ARI Research Note 85-32

REPORT ON DEVELOPMENT OF CFEA PROCEDURES: SPECIFICATION OF CFEA MODEL & RESULTS OF THE HAWK CFEA

Bryan E. Brett, William A. Chapman,
Tarrance E. Saunders, and Ernest G. Neves
Applied Science Associates, Inc.

for

ARI Field Unit at Fort Bliss, Texas
Michael H. Strub, Chief

SYSTEMS RESEARCH LABORATORY
Jerrold M. Levine, Director

U. S. Army

Research Institute for the Behavioral and Social Sciences

March 1985

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER ARI Research Note 85-32	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE *(and Subtitle)* REPORT ON DEVELOPMENT OF CFEA PROCEDURES: SPECIFICATION OF CFEA MODEL & RESULTS OF THE HAWK CFEA		5. TYPE OF REPORT & PERIOD COVERED Final Report, Volume 2 April 82 - June 83 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Bryan E. Brett, William A. Chapman, Tarrance E. Saunders and Ernest G. Neves		8. CONTRACT OR GRANT NUMBER(s) MDA903-82-C-0423
9. PERFORMING ORGANIZATION NAME AND ADDRESS Applied Science Associates, Inc. Box 158 Valencia, PA 16059		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q263731A792 1124
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600		12. REPORT DATE March 1985 13. NUMBER OF PAGES 196
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)* - -		15. SECURITY CLASS. *(of this report)* Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

- -

18. SUPPLEMENTARY NOTES

Michael H. Strub, contracting officer's representative

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Collective Training	Task Analysis
Collective Task	Systems Approach
Collective Front-End Analysis	Criticality Assessment
Mission	HAWK Missile System
Mission Analysis	

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

Collective front-end analysis is the process by which the critical missions and collective tasks of a battalion are specified. Collective tasks are units of work requiring two or more people for their completion. A systems analysis approach is employed in CFEA. The CFEA process begins with specification of a battalion mission, proceeds to specification of battalion element missions, and ends with delineation and description of collective tasks. The systems approach to CFEA is advantageous because it results in a thorough listing of a unit's

(over)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

ARI Research Note 85-32

20. (continued)

missions and collective tasks and provides a means of relating task criticality directly to a unit mission. In order to reduce the workload on the user and help organize the massive amounts of data involved, job aids have been developed for CFEA users. A trial CFEA was conducted using the HAWK missile system.

U. S. ARMY RESEARCH INSTITUTE
FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the

Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

L. NEALE COSBY
Colonel, IN
Commander

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

LIST OF FIGURES

LIST OF TABLES

SECTION I
INTRODUCTION

This is one of two volumes of a report that describes a process for conducting collective front-end analysis (CFEA). In this report a model that specifies the procedures performed in a CFEA is described with an example of a CFEA for the HAWK missile system. The user guide for conducting the CFEA is provided in a companion volume.

Background and Problem

By their very nature, military fighting units depend heavily upon the integrated performance of personnel to accomplish their assigned missions. This teamwork is required at a variety of levels within a unit. It ranges from tasks performed by crews (e.g., a tank crew engaging an enemy tank), to performance of a mission by a unit echelon (e.g., a rifle company assaulting a hill), to the combined efforts of all echelons of a unit to accomplish a unit mission (e.g., a HAWK Air Defense Artillery Battalion defending an airfield over a sustained period of time). In recent years, there has been growing recognition of the importance of collective or team performance to unit success, and the need to train this performance at the various levels at which it occurs.

Development of team performance in a unit is called collective training. Collective training seeks to develop two types of performances: collective tasks and missions. A collective task is formally defined as a unit of work requiring two or more individuals for its completion, having an identifiable start and end point, and resulting in a measurable accomplishment or product. Missions are defined as major activities performed by echelons of a unit. Missions usually require the combined performance of a number of collective and individual tasks.

Two of the primary means used to deliver collective training are drills and Army Training and Evaluation Programs (ARTEPs). Drills are short

exercises designed to develop crew proficiency for performing collective tasks. They provide a detailed description of the actions of each crew member during performance of the task. In addition, conditions and standards for task performance are provided. The ARTEP is a plan that is followed by a battalion and its different echelons for training and evaluating the various missions it is expected to perform. For a given battalion mission, an ARTEP provides a breakout of the missions performed by battalion elements in support of that mission. In addition, a listing of the tasks that support each battalion element mission is provided along with conditions and standards for performance. Using an ARTEP, unit training developers can easily determine which tasks must be trained to develop proficiency in the performance of any one mission. When used in combination, drills and the ARTEP provide for training in the complete range of a unit's collective performances.

Both drills and ARTEPs hold much promise for serving the collective training needs of units. However, the effectiveness of unit training resulting from the use of these materials is largely dependent upon the extent to which missions and tasks critical to unit success are addressed and the precision with which they are described. TRADOC Pamphlet 310-8 specifies CFEA as the process by which the critical missions and collective tasks of a battalion are to be derived. Critical missions and collective tasks are those missions and tasks that have a significant influence on the outcome of a unit mission or the survival of unit personnel and equipment. The purposes of a CFEA are to specify collective performances that should be trained, and to describe those performances in sufficient detail to permit development of collective training materials. Emphasis is placed on critical missions and tasks because it is recognized that training resources are limited and should not be wasted training missions and tasks that have little to do with unit success. Given that CFEA is the first step in developing collective training materials, the quality of the CFEA has a major impact on the quality of the training materials to be produced.

Collective front-end analysis must be performed for all battalions in the Army. It is expected that many of the personnel conducting CFEAs will

not be trained and experienced task analysts. This lack of experience coupled with the complex and massive nature of a CFEA of a battalion-sized organization could make the prospect of conducting a CFEA seem a bit overwhelming to the would-be analyst. Therefore, the user population must be provided with a well defined set of procedures if CFEAs are to be conducted successfully.

There is some evidence of the need for more detailed and specific CFEA procedures. Brett (1982) noted that there is considerable variation in the precision with which collective tasks are specified in different ARTEPs. There seemed to be some confusion over the definition of a collective task. All too often it appeared that collective tasks had become confused with collections of tasks. In a recent ARTEP, for example, one of the collective tasks listed was to perform periodic checks. Periodic checks are a category of maintenance tasks, some of which are performed by individuals and some of which are performed by collectives (groups) of personnel. Such task statements are inappropriate for training development purposes because they are not specific enough and have to be further analyzed to determine what is to be trained. Well defined CFEA procedures would reduce the confusion over what constitutes a collective task and result in more consistent specification of performances that meet the definition of a collective task.

Additional evidence of the need for well defined CFEA procedures was provided by Thrumond (1980). After a series of interviews with Army training developers, Thurmond concluded that TRADOC Pam 310-8, the Army guide for conducting CFEA, was not sufficient to support the conduct of CFEAs. The general consensus of the training developers was that steps in the process were not described in enough detail to determine how they should be performed. In a review of TRADOC Pam 310-8, the project staff noted that the CFEA process is discussed generally and more attention is given to administrative components of the process and <u>what</u> is to be done rather than describing <u>how</u> one actually derives collective tasks. The conclusion of the review agreed with Thurmond that a better description of the CFEA process was needed.

Approach

In response to the observed deficiencies in existing CFEA procedures, an effort was undertaken to develop a CFEA process that could be used easily by Army training developers. An important step in development of a CFEA process was development of a model which specifies the procedures involved in delineating the missions and collective tasks of a unit. The CFEA model specifies what must be done in CFEA. Once a model for the process was developed, instructions were prepared that describe 'how' the process should be conducted. The instructions are presented in Volume II of this report.

Specification of Features and Capabilities of the CFEA Process

Prior to actually developing the model some thought was given to the capabilities and features the process should have. These features would drive development of CFEA procedures. It had already been determined that the process should be characterized by a detailed breakdown of CFEA activities so it could be employed by training developers with little or no experience in conducting CFEA. In addition, three other features and capabilities were identified that would enable the process to achieve its objectives and provide more usable products. The instructions are presented in Brett, Chapman, and Saunders (1983).

Given the massive nature of CFEA, there are numerous opportunities to overlook important missions and tasks. An approach to CFEA is needed that reduces the possibility of overlooking important missions and tasks and results in a thorough analysis. While it is important to provide a thorough listing of missions and tasks, it is recognized that some of the missions and tasks specified will have little or no influence upon the ability of a unit to accomplish its mission. Since these missions and tasks need not be given as much emphasis in training (if any), a screening process is required in which only the missions and tasks critical to accomplishment of the primary unit mission are retained as input to the training development process. If these features can be incorporated into the CFEA process, training developers can use the output of the process with confidence knowing that all of the critical missions and tasks of a unit have been specified.

The last feature specified for the process was derived through consideration of the best way to organize products generated in CFEA. This feature impacts the utility of CFEA products. As noted above, a primary use of CFEA outputs is development of ARTEPs. ARTEPs support development of training for a particular unit mission or for the missions of particular unit elements by specifying the tasks that support a given mission. In order to facilitate development of ARTEPs, the CFEA process should provide a breakout of tasks by the missions they support.

Approach to Model Development

Once the basic features of the process had been determined, development of a model of the CFEA process began. The first step to model development consisted of a literature review which sought to determine whether procedures were available in other analytic processes that would be of use in CFEA. A primary purpose of the review was to identify analytic techniques that would help CFEA users organize and analyze the massive amounts of information generated and manipulated in CFEA. Unfortunately, the articles reviewed discussed the task analysis process in general, abstract terms and did not provide procedures that could be used in CFEA. In the absence of existing procedures for conducting CFEA, it was concluded that procedures, and, hence, the model, would have to be developed from scratch.

Given that the model would have to be developed from scratch, the next step was to select an approach to performing CFEA. The approach selected would provide the basis for model development. In TRADOC Pam 310-8, s systems approach was adopted. This approach was judged to have merit so its use was continued for model development. When used to delineate performance requirements in an organization, the systems approach (Whitmore, Fry, and Cason, 1971) calls for:

1. Definition of the goal(s) of the organization being analyzed.
2. Specification of the functions required to attain those goals and the organizational elements that perform those functions.
3. Specification of the activities involved in performing the functions specified in 2 above, and specification of the personnel who perform those activities.

Use of a systems approach to CFEA is advantageous because it results in a process with the desired features and capabilities described above (Brett, 1982). In the systems approach to CFEA, logical links are established between the collective tasks, the unit element missions, and the unit mission. This facilitates development of mission oriented training, because it is easy to determine the tasks that support a given mission. Also, activities specified at a general level such as functions provide a context within which to judge the relevance of more specific activities such as collective tasks. Thus, assessment of task or mission criticality is enhanced. Finally, the top-down approach used in systems analysis increases the likelihood that a complete and thorough set of collective tasks will be produced. Functional areas of the unit are broken down into increasingly smaller units for analysis (unit elements, collective tasks).

Model Development

Following selection of an approach to CFEA, an initial model of the CFEA process was developed. The model is presented in Figure I-1. The major portion of the model consists of an analytic process developed out of the systems approach. In addition, procedures for assessing criticality of missions and collective tasks were added so an output of the process would be critical missions and collective tasks. The result was a six step process for conducting CFEA. Each step is described briefly below:

1. Specify unit mission. Here statements of a unit's objectives or purpose for existence are developed. These statements usually reflect the capabilities of its primary weapons or equipment system. A short range air defense (SHORAD) battalion, for example, has a mission of providing low altitude air defense. Also, statements of other requirements imposed upon the unit can be developed.

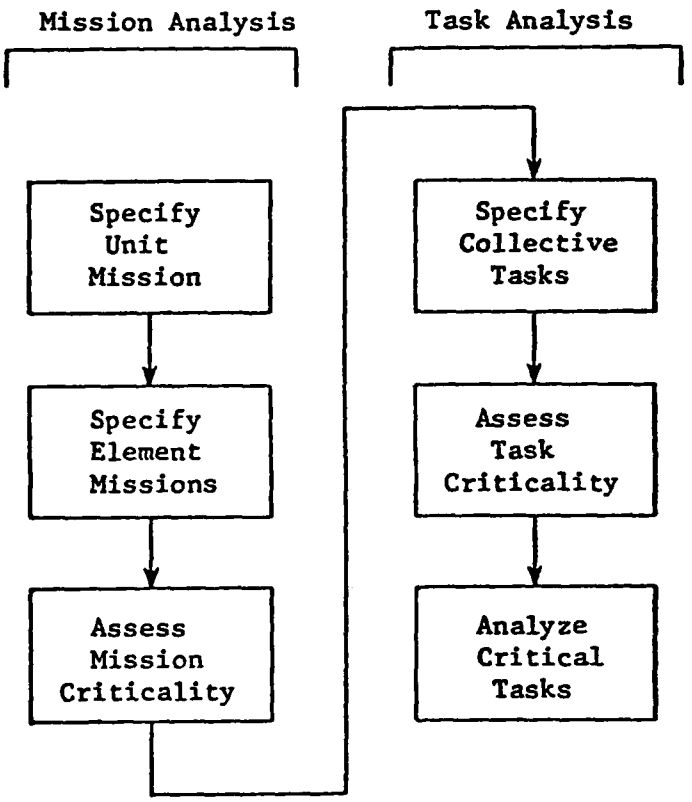


Figure I-1. Initial CFEA Model

2. Specify element missions. In this step, the missions performed by each element or echelon of the unit as they support accomplishment of the unit mission are specified.
3. Assess mission criticality. Here unit and unit element missions specified in steps 1 and 2 are evaluated to determine which ones have an important influence on accomplishment of the unit's primary mission. Missions that do have an important influence on accomplishment of the unit's primary mission are deemed critical.
4. Specify collective tasks. For each unit element mission determined to be critical in step 3, the collective tasks that support that mission are specified in this step.
5. Assess task criticality. In this step, tasks specified in step 4 are evaluated to determine which are critical. Task criticality is a function of the importance of a task to accomplishment of the mission it supports.
6. Analyze critical tasks. In this last step, tasks identified as critical in step 5 are analyzed to determine elements of performance, personnel who perform the task, and conditions and standards for performance.

Once the initial model had been specified, the goal of model development became one of precisely defining the activities that occur in each step of the model and then dividing these activities into sets of steps that can be easily performed by training developers. An empirical approach was adopted for expanding steps in the model. Project staff, assisted by subject matter experts (SMEs), performed CFEAs on Chaparral/Vulcan (C/V) and HAWK Air Defense Battalions. As the CFEAs were conducted project staff observed and recorded the activities performed in each step of the process. These observations of performance provided the primary basis for expanding steps of the model. In addition to observation of performance, suggestions and comments were solicited from the project staff and SMEs who performed the different steps in the process. This input was also helpful in refining the process.

The two CFEAs differed in terms of the steps in the process they sought to expand. The CFEA conducted on C/V battalions was very limited in scope. The primary purpose of this effort was to develop procedures for specifying unit element missions that would provide a thorough list of missions. In the course of specifying the missions of elements of C/V units, it was realized that the basic functions (e.g., engage, move, emplace, service, refuel, rearm, etc.) performed by unit elements in support of unit missions are very similar across different types of units. From this realization evolved the idea of using a list of generic functions as cues for the recall and development of unit element missions. It was thought that use of a function list will result in a more thorough listing of missions.

The HAWK CFEA was much broader in scope. It encompassed all steps in the initial model. The HAWK CFEA was helpful in developing procedures for assessing mission and task criticality and for specifying collective tasks. Each of these steps was broken down into several small steps. Steps involved in assessing mission and task criticality are very similar. Both involve selecting SMEs who perform the criticality assessment, developing procedures for conducting the assessment, and then collecting and analyzing criticality data.

Specification of collective tasks was subdivided into a four step process. An important step to specifying the collective tasks that support a mission is describing all the activities that are performed in the mission. The intent of this step is to just concentrate on specifying activities and give no thought as to whether they are tasks. It is thought that restricting the analysts' attention to specifying activities reduces the distraction that might be generated by other demands (e.g., developing task statements) and permits a thorough listing of activities. Once a complete list of activities has been provided, they are assembled into tasks. The result of the process is a much more thorough listing of the collective tasks that support a mission.

Through the C/V and HAWK CFEAs, the initial CFEA model was expanded from six to 23 steps. Hence, a much more detailed breakout of CFEA activities is provided. In addition to activities involved in specifying and analyzing missions and collective tasks, the revised model also encompasses activities involved in planning and managing the CFEA process. The revised CFEA model is presented in Figure I-2 and described in Brett, Chapman, and Saunders (1983). The following section describes the CFEA model activities as they were exercised in the HAWK CFEA.

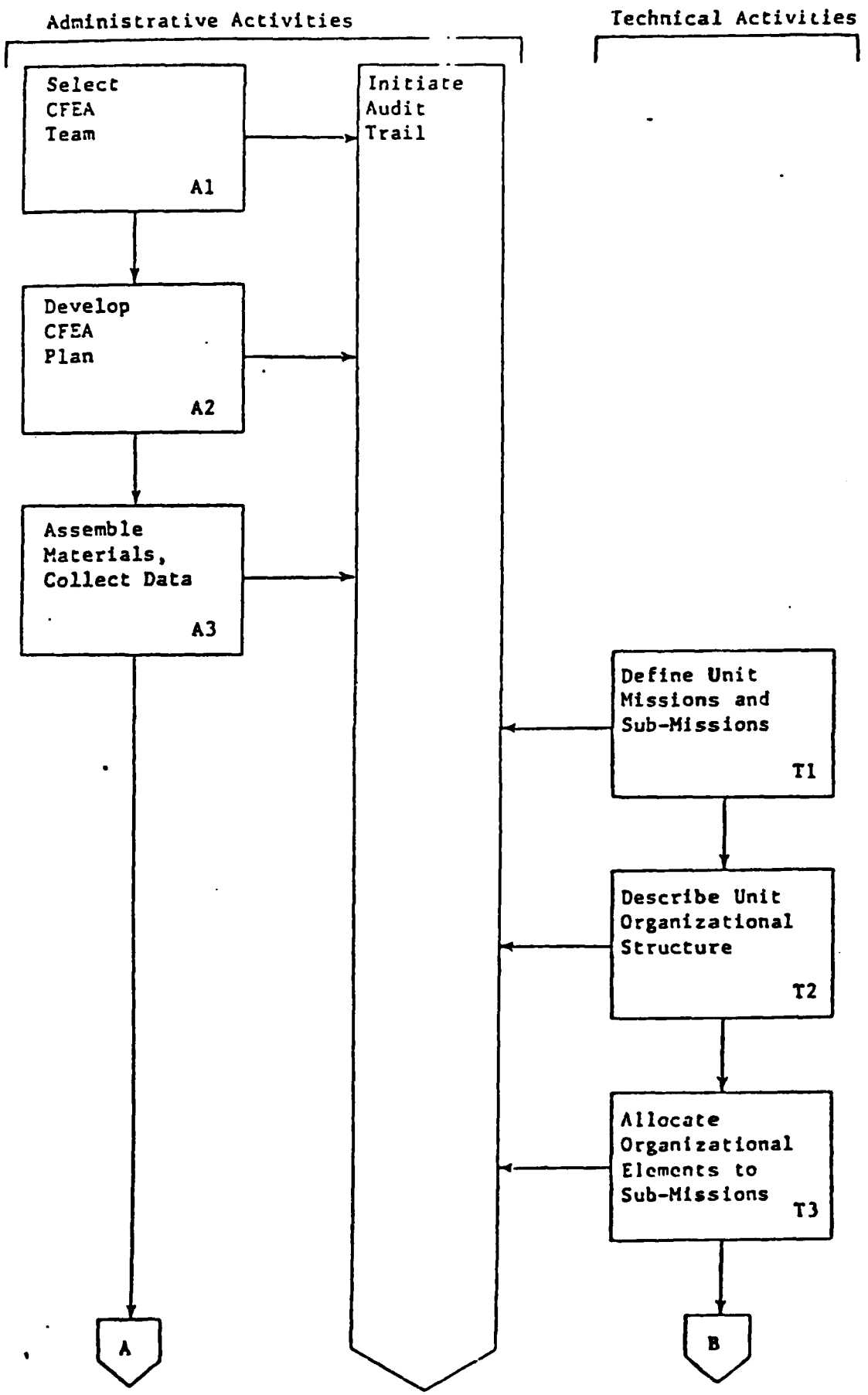


Figure I-2. Revised CFEA Model

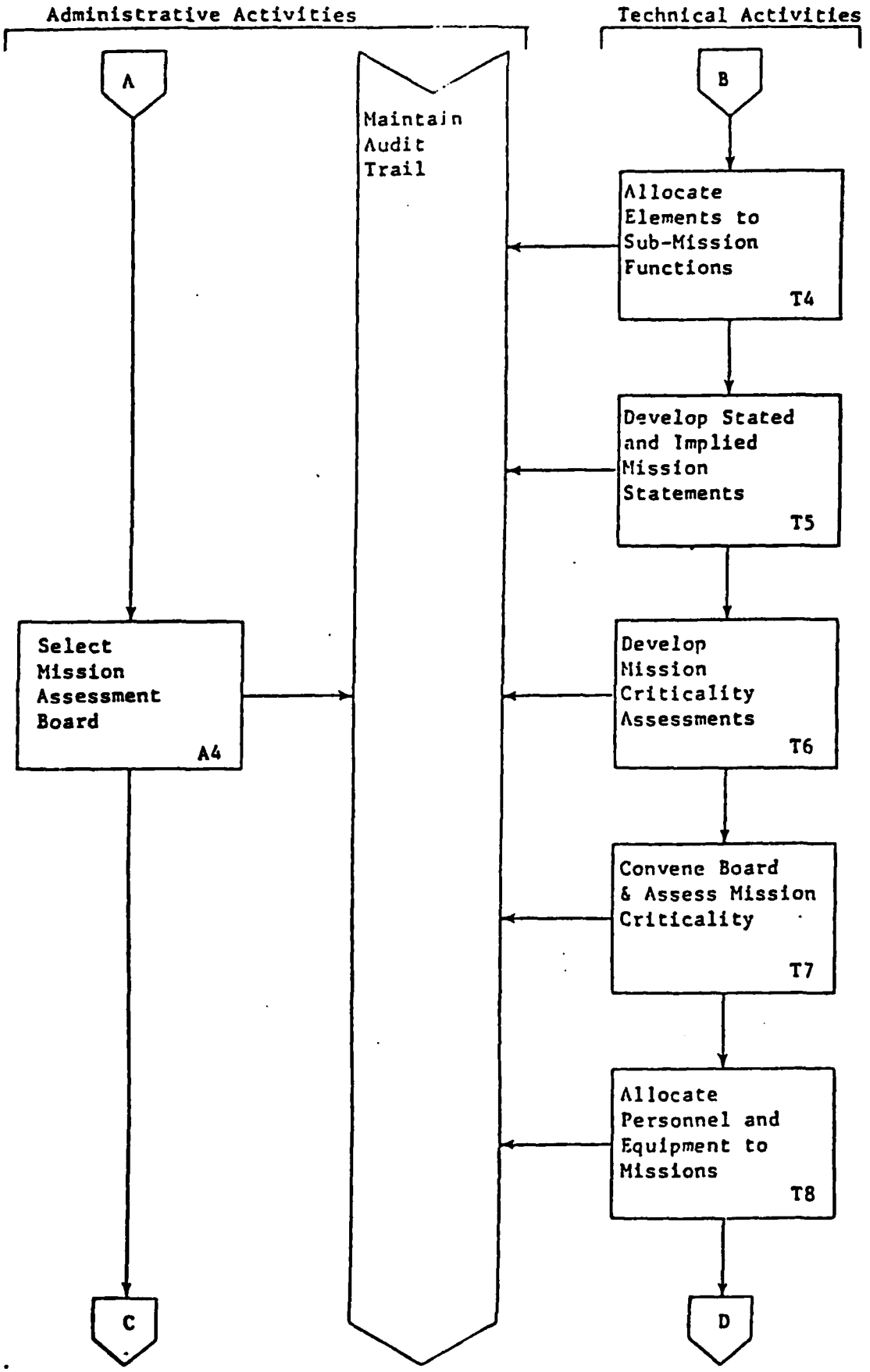


Figure I-2. Revised CFEA Model (Cont'd)

