purpose.
    - (4) Describe the responsibilities and procedures that apply to each facility and organization involved.
    - (5) Attach charts or other visual presentations to depict the conditions of the agreement as appropriate.
    - (6) Delegate responsibility for the control of air traffic. (Describe the area in which the responsibility is delegated. Define the conditions governing the use of the area. Specify the details of the control procedures to be used. Specify communication and coordination procedures.)
    - (7) Coordinate with other facilities, agencies, and authorities as appropriate.
    - (8) Forward a proposed LOA with the FAA to the appropriate DARR. (The DARR will review, coordinate as required, and return the LOA to the originator with comments.) A sample format for an FAA/US Army LOA is in Figure 3006-1.
  - b. Prepare the letter in final form.



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- (1) Make the LOA effective 30 days after its distribution. (This will allow participants time to familiarize their personnel with the agreement and to revise directives and flight charts.)
- (2) Obtain the required and authorized signatures.
- (3) Distribute copies of the signed letter per the distribution shown in the letter.
- (4) Rewrite or amend the LOA if the requirements of any party signing the agreement change. Process revisions, attachments, or supplements to an LOA as page replacements. Coordinate these with the same parties as the original letter. Mark revisions as follows:
  - (a) Place an asterisk to the left of each new or revised paragraph or section to show that it is new material.
  - (b) Identify page revisions by the revision number; for example, Rev 1. Enter the effective date in the lower right corner of each revised page.
- c. Review a letter of agreement. To ensure timeliness and conformance with current policies and directives, the ATC or facility chief must review all LOAs for which he is responsible on the anniversary of each document. At the time of the annual review, the ATC or facility chief will annotate the LOA with the date and his signature.

**Evaluation Preparation:** Setup: The supervisor may simulate this task. Have the soldier determine the requirements for an LOA, prepare an LOA, and review an LOA.

**Brief Soldier:** Tell the soldier to perform the duties of the facility chief/training NCO and develop a letter of agreement. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Determine the requirements for an LOA.	___	___
2. Prepare an LOA.	___	___
3. Review an LOA.	___	___

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

- AR 95-2
- FAA Order 7110.65
- FM 3-04.303(FM 1-303)

**Related**

None



**SUBJECT AREA 18: AIRSPACE MANAGEMENT PROCEDURES**

**Integrate Airspace Control Measures**

**011-143-7005**

**Conditions:** As an air traffic controller in a field environment, you are given FM 3-04.120(FM 1-120) and FM 3-52(FM 100-103). You are assigned as an airspace liaison NCO, tactical ATC chief or platoon sergeant and receive changes to airspace restrictions.

**Standards:** Identify and apply airspace C<sup>2</sup> measures according to FM 3-52(FM 100-103).

**Performance Steps.**

1. Identify Airspace C<sup>2</sup> Structure.
2. Identify Airspace C<sup>2</sup> Measures.
3. Apply Airspace Control Measures.

CONDITION: According to FM 3-52(FM 100-103).

- a. Corps and echelons above corps.
- b. Divisions.
- c. Brigades and Battalions.

**Evaluation Preparation:** Setup: In an actual setting, require the soldier to integrate changes in airspace control measures as appropriate to the combat environment. The supervisor, requiring that the controller implement airspace management procedures, may simulate this task.

**Brief Soldier:** Tell the soldier that he will be evaluated on his ability to implement changes in airspace control measures. He will not be informed of his progress during the performance of the task.

**Performance Measures**

**GO NO GO**

Identify and apply airspace C<sup>2</sup> measures according to FM 3-52(FM 100-103).

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-52(FM 100-103)

**Related**

FM 3-52.1(FM 3-100.2)

## Develop Instrument Approach Procedures (ASR, PAR, NDB)

011-143-3015

**Conditions:** As an ATC facility chief, liaison NCO, or tactical team leader, you are required to develop an instrument approach for helicopters; given a compass, calculator, protractor, maps, a ruler or straight edge, and TM 95-226.

**Standards:** Develop a helicopter-only instrument approach and determine takeoff and landing minima by applying general and specific criteria applicable to the appropriate NAVAID for the landing area, according to TM 95-226.

### Performance Steps

1. Applies General Approach Criteria. Criteria are based on the unique maneuver capability of the helicopter with airspeeds not exceeding 90 knots. All helicopters are considered Category A, regardless of weight. For a point-in-space approach and descent gradient, see TM 95-226, Chapter 11, Section 2, paragraphs 1106 through 1110.
2. Apply Specific Approach Criteria. Specific approach criteria are used in the initial approach for a straight course and procedure turn; the intermediate segment for both a straight course and a procedure turn; and the final approach, missed approach area, and holding. See TM 95-226, Chapter 11, Section 2, paragraphs 1111 through 1124.
3. Determine Takeoff Minima. Obstacles, visibility, and other factors influence takeoff minima. See TM 95-226, Chapter 3 and Chapter 11, Section 3.

**Note:** Segments of an instrument approach have been drawn.

4. Determine Landing and Circling Minima. See TM 95-226, Chapters 3 and 11.

**Evaluation Preparation:** Setup: Provide the soldier with a compass, calculator, protractor, maps, a ruler or straight edge, and TM 95-226. The supervisor may simulate this task. Have the soldier develop an instrument approach.

**Brief Soldier:** Tell the soldier to develop an instrument approach according to TM 95-226. Advise the soldier that you will not inform him of his progress during performance of the task.

### Performance Measures

General and specific criteria are determined for each approach required. All segments of each instrument approach are drawn on the appropriate sectional chart. All minimums are computed. All procedures are according to TM 95-226

GO NO GO

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**  
**Required**  
TM 95-226

**Related**  
FM 3-04.240 (FM 1-240)

**SKILL LEVEL 4**

**SUBJECT AREA 17: MANAGEMENT OF ATC FACILITIES**

**Supervise the Establishment of Terminal Instrument Approach**

**011-143-5058**

**Conditions:** You are assigned as an ATC chief, platoon sergeant, airspace liaison NCO or ATC quality assurance evaluator. You are given TM 95-226, compass, protractor, calculator, ruler and maps. Instrument procedures are in place on appropriate maps.

**Standards:** Determine correct placement and verify all instrument procedures and criteria according to TM 95-226 and FAA Order 7400.2

**Performance Steps**

1. Locates the Following:
  - a. Degrees of latitude by locating labeled parallels (East-West lines), 29 30 .
  - b. Locate minutes of latitude by counting minute tic marks along (North-South) lines (Meridians).

CUE: Receives grid coordinates.

CONDITION: While providing advisory service, you are required to plot a geographic coordinate, given a set of coordinates, Sectional Chart (1:500,000), pencil, and ruler or protractor.

**NOTE:** In the Northern hemisphere, latitude increases towards the top (North) of the chart. In the Southern hemisphere, latitude increases towards the bottom (South) of the chart.

2. Locates degrees and minutes of longitude.
  - a. Degrees of longitude by locating labeled meridians (North-South lines), for example, 81 82.
  - b. Locates minutes of longitude by counting tic marks along (East-West) lines) for example, 29 30.

CUE: Receives new grid coordinates.

CONDITION: While providing advisory service, you are required to plot a geographic coordinate, and you are given a set of coordinates, Sectional Aeronautical Chart (1:500,000), pencil, and a ruler or protractor.

3. Plots geographic coordinates.

CUE: Receives new grid coordinates.

CONDITION: Using a protractor, you draw a horizontal line through the identified latitude tic mark and a vertical line through the identified longitude tic mark so the two lines intersect.

**NOTE:** The point of intersection is the location of the set of coordinates.

**Evaluation Preparation:** Setup: In an actual setting, have the soldier determine correct placement and verify all instrument procedures and criteria according to TM 95-226 and FAA Order 7400.2.

**Brief Soldier:** Tell the soldier to perform the duty of supervising the establishment of a terminal instrument approach. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Locates latitude and longitude coordinates within plus or minus 1/2 minute.	_____	_____
2. Locates the point of intersection within 1/2 minute of longitude and 1/2 minute of latitude.	_____	_____

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**  
TM 95-226

**Related**  
None

## Coordinate Facility Flight Inspection 011-143-3014

**Conditions:** You are assigned as an ATC chief, a platoon sergeant, an airspace liaison NCO, or an ATC quality assurance evaluator. You are given TM 95-226 and other appropriate regulations and the points of contact for the coordination.

**Standards:** Determine the requirements to coordinate a facility flight inspection on all appropriate NAVAIDS.

### Performance Steps

1. Coordinate a Ground Inspection. A facility ground inspection is conducted to determine if the facility is operating within, and can be expected to continue operating within, performance tolerances. It consists of collecting and recording performance data, inspecting the physical condition of the facility, and reviewing the quality of maintenance procedures.
2. Certification. When a facility is initially commissioned for use in the national airspace system, the maintenance chief shall complete a formal certificate for facility certification. He will forward the certificate to the appropriate FAA office.
3. Recertification. Facility recertification is conducted the same as initial certification, except the maintenance chief does not need to send a formal certificate to the FAA. Recertification shall be accomplished at the intervals specified in TM 95-225.

**Evaluation Preparation:** Setup: In an actual setting, have the soldier coordinate a facility flight inspection on all appropriate NAVAIDS as required. If you must simulate the requirement, give the soldier a description of the scenario and have the soldier describe the actions required.

**Brief Soldier:** Tell the soldier that you will evaluate him on his performance in the coordination procedures. Also tell the soldier that you will not inform him of his progress during performance of the task.

### Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Coordinate a ground inspection.	—	—
2. Coordinate an initial certification.	—	—
3. Coordinate for recertification.	—	—

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**  
**Required**  
TM 95-226

**Related**  
None

## SUBJECT AREA 18: AIRSPACE MANAGEMENT PROCEDURES

### Determine Army Airspace Command and Control Procedures

011-143-5062

**Conditions:** You are a member of an Army airspace command control team with policies and procedures that are to be implemented on the battlefield. You are given orders, overlays, SOPs, A<sup>2</sup>C<sup>2</sup> control measures, FM 3-52(FM 100-103).