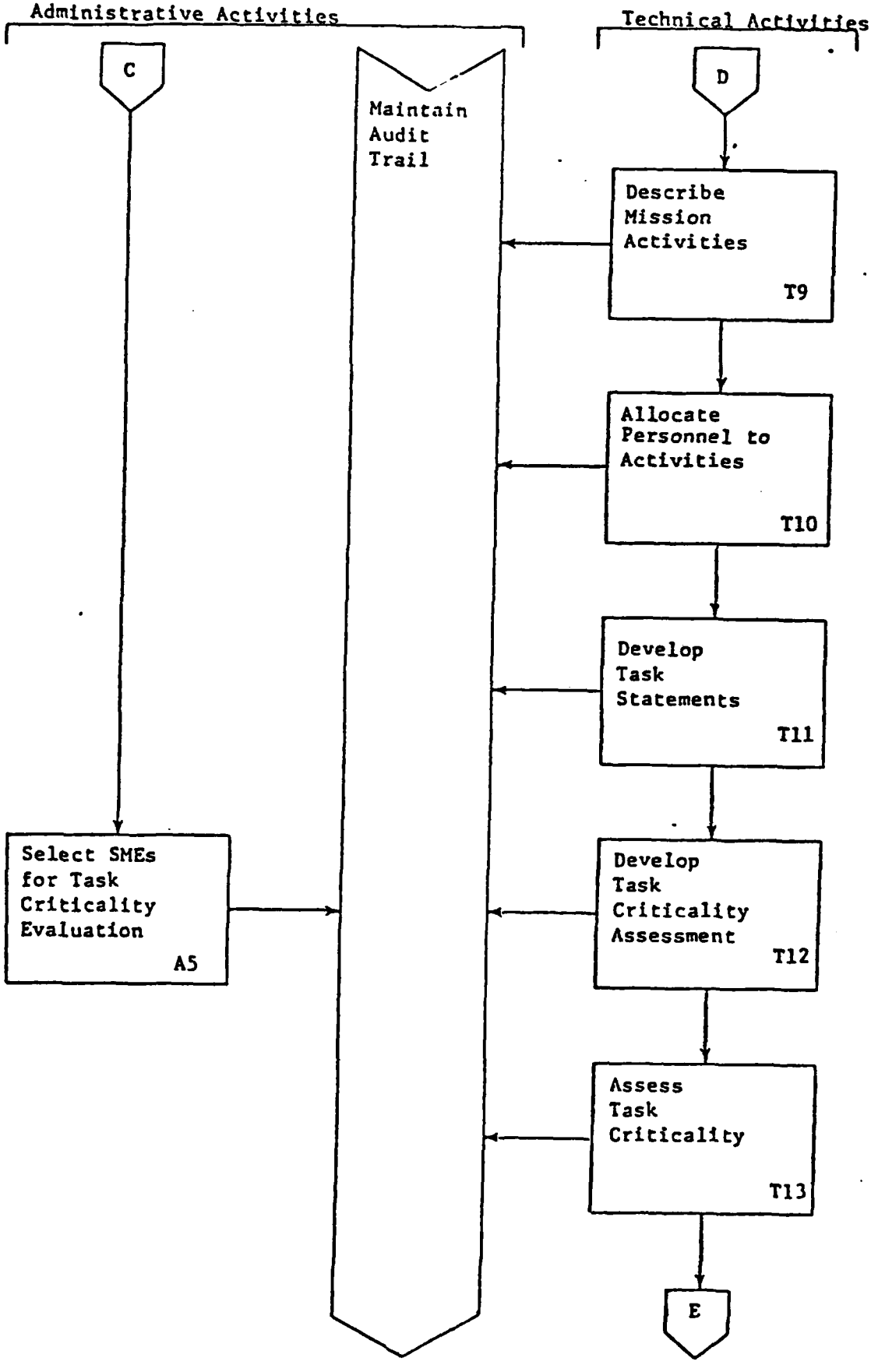


Figure I-2. Revised CFEA Model (Cont'd)

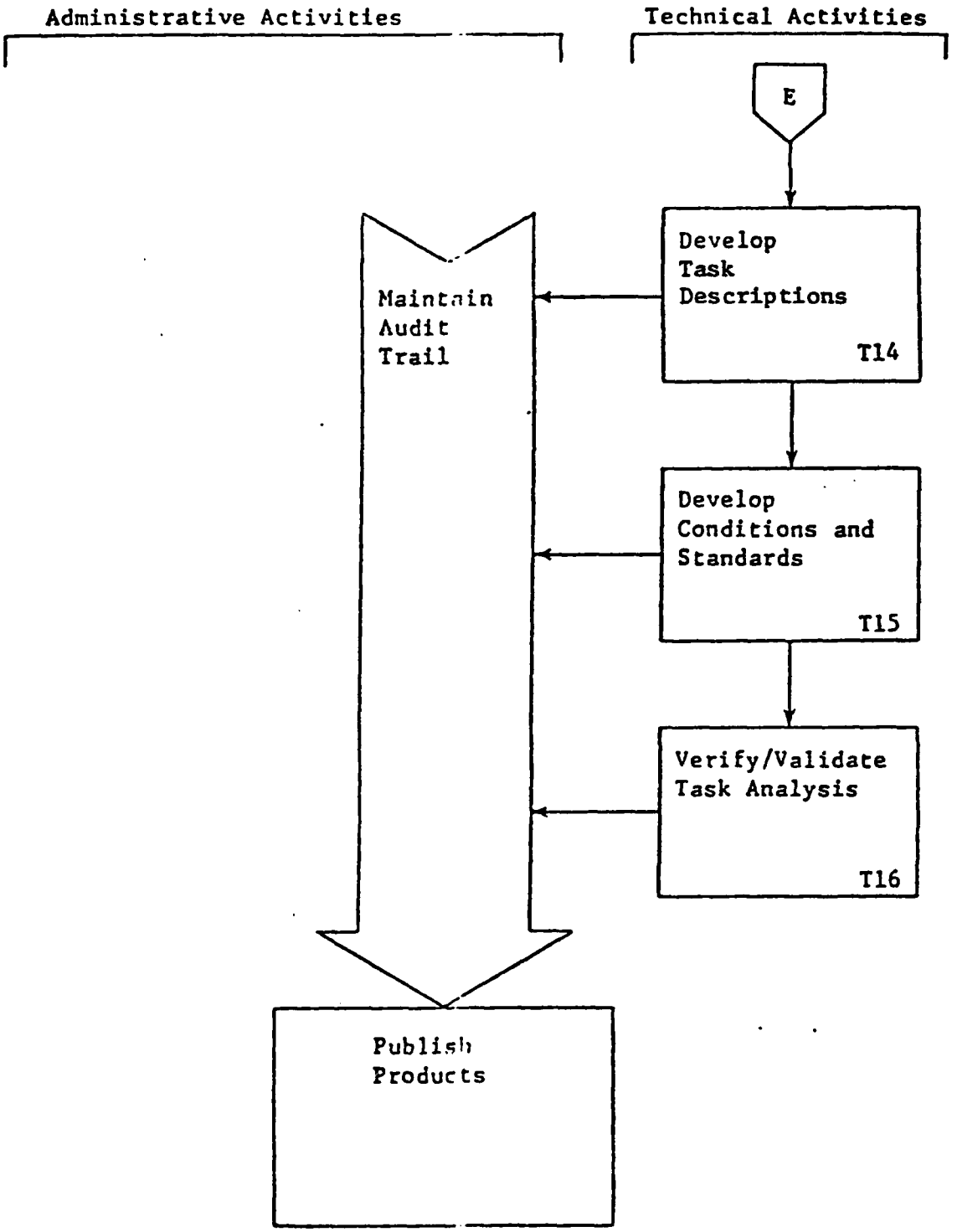


Figure I-2. Revised CFEA Model (Cont'd)

SECTION II

HAWK CFEA

This section provides an example of implementation of the CFEA model. A CFEA conducted on the HAWK missile system is described. While it served as a trial implementation of the CFEA methodology, it was more than just an exercise. A primary purpose for conducting the HAWK CFEA was to support development of a new HAWK ARTEP. Generally, the HAWK CFEA followed the CFEA model closely so it provides a good example of model implementation. There were some instances, however, in which the HAWK CFEA departs from the model. This is because the HAWK CFEA served as a vehicle for model development, and the model was changed in the light of experiences in the HAWK CFEA. In the pages that follow, the HAWK CFEA is described with reference to the CFEA model presented in Figure I-2.

A1. Select HAWK CFEA Team

The HAWK CFEA was initiated by the need to develop a new ARTEP for HAWK units. Responsibility for conducting the CFEA was given to Collective Training Branch, HAWK Division, DTD, USAADASCH, Ft. Bliss, Texas. The CFEA began in December 1981. MAJ James Paige, then Chief of Collective Training Branch, was appointed as Project Director. Project staff were drawn from personnel in the Collective Training Branch and from the contractor. Personnel in Collective Training Branch had the requisite knowledge of the HAWK system, however, they lacked experience in conducting CFEA. The contractor staff were developing procedures for conducting CFEA as part of a contract with the Army Research Institute (ARI) Field Unit at Ft. Bliss, TX. MAJ Paige requested technical support from ARI in conducting the HAWK CFEA. ARI was looking for an opportunity to implement and revise CFEA procedures it had developed. Thus, a joint DTD/contractor team was formed for conducting the HAWK CFEA.

Because of personnel turnover, personnel comprising the team differed across the two phases of the CFEA. The following personnel were involved in conduct of the mission analysis:

1. MAJ James Paige, Chief, Collective Training Branch
2. GS-11 Don Tarnosky, Collective Training Branch
3. GS-9 Glen Bowers, Collective Training Branch
4. MSG Chester Stepney, Collective Training Branch
5. Mr. Bryan Brett, Senior Staff Scientist, ASA
6. Mr. William Chapman, Staff Scientist, ASA
7. Ms. Martha Wood, Staff Scientist, ASA

During the task analysis phase ASA continued its role of providing technical guidance in CFEA procedures and also provided personnel with expertise in HAWK operations. Collective Training Branch, DTD experienced a major turnover in project staff. Mr. Tarnosky assumed Project Director responsibilities and other DTD personnel were added to the project staff. The following personnel participated in the task analysis:

1. GS-11 Don Tarnosky, Collective Training Branch
2. GS-9 Don Morrill, Collective Training Branch
3. LT William Sneddon, Collective Training Branch
4. Mr. Bryan Brett, Senior Staff Scientist, ASA
5. Mr. William Chapman, Staff Scientist, ASA
6. Mr. Tarrence Saunders, Staff Associate, ASA
7. Mr. Ernie Neves, Staff Associate, ASA

A2. Develop CFEA Plan

For the HAWK CFEA, a formal plan was not developed and published. However, time was taken to establish the objectives of the effort, identify constraints on the analysis, and set-up some milestones. While it served as a trial implementation of the CFEA methodology, the primary purpose for conducting the HAWK CFEA was to support development of a new HAWK ARTEP. There were several changes that were to be incorporated into the new ARTEP. These changes influenced development of the objectives of the HAWK CFEA.

The first change to be incorporated into the new ARTEP involved expanding the number of missions and tasks specified. It was felt that some missions and tasks in the old ARTEP were too extensive in terms of the activities they encompassed and could be broken down into smaller sets of activities. This would make it easier to train those missions and tasks. Another change in the new ARTEP concerned providing a format and content similar to Tactical Evaluations (TAC EVALs) used in Europe. TAC EVALs are characterized by a more detailed description of task elements, quantitative standards that provide time limits for performances, and a checklist format for evaluating task performance. It was judged that several advantages would accrue from developing an ARTEP similar to a TAC EVAL. First, the ARTEP would be more usable by HAWK units in Europe whose current form of evaluation is primarily TAC EVAL. Second, given acceptance by units in Europe, the ARTEP would provide a standardized evaluation medium for all HAWK units.

Based on the above desired changes to the ARTEP, two objectives were established for the HAWK CFEA. The first objective was to provide as detailed a listing as possible of the missions and tasks performed in a HAWK battalion. This would permit development of an ARTEP that would better support unit training. The second objective was to provide CFEA results in a form that would enable development of an ARTEP similar to TAC EVALs used in Europe. In the CFEA, particular attention was to be given to developing quantitative standards that specified performance times whenever possible.

Once objectives for the study had been established, constraints on the analysis were identified. Essentially, constraints served to define the scope of the CFEA. Four constraints were placed on the analysis. First, missions and tasks of maintenance batteries or platoons were not to be addressed in the analysis. Personnel at Redstone Arsenal, Alabama conducting a CFEA of HAWK maintenance batteries and platoons. Also, because of time and staff limitations, it would not be possible to analyze all tasks so a prioritization of tasks for analysis was established. Top priority was given to analyzing those tasks directly involved in HAWK employment. Finally, the analysis was to focus on square HAWK battalions deployed in the European theater.

HAWK battalions are of two basic types: square and triad. A square HAWK battalion consists of the four Firing Batteries, each with one Base Fire Platoon and one Assault Fire Platoon. Triad battalions consist of three Firing Batteries, each with one Base and two Assault Fire Platoons. Basic deployment of the two type of units is the same. The primary difference between the two is the amount of equipment and personnel allocated to a Firing Battery. It was felt that the missions and tasks of the two types of units would be virtually the same, and that valuable time would be wasted conducting an analysis of each type of unit. For this reason, the analysis was restricted to square battalions.

While HAWK units potentially can be deployed in a variety of geographic locations and climates, most HAWK units have air defense in Western Europe as their primary mission. For this reason, the primary environment considered in the HAWK CFEA was the European environment. This meant that consideration was not given to tasks performed in extreme environments, such as the arctic and desert. Units in extreme environments could develop annexes to the ARTEP that would cover tasks peculiar to the type of environment in which they would be employed. While orientation of the CFEA toward the European environment lessened the importance of some tasks, it increased the importance of others. Tasks involved in nuclear, biological and chemical (NBC) warfare operations, for example, became much more critical to the analysis because conflict in Europe is expected to involve extensive NBC warfare.

The last component of the planning step was to establish milestones for the analysis. Sets of milestones were developed for each phase of the analysis by setting completion dates for major portions of the analysis. Completion dates were determined jointly by project staff and reflected consideration of the amount of work to be done in a given portion of the analysis and the personnel resources available to perform the work. Milestones established for the mission analysis phase are presented in Figure II-1. Milestones for the task analysis pahases are presented in Figure II-2.

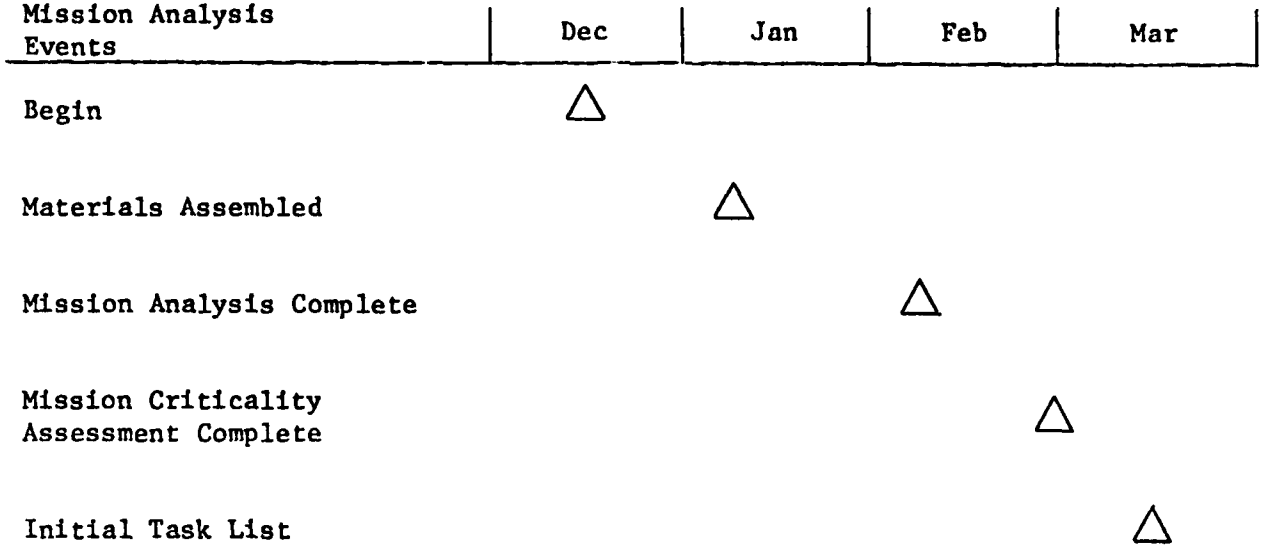


Figure II-1. Milestones for Mission Analysis

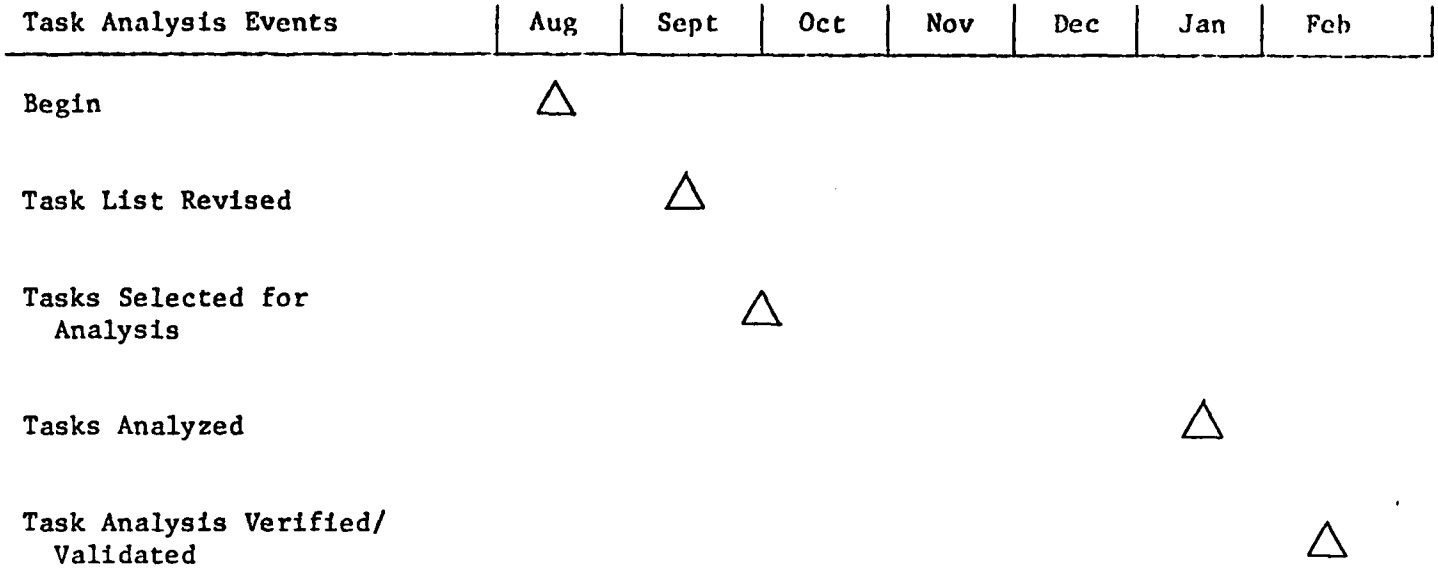


Figure II-2. Milestones for Task Analysis

A3. Assemble Materials, Collect Data

Following development of the CFEA plan, materials to be used in the CFEA were assembled. In assembling materials, the primary objective was to acquire documentation that would support performance of the CFEA. Selection of material was based on consideration of the activities to be performed in the HAWK CFEA and the types of information that would be needed to perform them. Information was needed on missions performed by HAWK battalions, the composition and structure of HAWK battalions, responsibilities of battalion elements, and activities performed by battalion personnel. An extensive library was assembled that contained a variety of documents. Primarily, four different types of documents were sought in developing the library:

1. Doctrinal literature related to air defense operations in general and HAWK employment in particular.
2. Tables of organization and equipment (TO&Es) that specify the composition and structure of HAWK battalions and describe the responsibilities of the various battalion elements.
3. Literature describing operation and repair of equipment used in a HAWK battalion and the responsibilties and tasks of battalion personnel. The equipment items of primary interest were those directly involved in employment of the HAWK system and consisted of HAWK, AN/TSQ-73, and communications systems and subsystems. Likewise, literature on personnel involved with these equipment systems was of primary interest also.
4. Literature pertaining to conduct of front-end analysis. Of primary interest here were Army regulations and pamphlets concerning front-end analysis and training development activities.

T1. Define Unit Missions and Sub-Missions

The first step in the technical portion of the HAWK CFEA involved specifying the missions performed by a HAWK battalion. Results of this step provided the point of departure for all other activities performed in the analysis. The objective of this step was to describe kinds of major activities a HAWK unit is expected to perform. In specifying missions of a HAWK battalion, it was recognized that there are two types of battalion missions, primary and secondary. A primary battalion mission is a statement of the reason for existence for the unit or a statement of the goal(s) or objective(s) the unit might be required to achieve. Primary missions generally reflect the purpose and capabilities of a unit's primary weapons or equipment systems.

Secondary battalion missions describe requirements in addition to its primary mission that might be imposed on a battalion. Secondary missions are required for one of several reasons. First, a secondary mission might enable the battalion to perform its primary mission. Redeployment missions, for example, are often given to units stationed in the continental United States (CONUS) so they can be prepared to move quickly and efficiently to a combat zone and arrive prepared to perform their primary mission. Another type of secondary mission is a requirement placed on a battalion which has nothing to do with the battalion's primary mission but is imposed because the battalion provides an organized, disciplined pool of manpower. An example of such a mission is providing relief and assistance during disasters.

The missions of a HAWK battalion were developed using information provided in Field Manuals on HAWK operations and input from CFEA team members with HAWK experience. Based on this input, one primary mission and six secondary missions were specified for HAWK battalions. The seven missions are specified below:

1. Provide low to medium altitude air defense against hostile targets.
2. Engage in tactical deception.
3. Deploy as part of Reforger.
4. Conduct rapid deployment (RD).

5. Participate in rear area protection plan (RAPP).
6. Provide disaster relief.
7. Control civil disturbances.

The primary mission for HAWK battalions is, of course, to provide low to medium altitude air defense against hostile targets. This mission reflects the purpose and capabilities of the HAWK missile system. In addition, there are several secondary missions performed by HAWK battalions that enable performance of their primary mission.

One of these missions is 'engage in tactical deception'. Tactical deception involves establishment of dummy HAWK sites in order to confuse the enemy and force the enemy to waste time and ordnance attempting to destroy the dummy sites. Performing this mission enhances the survivability of the actual HAWK fire units. Two other secondary missions are 'deploy as part of Reforger' and 'conduct tactical deployment.' Both of these missions are involved in moving a HAWK battalion to the battlefield where it will perform its air defense mission. Deployment as part of Reforger involves movement of CONUS HAWK units to Europe to supplement the air defense in event of war in Europe. The mission of rapid deployment is conducted by HAWK units attached to the Rapid Deployment Force (RDF). These HAWK units must be able to deploy with RDF units in order to provide them with air defense. Participation in rear area protection plan is another mission related to survival. In support of RAPP, HAWK units provide personnel to participate in the defense of rear area sites such as ammunition and fuel dumps. This will help ensure that vital supplies are kept safe for use by units in the forward areas.

Provide disaster relief is a mission that has nothing to do with the primary mission of a HAWK unit but is imposed on a unit because it provides an organized, disciplined pool of manpower. In times of natural disasters such as floods, earthquakes, or hurricanes military units can rapidly deploy personnel with the kinds of skills (e.g., medical, engineering, transportation, communication, etc.) needed to deal with the disaster. Thus, ability to perform this mission is based upon presence of personnel and equipment in the unit that support employment of the HAWK system.

The last secondary mission, control civil disturbances, is unusual in that it can fall under both categories of secondary missions. Essentially, control of civil disturbances involves riot control. It is a mission that CONUS HAWK units might be called upon to perform in peacetime. Also, it is a mission that HAWK units in a combat zone might be called upon to perform if civilian disturbances occur around their tactical sites and threaten the survival of their equipment.

Following delineation of battalion missions, sub-missions were specified. In specifying sub-missions the objective was to develop statements of the major groups of activities encompassed by the primary mission, and prepare descriptions of specific tactical missions that a HAWK unit might be required to perform. The primary mission was broken down into three major sets of activities. These activities were:

1. Air battle
2. Support
3. Survival

The air battle consists of activities involved in acquiring and engaging enemy targets with the HAWK missile system. Activities that enable the battalion to sustain operations (e.g., service and repair of equipment, refueling, resupply of ammunition, providing mess facilities, etc.) are involved in support. Finally, survival consists of activities such as perimeter defense, camouflage, and NBC operations. These activities enable the unit to survive on the battlefield. Each of these major groups of activities must be performed if a HAWK battalion is to accomplish its primary mission.

Four tactical sub-missions were specified. The tactical sub-missions provide a more detailed specification of the air defense missions HAWK battalions can be expected to perform. These missions are:

1. Provide low to medium altitude air defense for division maneuver elements.
2. Provide low to medium altitude air defense for corps elements.
3. Provide low to medium altitude air defense in forward area missile zone.
4. Provide low to medium altitude air defense of rear area (Theater Army).

Basically, the main feature differentiating the tactical sub-missions is the parent organization to which the HAWK unit is attached. Parent organization is important because it influences factors such as the types of assets defended and requirements for movement. HAWK units providing air defense for division maneuver elements must be highly mobile in order to keep up with the maneuver elements. Also, because maneuver elements can be spread over a large geographic area the HAWK unit must employ an area type defense as opposed to a point defense. HAWK battalions attached to corps elements don't have the mobility requirements of units attached to divisions. Also, the assets they defend are generally more circumscribed (e.g., headquarters, supply dumps, etc.) so a point defense can be employed. In the mission 'provide air defense in the forward area missile zone', HAWK units employ an area defense and serve an attrition role. It is their job to minimize the number of enemy aircraft penetrating the rear area. Finally, HAWK units providing air defense of the rear area (Theater Army) have a mission similar to that of units defending corps elements, only the assets defended at Theater level might be larger (e.g., airfields) than those defended at corps level.

It should be pointed out that the tasks performed under the different tactical sub-missions are virtually the same. The primary impact of the tactical sub-missions upon tasks is the importance given to certain tasks and the output of certain tasks. Tasks related to movement on the battlefield, for example, are more important to a HAWK battalion attached to a division than to one attached to corps. The output of tasks involved in planning and controlling the air battle is influenced by whether a point or area defense is employed. Thus, delineation of tactical sub-missions did not affect specification of collective tasks. Specification of tactical sub-missions, however, was important because it would help training developers develop training materials oriented toward performing specific air defense missions. In these materials the training developer can place particular emphasis on the tasks important in a given tactical sub-mission.

T2. Describe Unit Organizational Structure

The objective of this step was to specify the various organizational elements of a HAWK battalion and determine the relationship between elements. This was the first step to specifying the missions performed by battalion elements. Of particular interest here was identification of elements encompassed in larger elements (e.g., elements in a Firing Battery) and elements subordinate to other elements (e.g., the elements that are attached to the Operations and Intelligence Section). In the analysis of battalion element missions, one of the objectives was to specify how a given element supports functioning of larger or superior elements. This helped provide a more comprehensive picture of unit functioning. Thus, it was important to know the relationship between elements. Information on the organizational structure of a HAWK battalion was obtained from TO&Es of HAWK units. From these TO&Es, an organizational diagram of a Square HAWK battation was obtained that specified organizational elements and showed the relationship between elements. The organizational diagram is presented as Figure II-3.

T3. Allocate Organizational Elements to Sub-Missions

In this step HAWK battalion organizational elements specified in the previous step were grouped in terms of sub-missions specified in Step T1. The sub-missions used were the major groups of activities involved in a HAWK battalion's primary mission of providing air defense. These sub-missions were:

1. Conduct air battle.
2. Sustain operations.
3. Survive on the battlefield.

Grouping of elements by sub-missions was accomplished through use of a matrix with rows composed of battalion elements and columns composed of sub-missions. Using information provided in TO&Es and FMs on battalion staff responsibilities and input from team members experienced in HAWK unit operations, project staff placed X's in the cells of the matrix to indicate

AIR DEFENSE ARTILLERY BATTALION
IMPROVED HAWK

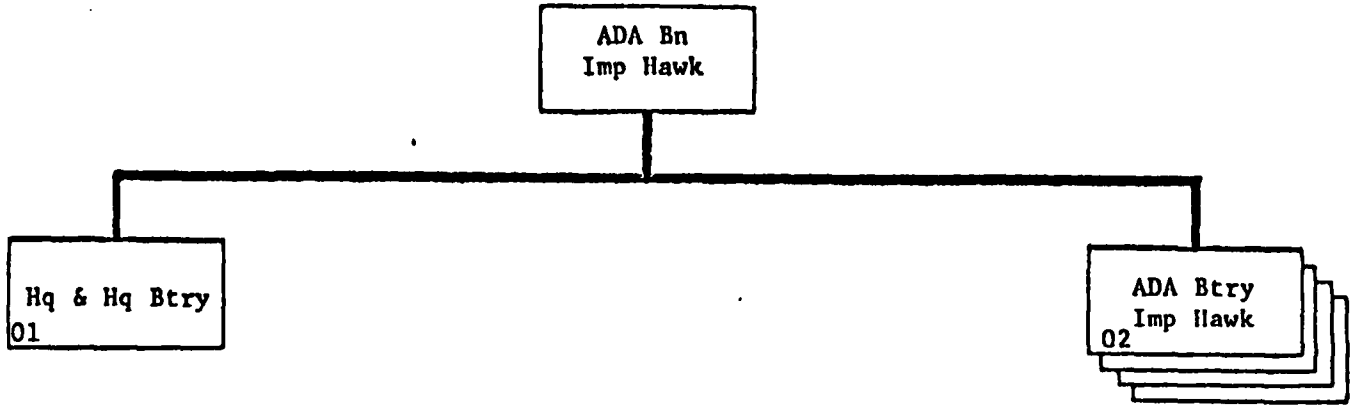
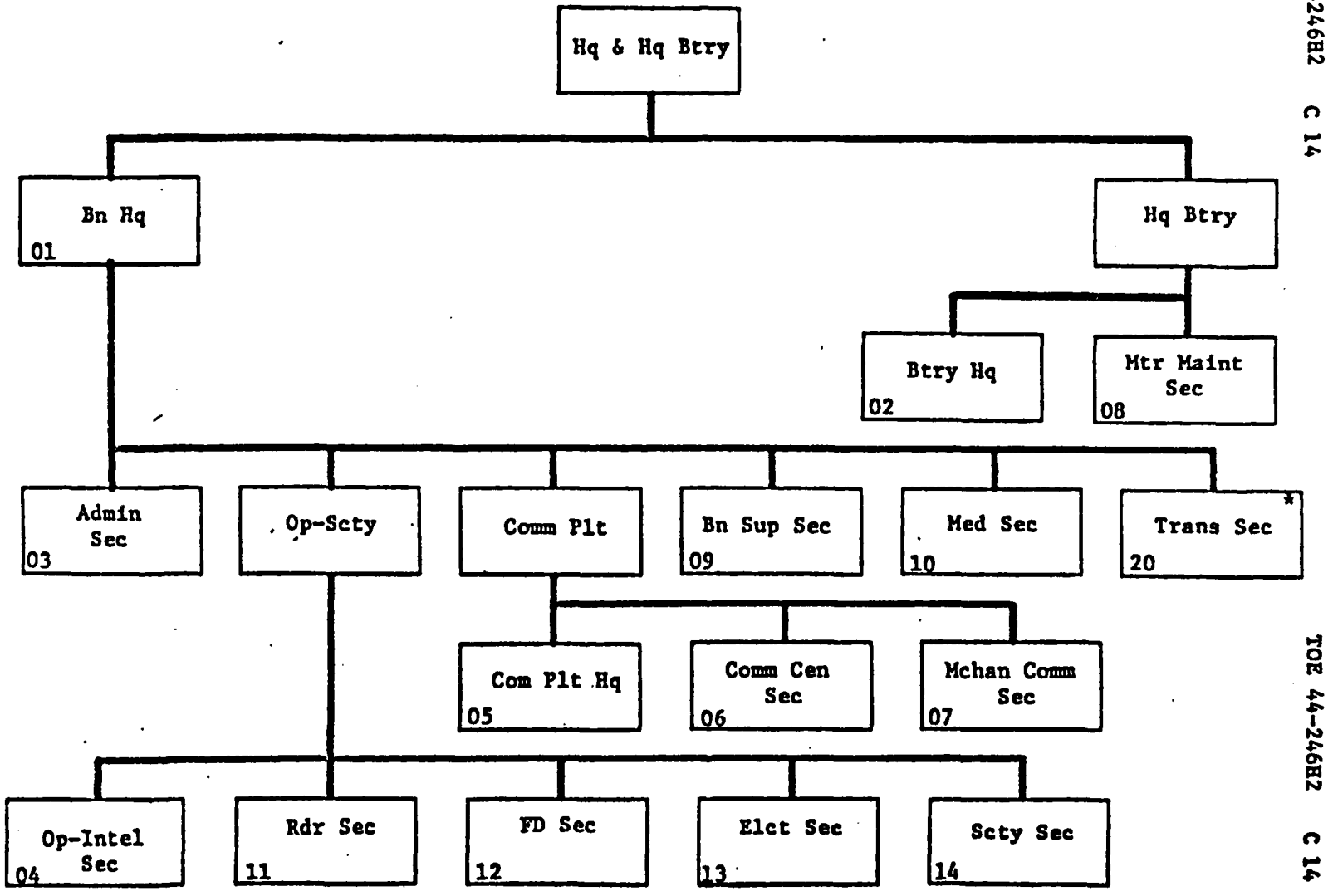


Figure II-3. Organizational Structure of HAWK Battalion

HEADQUARTERS AND HEADQUARTERS BATTERY
AIR DEFENSE ARTILLERY BATTALION, IMPROVED HAWK

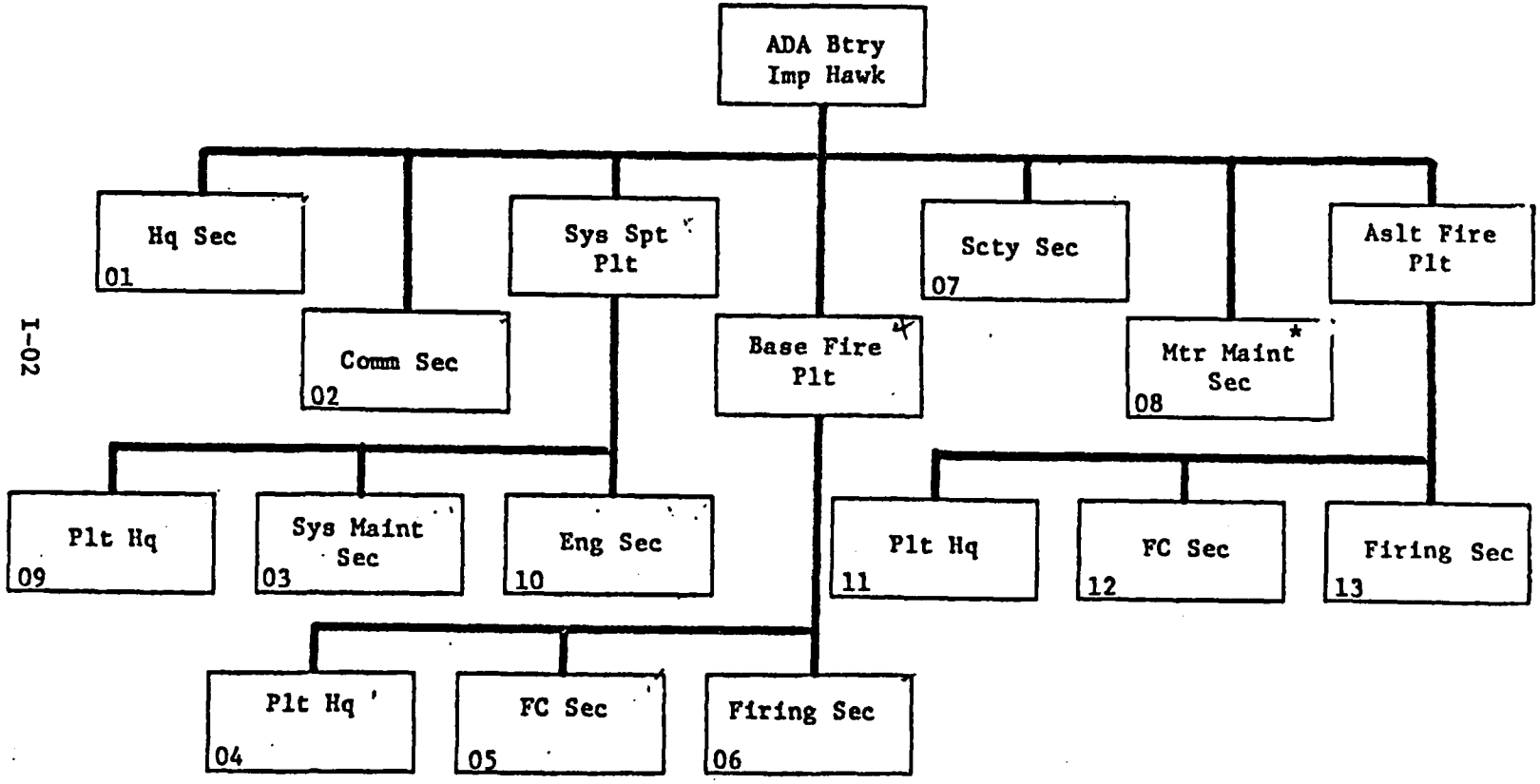


*When organized under SRC 44246H210.
Change 11 deletes paragraphs 15, 16, 17, 18 and 19.

Figure II-3.(Cont'd)

TOE 44-246H2 C 14

AIR DEFENSE ARTILLERY BATTERY, IMPROVED HAWK



*When organized under SRC 44247H220.
Change 11 adds paragraphs 09, 10, 11, 12, and 13.

Figure II-3 (Cont'd)

TOE 44-247H2 C 11

which elements were involved in which sub-missions. The completed matrix is presented as Figure II-4. Note that elements can be involved in more than one sub-mission. The Fire Distribution Section (FDC), for example, is involved in the air battle and sustaining operations. While its chief responsibility is to control the fires of battalion fire units (participation in the air battle), FDC personnel also perform organizational level maintenance on its primary equipment system the AN/TSQ-73 (participation in sustaining operations). Referring again to Figure II-4, note also that all elements are involved in the sub-mission 'survive on the battlefield'.

T4. Allocate Elements to Sub-Mission Functions

In this step the sub-missions used in the preceding step were broken down into sub-mission functions. Then the functions specified for a sub-mission were assigned to the battalion elements identified as participating in that sub-mission. Sub-mission functions are classes of activities that are performed in a sub-mission. For example, some of the functions of the sub-mission 'conduct the air battle' are plan, control, acquire, and engage. Sub-mission function lists were developed by the CFEA team. Members of the team familiar with the operation of HAWK units provided the lists by considering each sub-mission and attempting to list all of the different activities performed in that sub-mission. It was felt that using a list of activities performed in sub-missions would result in a more thorough list of element missions because they would provide cues for the recall and development of battalion element missions that occurs in the next step.

Matrices were used to assign sub-mission functions to battalion elements. The battalion element sub-mission function matrices are presented as Figure II-5. For each sub-mission, a matrix was developed using the battalion elements identified as participating in that sub-mission and the functions specified for the sub-mission. Battalion elements formed the rows of the matrix and functions formed the columns. Using input from TO&Es, manuals on doctrine of employment of the HAWK system, and HAWK SMEs on the CFEA team, team members placed X's in the cells of the matrices to indicate which functions were performed by which elements.

	Conduct Air Battle	Sustain Operations	Survive on the Battlefield
HQ BTRY Elements			
- HQ		X	X
- S-1		X	X
- S-2/S-3	X	X	X
- Fire Distribution Sec.	X	X	X
- Radar Sec.	X	X	X
- Bn Electronics Sec.	X	X	X
- Bn COMMO PLT	X	X	X
- S-4		X	X
- Bn Medical Sec.		X	X
- Bn Transportation Sec.		X	X
- HQ BTRY Motor Maint.		X	X
- HQ BTRY Security Sec.			X
Firing BTRY Elements			
- FB HQ	X	X	X
- FB COMMO Sec.	X	X	X
- FB System Maint. Sec.	X	X	X
- FB Base PLT	X		X
- FB Assault PLT	X		X
- FB Motor Maint Sec.		X	X
- FB Engineer Sec.		X	X
- FB Security Sec.			X

Figure II-4. Battalion Element by Sub-Mission Matrix

Air Battle Functions

	Gather/Analyze Information	Plan	Coordinate	Control/Direct	Acquire	Engage	Communicate	Emplace
HQ BTRY Elements								
- S-2/S-3	X	X	X	X				
- Fire Distribution Sec.			X	X	X		X	X
- Radar Sec				X	X			X
- Bn Electronics Sec.								X
- Bn COMMO PLT							X	X
Firing BTRY Elements								
- FB HQ		X	X	X				
- FB COMMO Sec.							X	X
- FB System Maint. Sec.								X
- FB Base PLT			X	X	X	X		X
- FB Assault PLT			X		X	X		X

Figure II-5. Battalion Element by Mission Function Matrix

	Sustain Operations																					
HQ BTRY Elements	Rearm	Refuel	Service	Repair	Feed	Clothe/Equip Personnel	Transport	Recordkeeping/ Admin	Medical Services	Morale Support	Safety	Construct	Financial Accounting	Train	Store	Distribute	Security	Sanitation	Electrical Power	Recover Equipment/ Materials
- HQ					X	X		X		X					X	X		X		
- S-1								X		X	X									
- S-2/S-3														X			X			
- Fire Distribution Sec.			X	X										X						
- Radar Sec.			X	X																
- Bn Electronics Sec.			X	X										X						
- Bn COMMO PLT																				
- S-4	X	X				X	X	X				X	X	X	X	X		X		
- Bn Medical Sec.									X					X						
- Bn Transportation Sec.							X									X				
- HQ BTRY Motor Maint	X	X	X					X						X					X	X
Firing BTRY Elements																				
- FB HQ	X	X			X			X		X								X		
- FB COMMO Sec.																				
- FB System Maint Sec.			X	X				X							X					
- FB Motor Maint Sec.		X	X	X				X						X					X	X
- FB Engineer Sec			X	X				X						X					X	

Figure II-5(Cont'd)

HQ BTRY Elements	NBC Opns	Ground Defense	Small Arms AD/ MANPADS	RSOP	Bomb Disposal	Firefighting	Denial	Convoys	OPSEC	COMSEC	Fire Support	Evacuation	Refugee Care	POWs
	Survival Functions													
- HQ	X	X	X	X	X	X	X	X				X	X	X
- S-2	X		X				X							X
- S-2/S-3			X	X			X	X	X		X			X
- Fire Distribution Sec.			X				X							
- Radar Sec.			X				X							
- Bn Electronics Sec.			X				X							
- Bn COMMO PLT			X				X			X				
- S-4			X				X							
- Bn Medical Sec.			X				X					X	X	
- Bn Transportation Sec.			X				X	X						
- HQ BTRY Motor Maint			X				X	X						
- HQ BTRY Security Sec.		X	X				X	X						
Firing BTRY Elements														
- FB HQ	X	X	X	X	X	X	X	X	X		X	X	X	
- FB COMMO Sec.			X				X			X				
- FB System Maint. Sec.			X	X			X							
- FB Base PLT			X	X			X	X	X					
- FB Assault PLT			X				X	X	X					
- FB Motor Maint Sec.			X				X	X						
- FB Engineer Sec.			X				X							
- FB Security Sec.		X	X				X	X						

Figure II-5 (Cont'd)

T5. Develop Stated and Implied Missions

Based on the sub-mission functions assigned to elements in the preceding step, mission statements were developed for each element of a HAWK battalion. Battalion element mission statements are descriptions of the specific responsibilities of a unit element with respect to a particular function. In a HAWK battalion, for example, a number of elements perform service and repair functions. The missions of these elements, however, differ in terms of the equipment upon which those service and repair functions are performed. The motor maintenance section performs service and repair on unit vehicles, trailers, and generators. A system support platoon performs service and repair functions on the HAWK system. Thus, the objective of this step was to specify exactly what an element does as it performs a particular function.