**Standards:** Determine that primary objective, functional areas of responsibility of the commander, Air Force forces, methods of airspace control procedures used on the battlefield, fire support coordination fundamentals, tactical control system currently employed by the U.S. Air Force, and Army air ground system and how to resolve airspace conflict according to FM 100-42, and FM 100-103.

#### Performance Steps

1. Determine the Primary Objective of the A<sup>2</sup>C<sup>2</sup>.
  - a. Fundamental considerations.
  - b. Users.
  - c. A<sup>2</sup>C<sup>2</sup> Task.
  - d. A<sup>2</sup>C<sup>2</sup> Control Functions.
2. Determine the Functional Areas of Responsibility of the Commander Air Force Forces.
  - a. Tactical Air Force Commander.
  - b. Area Air Defense Commander.
  - c. Airspace Control Authority.
3. Determine the Methods of Airspace Control Procedures Used on the Battlefield.
  - a. Positive control.
  - b. Procedural control.
  - c. Combination of positive and procedural control.
4. Determine Fire Support Coordination Fundamentals.
  - a. Fire support coordination fundamentals.
  - b. Mission responsibility.
  - c. Principles of fire support.
  - d. Additional measures.
5. Determine the Tactical Air Control System Used by the U.S. Air Force.
  - a. Tactical air control system.
  - b. Control and reporting center.
  - c. Control and reporting.
  - d. Forward air control post.
  - e. Airborne elements of the tactical control system.
  - f. Tactical Air Coordinator-Airborne.
  - g. Wing operator center.
  - h. Airlift control center.
  - i. Airlift control element.
  - j. Combat Control Team.
  - k. Air Force Liaison.



6. Determine the Methods of Airspace Conflict Resolution.

**Evaluation Preparation:** Setup: The supervisor may simulate this task. Ensure the soldier has enough information to determine A<sup>2</sup>C<sup>2</sup> procedures.

**Brief Soldier:** Tell the soldier to perform the duties of an A<sup>2</sup>C<sup>2</sup> LNO. Tell the soldier that he will be evaluated on his ability to determine A<sup>2</sup>C<sup>2</sup> procedures. Advise the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
1. Determine the primary objective of the A <sup>2</sup> C <sup>2</sup> .	_____	_____
2. Determine the functional areas of responsibility of the Commander, U.S. Air Force Forces.	_____	_____
3. Determine the methods of airspace control procedures used on the battlefield.	_____	_____
4. Determine fire support coordination fundamentals.	_____	_____
5. Determine the tactical air control system used by the U.S. Air Force.	_____	_____
6. Determine the methods of airspace conflict resolution.	_____	_____

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-52(FM 100-103)  
 FM 3-04.120(FM 1-120)

**Related**

AR 95-2  
 FM 3-52.1(FM 3-100.2)  
 FM 3-52.2(FM 100-103-2)

## Implement Airspace Management Procedures (NAS) 011-143-4003

**Conditions:** You are assigned as an ATC chief, platoon sergeant or airspace liaison NCO and receive changes to airspace restrictions. You are given situational maps and FM 3-52(FM 100-103) and FM 1-02(FM 101-5-1).

**Standards:** Interpret all changes that affect the mission of his platoon according to FM 3-52(FM 100-103) and FM 1-02(FM 101-5-1).

### Performance Steps

1. Identify Airspace C<sup>2</sup> Agencies.
2. Identify Airspace National Control Measures (National Airspace System).
3. Apply Airspace Control Measures.

**Evaluation Preparation:** Setup: In an actual setting, require the soldier to determine the level of airspace C<sup>2</sup> as appropriate to the combat environment. The supervisor, requiring that the controller implement airspace management procedures may simulate this task.

**Brief Soldier:** Tell the soldier that he will be evaluated on his ability to implement airspace management procedures. He will not be informed of his progress during the performance of the task.

### Performance Measures

Interpret, coordinate, integrate and regulate use of airspace within your area of control. Updates situation map, insures all facilities post information and relays information to other elements as required. All procedures are according to FM 3-52(FM 100-103) and FM 3-52.1(FM 3-100.2).

GO   NO GO

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

### References

#### Required

FM 3-52(FM 100-103)  
FM 1-02(FM 101-5-1)

#### Related

FM 3-52.1(FM 3-100.2)  
FM 3-52.2(FM 100-103-2)  
FM 1-02(FM 101-5-1)  
FM 3-04.120(FM 1-120)

**Coordinate Aircraft Movement and Identification with Local Air Defense Units**  
**011-143-3008**

**Conditions:** You are assigned as an LNO or A<sup>2</sup>C<sup>2</sup> representative and given the appropriate manual and regulations.

**Standards:** Effectively coordinate aircraft movement and identification with local AD units according to FM 3-04.120(FM 1-120), FM 3-52(FM 100-103), and other appropriate regulations.

**Performance Steps**

Coordinate with Local AD Units.

- a. The Army accomplishes its AD requirements through ADA liaison elements and coordination from brigade or battalion fire direction centers. Coordination consolidates information from the forward area AD system and high-to-medium altitude AD systems. Close integration between airspace control and AD C<sup>2</sup> is critical to ensure safe, unencumbered passage of friendly aircraft while denying access to enemy aircraft and missiles.
- b. Effective coordination for AD operations begins with detailed planning. The AD coordinator, normally the ADA commander, and representatives in the force CP are responsible for active and missile defense planning. The ADCOORD is an integral part of the commander's staff planning team. He assists in integrating counter-air and theater missile defense priorities into the forces targeting process. Within the G3/S3 plans section, the ADCOORD (with input from the G2, AC<sup>2</sup>A cell, and FSE) incorporates AD missions into the commander's maneuver plan. The G3/S3 Air ensures integration of AD mission requirements into the AC<sup>2</sup>A.

**Evaluation Preparation:** Setup: In an actual setting, have the soldier coordinate aircraft movement and identification procedures with local AD units as required. If you must simulate the requirement, give the soldier a description of the scenario, and have the soldier describe the actions required.

**Brief Soldier:** Tell the soldier that you will evaluate him on his performance in the coordination procedures. Also tell the soldier that you will not inform him of his progress during performance of the task.

**Performance Measures**

Coordinate aircraft movement and identification with local AD units.

**GO   NO GO**  
 \_\_\_\_\_   \_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

**References**

**Required**

FM 3-52(FM 100-103)

FM 3-52.1(FM 3-100.2)

FM 3-52.2(FM 100-103-2)

**Related**

FM 3-04.120(FM 1-120)

## Control Battle Staff Functions within a Tactical Operations Center

### 011-141-0004

**Conditions:** You are given a tactical operations center under field conditions or during a brigade/battalion simulation exercise, FM 5-0(FM 101-5), FM 1-02(FM 101-5-1), FM 3-04.300(FM 1-300), your unit SOP, and the mission of supervising TOC operations.

**Standards:** According to FM 5-0(FM 101-5), FM 1-02(FM 101-5-1), ARTEP 1-111-MTP, unit SOP. Ensure that all activity is recorded in the journal and on the situation map.

### Performance Steps

1. Identifies the Following S-1 Responsibilities:
  - a. Participate in the staff planning process.
  - b. Prepare the personnel staff estimate according to FM 5-0(FM 101-5).
  - c. Perform strength management.
  - d. Conduct replacement operations.
  - e. Conduct administrative processing.
  - f. Conduct casualty reporting.
  - g. Provide other personnel and administrative services.
  - h. Provide and coordinate health, welfare, and moral services.
  - i. Establish and coordinate security of temporary EPW collection point.
  - j. Perform public affairs functions.
  - k. Monitor headquarters management.
  
2. Identifies the Following S-2 Responsibilities:
  - a. Participate in the staff planning process.
  - b. Establish and implement security measures.
  - c. Identify and process information into intelligence.
  - d. Coordinate and direct weather analysis support.
  - e. Coordinate counterintelligence measures for OPSEC with the S-3.
  - f. Process enemy prisoners of war.
  - g. Develop a friendly database.
  - h. Implement and supervise the command map program.
  
3. Identifies the Following S-3 Responsibilities:
  - a. Participate in the staff planning process.
  - b. Establish and maintain TOC.
  - c. Plan, coordinate, and control tactical operations.
  - d. Maintain and coordinate the operational situation with other staff sections.
  - e. Coordinate maneuver operations with combat support and combat service support during close, deep, and rear operations.
  - f. Establish and maintain a tactical command post.
  - g. Plan and direct A<sup>2</sup>C<sup>2</sup>.
  - h. Develop and execute contingency plans.
  - i. Plan and supervise civil - military operations.
  - j. Conduct liaison operations.
  - k. Plan a search and rescue mission.
  - l. Plan and direct flight operations for organic command aviation assets.

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4. Identifies the Following S-4 Responsibilities:
  - a. Participate in the staff planning process.
  - b. Coordinate the requisition, acquisition, and distribution of supplies and equipment.
  - c. Monitor, analyze, and inform the commander of the equipment readiness status.
  - d. Coordinate with the S-3 and recommend to the commander maintenance priorities.
  - e. Plan and coordinate external transportation assets for movement of personnel, supplies, and equipment.
  - f. Coordinate and provide other logistic services.
  - g. Establish and maintain the rear command post in coordination with the S-1 section.
5. Collate Incoming Information from other Staff Agencies Within the Brigade/Battalion and Higher Headquarters.
  - a. Update policy file to maintain currency of information.
  - b. Inspect documents before filing to ensure that all actions have been completed and ensure that unnecessary attached material is eliminated.
  - c. Updates the currency of the Organizations and Functions Manual.
  - d. Maintain SOP.
  - e. Maintain the S-3 workbook.
  - f. Maintain the daily staff journal.
  - g. Maintain staff message control procedures.
6. Identify the Battle Staff Action for the Military Decision-Making Process.
  - a. Receive unit commander's guidance after receipt of mission from higher echelon.
  - b. Issue warning order.
  - c. Development and analysis courses of action (war game)/comparison (decision matrix).
  - d. Produce OPPLAN/OPORD.