The complete set of missions developed for HAWK battalion elements is presented in Appendix A. In all, some 195 battalion element missions were developed. These missions were specified by considering the functions assigned to an element then studying documentation on HAWK operations and soliciting input from team members with HAWK experience.

Two types of battalion element missions were specified: stated missions and implied missions. Stated missions were those listed in documentation on organization and employment of HAWK units. Implied missions are requirements imposed on an element that have not been stated explicitly. Many elements, for example, have the implied mission of training their personnel. Team members with HAWK experience developed the implied missions. Sometimes a stated mission was broken down into sub-missions. This occurred when a stated mission was somewhat broad or general. The sub-missions provided a more detailed breakout of responsibilities encompassed in a stated mission.

In addition to specifying the missions of battalion elements, another set of missions was developed called common implied missions. Common implied missions are generally activities performed by the unit to survive on the battlefield (e.g., perimeter defense, small arms air defense). No one element is assigned responsibility for these missions. Almost every element contributes personnel that participate in them. For this reason, the missions are referred to as common missions. The common implied missions of a HAWK battalion also are provided in Appendix A.

A large number of missions were specified. Many of the missions were very similar. In order to differentiate the missions of different elements and be able to determine quickly which element performs a given mission a coding scheme was developed that indicates the element that performs a mission and the type of mission (stated, implied, or sub-mission). The coding scheme used a seven character alphanumeric code. An example of a mission code is HB04A00. The first two letters of the code indicates whether the mission is performed in Headquarters and Headquarters Battery (HB) or in a Firing Battery (FB). Thus, the example mission code indicates a mission performed in Headquarters and Headquarters Battery. The next two characters identify the element that performs the mission. This is the code for that element in the TO&E. In the example code '04' refers to the Operations and Intelligence Section. The remaining three characters identify the type of mission. Stated missions begin with an 'A', 'B', or 'C' in the fifth position and are followed by two zeros. Our example mission code is a stated mission. If a stated mission is broken down into sub-missions these are listed under the stated mission and are numbered consecutively from '01' using characters in the sixth and seventh positions (e.g., HB04A01, HB04A02, etc.). Implied missions are indicated by an 'X' in the fifth position and are numbered consecutively using characters in the sixth and seventh positions.

A4. Select Mission Criticality Assessment Board

Once the analysis of HAWK battalion and battalion element missions was complete, an assessment of mission criticality was conducted. The objective of the mission criticality assessment was to determine which missions should be retained for training and evaluation purposes. It was recognized that unit training resources are limited. It is important that these resources be expended training missions that are crucial to accomplishment of the unit's primary mission. In the mission analysis the objective had been to provide an exhaustive listing of missions performed in a HAWK battalion in order to insure that all missions critical to unit success were specified. In so doing, missions were specified that has little influence on accomplishment of the unit mission. The mission criticality assessment sought to identify these missions so they could be dropped from the analysis.

The mission criticality assessment was performed by SMEs knowledgeable of the HAWK system and the operation of HAWK units. The first step performed in the mission criticality assessment was to select the mission criticality assessment board. Because the decisions made by the board would affect the rest of the CFEA and the training development activities that followed, it was important that care be exercised in selecting board members. Board members would be asked to judge the criticality of missions performed by all elements of a HAWK battalion. Therefore, they had to be familiar with all aspects of a HAWK unit's operations. It was felt that the persons with the best overall perspective on the operation of HAWK units would be those who have served as commanders or S-3s of HAWK units. A mission criticality assessment board was assembled that was composed of past and present HAWK battalion commanders and S-3s from Directorate of Training Development, Directorate of Training and Doctrine, and the 11th ADA Brigade. All members held the rank of O-5 or O-6.

T6. Develop Mission Criticality Assessments

In this step, the approach to the mission criticality assessment was developed and the materials used in the assessment process were prepared. As suggested in TRADIC Pam 310-8, it was decided that the mission criticality assessment would be conducted by eliciting ratings of mission criticality from the board. Different rating procedures were developed for assessing battalion and battalion element missions because different considerations were involved in assessing the criticality of these different types of missions.

Assessment of Battalion Missions. In assessing the criticality of battalion missions, board members were asked to identify a mission as primary (reflecting a major purpose or objective of a HAWK battalion) or secondary (enabling or facilitating accomplishment of a primary mission or reflecting an adjunctive requirement imposed upon the battalion that is not directly related to the primary mission). Missions identified as primary were assumed

to be critical. Criticality of secondary missions required more evaluation and was posited to be a function of the extent to which the secondary mission facilitated accomplishment of a primary mission. A three level rating scheme was developed to assess the impact of a secondary mission on accomplishment of a primary mission:

1. High criticality. The secondary mission must be performed successfully if the battalion is to accomplish its primary mission.
2. Moderate criticality. Successful performance of the secondary mission will facilitate or aid accomplishment of the battalion's primary mission.
3. Low criticality. Performance of the secondary mission has little or no effect upon accomplishment of the battalion mission or there is a very low likelihood that performance of the mission would ever be required.

The board also provided criticality assessment ratings of the five tactical sub-missions. Members of the CFEA team judged that some of the tactical sub-missions could not be performed well because of system limitations or had a low probability of performance because of doctrinal considerations for HAWK employment. A three level rating scheme was developed that considered these factors. Accordingly, tactical sub-missions were rated as having:

1. High criticality. The tactical sub-mission is well within the capability of a HAWK battalion to perform and there is a high likelihood that a unit would be required to perform it.
2. Moderate criticality. A HAWK battalion would have some difficulty performing the mission because of equipment or mobility limitations, or it is not a mission that a HAWK unit would be required to perform frequently.
3. Low criticality. A HAWK battalion would not be required to perform the mission because of equipment or mobility limitations, or it is a mission that a unit would be required to perform very infrequently.

Assessment of Battalion Element Missions. The number of factors considered in assessing criticality of battalion element missions was greater than those considered in assessing criticality of battalion missions. In TRADOC Pam 310-8, two factors are suggested for use in evaluating battalion element missions. These factors are the importance of a battalion element mission to accomplishment of the unit mission, and the importance of a battalion element mission to the survival of the unit. While both of these factors were recognized to be key dimensions along which to assess battalion element missions, it was felt that other factors should be used as well. These other factors provide a clearer picture of a battalion element mission's influence on the battalion's primary mission, and provide training developers with information needed to develop better mission oriented training. A six factor rating scheme was devised with three possible responses to each factor. The six factors and their respective response alternatives are presented below:

1. Is this mission critical to accomplishment of the overall (primary) unit mission?
   a. Low criticality. Success or failure will not measurably affect accomplishment of the overall mission.
   b. Moderate criticality. Failure of the mission could hinder or reduce accomplishment of the overall unit mission.
   c. High criticality. Failure of the mission will seriously degrade or prevent accomplishment of the overall unit mission.
2. What is the immediate/direct result of mission failure upon combat effectiveness of the unit?
   a. Low criticality. Failure of the battalion element mission has little or no effect on combat mission completion.
   b. Moderate criticality. Failure of the battalion element mission could degrade or delay completion of the combat mission.
   c. High criticality. Failure of the battalion element mission could seriously degrade or prevent accomplishment of the combat mission.

3. What is the immediate/direct result of mission failure on survival of the unit in combat?
   a. Low criticality. Failure of the battalion element mission has little or no effect on survival of unit personnel and equipment.
   b. Moderate criticality. Failure of the battalion element mission could affect survival of unit personnel and equipment.
   c. High criticality. Failure of the battalion element mission will result in unacceptable loss of unit personnel and equipment.
4. Will mission failure affect the unit's ability to sustain or continue its primary mission?
   a. Low criticality. Failure of the battalion element mission does not seriously affect the unit's ability to sustain operations.
   b. Moderate criticality. Failure of the battalion element mission could degrade or reduce the unit's ability to continue operations.
   c. High criticality. Failure of the battalion element will seriously affect the unit's ability to sustain operations.
5. Is this mission critical to accomplishment of another battalion element mission that has some effect on accomplishment of the unit mission or on survival of the unit? If so, list the affected missions.
   a. Criticality low. Success or failure of the mission has no measurable effect on any other battalion element mission.
   b. Criticality moderate. Failure of the mission may hinder or reduce accomplishment of other battalion element missions.
   c. Criticality high. Failure of the mission will seriously degrade or prevent accomplishment of other battalion element missions.

6. Is the mission wartime oriented?
   a. Not wartime oriented. The mission is performed in peacetime only and is not combat related.
   b. War and peacetime oriented. The mission is performed in both peace and war in the same manner.
   c. Wartime oriented. The mission is performed only in wartime.

Using this criticality assessment scheme, it is possible to determine how a battalion element mission influences the primary mission. Basically, a battalion element mission can affect accomplishment of the unit mission by influencing the combat readiness of the unit, the ability of the unit to sustain operations, or the survival of unit personnel and equipment. When a battalion element mission has been rated as critical in terms of its effect on the unit mission, the manner in which it influences the unit mission can be determined by examining its ratings on any of these factors.

Using factor five, it is possible to determine how battalion element missions influence one another. This is the factor that asks whether a given mission affects performance of other battalion element missions and asks the rater to list the affected missions. This information is important for both assessing criticality of battalion element missions and developing training. Battalion element missions that have an impact on battalion element missions critical to accomplishment of the unit mission must be considered critical themselves. Also, if the goal is to develop training that will result in successful performance of a mission, some consideration must be given to training other missions that affect accomplishment of the mission.

Finally, when developing training for a unit it is important to know which missions performed by a unit's elements are performed only in wartime, which are performed only in peacetime, and which are performed in both war and peace. This information is valuable in allocating training resources. Ordinarily, missions that are performed only in peacetime have a low priority for training. The focus of unit training is generally on developing the

combat capabilities of the unit. Thus, missions performed in wartime receive the highest priority for training. In training wartime missions, highest priority should be given to training those missions that are performed only in wartime. This is because the only time personnel get practice in performing these missions is during training. Missions that are performed in peace and war are given a lower priority for training because personnel perform them as part of their job during peacetime.

Once the rating procedures had been developed, rating forms and instructions for the mission criticality assessment board were prepared. Copies of the instructions and rating forms are presented in Appendix B. Essentially, the materials prepared for the board described the mission analysis process and the types of missions developed, explained the purpose of the criticality assessment process, and provided instructions on rating the criticality of the different types of missions.

T7. Convene Board and Assess Mission Criticality

In this step, the board was assembled and provided with instructions in the rating process, criticality ratings were elicited, the resulting data were analyzed, and critical missions were determined. Given the large number of missions to be assessed, it was felt that it would be too time consuming for the board to rate the missions as a group. Instead, it was decided that each board member would conduct his own assessment of the missions, the resulting data would be combined and analyzed, and the board would be called together to resolve any points of difference. This allowed board members to conduct the assessment during times most convenient to them and minimized the amount of time they spent meeting with the board.

Board members spent two weeks rating the criticality of the 207 HAWK battalion and battalion element missions. At the end of this period the rating data were collected and analyzed. There were two major steps in the analysis of mission criticality data. The first step in the process was to establish a single rating for each mission on each rating factor. In the second step these ratings were compared against a set of criticality criteria that determined which missions were critical and which were non-critical.

Development of Consensus Ratings. In the first step, the board members' ratings of a mission on a criticality factor were reviewed to determine the rating consensus of the board. Basically, the rating consensus was the rating that the board tended to give a mission on a factor. If on a given factor, for example, six board members rated a mission has having high criticality and one rated it as having low criticality, the consensus of the board would be a rating of high criticality.

A set of resolution tables was developed which allowed for quick determination of rating consensus. An example of a resolution table is provided as Figure II-6. The tables were developed for ratings in which three possible responses are offered and were based on the number of raters responding to a factor. Thus, the table presented in Figure II-6 provides consensus ratings when initial ratings are provided by six raters and the rating response options are high, moderate, and low. Resolution tables were developed by contractor personnel who sought to define situations in which a clear consensus appeared to exist among a group of raters. In developing these tables, it was also noted that there are some combinations of responses in which consensus among raters on a factor is not clear. In such instances, the mission must be resubmitted to the board, and a consensus reached on the factor in question. Situations in which no consensus is apparent are also defined in the resolutions tables.

Using resolution tables, the CFEA team sought to develop consensus ratings for each set of ratings made to each mission. For the vast majority of missions, consensus ratings were obtained. For some mission, however, a consensus rating could not be obtained for every factor. These factors were marked for resolution by the board pending the outcome of the second step in the analysis of mission criticality data. If these unresolved rating factors prevented a mission from being determined as critical or non-critical, then the mission was returned to the board.

Resolution Table for N=6 Raters

IF Highs = 4 then consensus rating = High

IF Moderates = 4 then consensus rating = Moderate

IF Lows = 4 then consensus rating = Low

IF Highs = 3 and Moderates = 3 or 2 then consensus rating = High

IF Highs = 3 and Moderates = 1 or 0 then consensus rating must be resolved

IF Highs = 2 and Moderates = 3 or 2 then consensus rating = Moderate

IF Highs = 2 and Moderates = 1 then consensus rating must be resolved

IF Highs = 1 and Moderates = 2 or 3 then consensus rating = Moderate

IF Highs = 0 and Moderates = 3 then consensus rating = Moderate

Figure II-6. Sample Resolution Table

Criticality Criteria for Battalion Missions. In the second step in analysis of mission criticality data, the consensus ratings of each mission were compared against a set of logical criteria which specified the ratings that resulted in a mission being evaluated as critical or non-critical. The criteria used to assess mission criticality varied with the type of mission (battalion mission, tactical sub-mission of battalion primary mission, and battalion element mission) being assessed. This was necessary because different factors were used to assess the criticality of each type of mission. The criticality criteria specified the rating or ratings a mission of a given type had to receive on a particular factor or set of factors in order to be deemed critical.

In rating battalion missions, board members were asked to indicate which were primary missions and which were secondary missions. Given a mission was identified as a secondary mission, its criticality was rated as high, moderate, or low depending on the extent to which the mission facilitated accomplishment of the primary mission. Criticality criteria for battalion missions were:

1. If a mission is identified as primary it is critical.
2. If a mission is identified as secondary and is rated as high or moderate in criticality it is critical.
3. If a mission is identified as secondary and rated as low in criticality it is non-critical.

Thus, criticality of a battalion mission was based on whether a mission was a primary mission or a secondary mission that influenced performance of the primary mission.

Ratings of criticality of tactical sub-missions were based on consideration of capabilities of the HAWK system and the probability that performance of a mission would be required. Criticality criteria for tactical sub-missions were:

1. If a tactical sub-mission was rated as having high or moderate criticality (it was a mission a HAWK unit can perform and is likely to perform), the mission was deemed critical.
2. If a tactical sub-mission was rated as having low criticality (it was a mission a HAWK unit would have difficulty performing or would not be likely to perform), it was deemed non-critical.

Criteria for evaluating criticality of battalion element missions were more complex because of the number of rating factors involved. The criteria used to evaluate battalion element missions are as follows:

1. If a mission is rated as having high or moderate criticality on factor 1 (effects on unit mission) and moderate to high criticality on either of factors 2 (effects on combat effectiveness), 3 (effects on survival), or 4 (effects on ability to sustain operations), the mission is critical.
2. If a mission is rated as having moderate to high criticality on factor 5 (effects on other battalion element missions) and the mission(s) affected is/are critical, then the mission is critical.
3. If a mission is rated on factor 6 (wartime orientation) as a strictly peacetime mission, then the mission is not critical.
4. If a mission is rated as having low criticality on factors 1, 2, 3, 4, and 5, then the mission is not critical.

The first criterion is the primary criterion for evaluating a battalion element mission as critical. The key factor influencing a determination of criticality is the effect the battalion element mission has on performance of the unit mission. Thus, if a mission is rated as having high or moderate criticality with regard to its influence on the unit mission it is given serious consideration as a critical mission. Before a mission can be determined critical, however, logical consistency must exist between ratings of the effects of the battalion element mission on the unit mission and other

dimensions known to influence performance of the unit mission. That is, if a mission is rated as having high or moderate criticality in terms of the unit mission, then it must receive a similar rating on either effects on combat effectiveness, unit survival, or ability to sustain operations. If some agreement does not exist between ratings of a mission's effect on the unit mission and factors known to influence the unit mission, then the ratings must be considered suspect and should be referred to the board for clarification.

The second criterion for evaluating a battalion element mission as critical is fairly straightforward. Essentially, this criterion states that if a mission affects performance of a battalion element mission which itself has been determined to be critical then the mission under consideration must be critical. It was expected that very few missions would be determined to be critical under this criterion alone. It was thought that a mission that influences other critical missions also would have some direct influence on the unit mission and would be evaluated as critical under the first criterion discussed. But, it also was recognized that there might be some missions that would not be rated as having an important direct influence on the unit mission but would affect other critical battalion element missions. Though small in number these missions play an important role in unit functioning and should be considered as critical. This criterion was developed as a means of capturing these missions.

The last two criticality criteria also are relatively straightforward. According to criterion number three, a mission that is performed strictly in peacetime is considered to be non-critical. Wartime missions may or may not be critical depending on whether they meet other criticality criteria. Strictly peacetime missions are excluded from consideration because they have no influence on the unit's primary mission which is combat oriented. Finally, a mission that has no influence on the unit mission, combat effectiveness, survival of the unit, capability to sustain operations, or the outcome of other critical battalion element missions is deemed non-critical according to the last criterion.

Results of the Criticality Assessment. Using the above criteria, 172 of the 207 HAWK missions were determined to be critical and 14 were determined to be non-critical. The criticality of 21 of the missions could not be established. Missions in this category were set aside for resolution by the board. There were several situations which prevented a mission from being determined as critical or non-critical. If a consensus could not be established for several ratings and the resolution of factors could affect whether a mission was identified as critical or non-critical, the mission was set aside for board resolution. Also, missions for which consensus ratings seemed logically inconsistent were set aside for board resolution.

The missions to be resolved were again put before the board. Board members discussed and voted on the criticality of each mission to be resolved. Instructions provided to the board for resolving criticality of missions are presented in Appendix B. Of the 21 missions to be resolved 10 were determined to be critical and 11 were determined to be non-critical. Thus, in the final analysis 182 of the original 207 HAWK missions were identified as critical and 25 were identified as non-critical. A list of critical and non-critical missions is provided in Appendix C.

Of the missions dropped from the mission list only two were battalion missions. Provide disaster relief and control civil disturbances were the battalion missions the board decided to drop. Ratings provided by the board indicated that they thought these missions should be dropped because they had virtually nothing to do with the air defense mission of a HAWK battalion. None of the tactical sub-missions were dropped. The vast majority of missions that were dropped were battalion element missions. Twenty-three battalion element missions were eliminated. The primary reason for dropping these missions was that they had little or no influence on a HAWK unit's mission of providing air defense, though a few were dropped because they were strictly peacetime missions.

T8. Allocate Personnel to Missions

This step marks the beginning of the task analysis portion of the HAWK CFEA. The objective of the task analysis phase was to specify and analyze the collective tasks that support each of the critical missions delineated in the mission analysis. In this step the TO&E of a HAWK square battalion was reviewed, and the personnel involved in each battablion element mission were determined. In specifying the personnel who perform a given battalion element mission, the objective was to indicate the Military Occupational Specialties (MOSs) involved and determine the numbers of personnel drawn from each MOS and their respective skill levels. Delineation of personnel involved in a mission was accomplished by considering the types of activities performed in the mission, identifying the skills needed to perform those activities, and specifying the personnel in the TO&E that have those skills. Soldier's Manuals for an element's personnel provided a good source of information on the skills possessed by its personnel.

As an example of the process of allocating personnel to missions, consider the Commo platoon of a HAWK battalion. The Commo platoon performs a variety of missions in order to provide the battalion with communications. Some of these missions are to set up AM and FM radio nets, provide wire communications, and provide automatic tactical data link (ATDL) between the AN/TSQ-73 and the fire units. Each of these missions involves different activities and, hence, different skills. The mission of providing wire communications involves activities such as drawing net diagrams, laying wire, tying in field phones, setting up a switchboard, and repairing malfunctions in the network. Within the Commo platoon there are personnel such as 36Cs (Wire Systems Installer/Repairer) who are specially trained in the set-up, operation, and maintenance of wire networks. These personnel would be listed as performing the mission of providing wire communications.

Specifying the personnel involved in each mission facilitated the specification and analysis of collective tasks that occurred in succeeding steps. First, it provided a good basis from which to specify tasks. Knowing the personnel that perform a mission gave a good indication of the types of tasks

performed in the mission. In addition, it suggested information sources (e.g., soldier's manuals for MOSs involved in a mission) that might be of help in specifying those tasks. Finally, allocating an element's personnel to missions performed by the element often made it easier to specify the personnel that perform a collective task. In specifying the personnel who perform a collective task, the task analyst only has to consider the personnel involved in the mission the task supported. Often these personnel were a subset of the personnel in the battalion element. Thus, the number of personnel from which collectives were identified was often reduced, making the process of specifying collectives easier.

Based on the output of this step, worksheets were developed for specifying collective tasks and the collectives of personnel that perform them. An example of a worksheet for developing collective tasks is provided in Figure II-7. A worksheet was developed for each battalion element mission. Each worksheet contained the title of a battalion element mission and indicated the element that performed the mission. The majority of the worksheet consisted of a matrix. The columns of the matrix contained the personnel that had been specified as participating in the battalion element mission indicated on the worksheet. Rows of the matrix were spaces where titles of collective tasks performed in the battalion element mission were to be listed. As the collective tasks performed in the mission were specified, the task analysts could indicate the personnel that performed the tasks by placing Xs in the appropriate cells of the matrix.

T9 - T11. Specify Collective Tasks

This portion of the HAWK CFEA departs somewhat from the CFEA model. In the CFEA model, collective tasks are specified by describing the activities performed in a battalion element mission (step T9), allocating personnel involved in the mission to mission activities (step T10), and combining activities into tasks and identifying the personnel that perform the task (step T11). While the process used to specify collective tasks in the HAWK CFEA was somewhat similar to that described in the CFEA model, the steps in the model were not followed explicitly. Indeed, the steps for specifying collective tasks

Organization F.B. Battery Section Assault Fire Platoon

Missions: FB11A00 - Engage and destroy low to medium altitude hostile aircraft

Sub-Missions: FB11A02 - Engage and destroy low to medium altitude hostile aircraft

Collective Task	14D00	16D40	16D30	(3) 16D20	(8) 16D10	16E30	16E20	(6) 16E10	16S20	16S10	(2) 31M10				
1. Perform BATTLE STATIONS Crew Drill	X			X	X(4)	X	X	X			X				
2. Detect targets	X														
3. Evaluate targets	X						X								
4, Engage targets	X						X								
5. Monitor/assess engagement results	X						X								

Figure II-7. Collective Task Development Worksheet

were developed after collective tasks of a HAWK battalion had been specified. Lessons learned in the HAWK CFEA provided the input for development of this portion of the CFEA HAWK.

In the HAWK CFEA, the process of specifying tasks consisted of CFEA team members considering a battalion element mission., recalling their experience in HAWK units, studying documentation related to the jobs of personnel performing the mission, and generating collective task titles until it was felt an exhaustive listing of tasks had been provided. Task titles were entered onto the task development worksheets and personnel performing the tasks were specified. The result was a listing of 246 collective tasks.

Appendix D presents the task list with tasks broken out by the missions they support. In reviewing the task list in Appendix D, the reader will note that not all of the battalion element missions are listed. This is because the team could not identify any collective tasks for some missions. These missions seemed to be supported strictly by individual tasks. A variety of different types of missions fell into this category. But it seemed that most involved administrative, management, and supply functions or the operation and repair of simple equipment systems such as vehicles and generators. Generally, missions involved in movement, emplacement, operation, and repair of the HAWK system, the AN/TSQ-73, and associated communications systems were supported by collective tasks.

A5. Select SMEs for Task Criticality Assessment

As with the battalion and battalion element missions, collective tasks were assessed to determine which tasks are sufficiently important or critical to merit expenditure of training and analysis resources. Just as the most important factor influencing the criticality of a battalion element mission was its effects on the unit mission, the most important factor affecting task criticality was the influence of a task on the mission it supports. In addition, other moderating factors were considered such as the difficulty of the task, its frequency of performance, and how rapidly task performance decays in the absence of practice.

The assessment of task criticality was performed by SMEs familiar with the HAWK system and the operation of HAWK units. The types of SMEs used in the assessment of collective task criticality were somewhat different than those used to assess mission criticality. In the mission criticality assessment, SMEs were needed who has a good overall knowledge of HAWK unit operations. The important characteristic of these SMEs was that they understood how the various elements of a HAWK battalion contribute to accomplishment of the battalion mission. Knowledge of a more detailed nature was required of SMEs who assessed criticality of collective tasks. In order to provide an accurate assessment of collective task criticality, these SMEs had to be familiar with the personnel in each element of a HAWK battalion and the tasks those personnel perform in support of the missions of their respective elements.

In the HAWK CFEA, selection of SMEs for the task criticality assessment was governed by a USAADASCH, DTD Standard Operating Procedure (SOP) for training development. The SOP requires that two review boards assess task criticality: an internal review board and an external review board. The internal review board is composed of personnel from within DTD. For the HAWK CFEA an internal review board was developed that consisted of the HAWK Division Chief and representatives from Collective Training, Extension Training, Training Development, and Training Analysis Branches. Personnel from outside DTD comprised the external review board. In the HAWK CFEA this board consisted of two representatives from the 11th ADA Brigade and one from Directorate of Evaluation and Standardization (DOES). While representatives were appointed from these different organizations, they were not solely responsible for conducting the criticality assessment. They were assisted by other personnel in their organiations who had complementary areas of expertise. This ensured that the knowledge base necessary to provide an accurate criticality assessment of HAWK collective tasks was available.

T12. Develop Task Criticality Assessment

In this step, procedures for assessing task criticality were developed. Once again it was decided that ratings would be used. The first step to developing rating procedures involved specifying the factors or dimensions along which task criticality would be assessed. Specification of rating factors was based on consideration of the kinds of information that should be provided by the criticality assessment.

Given that the primary purpose of the HAWK CFEA was to develop a new HAWK ARTEP, an important output of the criticality assessment process was the tasks that should go into the ARTEP. In addition, it was recognized that there was other information that would be useful to trainers and training developers. This information had little to do with ARTEP development but would help USAADASCH develop more effective training and expend training resources more wisely. A list of questions was developed that reflected the kinds of information training developers would find helpful from the criticality assessment. These questions provided a basis from which to specify the rating factors used in the criticality assessment. The questions are listed below and discussed in terms of the factors to be considered in answering them:

1. Which tasks should be included in the ARTEP? This was the question of primary concern in the task criticality assessment. It had to be considered in light of the fact that the main purpose of the ARTEP is to support training of the critical missions identified earlier. The tasks that should go in the ARTEP, therefore, are ones that have a major impact on those missions. Thus, the principal factor to be considered in assessing task criticality is the importance of the task to the element mission it supports and to the unit mission. A second factor should be considered also. This factor addresses the hazards associated with performance of a task. It was judged that the tasks

which are hazardous to perform should be included in the ARTEP even if they do not have an important direct effect on a mission. Unsuccessful performance of such tasks could result in injury or loss of personnel and equipment which in turn could affect performance of missions.

2. Which tasks should be trained initially in a resident school? Which should be trained on the job (OJT)? Whenever possible, tasks are trained on the job. OJT is less expensive than resident training and can be conducted while the trainee is engaged in other, productive job activities. Some tasks are difficult to learn and perform, however. Such tasks are learned better in a structured environment totally devoted to training such as a resident school. Other tasks might not be particularly difficult, but a soldier is expected to be able to perform them when he reaches his unit. There is not enough time available to train these tasks OJT, so they must be trained in a resident school. Thus, the major factors affecting whether a task is trained OJT or in a resident school are the difficulty of learning or performing the task and how soon after arriving at a unit a soldier is expected to perform the task.
3. Which tasks should be considered for periodic refresher training? Sometimes tasks exist that are important to accomplishment of an element or unit mission, but the tasks are performed infrequently on the job and performance proficiency decays rapidly in the absence of practice. If proficiency on these tasks is to be maintained, periodic retraining must be arranged so performance can be practiced. In order to identify these tasks, information must be obtained on the frequency with which tasks are performed and the rate at which performance decays in the absence of practice.
4. For which tasks should performance be certified? Certification means that a student's performance of a task is observed to ensure that the student is capable of performing the task to field standards. Only certain tasks should be certified because the process can be

time consuming. Generally, end of course testing involves observing performance of selected steps of the tasks taught in the course. However, certification should always be required for tasks which must be performed immediately upon onset of the cue for task performance and that are critical to mission accomplishment or survival of personnel and equipment. There is no margin for error in these tasks, and there is insufficient time to seek assistance to perform the task. It must be assured that personnel can perform these tasks, and certification provides the assurance.

5. Which tasks should receive refresher training prior to the unit going to war? Many of the tasks performed in a unit are critical to accomplishment of an element mission and the unit mission but are performed only in time of war. The only time unit personnel get to practice these tasks in peacetime is during specially arranged training situations which may occur infrequently. Thus, it is difficult to maintain proficiency on these tasks. In the event of war, special training on these tasks may be required prior to deploying so that unit performance will be enhanced. In order to identify these tasks, information must be provided on which tasks are performed in wartime only.
6. Which tasks should be considered for reduced training in time of war? In time of war, it is important to minimize the amount of time spent in training soldiers so they can be sent to combat as soon as possible. One way to reduce training time is to reduce the time spent training certain tasks. Tasks that are moderately difficult to learn and perform are ideal candidates for reduced training time. Often personnel can be given some introductory training on these tasks in school and that training is sufficient to support proficiency development on the job.
7. Which tasks should be considered for elimination from training altogether? As indicated under question one above, the only tasks

that should be considered for training are those that have an impact on accomplishment of an element or unit mission or on the survival of personnel and equipment. Thus, tasks that have no influence on element or unit missions or on survival of personnel and equipment should be considered for elimination from training. In addition, tasks that have been deemed moderately important to an element or unit mission but are very easy to learn and perform should be considered for elimination from training, especially proficiency maintenance training, because training time and resources would be wasted training tasks personnel can already perform well.

Based on the above questions, a nine factor rating scheme was devised for assessing criticality of HAWK collective tasks. The rating factors and the response options for each are presented in Table II-1. Following development of rating factors, materials were developed for the internal and external review boards to conduct the criticality assessment. The materials provided a brief discussion of the purpose of the criticality assessment, introduced the rating factors, and included forms which listed the collective tasks and provided space for ratings of each task on each factor. Instructions to board members and a sample rating form are presented in Appendix E.

T13. Assess Task Criticality

In this step, the internal and external review boards were provided with the criticality assessment materials developed in the previous step, ratings of collective task criticality were elicited, and the rating data were analyzed. Data from the two review boards were combined. This provided a total of seven complete sets of responses. It was judged that this constituted a sufficiently large sample to provide a good assessment of collective task criticality. The analysis of the task criticality data followed the same basic process used in the assessment of mission criticality. First, consensus ratings were developed for each task on each rating factor. Next, the consensus ratings of each task were compared against a set of criteria which allocated the tasks to different training categories of interest (e.g., include in ARTEP, train in residence, etc.).

Consensus ratings were determined with the same resolution tables used in the mission criticality asessement. Instances in which a consensus rating could not be obtained were resolved by members of the CFEA team. A fairly large number of ratings had to be resolved. In most of these cases the outcome of the resolution process did not affect the training category or categories to which a task was allocated. The issue to be resolved generally concerned whether a task should be rated as moderate or high on a criticality factor. For most of the criteria, a rating high or moderate on the factors used resulted in allocation of the task to the same training category. In addition to resolving ratings, it was necessary for the CFEA team to change a small number of consensus ratings also. In reviewing the ratings of some tasks, it was apparent that board members had become confused on the response used to indicate that a task was performed in wartime or peacetime only. Tasks that were obviously performed only in peacetime were evaluated as being performed in wartime only. These ratings were changed.

A variety of training categories were developed based on the kinds of information training developers needed. For each category, criteria were developed that specified the criticality dimensions and the ratings on those dimensions that defined the characteristics of tasks in that category. The training categories or sorts, as they are called, and their associated criteria are described below. The criticality dimensions used in the criteria are referenced to the factors listed in Table II-1.

1. Include in ARTEP. This sort identifies tasks which should be included in the HAWK ARTEP. Because the ARTEP is used to provide training in unit and unit element missions, tasks that are critical to accomplishment of the unit mission and unit element missions must be included in

Table II-1

Task Criticality Dimensions

A. Learning Difficulty - Is the task hard to learn?
   L = Easy to learn - can be self-trained
   M = Some difficulty in learning - requires some assistance to learn
   H = Hard to learn - requires supervision, extensive practice or special equipment or environment

B. Performance Difficulty - Is the task hard to perform?
   L = Easy to perform - can perform correctly on initial effort and each repetition - includes only simple skills
   M = Some difficulty in performing - requires practice and some supervision to perform - moderate level skills
   H = Hard to perform - additional practice and supervision required for performance - high probability of some performance failures - includes complex skills or skills integration

C. Time Delay Tolerance - What is the time allowed between receiving the task cue and starting the performance?
   L = No need to start task at any specific time
   M = Task start can be delayed for several minutes
   H = Must begin immediately or within a few minutes after cue

D. Consequence of Inadequate Performance - How serious is the effect of improper performance or non-performance on unit or individual missions?
   L = Has little or no effect on mission of individual or unit
   M = Could degrade or delay mission performance
   H = Could result in mission failure

E. Immediacy of performance - How soon after arrival in field unit could task performance be required in wartime?
   L = Not for several months
   M = Within the first several weeks (4-12 weeks)
   H = Within the first one to four weeks

F. Task Importance - Is the task important to the survival of personnel and equipment?
   L = Failure or non-performance would have little or no effect on survival of personnel or equipment
   M = Failure or non-performance could endanger personnel or equipment
   H = Task must be performed for survival of personnel or equipment

G. Frequency of Performance - How often is the task called for in peacetime operations and training?
   L = Infrequently - less than once per month
   M = Occasionally - one or two times per month
   H = Frequently - at least once per week

H. Wartime Task - Is the task oriented towards wartime operations?
   1 = Peacetime only - task is not performed during wartime
   2 = War & Peace - task can be performed both in peace and in war
   3 = Wartime only - task is never performed or practiced until wartime

I. Proficiency Decay Rate - How frequently must the task be performed to assure that skills are not reduced below standards?
   L = Task skills require little or no practice to retain proficiency
   M = Task requires infrequent practice - once every one to three months
   H = Frequent practice required - more often than once a month

the ARTEP. In addition, tasks which are hazardous to perform should be included because they can have an indirect effect on mission performance through loss of personnel and equipment. Include in ARTEP if: Consequence of inadequate performance is moderate or high, or task importance is moderate or high.
(D = M or H or F = M or H)

2. Train in Residence. This category consists of tasks that are critical to job performance at initial entry, and must be trained to field standards in resident training programs. Train in Residence if: both (A) Learning Difficulty is moderate and (E) Immediacy of Performance is not low, or (A) Learning Difficulty is high, and (D) Consequence of Inadequate Performance or (F) Task Importance is not low.
(A = M and E≠ L, or A = H, and D ≠ L or F ≠ L)

3. Consider for on the job training (OJT). Tasks in this category should be trained on the job after initial training is completed because they are not difficult to learn or perform, are not required immediately upon job entry, are not based on civilian acquired skills, and are not low in importance to mission success and individual survival. These tasks do require training but not necessarily in a school environment.
Consider for On The Job Training if: (B) Performance Difficulty is not low, and (A) Learning Difficulty and (D) Consequence of Inadequate Performance or (F) Task Importance are not low. (B ≠ L, and A = M, and D ≠ L or F ≠ L)

4. Consider for Elimination From Training. This category consists of tasks which do not merit expenditure of training resources because they are:

   a. Not important for mission accomplishment or individual survival.

   b. Moderately important, but easy to learn and perform.

   Consider for Elimination from Training if:

   a. (D) Consequence of Inadequate Performance is low, and (F) Task Importance is low. (D = L and F = L)

   b. (A) Learning Difficulty is low, and (B) Performance Difficulty is low, and either (D) Consequence of Inadequate Performance or (F) Task Importance are moderate. (A = L, and B = L, and D = M or F = M)

5. Certify Proficiency. Tasks in this category must be performed immediately upon receiving their initiating cues, and are critical either to mission accomplishment or individual survival. These tasks require performance testing of proficiency to field standards for all conditional sets for each task. The location of certification is determined by the training location identified in previous sorts. Certify in the field for tasks identified for OJT. Certify in residence for tasks identified for resident training. Tasks identified for maintenance training should be periodically recertified in the field. Train to Certification if: (C) Time Delay Tolerance is high, and eithe (D) Consequence of Inadequate Performance or (F) Task Importance is high. (C = H, and D = H or F = H.)

6. Provide Maintenance Training. This category consists of tasks that are not easy to perform, can affect mission performance or individual survival, and have a skill decay rate that exceeds the normal performance frequency. These conditions indicate a need to provide for skill maintenance in the field. Provide Maintenance Training if: (B) Performance Difficulty is not low, and (D) Consequences of Inadequate Performance or

(F) Task Importance are not low, or (I) Proficiency Decay Rate is greater than (G) Frequency of Performance. (B ≠ L, and D ≠ L or F ≠ L, or G = L and I ≠ L or G = M and I = H)

7. Wartime Refresher Training. This category consists of critical tasks that cannot receive skill maintenance training under peacetime training conditions, and must be retrained during transition to wartime. Provide Wartime Refresher Training if: (A) Learning Difficulty and (B) Performance Difficulty are not low, and (H) Wartime Task is Wartime Only, and either (D) Consequence of Inadequate Performance or (F) Task Importance are not low.
(A ≠ L, and B ≠ L, and H = 3, and D ≠ L or F ≠ L)
8. Consider for Reduced Training Time. Tasks in this category should be included in the training program but may merit less training resource expenditure than more critical, or higher risk tasks. This consideration is required when training requirements exceed the available training resources. Consider for Reduced Training Time if: (B) Performance Difficulty is not high, and (A) Learning Difficulty is moderate, and (D) Consequence of Inadequate Performance or (F) Task Importance are not low. (B ≠ H, and A = M, and D ≠ L or F ≠ L)

Results of the collective task criticality assessment are presented in Appendix E. Virtually all of the tasks were identified for inclusion in the ARTEP. Most of those not recommended for the ARTEP were tasks performed in peacetime only or tasks related to developing and implementing unit training. A large majority of tasks were recommended for resident training and performance certification. None of the tasks were recommended for OJT. Only a handful of tasks were recommended for elimination from training. Tasks recommended for elimination from training were tasks that had some importance for accomplishment of unit or element missions and survival of personnel and equipment but were very easy to learn and perform. These results suggest that the ratings

on factors such as consequences of inadequate performance, task importance, learning and performance difficulty, and immediacy of performance might have been a bit inflated. It was expected that more tasks would have been recommended for OJT and fewer would have been recommended for resident training and performance certification. Also, it was surprising that so many of the tasks were recommended for inclusion in the ARTEP and so few were recommended for elimination from training. With regard to the other training categories of 'provide wartime refresher training', 'provide proficiency maintenance training', and 'consider for reduced training' the tasks that were sorted into those categories seemed to meet the criteria of the categories, however, the numbers of tasks in each seemed somewhat small.

T14. Analyze Tasks and T15. Develop Conditions and Standards

In the HAWK CFEA, the steps for analyzing tasks and developing conditions and standards were performed in parallel. Basically, analysis of tasks consisted of describing the activities that occurred in task performance and specifying the different responsibilities of personnel involved in the task. Conditions and standards were developed that described the environment in which the task is performed and the characteristics of successful performance. It was found that it was a simple matter to develop conditions and standards as tasks were analyzed so the two steps were performed together.

Prioritization of Tasks. The first step to analyzing tasks was to prioritize tasks for analysis. It was recognized that there was a large number of collective tasks to be analyzed. The resources programmed for the task analysis would not permit analysis of all tasks. Thus, it was necessary to select a subset of tasks to be analyzed. Selection of tasks was performed by the CFEA team. Given the primary objective of the analysis was to develop a new HAWK ARTEP, the team felt that top priority should be given to analyzing tasks recommended for inclusion in the ARTEP and directly involved in employment of the HAWK system.

Rather than prioritizing tasks by themselves, it was decided that they would be prioritized in terms of missions. Missions were ordered in terms

of direct relevance to HAWK operations. In analyzing tasks, all tasks under the highest priority mission would be analyzed first, then all tasks under the next priority mission would be analyzed, and so forth. This decision was based on recognition that the ARTEP is used to train missions and that the results of the CFEA would be most useful if all of the tasks under a mission were analyzed.

Missions were prioritized by first developing blocks that consisted of missions performed by an element or missions of similar types performed by different elements. All missions in a block were considered to have roughly equal relevance to HAWK employment. Next, the blocks were ordered in terms of relevance to employment of the HAWK system. The composition and ordering of blocks is presented in Table II-2. As indicated in Table II-2 highest priority was given to analysis of tasks involved in operation and deployment of HAWK fire platoons. Next in order of priority were tasks involved in conducting the air battle, controlling the fires of the fire platoon, and directly supporting the operation of the fire platoons. Lowest priority was given to tasks involved in general support of the battalion.

Analysis of Tasks. Once tasks had been prioritized the analysis began. The goal of the task analysis was to analyze the tasks supporting the missions in the first seven blocks. These blocks contained the missions most directly associated with employment of the HAWK system. If the tasks that support these missions could be analyzed, the heart of the ARTEP would be provided. All tasks in blocks one through seven were analyzed. The total number of tasks analyzed was 174.

In the course of the analysis some changes were made in the task list. A few tasks were dropped, some new tasks were added, and the names of some tasks were changed. The revised task list with annotated deletions, additions, and changes is presented in Appendix F. Tasks were deleted for several reasons. It was found that some tasks simply were not performed. In the original task list there was a task for a crew drill on the AN/TSQ-73. It was discovered that no such crew drill exists, however. Some tasks were dropped when they were subsumed under other tasks. A task for setting up radio antennae was

Table II-2

Prioritization of Missions for the Task Analysis

Block 1

FB04A02 - Engage and destroy low to medium altitude hostile aircraft and missiles
FB04A06 - Deploy firing platoon for air defense operations
FB04A04 - Provide tactical communications (primary/secondary)
FB04A01 - C2 AFP when deployed together
FB04A03 - Provide MANPADS defense teams
FB04A05 - Assist in airspace management
FB04X01 - Perform decanning and service operations

Block 2

FB11A02 - Engage and destroy low to medium altitude hostile aircraft and missiles
FB11A01 - Operate as a separate fire unit (AFP)
FB11A04 - Provide tactical communications
FB11A03 - Provide MANPADS team
FB11X01 - Perform decanning operations
FB11A05 - Assist in airspace management

Block 3

HB12A03 - Reviews, evaluates, and disseminates AD command and control information and conduct air battles as a crew
HB12A02 - Operate manual FDC
HB12A08 - Emplace and prepare AN/TSQ-73 system for operation
HB12A04 - Provide MANPADS teams and early warning to MANPADS teams
HB12A06 - Assist in airspace management
HB12A05 - Conduct training and evaluations

Block 4

FB01A06 - Operate CP
FB01A07 - Coordinate NBC operations
FB01X01 - Organize specialty teams
FB02A01 - Provide wire communications
FB01A04 - Provides supply, ammo, billeting and mess support for Btry personnel
FB14A01 - Control access
FB01A08 - Prepare plans, orders and tactical SOPs

Block 5

HB05A03 - Establish and maintain all necessary radio COMMO with higher/ subordinate, adjacent and other HQ
HB05A01 - Establishes and maintains all radio COMMO within the BN to BTRYs and adjacent units
HB05A07 - Provides and maintains secure system (AN/TSQ-73, RRT)
HB05A05 - Develop and implement BN communications plan (PH/CE)

Block 6

HB04A10 - Sets-up and operates BN HQ CP, TOC
HB04A03 - Gather, evaluate and disseminate intelligence data
HB04A07 - Initiate and maintain OPSEC requirements
HB04A06 - Process POWs
HB04A01 - Prepare plans, orders and SOPs

Table II-2 (Cont'd)

Block 7

FB03A04 - Provide system organizational maintenance on HAWK system
FB02A04 - Provide organizational maintenance on BTRY COMMO EQUIP
FB08A08 - Perform periodic/special checks and services
FB03A02 - Maintain missile system support PLL
FB03A05 - Coordinate support with Maintenance BTRY
FB03X02 - Assist in operator functions (TCO, TCA, FCO)
FB03A03 - Prepare and implement SOP
FB03A01 - Provide technical assistance and operator training

Block 8

HB13X01 - Provide technical assistance to maintenance/BTRY personnel
HB13B01 - Conduct operator training
HB13A01 - Conduct/assist in evaluations and inspections to insure operational readiness of fire units and BOC
HB08A09 - Maintain assigned vehicles and trailers

Block 9

FB14A02 - Assist in RSOP security/traffic control
FB14X01 - Maintain internment facility for POWs
HB14A02 - Assist in RSOP security/traffic control
HB14A01 - Control access
HB14X01 - Maintain internment facility for POWs

Block 10

HB10A01 - Provide emergency/routine medical service for BN personnel and POWs
HB10A02 - Operate BN aid station

Block 11

HB02A06 - Operate BTRY CP
HB02X03 - Coordinate NBC operations
HB02A08 - Organize specialty teams
HB02A04 - Provides supply, ammo, billeting and mess support for BTRY and BN HQ personnel
HB02A07 - Prepare plans and SOPs (tactical)

Block 12

HB09A03 - Evaluate and advise commander on logistics matters

Block 13 - Common Implied Missions

Sustain operations
Assist in perimeter security
Assist in specialty teams (RSOP)
Assist in specialty teams (firefighting)
Assist in specialty teams (evacuation of casualties)
Assist in specialty teams (smoke/deception)
Assist in specialty teams (convoys)
Assist in specialty teams (reaction force)
Provide small arms air defense
Prepare/implement denial plan
Conduct section training

dropped when it was decided that it was actually a component of a larger task involving communications set up. Tasks were added when it was realized there had been an oversight during initial development of the task list. Finally, titles of a few tasks were changed in order to provide a more precise statement of what occurs in the tasks.