**Evaluation Preparation:** Setup: In a suitable training environment, provide the soldier with the items listed in the condition statement. Provide the soldier with the responsibilities of the different staff agencies. Provide information to collate from other staff agencies within the brigade/battalion and higher headquarters. Provide battle staff action for the military decision-making process.

**Brief Soldier:** Tell the soldiers that they are to identify the responsibilities of the staff agencies. They are to collate information from other staff agencies and higher headquarters. They must identify the battle staff action for the military decision-making process.

### Performance Measures

- |   | <u>GO</u> | <u>NO GO</u> |
|---|-----------|--------------|
| 1. Identified the following concept of command and staff relationships. <ol style="list-style-type: none"><li>a. C<sup>2</sup>.</li><li>b. C<sup>2</sup> system.</li><li>c. The staff's role.</li><li>d. Battlefield visualization.</li></ol>   | —         | —            |
| 2. Identified the basic foundation of staff organizations. <ol style="list-style-type: none"><li>a. Basis for staff organizations.</li><li>b. Factors affecting staff organizations.</li><li>c. Authorization for staff organizations.</li><li>d. Basic staff structure model.</li><li>e. Staff models.</li></ol> | —         | —            |

**Performance Measures**

	<u>GO</u>	<u>NO GO</u>
3. Identified the common staff responsibilities and duties.	—	—
a. Advised and provided information to the commander.		
b. Prepared, updated, and maintained staff estimates.		
c. Made recommendations.		
d. Prepared plans and orders.		
e. Monitored execution of decisions.		
f. Processed, analyzed, and disseminated information.		
g. Identified and analyze problems.		
h. Conducted staff coordination.		
i. Conducted training.		
j. Performed staff assistance visit.		
k. Performed risk management.		
l. Conducted staff inspections.		
m. Conducted staff writing.		
n. Conducted staff research.		
o. Performed staff administrative procedures.		
p. Supervised staff section and staff personnel.		
4. Identified the specific staff responsibilities and duties.	—	—
a. G1/S1 (Personnel).		
b. G2/S2 (Intelligence).		
c. G3/S3 (Operations).		
d. G4/S4 (Logistics).		
e. G5/S5 (Civil-Military Operations).		
f. G6/S6 (Signal).		
5. Identified the training requirements for a tactical operations center	—	—
a. Cross-training.		
b. Field operations training.		
c. A <sup>2</sup> C <sup>2</sup> training.		
d. Driver training.		
e. Guard and gunner training.		
f. Radio and switchboard training.		
g. Generator training and licensing.		
6. Identified duties and responsibilities of TOC personnel.	—	—
a. Operations NCOIC.		
b. Operations sergeant.		
c. Shift supervisors.		
d. Aviation operations specialists.		

**Evaluation Guidance:** Score the soldier GO if all performance steps are passed. Score the soldier NO-GO if any performance steps are failed. In case of a NO-GO, brief the soldier on the deficiency, retrain the soldier to perform the step correctly, and reevaluate the task.

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**References**

**Required**

ARTEP 1-111-MTP  
FM 5-0(FM 101-5)  
FM 1-02(FM 101-5-1)  
FM 1-02(FM 71-2)  
Local SOP

**Related**

None



## APPENDIX A

### AVIATION SCHOOL RECOMMENDED PROFESSIONAL READING LIST

This recommended professional reading list is designed for reading by all CMF 93, Aviation Operations soldiers and noncommissioned officers.

#### SKILL LEVEL 10

*The Enlisted Soldier's Guide*, Perez, 1st Ed., Stackpole Books.  
*The NCO Guide*, Cragg and Perez, 3rd Ed., 1989.  
*Soldier's Study Guide How to Prepare for Promotion Boards*, Jackson, Stackpole Books.

#### SKILL LEVEL 20

*Rules for Leadership: Improving Unit Performance*, Blade, National Defense University Press, 1986, 88-28556.  
FM 6-22(FM 22-100), Army Leadership.  
FM 7-10(FM 25-101), Battle Focused Training.  
TC 22-6, The Army Noncommissioned Officer Guide.  
*Guide to Effective Military Writing*, McIntosh, Stackpole Books.  
Readings on famous military leaders, i.e., Napoleon, Grant, Lee, Pershing, Patton, Bradley, Ridgeway, Westmoreland, Schwartzkopf.  
*The Story of the Noncommissioned Officers Corps*, Center for Military History, 70-38.

#### SKILL LEVEL 30

*Small Unit Administration (Manual or ADP Systems)*, Stackpole Books.  
*Common Sense Training*, Collins, Presidio Press, 1980, ISBN 0-89141-046-5.  
*The Noncommissioned Officers' Family Guide*, Gross, Beau Lac Pub., 1985, ISBN 0911980-13-X.  
FM 7-0(FM 25-100), Training the Force.

#### SKILL LEVEL 40

Readings about world politics and tensions issues.  
Battle-Focused Doctrine (FM 3-01[FM 44-100] and related FMs).  
*Combat Leader's Field Guide* (10th Ed., Stackpole Books).  
*Roots of Strategy. Book 2* (Picq, Clausewitz, Jomini, Stackpole Books).

**MILITARY JOURNALS**

*Army Aviation*  
*Aviation Digest (Army)*  
*Soldiers*  
*Army (AUSA)*  
*Jane's Defense Weekly*  
*Air Force Magazine*  
*Aerospace & Defense Science*  
*National Defense*  
*Military Technology*  
*NCO Journal*

**FAA PUBLICATIONS**

*FAA World*  
*ATC Procedures*

**Civilian Journals**

*Aviation Week and Space Technology*  
*Aviation*  
*Flying*  
*Aviation & Space*  
*Aviation Digest*  
*Aviation Equipment Maintenance*  
*Air Safety Weekly*  
*Aviation Monthly*  
*Aviation International News*  
*Flight Safety Digest*

## APPENDIX B

### DA FORM 5164-R (HANDS-ON EVALUATION)

This appendix provides a sample of DA Form 5164-R (Figure B-1) for the tasks in this STP.

The DA Form 5164-R allows the trainer to keep a record of the performance measures a soldier passes or fails on each task. Trainers should use the following instructions when completing DA Form 5164-R:

#### ***Prior to Evaluating the Soldier.***

Obtain a blank copy of DA Form 5164-R, which you may locally reproduce on 8 x 11-inch paper. AR 350-57 contains a reproducible copy of this form. The form also can be downloaded from the U.S. Army Publishing Agency web site ([www.usapa.army.mil/forms](http://www.usapa.army.mil/forms)).

Enter the task title and 10-digit number for the task from the evaluation guide of the **SM** task summary.

In column (a), enter the number of each performance measure from the evaluation guide.

In column (b), enter the performance measure corresponding to the performance measure number in column (a). (You may abbreviate this information if necessary.)

Enter the feedback statement from the evaluation guide just below the last performance measure.

Locally reproduce the partially completed form if you are evaluating more than one soldier on the task or the same soldier on more than one task.

#### ***During the Evaluation.***

Enter the date just before evaluating the soldier's task performance.

Enter the evaluator's name and the soldier's name and unit.

For each performance measure in column (b), enter a check in column (c) PASS or column (d) FAIL as appropriate.

Compare the number of performance measures the soldier passes (and if applicable, which ones) against the task standard shown in the feedback statement. If the standard is met or exceeded, check the GO block under STATUS; otherwise, check the NO-GO block.

HANDS-ON EVALUATION For use of this form, see AR 350-57; the proponent agency is ODCSOPS		DATE 10 OCT 01	
TASK TITLE PREPARE THE AN/TSQ-198 (TACTICAL TERMINAL CONTROL SYSTEM) FOR MOVEMENT		TASK NUMBER 011-143-7002	
ITEM a	PERFORMANCE STEP TITLE b	SCORE (Circle One)	
		PASS c	FAIL d
1	Shutdown procedures	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
2	Radio system shutdown	<input type="checkbox"/> P	<input checked="" type="checkbox"/> F
3	TTCS cables removal	<input type="checkbox"/> P	<input checked="" type="checkbox"/> F
4	MMS removal	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
5	HF Whip Antenna Removal	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
6	HF NVIS antenna removal	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
7	VHF-FM antenna removal	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
8	VHF/UHF antenna removal	<input type="checkbox"/> P	<input checked="" type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
EVALUATOR'S NAME <b>SSG Jones</b>		UNIT A CO 1/58 <sup>th</sup> AVN REGT	
SOLDIER'S NAME <b>SPC Smith</b>		STATUS <input type="checkbox"/> GO <input checked="" type="checkbox"/> NO GO	

Figure B-1. Sample of a completed DA Form 5164-R.

## APPENDIX C

### DA FORM 5165-R (FIELD EXPEDIENT SQUAD BOOK)

This appendix provides a sample of DA Form 5165-R (Figure C-1) for the tasks in this STP. The DA Form 5165-R allows the trainer to keep a record of task proficiency for a group of soldiers. Trainers should use the following instructions when completing DA Form 5165-R:

#### ***Prior to Evaluating the Soldier.***

Obtain a blank copy of DA Form 5165-R, which you may locally reproduce on 8 x 11 paper. AR 350-57 contains a reproducible copy of this form. The form also can be downloaded from the U.S. Army Publishing Agency web site ([www.usapa.army.mil/forms](http://www.usapa.army.mil/forms)).

Enter the SM task number and abbreviated task title for the evaluated tasks in the appropriate column. Use additional sheets as necessary. Locally reproduce the partially completed form if you are evaluating more than nine soldiers.

#### ***During the Evaluation.***

Enter the names of the soldiers you are evaluating, one name per column, at the top of the form. You may add the names of newly assigned soldiers if there are blank columns.