In analyzing tasks, two levels of analysis were employed. One was a summary analysis which provided an overview of task performance. The second was an indepth analysis that provided a detailed description of the elements of performance and the responsibilities of the personnel who perform the task. A summary analysis was performed for every task analyzed. This provided the basic information on a task that would be useful in ARTEP development. An indepth analysis was performed on selected tasks which were thought to be good candidates for drills. The number of tasks for which indepth analyses were performed was minimized because this type of analysis was very time consuming, and top priority was given to conducting the summary analyses that would be used to develop the ARTEP.

The approach to both types of analyses was the same. The task development worksheets (Figure II-7) prepared in step T8 provided a point of departure for the task analysis. For tasks with which the analysts were not familiar, the personnel indicated as performing the task suggested the types of documentation that should be consulted to determine performance elements. Team members studied documentation (e.g., Soldier's Manuals, Technical Manuals, etc.) that contained information on the task, consulted with team members or outside SMEs with experience in performing the task, and then developed a description of activities performed in the task. Next, personnel identified as performing the task were allocated to the different task activities. Finally, any equipment or material involved in task performance was specified also.

The primary difference between the summary and detailed analyses was the level of detail with which activities were described, and the format in which the results of the analysis were presented. Summary analyses were recorded on collective task analysis worksheets. An example collective task

analysis worksheet is presented in Figure II-8. Additional worksheets are presented in Appendix B. The worksheets provide a synopsis of results of the task analysis. For a given task, conditions, and standards of performance are specified, personnel who perform the task are delineated, equipment used in task performance is specified, and a description of the task is provided. The description of the task focuses on the major elements of performance, and provides a general discussion of the task rather than specifying what each person performing the task does. Finally, individual tasks encompassed in the collective task are specified, and references used in analyzing the task are listed.

Examples of results of in-depth analyses are presented in Figures II-9 and II-10. Results of in-depth analyses were presented in one of two forms. Some of the tasks were described using OSDs. An example of an OSD is presented in Figure II-9. In the OSDs presented in Appendix H, triangles represent the cues that initiate task performance. Circles stand for observable responses by a crew member, while ovals stand for cognitive or decision making responses. Equipment cues are indicated by diamonds and voice communication responses are represented by parallelograms. Thus, OSDs not only describe the events that occur in task performance, but classify them as well.

The second format was dubbed the crew drill format. An example of the crew drill format is presented in Figure II-10. Under the crew drill format, a sheet of paper is divided into a series of panels; one for each crew member. Descriptions of what crew members do in task performance were entered into their respective panels. The crew drill format is not as informative as OSDs; however, it is much easier to construct.

The two different formats were used to present results of the in-depth analyses in order to determine the type of presentation that trainers and training developers in USAADASCH, DTD perferred. The crew drill format was a presentation with which they were familiar. The OSD format was new and there was concern that while it provided more information than the crew drill format it was more complex and difficult to read. Nevertheless, most of those who reviewed the two types of presentations preferred the OSD format. It was judged that the flow of performance was easier to follow in an OSD. In

BASE PLATOON TASKS

(CORRECTED COPY - 3/25/83)

MISSION: ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT AND MISSILES

THE FOLLOWING COLLECTIVE TASKS SUPPORT THIS MISSION:

1. TASK NUMBER: FB04A02.01

2. TASK TITLE: PERFORM BATTLE STATIONS DRILL

3. CONDITIONS:
   Operational Hawk System
   Required communications operational
   All MOPP and weather conditions
   All ECM environments
   Properly Trained Crew
   Unit directed to assume Battle Stations Readiness Posture

4. STANDARDS:
   Hawk Missile System prepared for engagement of hostile aircraft within time limit established by current state of alert, without posing safety hazard to personnel or equipment

5. PERSONNEL PERFORMING TASK:

TCO	24E
TCA	24G
CWTDC (ASIO)	24C
ICCO	
LCHR CREWMAN 1 and 2	
FCO's	
RCO	
LCHR Crew Chief	
LSCBO	

6. EQUIPMENT USED IN TASK PERFORMANCE:
   Hawk Missile System Equipment

7. TASK PROCESS/PRODUCT DESCRIPTION:
   Battery notified to assume BATTLE STATIONS, system communications are established, selected local checks and adjustments are perform-

Figure II-8. Sample Collective Task Analysis Worksheet

ed. selected integrated system checks are performed, launcher section checks are performed, umbilicals are connected, all missiles are armed, and FDC is notified that BATTLE STATIONS have been assumed

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Establishment of system communications
Local system checks (Fire Control)
Local system checks (LCHR)
Designated Integrated System Checks
Report assumption of BATTLE STATIONS

b. INDIVIDUAL TASKS:
TCO: Local checks BCC/ Supervise overall operations, Monitor Hot Loop
TCA: Local checks PAR,ROR/ IFF Challange/Monitor IRR
ASIO: Local checks CWAR, CWTDC
FCO A/B: Local checks HIPIR, FC A/B
ICCO: Local checks ADP, IFF
RCO: Local checks Commo Net
LCHR CREW CHIEF: Overall supervision of crew drill
LSCBO: Monitor's LCHR area safety/ reports status to LCHR crew
LCHR Crewman 1 & 2: Local Checks Launcher

c. ANALYSIS TECHNIQUES:
Standardized Ready for Action Crew Drill
TC 44-90-1
FM 44-90-1

Figure II-8. (Cont'd)

FB01A06.07

Establish SHORAD Defense

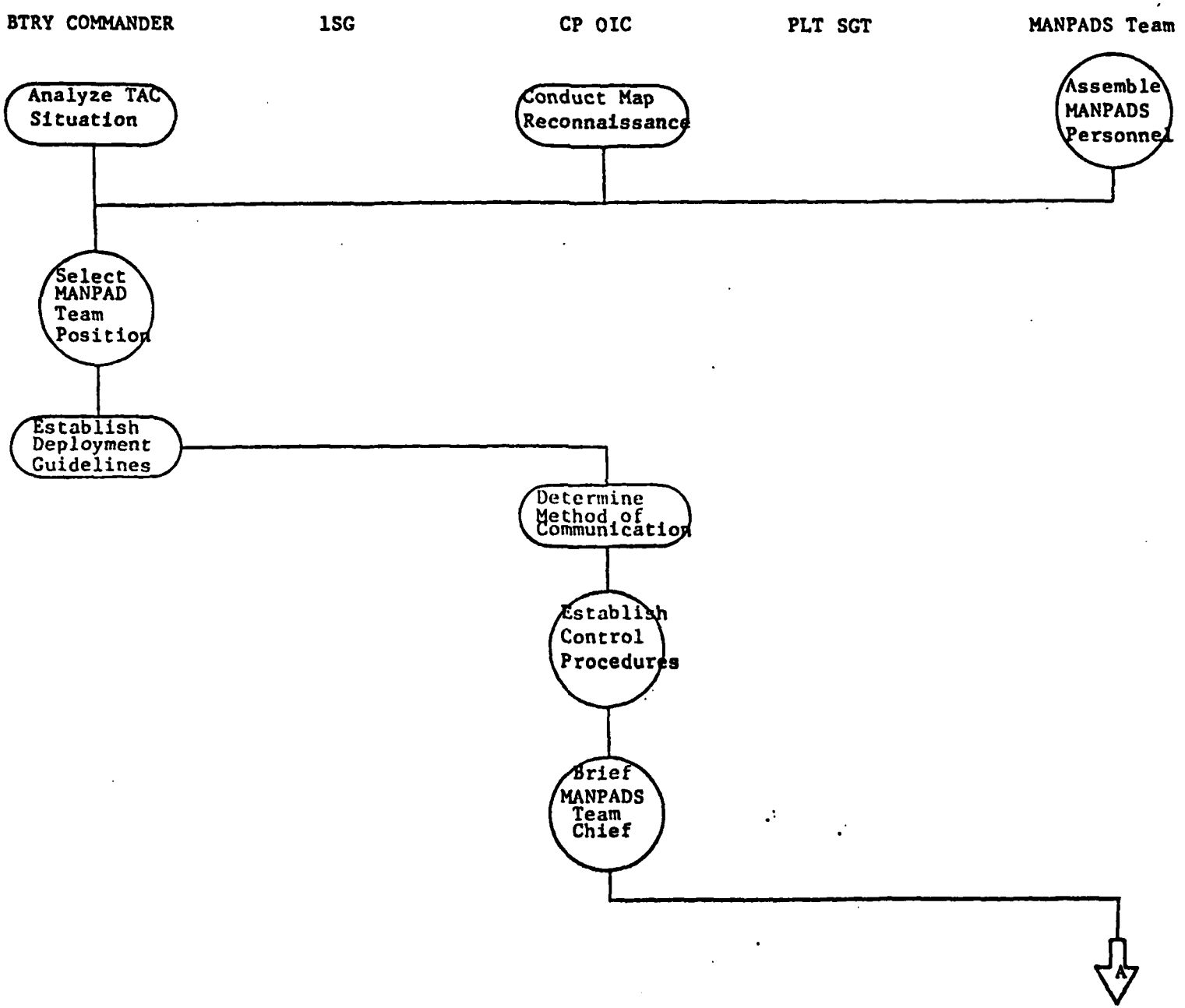


Figure II-9. Sample OSD

Figure II-9. (Cont'd)

FB04A10.09

Reconstitution

Commander	S1	S2	S3	S4	CE Officer
1. Evaluate Bn assets	1. Evaluate the personnel strength of battalion	1. Intelligence data evaluated: Program expected enemy activity	1. Evaluate Hawk weapon system damage units operational status determined	1. Determine status and availability of pertinent assets	1. Equip status determined
			2. Assemble intelligence data, battle loss of Hawk equip, personnel strength reports, supply status		
			3. Recommends course of action for reconstitution		
4. Evaluates reconstitution plans					
5. Review/ review plan					
6. Implements plan			6. Supervises movement of personnel and/or equip.		

Figure II-10. Sample Crew Drill Format

addition, it was judged that the classification of task activities provided in an OSD aided design of training and evaluations. In developing a performance evaluation, it is helpful to know which aspects of performance can be observed and which cannot. Typically, observable components of performance are assessed through observation of task performance. Aspects of performance which cannot be observed directly must be assessed through other means, such as paper and pencil tests. The OSD makes it easy to identify these different components of a task and, hence, aids development of the different types of assessments needed to evaluate all aspects of performance.

As described above, only a small number of detailed analyses were performed. Tasks to be subjected to detailed analysis were determined jointly by the CFEA team. A list of tasks giving detailed analysis is provided in Table II-3. In selecting tasks, the primary concern was to identify tasks that would be good candidates for crew drills. It was felt that tasks involved in movement of fire platoons were of greatest interest. In addition, other tasks performed in the Tactical Operations Center (TOC) were targeted for analysis also, because of their importance in directing the operations of the battalion. Though they were of interest, tasks involved in operation of an AN/TSQ-73 were not given detailed analysis because another group in DTD was analyzing these tasks.

Of all the tasks subjected to detailed analysis, the target engagement tasks were judged to be most important. Prior to the HAWK CFEA, a crew drill for target engagement had been developed. The crew drill was good, but it did not address special kinds of engagements, such as helicopters and maneuvering targets. In analyzing target engagement tasks, the objective was to provide annexes to the crew drill that described the procedures performed by different crew members in special engagement situations. The performance steps presented in the annexes were keyed to steps listed in the crew drill. Thus, the annexes provided an insert to the crew drill. This is why the detailed analyses of target engagement tasks presented in Appendix H appear to be incomplete descriptions of task performance.

Table II-3

Tasks for Which Indepth Analyses Were Performed

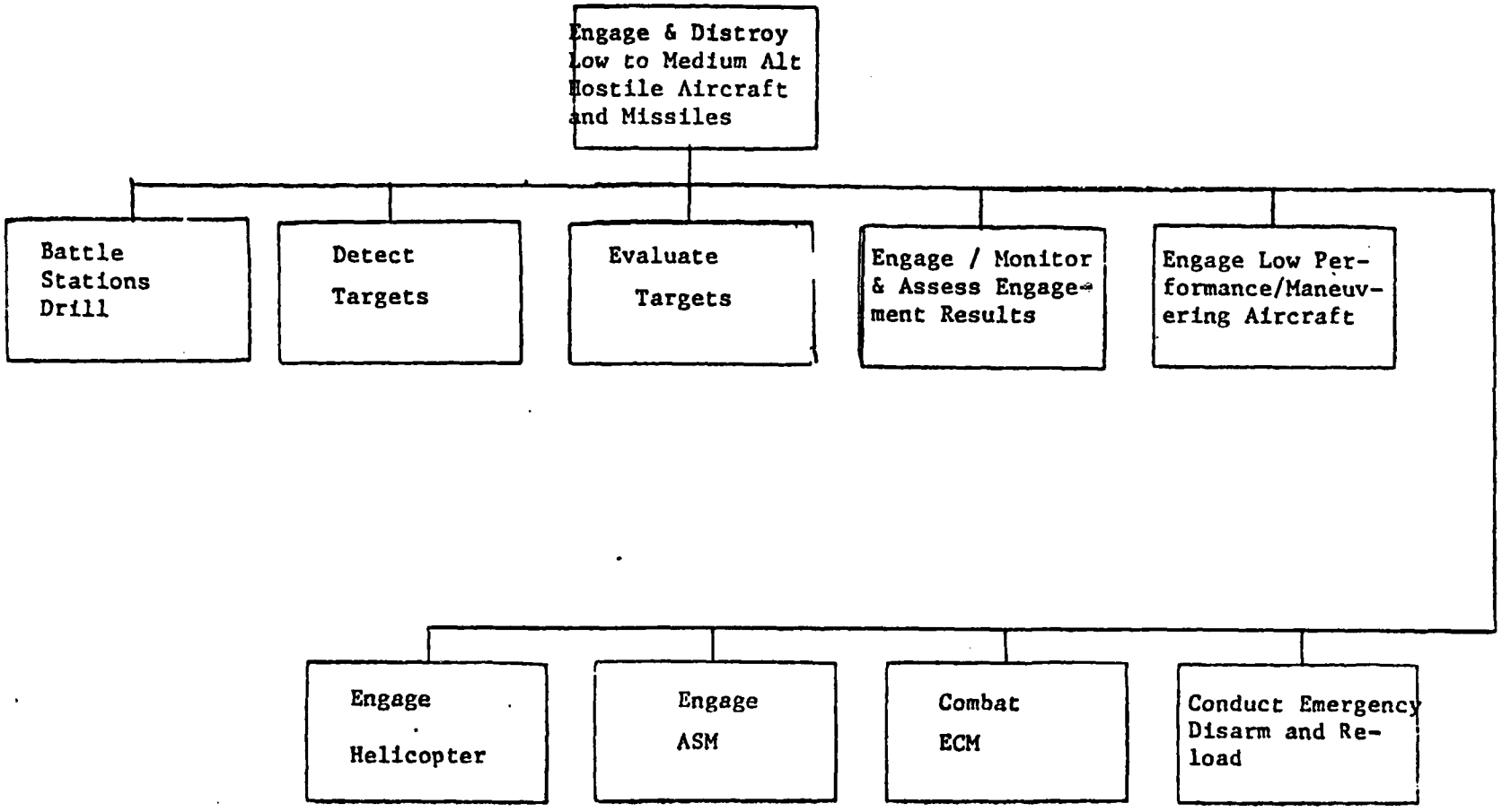
HB04A01.01	Prepare AD/OPS plan
HB04A01.03	Prepare deployment plan
HB04A10.01	Set up TOC
HB04A10.04	Process and react to message inputs
HB04A10.05	Plan and coordinate Btry movement
HB04A10.06	Plan defense
HB04A10.07	Prepare and disseminate order/messages
HB04A10.08	Reconstitution
FB01A06.01	Set up CP
FB01A06.02	Conduct movement to tactical location
FB01A06.05	Plan and conduct RSOP
FB01A08.02	Prepare/organize and implement deployment plan
FB04A02.07	Engage helicopter
FB04A02.08	Engage maneuvering target
FB04A02.09	Engage air to surface missile
*	TAS operations
FB04A06.09	Deploy by cargo helicopter
A.	Pick up zone
B.	Landing zone
FB01A06.07	Establish Shorad defense
FB04A01.03	Provide early warning and plot-tell to AFP
FB11A03.01	Provide early warning to MANPADS team
FB01A06.04	Implement unit defense

Development of Conditions and Standards. Once a task had been analyzed, conditions and standards were developed. Basically, the conditions statement describes the situation in which task performance occurs. Conditions statements were developed that contained three basic elements:

1. Any preconditions for task performance (e.g., checks that must be performed prior to task performance, tools or equipment that must be available).
2. The type of environment in which the task is performed (e.g., weather conditions, NBC, etc.).
3. The cue that initiates task performance.

In developing standards, the objective was to develop quantitative product standards whenever possible. Product standards describe the characteristics of the output of successful task performance. Quantitative standards specify time or other measurable qualities that characterize successful performance of a task. A quantitative product standard for a target engagement by a tank crew might be that the target is engaged and destroyed within 30 seconds after acquisition. Unfortunately, it was not possible to develop quantitative product standards for many of the tasks analyzed in the HAWK CFEA. Attaching quantitative standards was particularly difficult for many tasks because so many variables could affect factors, such as task performance time and probability of kill. As a result, process standards were developed for many tasks. These standards described how elements of a task were performed.

Development of Mission/Task Diagrams. The last activity performed in the task analysis involved development of mission/task diagrams. An example mission/task diagram is presented as Figure II-11. A mission/task diagram depicts the relationship between a given mission, the collective tasks that support that mission, and the individual tasks that support the collective tasks. They are developed by combining results of the mission and task analysis. Mission/task diagrams are of value because they provide a useful aid for developing mission oriented training at both the collective and individual task level. For a given mission, a training developer can quickly and easily determine the tasks that must be trained. A training program can then be designed that first trains team members to proficiency on individual tasks, and then develops proficiency on collective tasks.


Engage & Distroy Low to Medium Alt Hostile Aircraft and Missiles
Battle Stations Drill
Detect Targets
Evaluate Targets
Engage / Monitor & Assess Engagement Results
Engage Low Performance/Maneuvering Aircraft
Engage Helicopter
Engage ASM
Combat ECM
Conduct Emergency Disarm and Reload

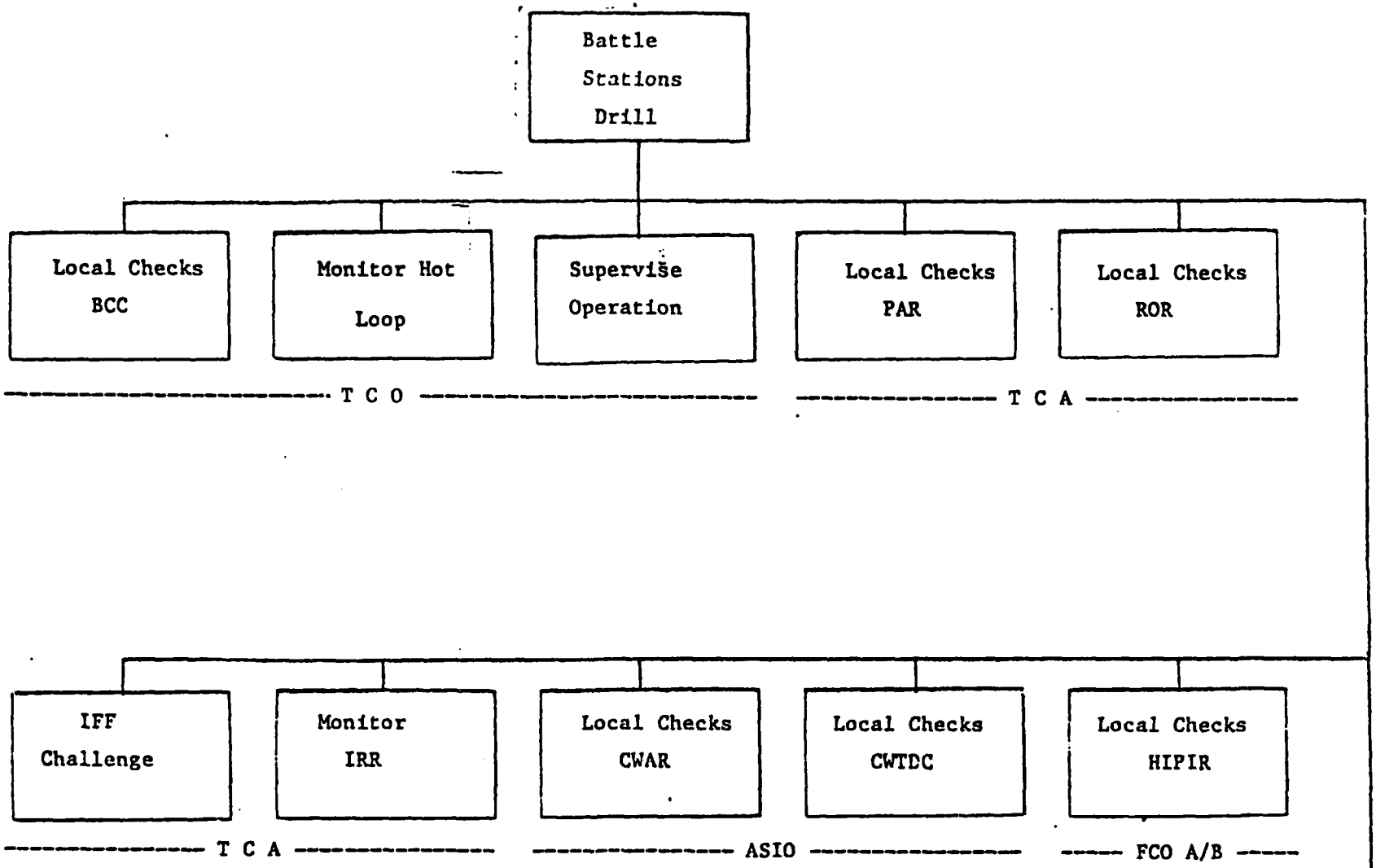


Figure II-11 (Cont'd)

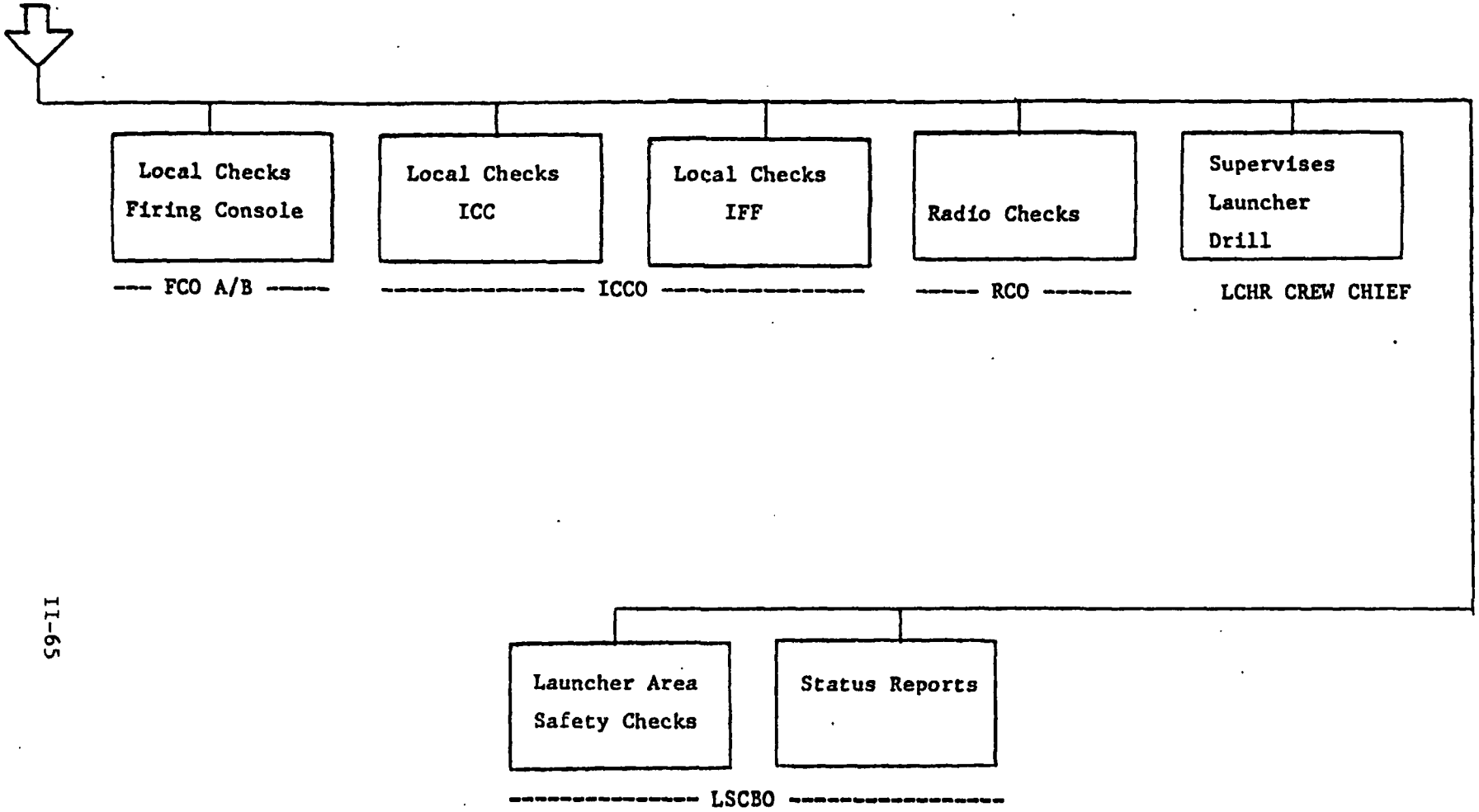


Figure II-11 (Cont'd)

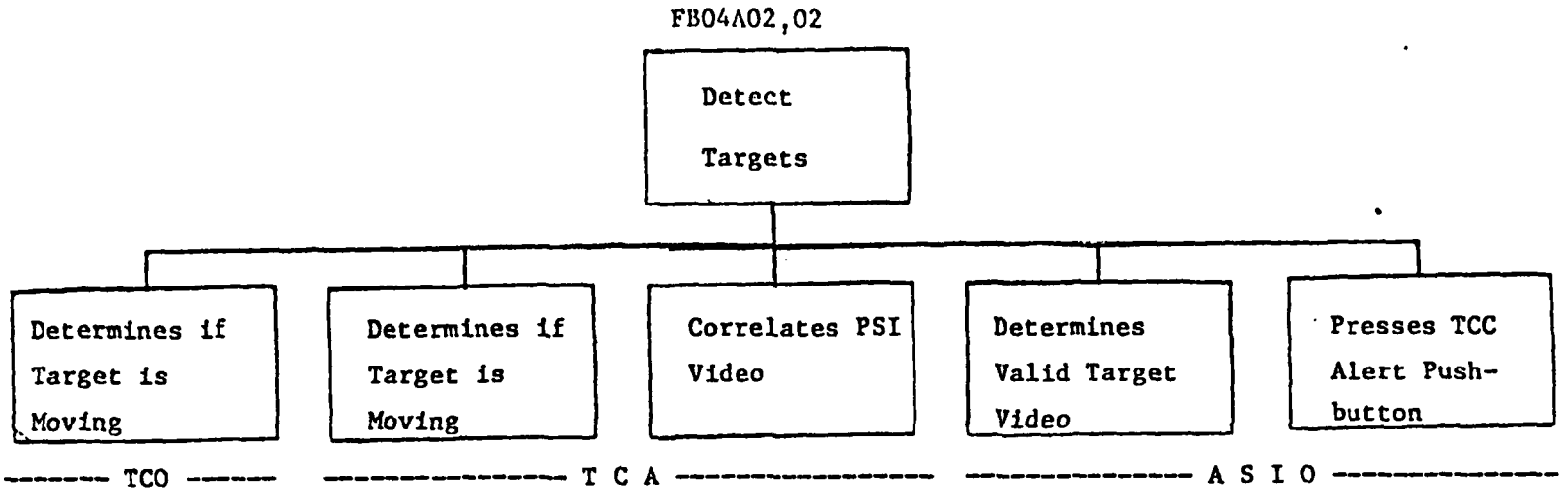


Figure II-11 (Cont'd)

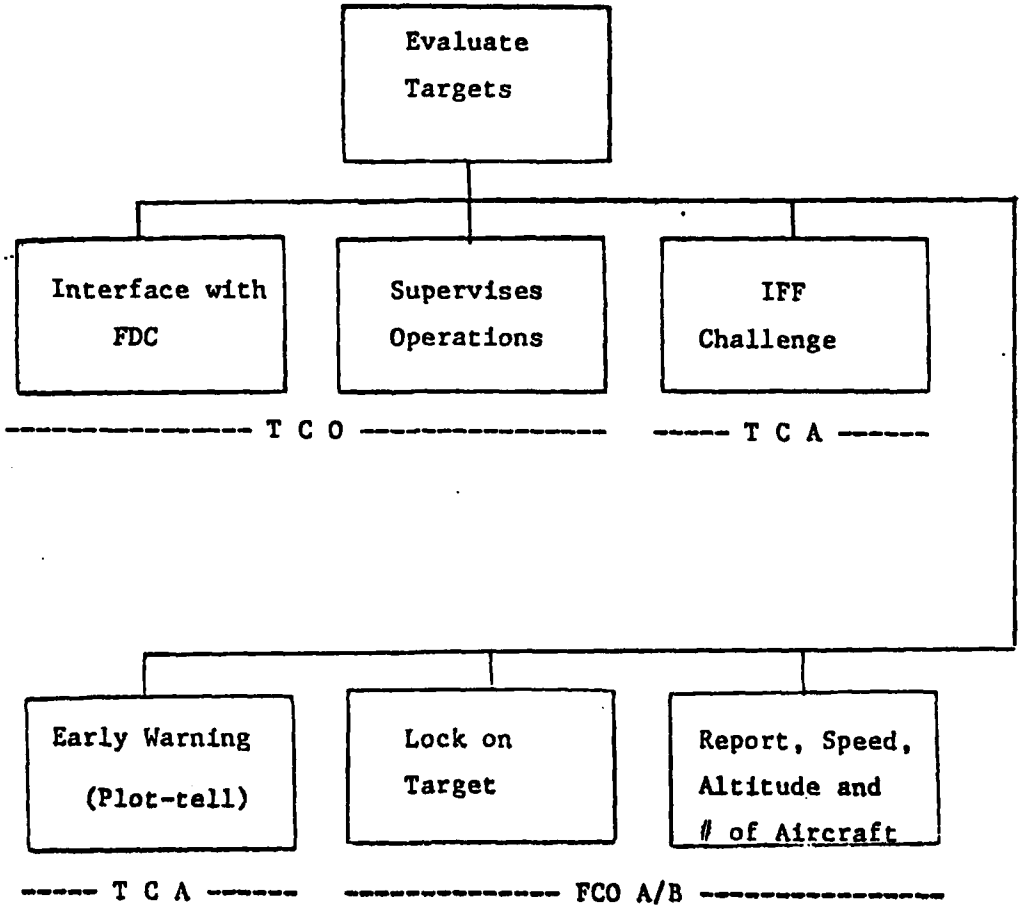


Figure II-11 (Cont'd)

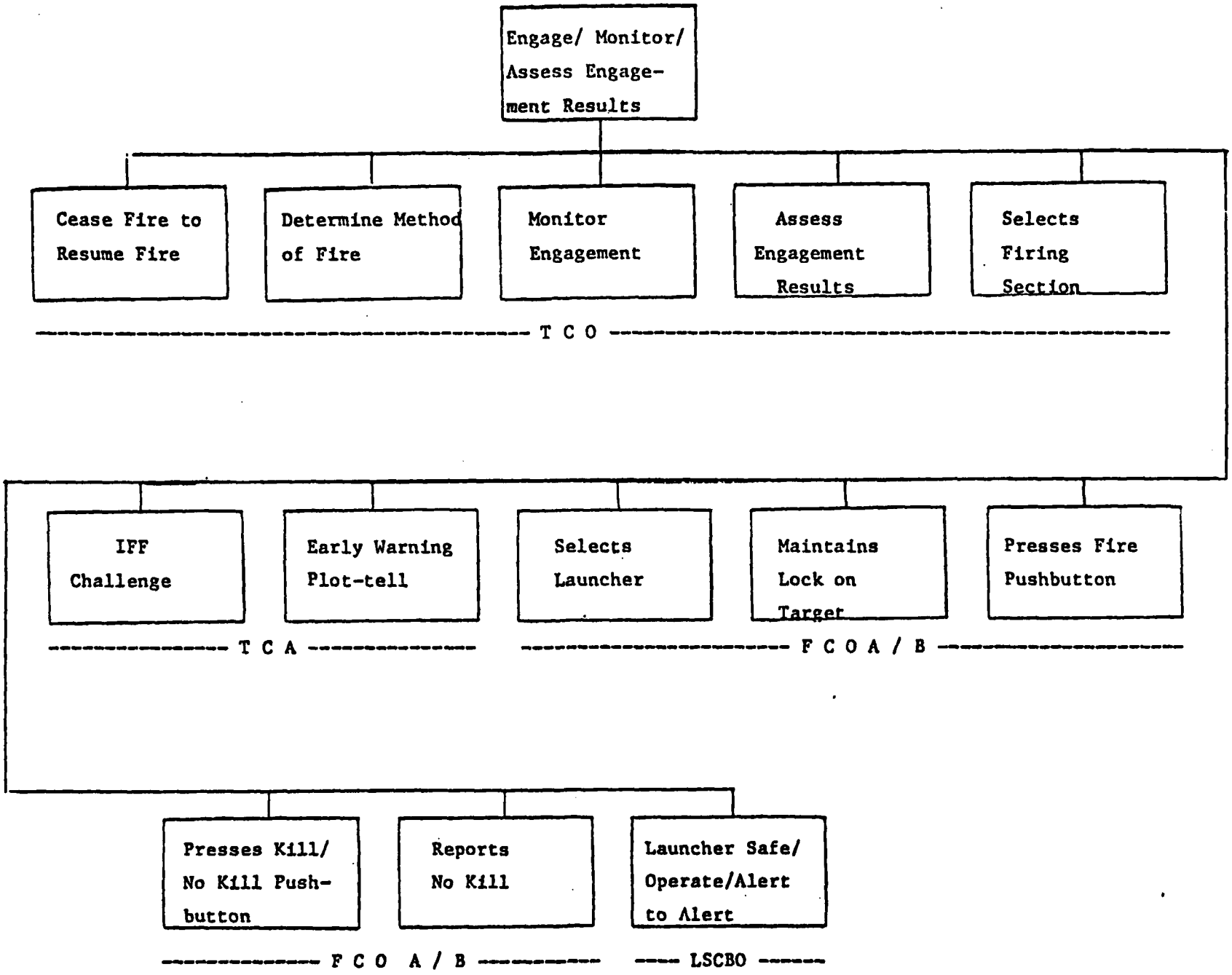
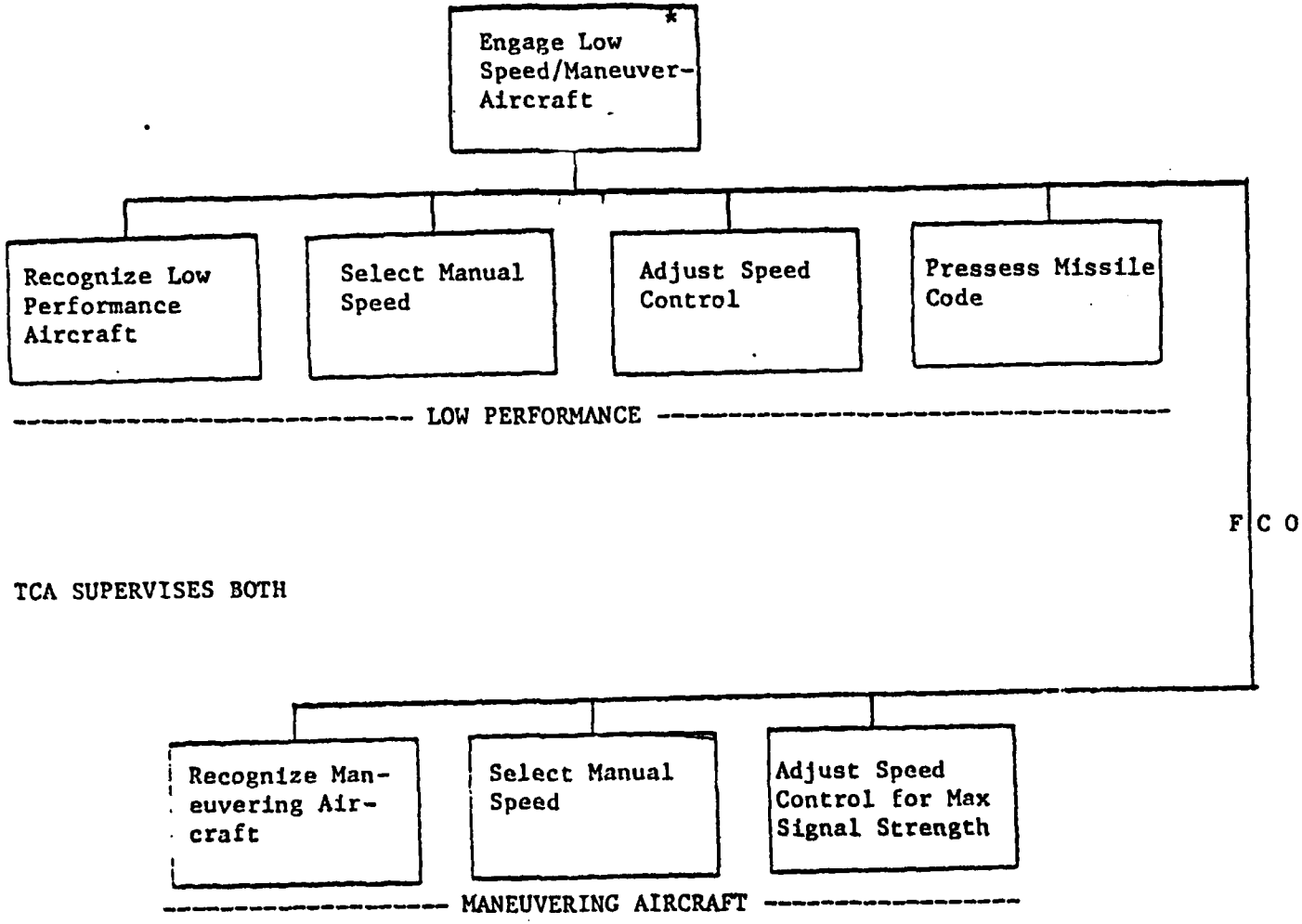


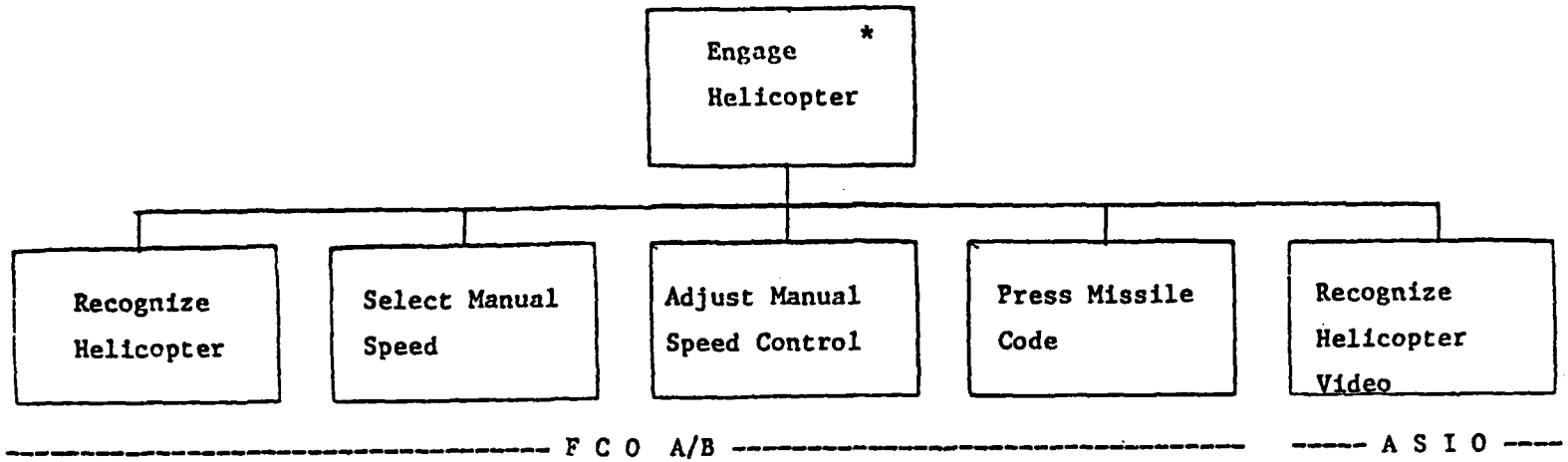
Figure II-11 (Cont'd)



* NOT IN SOLDIERS MANUAL

Figure II-11 (Cont'd)

FB04A02,07



* NOT IN SOLDIERS MANUAL

Figure II-11 (Cont'd)

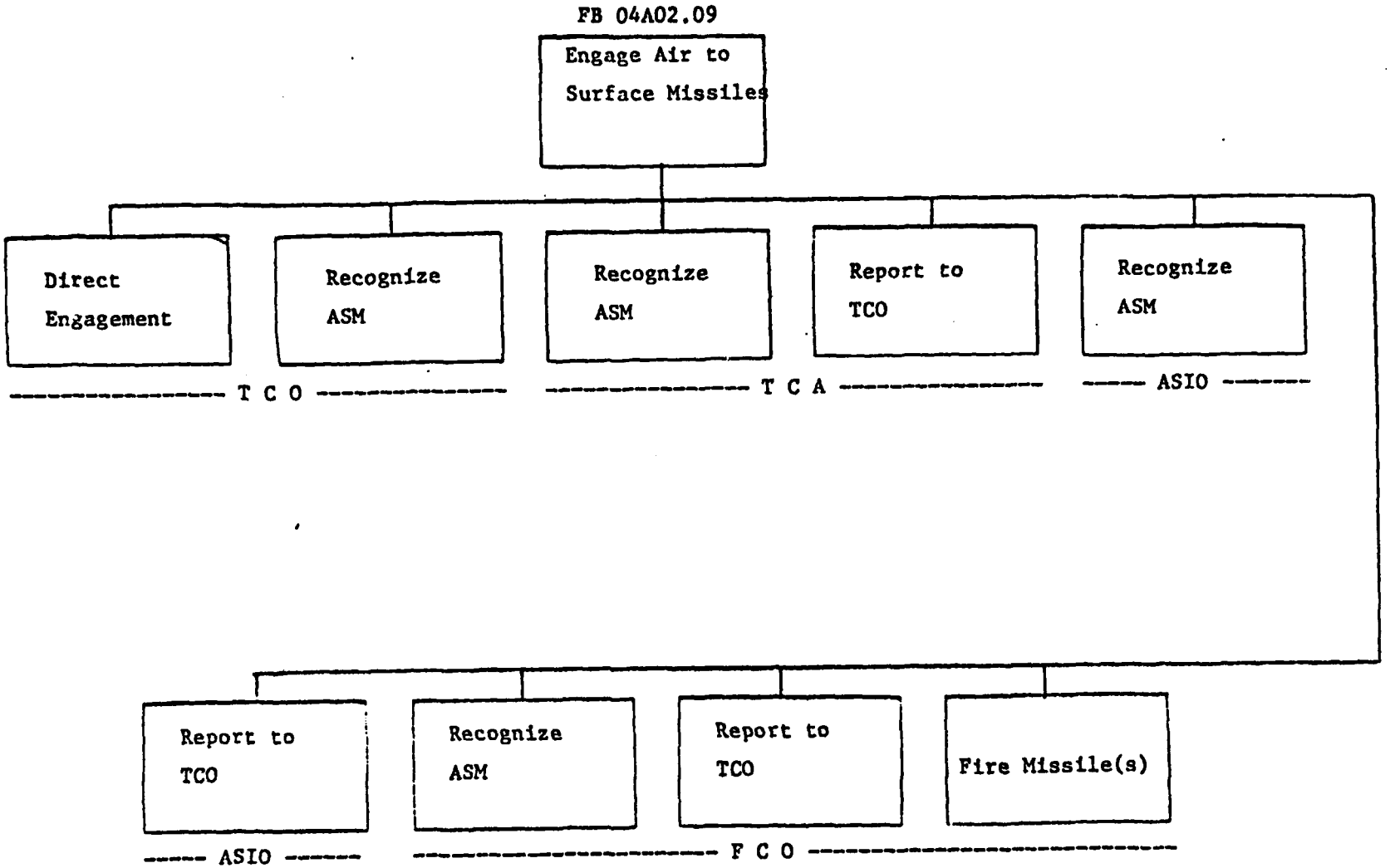


Figure II-11 (Cont'd)