Under STATUS, record (*in pencil*) the date in the GO block if the soldier demonstrated task proficiency to soldier's manual standards. Keep this information current by always recording the most recent date on which the soldier demonstrated task proficiency.

Record the date in the NO-GO block if the soldier failed to demonstrate task proficiency to soldier's manual standards. Soldiers who failed to perform the task should be retrained and reevaluated until they can meet the standards. When that occurs, enter the date in the appropriate GO block and erase the previous entry from the NO-GO block.

#### ***After the Evaluation.***

Read down each column (GO/NO-GO) to determine the training status of that individual. This will give you a quick indication on which tasks a soldier needs training.

Read across the rows for each task to determine the training status of all soldiers. You can readily see on which tasks to focus training. Line through the training status column of any soldier who departs from the unit.

FIELD EXPEDIENT SQUAD BOOK						SHEET				
For use of this form, see AR 350-57; the proponent agency is ODCSOPS						1 OF 1				
USER APPLICATION	SOLDIER'S NAME									
	SPC SMITH, JOHN		SGT BROWN, JANE		SSG JONES, CHRIS					
TASK NUMBER AND SHORT TITLE	STATUS									
	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO
011-143-2002 CONDUCT CONTROLLER TRAINING	X		X		X					
011-143-5061 OPERATE THEODOLITE		X	X		X					
011-143-5059 IDENTIFY AIRSPACE CONTROL MEASURES	X		X		X					
011-143-3012 DEVELOP AN OPERATIONS LETTER	X		X		X					

Figure C-1. Sample copy of a completed DA Form 5165-R (modified).

## APPENDIX D

### NONCOMMISSIONED OFFICER CAREER PROGRESSION

#### THE LIFE CYCLE OF CAREER MANAGEMENT FIELD 93, AVIATION OPERATIONS, SOLDIERS STRUCTURE

Military occupational specialty 93C (ATC Operator) must score a minimum of 105 on the skilled technical portion of the armed services vocational aptitude battery, successfully pass a Class IV flight physical, and agree to the current active duty service obligation.

Military occupational specialty 93P (Aviation Operations Specialist) must score a minimum of 95 on the ST portion of the ASVAB, agree to the current ADSO, and have a secret security clearance.

The following Additional Skill Identifiers are applicable to CMF 93:

- A2 - Aviation Safety.
- F7 - Pathfinder.
- F8 - Flight Simulator (UH-1FS) Console Operations.
- 2S - Battle Staff Operations NCO.
- 4A - Reclassification Training.
- P5 - Master Fitness Trainer.
- Q2 - Aviation Life Support Equipment.
- Q8 - Tactical Air Operations.

#### PROFESSIONAL DEVELOPMENT

Professional development is the sum of all of the training, education, and experience gained by the enlisted soldier. The development process produces soldiers capable of carrying out their missions in a technically and tactically efficient manner. All the components of professional development must complement each other. The professional development process should train, promote, and then use soldiers in challenging careers. The soldier must be given the tools to achieve the personnel development goals. The primary key to professional development in NCOs is the noncommissioned officers education system.

**Goal.** The professional development goal is to provide every soldier with the opportunity to obtain the requisite skills and experience to become an NCO. All training, education, and experience constitutes professional development. Professional development enhances unit readiness and is an investment in the future of Army Aviation. The Aviation Branch's long-range goal for professional development is a tactically and technically proficient NCO.

#### ***Advance Individual Training.***

The goal of AIT is to produce a soldier technically proficient at the novice level. The increase in the complexity and capabilities of aircraft and support systems, combined with the

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increasingly complex and technical skills required for their maintenance, mandates a continuous education process. AIT is the first step in this process. Soldiers are trained in their MOS-specific technical tasks after they have mastered basic soldiering skills. Specific MOS training is conducted in each aviation specialty. The school prior to an initial utilization tour completes technical certification. Individual unit training programs coupled with on-the-job experience continue the technical education of each soldier.

Resident training ensures that a sufficient supply of trained personnel are available. This must be accomplished while tailoring the resident training courses to each individual professional development pattern. Training covers systems operation and maintenance, leadership skills, management skills, and current doctrinal tenets. Aviation enlisted soldier training is progressive and task oriented. It concentrates on the specific skills required by rank. The only exceptions are those soldiers accessed into an MOS through the civilian acquired skill program. See AR 601-210 for MOSs currently in the CASP.

**Primary Leadership.** The primary leadership development course is the first step in preparing the soldier for the initial challenges of leadership and is a prerequisite for promotion to sergeant. PLDC concentrates on building the basic skills required of the sergeant to perform as a trainer and leader.

**Basic Noncommissioned Officers Course.** The BNCOC is designed to prepare a soldier to perform at the staff sergeant level. SSGs are trained on leadership skills, weapons systems, MOS peculiar equipment, and tactics. BNCOC builds on the skills learned in PLDC to train subordinates to maintain, operate, and employ weapons and equipment in a combat environment. Completion of the BNCOC is required for promotion to SSG.

**Advanced Noncommissioned Officers Course.** The ANCOC is designed to prepare soldiers to perform the duties of platoon sergeant. ANCOC stresses MOS-related tasks, emphasizing advanced technical, tactical, leadership skills and knowledge of the subjects required for training and leading soldiers at the platoon level. Completion of the ANCOC is required for promotion to SFC.

**First Sergeant Course.** The first sergeant course is designed to prepare a SFC(P) or MSG to perform the duties required of a 1SG. The course stresses training, administration, leadership, and tactical skills. As the senior enlisted soldier at company level the 1SG must be proficient in all areas. The course attendees must be 1SG designees or incumbents, SFC(P)s and MSGs who have less than 18 months in a 1SG position.

### **Sergeants Major Course.**

The SMC is the capstone of the NCO education system. The SMC trains selected soldiers to be the senior enlisted leaders throughout the Army. These positions entail the highest levels of responsibility throughout the Army and DOD, in both troop and senior staff assignments. Eligible MSGs are selected to attend the SMC by a Department of the Army selection board and is required for promotion to SGM.

As soldiers gain experience and rank, they begin to occupy leadership positions. The increase in their job experience combined with their selection for promotion leads to their return



to the resident training system. At every level throughout their careers, aviation enlisted soldiers are trained, promoted, and used to assume more challenging leadership positions.

**Long-Range Sequence for Professional Development.** Advanced individual training includes:

- Unit Experience
- PLDC
- Unit Experience
- BNCOC
- Unit Experience
- ANCOC = Tactically and technically proficient NCO

**Reserve Component Progression.**

Reserve component career progression is comprised of individual unit training programs coupled with on-the-job experience. Experience coupled with the appropriate level NCO educational courses qualifies a soldier for promotion. A troop program unit, individual mobilization augmentee, or individual ready reserve soldier must complete or receive constructive credit from the following accredited Active Army or Reserve Component NCOES courses for promotion to:

- Staff Sergeant - BNCOC
- Sergeant First Class or Platoon Sergeant - ANCOC
- Master Sergeant or 1SG - ANCOC
- Sergeant Major - SMC

The key component of professional development is NCOES. The NCOES is sequential and progressive and provides mandatory training prior to promotion. This applies equally to combined arms, combat support, and combat service support soldiers. It does not include functional courses such as the 1SG course or the battle staff course. By linking promotions to NCOES, the program increases the education level of the NCO Corps.

<b>NCOES</b>	<b>LINK</b>
PLDC	SGT
BNCOC	SSG
ANCOC	SFC
Sergeant's Major Academy	CSM/SGM

Soldiers are ultimately responsible for their individual development.

**CAREER MANAGEMENT**

The career management concept for the enlisted aviation soldier is designed to provide systematic opportunities for each soldier to obtain the proper balance of experience and professional education. Experience opportunities occur through a series of progressive

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assignments, which require increasing responsibility, while developing the full range of duties required by aviation enlisted soldiers. Professional education opportunities occur through civilian and military training, using the NCOES, Army Correspondence Course Program, on-the-job experience, and individual study.

### ***Promotions.***

Promotions have a direct bearing on the sustainment of aviation soldiers. A favorable opportunity for promotion increases the sustainment rate of a particular MOS, although the actual promotion might shift a soldier into a new specialty. Personnel management goals, current authorizations, and future force structure must all be carefully evaluated when allocating promotions among different specialties. The Army promotion program is composed of three subsystems—decentralized, semicentralized, and centralized.

The decentralized system allows local commanders to promote soldiers according to DA policies to the rank of PVT through SPC.

The semicentralized promotion allows field grade commanders to promote soldiers in the rank of SGT and SSG based on the soldier making the DA posted cut off score. Eligible aviation enlisted soldiers compete on a standardized point system composed of points awarded for past achievements and by the promotion board. Soldiers recommended for promotion to SGT and SSG must appear before a local selection board and are awarded promotion points based upon board appraisal. If a soldier has enough points, he is placed on the recommended list and total points are reported to DA. If after 90 days the total points meet or exceed the DA published cutoff score for the MOS, the soldier is promoted. Otherwise, the soldier remains in a promotable status until either he obtains sufficient promotion points or DA lowers promotion cutoff scores. The DCSPER determines the needs of the Army by rank and specialty, based on this need, PERSCOM publishes promotion point cutoff scores for the primary and secondary zones for promotion to both SGT and SSG

As an incentive to reward exceptional soldiers, waivers are authorized for time in service and time in grade. Soldiers with waivers are placed in the secondary zone. Outstanding soldiers have the opportunity for early advancement. This serves as a motivating factor for continued outstanding service and assists in the sustainment of a quality force.

The centralized system is used for promotion to the grade of SFC, MSG, and SGM. Three different boards convened annually at DA level make selections. Aviation Proponency develops a briefing for all promotion board members. The briefing familiarizes board members with soldiers' duties and responsibilities within aviation CMFs 67 and 93 and their typical career progressions.

***Nonresident Training.*** Nonresident training affords aviation enlisted soldiers an opportunity to increase their professional proficiency. Because of the continual changes and complexity of aviation systems and missions, it is vital that soldiers take advantage of the various available nonresident training sources. Some of the programs are civilian schooling, correspondence courses, and learning center computer-assisted training programs.

***Civilian Education.***

There is no formal civilian education requirement in enlisted aviation CMFs beyond high school. However, for promotions above the rank of SSG, civilian education is an increasingly significant discriminator. Department of the Army policy stresses that, prior to the fifteenth year of service, enlisted soldiers should earn an associate degree, license, or professional certification in a field related to their MOS.

Under the tuition assistance program, active duty aviation enlisted soldiers can take courses at accredited civilian colleges and academic institutions. After approval of tuition assistance, individuals receive financial aid to cover up to 75 percent of tuition. Approval is at the local level. This program is being linked with the CMF NCO self-development career map. (See figure D-1).

Soldiers qualifying for the Montgomery GI Bill education entitlement may receive Veterans Administrative financial assistance. The following restrictions apply:

- Local unit commanders must approve duty time to engage in studies.
- In-service participants will only receive money for tuition.
- Individuals in fully funded programs are not authorized to receive VA financial assistance normally available under the GI Bill.

***Servicemembers Opportunity College.*** SOC is a network of affiliated schools within the continental United States and meets the soldier's need for continued civilian education. These schools have liberal entrance requirements and provide several alternatives for obtaining readily transferable college credits. This flexible method of instruction is adaptable to the mobile lifestyle of a soldier.

***Exportable training.***

Exportable training publications contain essential and specialty critical tasks. These include common task training and MOS-related soldiers manuals. These manuals define the scope and performance standards of the varied tasks in the career field. The strength of individual basic skills is measured by the common task test. This serves to highlight deficiencies in unit individual training programs and can be used to focus unit training.

Individual training is a continuous process to attain and sustain proficiency in mission essential tasks. As new soldiers arrive in the unit, they are evaluated for individual skill proficiency and then integrated into the unit training program. New personnel should be integrated into the unit training program and be functioning members within 90 days of their arrival. All of their technical skills are maintained by continuous sustainment training.

***Total Army Schools System.*** TASS establishes an effective and efficient school system of fully accredited and integrated Active Component\ARNG\USAR schools. TASS provides standard individual training and education for the army's three components. This system also establishes a tricomponent partnership, develops efficient use of resources, and functionally aligns Active Component\Reserve Component schools.

<p><b>TITLE OF CAREER MANAGEMENT FIELD:</b>  <b>AVIATION OPERATIONS</b></p> <p><b>CMF NUMBER: 93</b></p>		<p>THE FOLLOWING ARE ONLY RECOMMENDATIONS. It may not be feasible to complete all recommended courses since assignments may preclude off-duty education. Alternate methods of achieving CMF course recommendations are possible (examinations, correspondence courses, and ACE-recommended credits). See an education counselor for recommended courses/goals.</p>				
DEVELOPMENTAL ASSIGNMENTS						
<p><b>RANKS, SKILL LEVELS, &amp; DUTY ASSIGNMENTS</b></p>	<p><b>PVT, PFC, SPC/CPL Skill Level 10</b></p> <p>→</p>		<p><b>SGT Skill Level 20</b></p> <p>Recruiter/Retention/Drill SGT → Shift/Repr Supervisor TAC Team Leader</p>	<p><b>SSG Skill Level 30</b></p> <p>SEC/OPS SGT Platoon SGT</p>	<p><b>SFC Skill Level 40</b></p> <p>Facility Chief ATC Chief</p>	<p><b>MSG SGM/CSM Skill Level 50</b></p> <p>First Sergeant</p>
	<p>→</p>					
INSTITUTIONAL TRAINING						
<p><b>INSTITUTIONAL TRAINING</b></p>	<p>BCT AIT</p>	<p>PLDC</p>	<p>BNCOC</p>	<p>ANCOC</p>	<p>SERGEANT MAJOR COURSE</p>	
SELF DEVELOPMENT						
<p><b>RECOMMENDED NCOES-RELATED COURSES</b></p>	<p><b>PRIOR TO PLDC:</b></p> <ol style="list-style-type: none"> <li>English Composition</li> <li>Basic Mathematics</li> <li>Computer Literacy</li> </ol>		<p><b>PRIOR TO BNCOC:</b></p> <ol style="list-style-type: none"> <li>Communication Skills</li> <li>Personal Supervision</li> <li>Behavioral Science</li> <li>Speech</li> </ol>	<p><b>PRIOR TO ANCOC:</b></p> <ol style="list-style-type: none"> <li>Principles of Management</li> <li>Organizational Behavior</li> <li>Information Mgt Systems</li> <li>Technical Writing</li> <li>College Math/Geometry Emphasis</li> </ol>	<p><b>PRIOR TO SMC:</b></p> <ol style="list-style-type: none"> <li>Research Techniques (Statistics)</li> <li>Human Resource Mgt</li> </ol> <p><b>Battle Staff Course</b> <b>1SG Course</b></p>	
<p><b>RECOMMENDED CMF-RELATED COURSES AND ACTIVITIES</b></p>	<p><b>Skill Level 10</b></p> <ol style="list-style-type: none"> <li>ControlTwr Oper Prep (ACCP) (93C)</li> <li>Avn Opr Spec (ACCP) (93P)</li> <li>Begin taking TEC, IAVD &amp; CYBISAvn Lessons for MOS in LC. For catalog of lessons write Cdr, US Army Avn Ctr, ATTN: ATZQ-TDI-D.Tng Spt Br, Bldg 3409. Ft Rucker, AL 36362</li> </ol>		<p><b>Skill Level 20</b></p> <ol style="list-style-type: none"> <li>Aviation Law (93C)</li> <li>Aviation Regulations (93C)</li> <li>Safety Mgt (Basic) (ACCP)</li> <li>Records Management</li> </ol>	<p><b>Skill Level 30</b></p> <ol style="list-style-type: none"> <li>Army Accident Prevention Course</li> <li>Avn Accident Prevention Management (ACCP)</li> <li>Methods of Instruction</li> <li>Performance Appraisals</li> <li>Aviation Management</li> <li>Stress Management</li> </ol>	<p><b>Skill Level 40 50</b></p> <ol style="list-style-type: none"> <li>Policy &amp; Decision Making</li> <li>Airport Management</li> </ol>	
<p><b>RECOMMENDED CMF-RELATED CERTIFICATION OR DEGREE GOAL</b></p>	<p><b>NATIONAL TRADE/PROFESSIONAL CERTIFICATE IN:</b>                  (93C) FAA Facility Rating Prior to 3rd Yr of Service</p> <p><b>ASSOCIATE OF APPLIED SCIENCE IN:</b>                  ATC Facilities Mgt; Aviation Opns Mgt                  BY THE 15TH YEAR OF SERVICE</p>			<p><b>BACHELORS OF APPLIED SCIENCE IN:</b>                  ATC Facilities Management, Aviation Operations Management, Business Management, or Interdisciplinary Studies</p> <p>BY THE 20TH YEAR OF SERVICE</p>		
<p><b>LEGEND</b></p>	<p>ACCP - Army Correspondence Course Program                  LC - Course found in Learning Center</p>			<p>CYBIS - Network Computer Instruction (Where Available)</p>		

Figure D-1. NCO leader self-development career map.

## GLOSSARY

### SECTION I. ABBREVIATIONS

<b>A<sup>2</sup>C<sup>2</sup></b>	Army Airspace Command and Control
<b>AA</b>	Avenue of Approach; Assembly Area
<b>AAF</b>	Army airfield
<b>ABCCC</b>	airborne battlefield command and control center
<b>AAR</b>	after-action review
<b>AC</b>	alternating current
<b>ACA</b>	airspace control authority
<b>ACARS</b>	aircraft communications addressing and reporting system
<b>ACC</b>	airspace control center
<b>ACCP</b>	Army Correspondence Course Program
<b>acft</b>	aircraft
<b>ACL</b>	allowable cargo load
<b>ACofS</b>	Assistant Chief of Staff
<b>ACP</b>	Airspace Control Plan
<b>AD</b>	air defense
<b>ADA</b>	air defense artillery
<b>ADCOORD</b>	air defense coordinator
<b>ADF</b>	automatic direction finder
<b>ADJ</b>	adjust
<b>ADOLT</b>	air defense operations liaison team
<b>ADSO</b>	active duty service obligation

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<b>ADTL</b>	Army doctrinal and training literature
<b>AF</b>	audio frequency
<b>AGC</b>	automatic gain control
<b>AGL</b>	above ground level
<b>AIM</b>	Airman's Information Manual
<b>AIT</b>	advanced individual training
<b>AL</b>	Alabama
<b>ALNOT</b>	alert notice
<b>ALO</b>	air liaison officer
<b>AR</b>	Army Regulation; Army Reserve
<b>AM</b>	amplitude modulation
<b>ANCD</b>	automated net control devices
<b>ANCOC</b>	Advanced Noncommissioned Officers' Course
<b>ANGLICO</b>	air and naval gunfire liaison company
<b>ANSI</b>	American National Standards Institute
<b>ANT</b>	antenna
<b>AOR</b>	area of responsibility
<b>AR</b>	Army regulation
<b>ARAC</b>	Army radar approach control
<b>ARINC</b>	Aeronautical Radio, Incorporated
<b>ARLO</b>	air reconnaissance liaison officer
<b>ARNG</b>	Army National Guard
<b>ARSA</b>	airport radar service area
<b>ARTCC</b>	Air Route Traffic Control Center

<b>ARTEP</b>	Army Training and Evaluation Program
<b>ARTS</b>	automated radar terminal system
<b>ASAT</b>	automated systems approach to training
<b>ASDE</b>	airport surface detection system
<b>ASM</b>	airspace management
<b>ASOC</b>	air support operations center
<b>ASR</b>	airport surveillance radar
<b>ASVAB</b>	armed services vocational aptitude battery
<b>ATCS</b>	air traffic control specialist
<b>ATC</b>	air traffic control
<b>ATCAA</b>	air traffic control assigned airspace
<b>ATCRBS</b>	Air Traffic Control Radar Beacon System
<b>ATIS</b>	Automated Terminal Information Service
<b>ATTN</b>	attention
<b>ASRT</b>	air support radar team
<b>atk</b>	attack
<b>attn</b>	attention
<b>ATS</b>	air traffic services
<b>AUD</b>	audio
<b>AUTO</b>	automatic
<b>AVAIL</b>	available
<b>avn</b>	aviation
<b>AWACS</b>	airborne warning and control system
<b>AZ</b>	azimuth

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<b>BIT</b>	built-in-test
<b>BKR</b>	breaker
<b>BNCOC</b>	Basic Noncommissioned Officers' Course
<b>BRT</b>	bright
<b>CAL</b>	calibrated
<b>CAS</b>	close air support
<b>CASP</b>	civilian acquired skill program
<b>CAT</b>	clear air turbulence
<b>cbt</b>	combat
<b>C<sup>2</sup></b>	command and control
<b>CCW</b>	counterclockwise
<b>CDB</b>	course deviation bar
<b>C-E</b>	communications-electronics
<b>CEOI</b>	Communications-Electronics Operations Instructions
<b>CEWI</b>	combat electronic warfare intelligence
<b>CHAN</b>	channel
<b>CIC</b>	controller in charge
<b>CIR</b>	circular
<b>CKT</b>	circuit
<b>CKP</b>	checkpoint
<b>CL</b>	centerline
<b>CLR</b>	clear
<b>CM&amp;D</b>	collection management and dissemination
<b>CMF</b>	Corps maneuver formations



<b>COMMZ</b>	communications zone
<b>COMM</b>	communications
<b>COMSEC</b>	Communication Security
<b>COND</b>	condition
<b>CONUS</b>	Continental United States
<b>CONV</b>	conversion
<b>CP</b>	command post
<b>CPX</b>	command post exercise
<b>CRC</b>	control and reporting center
<b>CRP</b>	control and reporting post
<b>CRT</b>	cathode ray tube
<b>crypto</b>	cryptographic
<b>CSC</b>	consecant
<b>CTO</b>	control tower operator
<b>CTOC</b>	corps tactical operations center
<b>CTT</b>	Common Task Test
<b>CW</b>	continuous wave
<b>CWA</b>	Center Weather Advisory
<b>DA</b>	Department of the Army
<b>DARR</b>	Department of the Army regional representative
<b>DASC</b>	direct air support center
<b>DC</b>	direct current
<b>DCA</b>	Defense Communications Agency
<b>DCSPER</b>	Deputy Chief of Staff, Personnel

**STP 1-93C24-SM-TG**

<b>DD</b>	Department of Defense
<b>DF</b>	direction finding
<b>DH</b>	decision height
<b>DIS</b>	disable
<b>DISTR</b>	distribution
<b>D/L</b>	direct line
<b>DL</b>	delay line
<b>DME</b>	distance measuring equipment
<b>DMM</b>	digital map marks
<b>DOD</b>	Department of Defense
<b>DOTDS</b>	Directorate of Training, Doctrine, and Simulation
<b>DR</b>	Data Repository
<b>DSA</b>	division support area
<b>DSN</b>	Defense Switching Network
<b>DTG</b>	date-time group
<b>DTOC</b>	division tactical operations center
<b>DZ</b>	drop zone
<b>E</b>	enlisted; east
<b>ECCM</b>	Electronic Counter-Countermeasures
<b>ECM</b>	Electronic Countermeasures
<b>ECU</b>	electronic control unit
<b>EEFI</b>	essential elements of friendly information
<b>EFC</b>	expect further clearance
<b>eff</b>	effective

<b>EFTO</b>	encrypted for transmission only
<b>EL</b>	elevation
<b>ELT</b>	emergency locator transmitter
<b>EMER</b>	emergency
<b>ENSCE</b>	enemy situation correlation element
<b>EOD</b>	explosive ordnance disposal
<b>EP</b>	externally powered
<b>EPW</b>	enemy prisoner of war
<b>equip</b>	equipment
<b>ESM</b>	Electronic Support Measure
<b>ETA</b>	Estimated Time of Arrival
<b>EW</b>	Electronic Warfare
<b>EXP</b>	expansion
<b>FAA</b>	Federal Aviation Administration
<b>FAAO</b>	Federal Aviation Administration Order
<b>FAC-A</b>	forward air controller--airborne
<b>FACP</b>	forward air control post
<b>FAF</b>	final approach fix
<b>FAR</b>	Federal Aviation Regulations
<b>FARP</b>	forward arming and refueling point
<b>FCC</b>	Flight Coordination Center
<b>FCTN</b>	function
<b>FEBA</b>	forward edge of the battle area
<b>FG</b>	fiscal guidance

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<b>FH</b>	frequency hopping
<b>FLIP</b>	Flight Information Publication
<b>FLOT</b>	forward line of own troops
<b>FM</b>	field manual; frequency modulation (radio)
<b>FOC</b>	Flight Operations Center
<b>freq</b>	frequency
<b>FS</b>	fire support
<b>FSE</b>	forward security element
<b>FSN</b>	federal stock number
<b>FSS</b>	Flight Service Station
<b>ft</b>	foot
<b>FTC</b>	fuel time constant
<b>FTM</b>	Facility Training Manual
<b>FTP</b>	Facility Training Program
<b>FY</b>	fiscal year
<b>G1</b>	Assistant Chief of Staff, G1 (Personnel)
<b>G2</b>	Assistant Chief of Staff, G2 (Intelligence)
<b>G3</b>	Assistant Chief of Staff, G3 (Operations and Plans)
<b>G4</b>	Assistant Chief of Staff, G4 (Logistics)
<b>GCA</b>	ground-controlled approach
<b>GD</b>	guard
<b>GED</b>	gasoline engine driven
<b>GI</b>	government issue
<b>GEN</b>	generator

<b>GLO</b>	ground liaison officer
<b>GND</b>	ground
<b>GP</b>	glide path
<b>GS</b>	general schedule
<b>HAT</b>	height above touchdown
<b>HF</b>	high frequency
<b>HF/SSB</b>	high frequency/single sideband
<b>HI</b>	high
<b>HIWAS</b>	hazardous in-flight weather advisory service
<b>HQ</b>	Headquarters
<b>HIDACZ</b>	high-density airspace control zone
<b>HIWAS</b>	hazardous in-flight weather advisory service
<b>HOM</b>	homing
<b>HORIZ</b>	horizontal
<b>HQ</b>	headquarters
<b>HV</b>	high voltage
<b>Hz</b>	hertz
<b>ICAO</b>	International Civil Aviation Organization
<b>ICOM</b>	integrated communications security
<b>ID</b>	identification
<b>IDP</b>	initial delay position
<b>IF</b>	intermediate frequency
<b>IFF</b>	identification, friend or foe
<b>IFM</b>	improved frequency modulation

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<b>IFR</b>	instrument flight rules
<b>IET</b>	initial entry training
<b>IFF</b>	Identification, Friend or Foe
<b>ILS</b>	Integrated Logistics Support
<b>IMC</b>	instrument meteorological conditions
<b>IND</b>	indicator
<b>INREQ</b>	Information Request
<b>INT</b>	internal
<b>intel</b>	intelligence
<b>INTSUM</b>	intelligence summary
<b>ITEP</b>	Individual Training Evaluation Program
<b>JB</b>	Job Book
<b>JOGA</b>	Joint Operations Graphic (air)
<b>KC</b>	kilocycle
<b>KHz</b>	kilohertz
<b>KTC</b>	Dryad Numeral Cypher/Authentication System (Training)
<b>KW</b>	kilowatt
<b>L</b>	left
<b>LA</b>	low approach
<b>LB</b>	local battery
<b>LC</b>	line of contact
<b>LCC</b>	land component commander
<b>LD</b>	line of departure
<b>Ldr</b>	leader

<b>LD-V</b>	loaded data variable
<b>LF</b>	low frequency
<b>LIN</b>	linear
<b>LL</b>	landline
<b>LLTR</b>	low-level transit route
<b>LNO</b>	liaison officer
<b>LO</b>	liaison officer
<b>LOA</b>	letter of agreement
<b>loc</b>	location
<b>LOG</b>	logarithm
<b>LOI</b>	letter of instruction
<b>LOP</b>	letter of procedure
<b>LSB</b>	lower sideband
<b>LZ</b>	landing zone
<b>MA</b>	minimum altitude
<b>MACOM</b>	major Army command
<b>MAN</b>	manual
<b>MAP</b>	missed approach point
<b>MAX</b>	maximum
<b>MC</b>	megacycle
<b>MCO</b>	movement control officer
<b>MCW</b>	modulated continuous wave
<b>MDA</b>	minimum descent altitude
<b>MEA</b>	minimum en route altitude

**STP 1-93C24-SM-TG**

<b>mech</b>	mechanized
<b>MED</b>	medium
<b>MEM</b>	memory
<b>METAR</b>	Meteorological Terminal Aviation Report
<b>METL</b>	mission-essential task list
<b>MHz</b>	megahertz
<b>MIA</b>	minimum IFR altitude
<b>MIC</b>	microphone
<b>MIJI</b>	Meaconing, Interference, Jamming, and Intrusion
<b>MIRL</b>	medium intensity runway lights
<b>MLS</b>	microwave landing system
<b>MMA</b>	minimum maneuver altitude
<b>MMS</b>	meteorological measuring system
<b>MN</b>	main
<b>MOA</b>	military operations center
<b>MOCA</b>	minimum obstruction clearance altitude
<b>MON</b>	monitor
<b>MOPP</b>	mission-oriented protective posture
<b>MOS</b>	military occupational specialty
<b>MOSC</b>	military occupational specialty code
<b>MPC</b>	message processing center
<b>MRR</b>	minimum risk route
<b>MSAW</b>	minimum safe altitude warning
<b>MSL</b>	mean sea level



<b>MSR</b>	main supply route
<b>MTI</b>	moving target indicator
<b>MTP</b>	mission training plan
<b>MVA</b>	minimum vectoring altitude
<b>MWO</b>	modification work order
<b>N</b>	north
<b>NA</b>	not applicable
<b>NAR</b>	narrow
<b>NAS</b>	National Airspace System
<b>NATO</b>	North Atlantic Treaty Organization
<b>NAV</b>	navigation
<b>NAVAID</b>	navigational aid
<b>NB</b>	narrow band
<b>NBC</b>	nuclear, biological, and chemical
<b>NCO</b>	noncommissioned officer
<b>NCOES</b>	noncommissioned officer education system
<b>NCS</b>	net control system
<b>NDB</b>	nondirectional radio beacon
<b>NE</b>	northeast
<b>NGB</b>	National Guard Bureau
<b>no</b>	number
<b>NOE</b>	Nap of the Earth
<b>NORM</b>	normal
<b>NOTAM</b>	Notice to Airmen

**STP 1-93C24-SM-TG**

<b>NSN</b>	national stock number
<b>NVG</b>	night vision goggles
<b>NVIS</b>	near vertical incidence skywave
<b>NVS</b>	night vision system
<b>NW</b>	northwest
<b>NWS</b>	National Weather Service
<b>(O)</b>	For Official Use Only
<b>obj</b>	objective
<b>ODALS</b>	omnidirectional approach lighting system
<b>OPLAN</b>	operation plan
<b>OPORD</b>	operation order
<b>OPR</b>	operator
<b>ops</b>	operations
<b>OPSEC</b>	operational security
<b>OSUT</b>	one station unit training
<b>OVHD</b>	overhead
<b>pam</b>	pamphlet
<b>PAR</b>	precision approach radar
<b>PARA</b>	paragraph
<b>PDP</b>	power distribution panel
<b>PERSCOM</b>	personnel command
<b>PIREP</b>	pilot report
<b>PL</b>	phase line
<b>PLDC</b>	primary leadership development course

<b>PLS</b>	pulse
<b>PMCS</b>	preventive maintenance checks and services
<b>POL</b>	polarity
<b>POS</b>	position
<b>PP</b>	passage point
<b>ppi</b>	planned position indicator
<b>PRE</b>	preset
<b>PREC</b>	precision
<b>psi</b>	pounds per square inch
<b>PTT</b>	push-to-talk
<b>PWR</b>	power
<b>PZ</b>	pickup zone
<b>REIL</b>	runway end identifier lights
<b>R</b>	right
<b>RAPCON</b>	radar approach control center
<b>RC</b>	reserve components
<b>RCC</b>	Regional Control Center
<b>RCU</b>	remote control unit
<b>RCVR</b>	receiver
<b>REC</b>	receive
<b>reg</b>	regulation
<b>rep</b>	representative
<b>RF</b>	radio frequency
<b>ROC</b>	Regional Operations Center

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<b>ROZ</b>	restricted operations zone
<b>RPI</b>	runway point of intercept
<b>RPV</b>	remotely piloted vehicle
<b>rqd</b>	required
<b>RSC</b>	rescue control center
<b>RT</b>	receiver-transmitter
<b>RTQC</b>	real time quality check
<b>RVR</b>	runway visual range
<b>RXMT</b>	retransmit
<b>S</b>	south
<b>S1</b>	Adjutant (US Army)
<b>S2</b>	Intelligence Officer (US Army)
<b>S3</b>	Operations and Training Officer (US Army)
<b>S4</b>	Supply Officer (US Army)
<b>SAR</b>	search and rescue
<b>SBW</b>	selectivity band width
<b>SC</b>	single channel
<b>SCATANA</b>	security control of air traffic and air navigational aids
<b>SCR</b>	solineum controlled rectifier
<b>SDT</b>	self-development test
<b>SE</b>	southeast
<b>SELADR</b>	selective address
<b>SELCAL</b>	selective calling
<b>SEMA</b>	special electronic mission aircraft

<b>SENS</b>	sensitivity
<b>SEQ</b>	sequence
<b>SHORAD</b>	short-range air defense
<b>SID</b>	standard instrument departure
<b>SIGMET</b>	significant meteorological information
<b>SIGSEC</b>	signal security
<b>SIMULT</b>	simultaneous
<b>SINGARS</b>	single-channel ground and air radio system
<b>SL</b>	skill level
<b>SM</b>	soldier's manual
<b>SMC</b>	sergeant major's course
<b>SMCT</b>	Soldier's Manual of Common Tasks
<b>SOC</b>	Service Member's Opportunity College
<b>SOI</b>	signal operation instructions
<b>SOP</b>	standing operating procedure
<b>SP</b>	start point
<b>spt</b>	support
<b>SQ</b>	squelch
<b>SQ DIS</b>	squelch disable
<b>SQT</b>	skill qualification test
<b>SR</b>	slow-speed, low-altitude training route
<b>SRCU</b>	securable remote control unit
<b>SS</b>	shift supervisor
<b>SSB</b>	single sideband

**STP 1-93C24-SM-TG**

<b>STAR</b>	Systems Threat Assessment Report
<b>STC</b>	sensitivity time control
<b>STOL</b>	short takeoff and landing
<b>STP</b>	Soldier Training Publication
<b>SUA</b>	special-use airspace
<b>SUPP</b>	supplement
<b>sust</b>	sustainment
<b>SVFR</b>	special visual flight rules
<b>SW</b>	southwest
<b>tac</b>	tactical
<b>TACAIR</b>	tactical air
<b>TACAN</b>	tactical air navigation
<b>TACC</b>	tactical air control center
<b>TACP</b>	tactical air control party
<b>TACS</b>	tactical air control system
<b>TB</b>	technical bulletin
<b>TC</b>	training circular
<b>TCA</b>	terminal control area
<b>TCAS</b>	traffic alert and collision avoidance system
<b>TD</b>	transmitter distributor
<b>TEC</b>	Training Extension Course
<b>TEL</b>	telephone
<b>TEMP</b>	temperature
<b>TF</b>	task force

<b>TG</b>	Trainer's Guide
<b>TLC</b>	top loading coil
<b>TM</b>	technical manual
<b>tng</b>	training
<b>TOC</b>	tactical operations center
<b>TOD</b>	time of day
<b>TOE</b>	table(s) of organization and equipment
<b>TON</b>	tone
<b>TOT</b>	time over target
<b>TPC</b>	tactical pilotage chart
<b>TR</b>	transmitter
<b>T/R</b>	transmitter-receiver
<b>TRADOC</b>	U.S. Army Training and Doctrine Command
<b>TRAN</b>	transmit
<b>TRANSEC</b>	transmission security
<b>TRSA</b>	terminal radar service area
<b>TST</b>	test
<b>TTCS</b>	tactical terminal control system
<b>TVOR</b>	terminal VHF omnidirectional range
<b>TWR</b>	tower
<b>UH</b>	utility helicopter
<b>UHF</b>	ultra high frequency
<b>US</b>	United States
<b>USAASA</b>	United States Army Aeronautical Services Agency

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<b>USAASD</b>	United States Army Aeronautical Services Detachment
<b>USAAVNC</b>	United States Army Aviation Center
<b>USAR</b>	United States Army Reserve
<b>USB</b>	upper side band
<b>UTC</b>	Coordinated Universal Time
<b>UVU</b>	UHF/VHF/UHF
<b>V</b>	volt
<b>VA</b>	Virginia
<b>VASI</b>	visual approach slope indicator
<b>VAC</b>	volts, alternating current
<b>VDC</b>	volts, direct current
<b>VER</b>	version
<b>VERT</b>	vertical
<b>VFR</b>	visual flight rules
<b>VHF</b>	very high frequency
<b>VOL</b>	volume
<b>VOLT</b>	voltage
<b>VOR</b>	VHF omnidirectional range
<b>VORTAC</b>	VHF omnidirectional range tactical air navigation
<b>VRC</b>	vehicular radio controlled
<b>VRMS</b>	volts root mean square
<b>V/STOL</b>	vertical short takeoff and landing
<b>VTOL</b>	vertical takeoff and landing
<b>VUV</b>	VHF/UHF/VHF



<b>W</b>	west
<b>WCS</b>	weapons control status
<b>WB</b>	wideband
<b>WD</b>	wind direction
<b>WOC</b>	wing operations center
<b>XCVR</b>	transmitter-receiver
<b>XMT</b>	transmit
<b>Z</b>	Zulu (Greenwich mean time)

## SECTION II. TERMS

### **ADDITIONAL SERVICES**

Advisory information provided by air traffic control.

### **ADVISORY**

Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.

### **AERODROME**

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either entirely or in part for the arrival, departure, and movement of aircraft.

### **AERONAUTICAL CHART**

A map used in air navigation, containing all or part of the following: topographic features, hazards and obstructions, navigational aids, navigation routes, designated airspace, and airports.

### **AIRCRAFT**

Devices used or intended to be used for flight in the air (When used in air traffic control, the terminology may include the flight crew.)

### **AIRFIELD**

An area prepared for the accommodation (including any buildings, installations, and equipment) of arriving and departing aircraft.

### **AIRMAN'S INFORMATION MANUAL**

A publication containing basic flight information and air traffic control procedures designated primarily as a pilot's instructional manual for use in the National Airspace System of the United States.

## **STP 1-93C24-SM-TG**

### **AIRPORT**

An area of land or water, to include buildings and facilities (if any), used or intended to be used for the landing and takeoff of aircraft.

### **AIRPORT TRAFFIC CONTROL SERVICE**

A service provided by a control tower for aircraft operating in the movement area and in the vicinity of an airport.

### **AIR ROUTE TRAFFIC CONTROL CENTER**

A facility established to provide ATC services to IFR aircraft-controlled airspace and principally during the en route phase of flight.

### **AIR TRAFFIC**

Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

### **AIR TRAFFIC CLEARANCE**

An authorization by ATC to prevent collisions between known aircraft and to allow aircraft to proceed under specified traffic conditions within controlled airspace.

### **AIR TRAFFIC CONTROL**

A service operated by the appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

### **AIR TRAFFIC CONTROL SPECIALIST/CONTROLLER**

A person authorized to provide ATC services.

### **AIRMAN'S INFORMATION MANUAL**

A publication containing basic flight information and ATC procedures designated primarily as a pilot's instructional manual for use in the National Airspace System of the United States.

### **AIRPORT**

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A service provided by a control tower for aircraft operating in the movement area and in the vicinity of an airport.

### **ALERT NOTICE**

A message sent by an FSS or ARTCC that requests an extensive communications search for overdue, unreported, or missing aircraft.

### **APPROACH CLEARANCE**

Authorization by ATC for a pilot to conduct an instrument approach.

**ATC CHIEF**

The person responsible for the supervision and management of all ATC facilities located at an airfield or a heliport; the ATC chief must supervise two or more ATC facilities or 24 or more personnel.

**ATC FACILITY CHIEF**

The person responsible for the administration, duty schedules, and operation within an ATC facility (control tower, approach control, GCA, FOC, or FCC).

**AUTOMATIC TERMINAL INFORMATION SYSTEM**

The continuous broadcast of recorded noncontrol information in selected terminal areas.

**COORDINATES**

The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

**DIRECT SUPERVISION**

Supervision of a person on a one-to-one basis by the holder of a current rating for a specific facility.

**DOD FLIGHT INFORMATION PUBLICATION**

A publication used for flight planning and en route and terminal operations.

**ELECTRONIC COUNTER-COUNTERMEASURES**

Actions taken to ensure friendly use of the electromagnetic spectrum despite the enemy's use of electronic warfare.

**ELECTRONIC COUNTERMEASURES**

Actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, including electronic jamming and electronic deception.

**ELECTRONIC WARFARE**

Military action involving the use of electromagnetic energy to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum.

**ELECTRONIC WARFARE SUPPORT MEASURES**

Actions taken to search for, intercept, locate, and immediately identify radiated electromagnetic energy (for immediate Threat recognition).

**FACILITY**

An ATC establishment that includes personnel, equipment, and structures and provides ATC services; for example, control tower, approach control (radar or nonradar), GCA, FOC, or FCC.

**FACILITY RATING**

A determination of competence, qualification, or quality after which a certificate and rating are issued to an applicant. This rating confirms such determination, grants certain privileges, and may prescribe certain limitations according to the Federal Aviation Act, Federal Aviation Regulations, and Army regulations.

## **STP 1-93C24-SM-TG**

### **FACILITY TRAINING MANUAL**

A locally developed publication used as a training and reference manual in the FTP.

### **FACILITY TRAINING PROGRAM**

An ATC program designed to develop and maintain proficiency and skills necessary to perform ATC duties.

### **FLIGHT INSPECTION OR FLIGHT CHECK**

An in-flight investigation and evaluation of a NAVAID that determine whether the aid meets established tolerances.

### **FLIGHT SERVICE STATION**

An air traffic facility that provides pilot briefings, en route communications, and VFR search and rescue services; assists lost aircraft and aircraft in emergency situations; relays ATC clearances; originates NOTAMs; broadcasts aviation weather; receives and processes IFR flight plans; and monitors NAVAIDs.

### **INFORMATION REQUEST**

A request originated by an FSS to obtain information concerning an overdue VFR aircraft.

### **INSTRUMENT FLIGHT RULES**

Rules governing the procedures for conducting instrument flight.

### **INTERNATIONAL CIVIL AVIATION ORGANIZATION**

A specialized agency of the United Nations whose object is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

### **INTERROGATOR**

The ground-based transmitter/receiver associated with the ATCRBS.

### **JAMMING**

Electronic or mechanical interference that may disrupt the display of aircraft on radar or the transmission or reception of radio communications or navigation.

### **LANDING SEQUENCE**

The order in which aircraft are positioned for landing.

### **LIGHT GUN**

A handheld, directional, light-signaling device that emits a brilliant narrow beam of white, green, or red light as selected by the controller. The light gun is used, in the absence of radio communications, for controlling air traffic operating near the airport and in the airport movement area.

### **MEACONING, INTRUSION, JAMMING, AND INTERFERENCE**

A joint program that encompasses the reporting, evaluating, and issuing of information on suspected hostile EW activities.

**MODE C**

The altitude reporting portion of the ATCRBS.

**MOVEMENT AREA**

The runways, taxiways, and other areas of an airport that are used for taxiing, takeoff, and landing of aircraft, exclusive of the loading ramp and parking areas.

**NO-GYRO APPROACH/VECTOR**

A radar approach/vector provided in case of a malfunctioning gyrocompass or directional gyro.

**NOTICE TO AIRMEN**

A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment of, condition of, or change in any component that is essential to personnel concerned with flight.

**ohm**

The practical meter-kilogram-second unit of electric resistance equal to the resistance of a circuit in which a potential difference of one volt produces a current of one ampere.

**PILOT REPORT**

A pilot's report of meteorological phenomena encountered by aircraft in flight.

**POINT OUT**

An action taken by a controller to transfer the radar identification of an aircraft to another controller if the aircraft will or might enter the airspace or protected airspace of another controller and radio communications will not be transferred.

**QUALIFIED CONTROLLER**

A facility-rated controller or one who is position-qualified in one or more controller positions.

**STAGE SERVICE**

A national program instituted to extend the terminal radar service provided for aircraft to VFR aircraft. Pilot participation in the program is urged but is not mandatory.

**TRAFFIC ADVISORIES**

Advisories issued to alert pilots to other known or observed air traffic that may be in such proximity to the position of the pilots' aircraft or their intended route of flight to warrant attention.

**TRANSPONDER**

The airborne radar beacon receiver/transmitter portion of the ATCRBS.

**VFR AIRCRAFT OR VFR FLIGHT**

An aircraft conducting flight according to visual flight rules.

**VISUAL FLIGHT RULES**

Rules governing the procedures for conducting visual flight.

**SECTION III. SPECIAL ABBREVIATIONS AND TERMS**

**None**

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- AV0905. Radar Identification Procedures.
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**NOTE:** ICAO regulations require full payment in advance with order by international money order, cheque or draft drawn on a bank located in Canada or the USA. Payment is also accepted by American Express, Mastercard and VISA credit cards with the account number, expiry date, cardmember's name and telephone number. Orders and inquiries may be placed by phone 514.954.8022, fax 514.954.6769 or e-mail [sales\_unit@icao.int].

## Lubrication Orders

Local SOP

### **Other Product Types**

ACP-125-US-SUPPL-1. Communications Instructions—Radio/Telephone Procedures for Use by United States Ground Forces

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- TM 11-5895-474-12. Operator's and Unit Maintenance Manual for Landing Control Central, AN/TSQ-71B and AN/TSQ-71B (Modified). 1 September 1990.

## SOLDIER TRAINING PUBLICATION USER FEEDBACK

User feedback is an important link in the improvement of training publications. To make it easier for you to make recommendations, this standard questionnaire is provided. Please answer each question frankly, and mail the questionnaire to Commander, US Army Aviation Center, ATTN: ATZQ-TDS-T, Fort Rucker, AL 36362-5000.

**Note:** You can comment via electronic media. Our e-mail address is: [asat@rucker.army.mil](mailto:asat@rucker.army.mil). You should also request that your comments be forwarded to Chief, Enlisted Training Branch, Directorate of Training, Doctrine, and Simulation (DOTDS).

RANK: \_\_\_\_\_ NAME: \_\_\_\_\_ MOS: \_\_\_\_\_

TIME IN GRADE: \_\_\_\_\_ TIME IN SERVICE: \_\_\_\_\_ UNIT: \_\_\_\_\_

UNIT ADDRESS (include ZIP or APO): \_\_\_\_\_  
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1. What is your duty position? \_\_\_\_\_

2. How often do you use the STP manual? Daily \_\_\_\_\_ Weekly \_\_\_\_\_ Monthly \_\_\_\_\_

Other: \_\_\_\_\_

3. Why do you use the STP manual? For a training exercise \_\_\_\_\_ To teach a class \_\_\_\_\_

For personal self-development \_\_\_\_\_ Other: \_\_\_\_\_

4. If you do not use the STP manual, why not? \_\_\_\_\_

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5. Is the information contained in the Introduction complete? Yes\_\_\_\_\_ No\_\_\_\_\_ If No, please list topics of information that would improve the Introduction.

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6. Were the task summaries useful and complete? Yes\_\_\_\_\_ No\_\_\_\_\_ If No, why not?

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Please list on a separate sheet of paper those task summaries that need improvement and the recommended changes to each.

7. Were the conditions and standards accurate? Yes\_\_\_\_\_ No\_\_\_\_\_ If No, please list the recommended changes to any task that would improve the conditions or standards.

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8. Are there tasks that should be added? Yes\_\_\_\_\_ No\_\_\_\_\_ If yes, please list those tasks.

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9. Are there tasks that should be deleted? Yes\_\_\_\_\_ No\_\_\_\_\_ If yes, please list those tasks.

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10. If you could improve the STP manual in any way, what changes would you make? Please list those changes.

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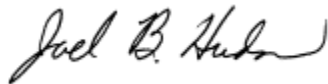
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STP 1-93C24-SM-TG  
4 JUNE 2002

By Order of the Secretary of the Army:

Official:

ERIC K. SHINSEKI  
*General, United States Army*  
*Chief of Staff*



JOEL B. HUDSON  
*Administrative Assistant to the*  
*Secretary of the Army*  
0213705

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