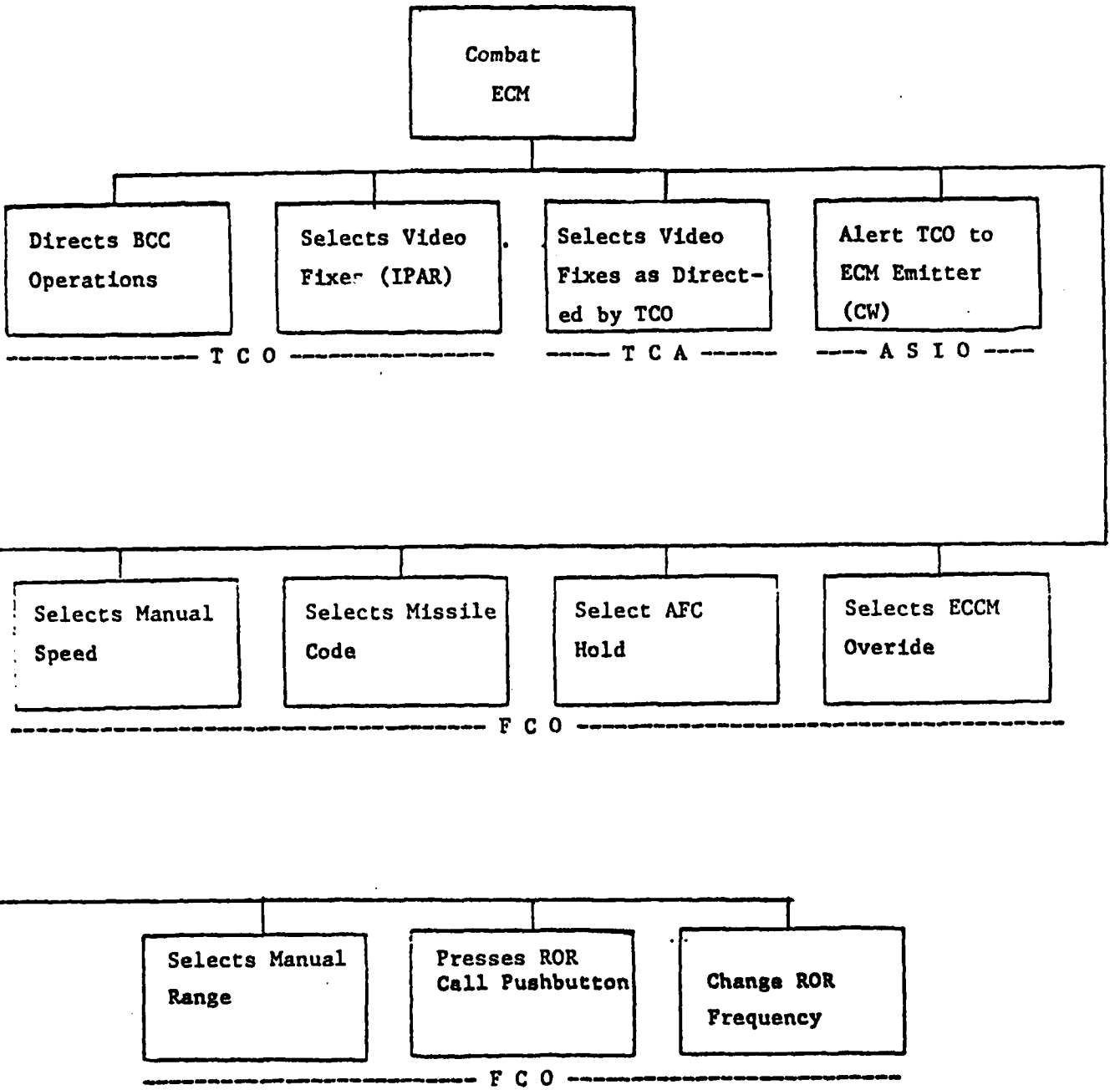


Figure II-11 (Cont'd)

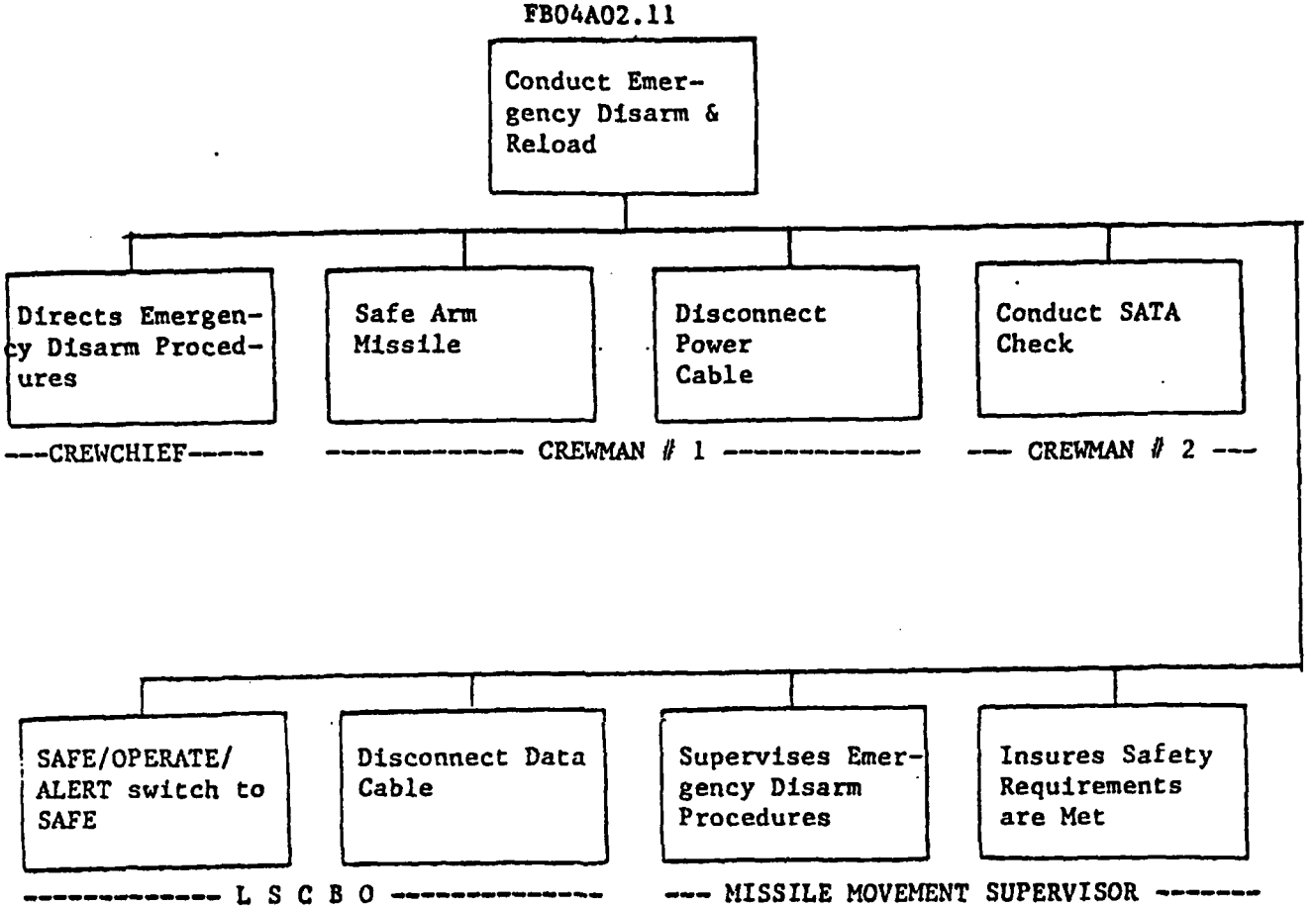


Figure II-11 (Cont'd)

T16. Verify/Validate Task Analysis

The objective of this step was to have a group of HAWK SMEs, who had had no association with the HAWK CFEA, review the results of the task analysis. In conducting the review they were asked to verify whether:

1. The listing of tasks for the different missions was complete.
2. Performance elements for each task were complete.
3. All personnel performing a task had been listed.
4. All relevant conditions were listed.

In addition, the SMEs also determined whether the standards provided for each task were valid. The concern here was with face validity. The SMEs were asked to judge whether a standard provided a good description of successful task performance or the products of successful task performance, and whether they could be used by evaluators.

The verification/validation was conducted using personnel from 3/68 ADA at Ft. Bragg, North Carolina. So called, "table top" validation procedures were employed. In table-top validation SMEs simply read results of the analysis and comment on their accuracy and completeness. Groups of experienced, senior (E-5 and above) personnel were drawn from each of the sections (e.g., Base Platoon, Assault Fire Platoon, TOC, etc.) of 3/68 for which tasks have been analyzed. Each group was provided with results of the task analysis for tasks performed in their section. This gave them an opportunity to review and become familiar with the materials to be evaluated.

About a month after the task analysis results were distributed, the CFEA team returned to interview the SMEs. In the interviews a set of three questions was asked about each task. The critical questions to be answered were:

1. Is the task performed?
2. If it is not performed should it be?
3. Given the task is or should be performed, is our description of the task accurate and complete? How should it be changed?

A questionnaire was developed to elicit the information described above. A copy of the questionnaire is provided as Figure II-12. Interviews were

VERIFICATION/VALIDATION QUESTIONNAIRE FOR PANEL LEADERS

The following questions are used to determine wether a task is, or should be performed. As you respond, consider both WARTIME and PEACETIME environments. Circle "Y" for YES. or "N" for NO.

1. Considering this unit and ALL other units with which you have been associated, is this task performed by this section of a HAWK unit? Y / N

2. If this task is not performed in this section, is it performed in any other section of this unit? Y / N

If questions 1 and 2 are both answered "NO", then answer question 3

3. Should this task be performed? Y / N

   a. If "YES", what section should perform it?

   b. If "NO", why not?

If question 1 is answered "YES" or question 3 is answered "YES" and this section is specified, then proceed with questions 4 thru 9. If question 2 is answered "YES" or question 3 is "YES" and another section is specified, complete a data sheet using input from personnel from the section specified. If all 3 (3) questions are answered "NO", the verification is completed and the task will be dropped from the list.

The following questions are used to validate the results of the task analysis. Circle "Y" for YES or "N" for NO. If a question is answered "NO", specify how that item should be changed.

4. Consider item # 7 on the task analysis worksheet. Does the narrative accurately describe the task? Y / N

   If the answer is "NO", what would you add to, delete from, or in any way change in the narrative?

5. Consider item # 3. Are these the conditions under which the task is performed? (A conditions statement should specify the preconditions for task performance, describe the type of environment in which the task is performed, and specify the cue(s) that initiate(s) task performance.) Y / N

   If the answer is "NO", indicate how the conditions statement should be changed.

6. Consider item # 4. Are these standards reasonable? Do they provide a complete and accurare measure of task performance? Could you apply them if you were an evaluator? Y / N

   If the answer is "NO", how would you change them?

7. Consider item # 5. Do these personnel perform this task? Y / N

   If the answer is "NO", how would you change the personnel list?

8. Consider item # 6. Is this the equipment used in the task? Y / N

   If the answer is "NO", how would you change the equipment list?

9. Finally, consider item # 8c. Are these references correct? Y / N

   If the answer is "NO", how would you change them?

Figure II-12. Verification/Validation Questionnaire

conducted with groups of SMEs from each of the battalion sections for which tasks were analyzed. In these interviews, a consensus of the group members' responses to the questionnaire was obtained.

The verification/validation ran smoothly. For the most part, the materials were well received. There were many minor revisions made, but few major revisions. Participants from 3/68 were interested and enthusiastic and tried very hard to provide good input though some were limited in their ability to do so, because they lacked extensive experience. This was particularly true of the Tactical Console Operators (TCOs) who provided input to the fire platoon tasks. None had served as a TCO overseas or in any other unit. One had been in the unit of only a week, having just completed the Air Defense Officer's Basic Course.

The biggest problem encountered in the verification/validation was the limited amount of time each group of SMEs was available. In planning the verification/validation, it had been hoped that two full days could be spent with a group of personnel from Firing Platoons and one day each with groups from the Fire Direction Center, the Battalion Communications Section, Firing Battery Headquarters, the Operations and Intelligence Section, and the System Support Platoon. In the end, a half day was spent with each section.

The limited availability of SMEs forced a reduction in the scope of the verification/validation. Only task analysis worksheets were reviewed. Review of detailed task descriptions was dropped. As a result, there was sufficient time to review all task analysis worksheets except those for Assault Fire Platoon tasks. Fortunately, Assault Fire Platoon tasks are very similar to Base Fire Platoon, so most SME comments on Base Fire Platoon tasks could be applied to Assault Fire Platoon tasks. Once the verification/validation was completed, all task analysis worksheets were revised to reflect input obtained in the verification/validation.

SECTION III
DISCUSSION

The CFEA model was developed in response to a need for a more well defined CFEA process that can be implemented with relative ease by Army training developers. The model provides a detailed description of steps performed in CFEA and also provides aids that help the user organize data and generate products. It is expected to reduce the confusion and difficulties encountered by training developers using currently available descriptions of the process. Some evidence of the usefulness of the procedures is available in the responses of personnel who participated in the HAWK CFEA. Generally, participants found the procedures easy to apply. It is recognized, however, that the HAWK CFEA provided a somewhat artificial environment in that the personnel who developed the process were readily available to answer questions and guide participants. The ultimate test of the model will come when training developers attempt to implement it.

Despite the fact that the utility of the model has not been demonstrated with finality, it is of value for several reasons. First, the model provides a good point of departure for discussions of the CFEA process. Because it provides a well defined set of procedures, it is possible to review it critically in light of its goals and objectives and assess its ability to achieve those goals and objectives. The result of such a review can only be development of a better CFEA process. Also, once the process is implemented the detailed nature of the model will permit quick isolation of the source of problems that might arise so that development of a workable process can proceed rapidly.

In addition to its value as a research tool, the CFEA model has some features that are of interest in and of themselves. The generic function lists seem to provide good cues for recalling and developing mission statements. Use of such word lists for specifying tasks is not unusual (Frederickson, Whitmore, Wood, Hawley, Brett, and Chapman, 1981); however, use of word lists for specifying missions is heretofore unknown. Also, use of matrices seem to be a very useful means of recording and storing

data. Participants in the HAWK CFEA found them easy to use and felt they were very helpful. Finally, specifying the different activities performed in a mission and then combining those activities to form tasks provides a novel approach to specifying tasks. While this method remains untried it offers promise as a means of providing a thorough listing of collective tasks.

The primary vehicle for development of the CFEA model was the HAWK CFEA. However, the value of the HAWK CFEA extends beyond its use as a test bed for CFEA procedures. Products of the HAWK CFEA will enable development of a new HAWK ARTEP and drills for personnel in HAWK units. The new HAWK ARTEP will provide a more detailed listing of missions and tasks, and consequently, will permit development of more effective unit training. Of particular interest are the special engagement annexes that were developed for the HAWK battle drill. These annexes will enable units to train and evaluate the ability of their personnel to respond to the unique engagement situations that will arise in the tactical environment.

In addition to enabling development of a new ARTEP and drills the HAWK CFEA is a rich source of examples of the methods and products of the CFEA process. These products will be used to develop a CFEA Handbook which will guide training developers through the CFEA process. Also, some of the products of the HAWK CFEA can be used virtually as is by other CFEA teams. The missions and tasks of unit elements such as the Admin Section, Supply Section, and Motor Maintenance Section are very similar across different types of units. These portions of the HAWK CFEA could be applied directly to CFEAs of other types of units. This would reduce the time required to conduct those CFEAs.

Based on the HAWK CFEA, once important conclusion can be drawn about the CFEA process. It is time consuming and labor intensive. Even with the limited scope of the task analysis, the HAWK CFEA involved over five professional staff years of work. Regardless of the efficiency provided by a CFEA process, the amount of time spent conducting the analysis is large, and the amount of information to be manipulated is extensive. The advent

of so called common modules reduces the amount of work somewhat, but not substantially, as these must be studied to determine which portions are appropriate for use in a particular unit. The time factor involved in CFEA is an element that must always be considered when allocating resources for a CFEA and setting milestones. Regardless of the utility of CFEA procedures available, quality prodcuts will not be generated if the CFEA team is understaffed and/or pressed for time.

REFERENCES

Brett, B.E. Collective front-end analysis: A mission based approach. Proceedings of the Fourth Interservice/Industry Training and Equipment Conference, November 1982, pp. 312-316.

Frederickson, E., Whitmore, P., Wood, M., Hawley, J., Brett, B., and Chapman, W. Air defense training developer decision aid: Model extension and research requirements. Valencia, PA: Applied Science Associates, Inc., November 1981.

Thurmond, P. Development of analysis, design and development techniques for team ISD. San Diego, CA: Path Research, June 1980.

U.S. Army Training and Doctrine Command. Collective front-end analysis (draft) (TRADOC PAM 310-8). Ft. Monroe, VA, Author, 1981.

Whitmore, P., Fry, J., and Cason, G. Systems engineering of training soft skills. Alexandria, VA: Human Resources Research Organization, January 1971.

APPENDIX A

INITIAL MISSION LIST

HB 02 Hq and Hqs Btry

13 HB02A00 - Provide administration, management and maintenance services for battalion personnel.

14 HB02A01 - Process personnel actions, correspondence (include unit strenght) and reports.

15 HB02A02 - Perform moral enhancing services.

16 HB02A03 - Process POW's

17 HB02A04 - Provide supplies, ammunition, billeting and mess support for battery and Battalion Headquarters personnel (also replacement).

18 HB02A05 - Provide for field sanitation.

19 HB02A06 - Operate Battery Command Post.

20 HB02A07 - Prepare Plans and SOP's (tactical).

21 HB02X01 - Organize speciality teams (see common list).

23 HB02X03 - Coordinate NBC Operations.

HB 03 Bn S-1

24 HB03A00 - Provide personnel administration for battalion.

25 HB03A01 - Process personnel actions, including legal actions, promotions, units strengths, discharges, reenlistments, commissions, reduction, military justice and DACs. Provide replacements, correspondence, reports, report losses, DISPERS, filing system and distribution.

26 HB03A02 - Perform morale enhancing services - chaplains, parties, awards mail, sports, personnel/professional development, billetings unit fund.

27 HB03A03 - Process POW's

31 HB03A07 - Maintain unit historical file w/S-3.

32 HB03X01 - Oversee battery personnel administration.

37 HB03X06 - Oversee medical operations in absence of surgeon.

HB 04 S-2/S-3 HB 04B- AD Liaison Officer

185 HB04A00 - Provide all planning, analysis and evaluation of air defense for the battalion and supported units.

186 HB04A01 - Prepare plans and orders (air defense planning, prepare warning orders, operations orders, fragment orders, movement orders, develop SOPs).

188 HB04A03 - Gather, evaluate and disseminate intelligence data.

189 HB04A04 - Oversee NBC Operations for the battalion.

190 HB04A05 - Employ organic AD weapons.

191 HB04A06 - Process POW's.

192 HB04A07 - Initiate and maintain OPSEC requirements.

193 HB04A08 - Monitor tactical situation.

194 HB04A09 - Supervises physical security, i.e., process clearances, rosters.

195 HB04A10 - Sets-up and operates Bn, HQ, CP, TOC.

196 HB04A11 - Supervises battalion operations (TSQ-73).

197 HB04A12 - Provide liaisons.

38 HB04B00 - Inform the Bn Commander on supported units or area priorities for air defense protection of supported elements.

39 HB04B01 - Provide liaison between Bn Commander and supported units.

40 HB04B02 - Act as representative for Bn Commander at supported staff level.

41 HB04B03 - Coordinate DAME information with the Bn elements.

42 HB04B04 - Assist in preparing air defense plans.

43 HB04B05 - Keep the supported units informed on all pertinent changes of the tactical situation, by use of status boards and situations maps (i.e., preplanned flights, air corridors, and air defense weapons status).

44 HB04B06 - Coordinate Bn movement/redeployment (provide route, road and position clearances).

201 HB04X04 - *Interface with other coordinating officers.

202 HB04X05 - Assist in planning for supported fires.

203 HB04X06 - Conducts patrols (recon).

204 HB04X07 - Coordinates missile resupply with S-4.

205 HB04X08 - Supervises RSOP Operations.

206 HB04X09 - Request/stores and issues maps.

207 HB04X10 - Conduct map reconnaissance.

HB 05 Bn Commo Plt

48 HB05A00 - Install, operate and maintain wire and radio communications for the battalion, and automatic data link for fire distribution system.

49 HB05A01 - Establish and maintain wire communications within the battalion to batteries and adjacent units (CCS).

50 HB05A02 - Install and operate message center and switchboard (secure and non-secure) (CCS).

51 HB05A03 - Establish and maintain all necessary radio commo with higher/subordinate, adjacent and other HQ (CCS).

52 HB05A04 - Establish liaison with Service Support Units and coordinate support for maintenance of signal equipment for battalion elements (PH/CEO).

53 HB05A05 - Develop and implement Bn Communication Plan (PH/CE).

54 HB05A06 - Provide automatic data link for fire distribution and control (RRT).

55 HB05A07 - Provide and maintain secure system (AN/TSC-76) (RRT).

56 HB05A08 - Maintain journals, logs, reports and store/issue COMSEC material (CE)/PH) (CCS/RRT).

57 HB05X01 - Provide training and technical assistance to batteries as required (PH/RRT/CCS).

HB 08 HQ Btry Motor Maint

58 HB08A00 - Provide organizational maintenance for all assigned vehicles and engineer equipment.

59 HB08A01 - Provide for fuel resupply.

60 HB08A02 - Operate and maintain power generators for radar/fire distribution sect.

61 HB08A03 - Provide for vehicle recovery.

62 HB08A04 - Maintain conventional PLL for HQ Battery.

63 HB08A05 - Prepare/maintain records, reports and TAMMS.

65 HB08A07 - Advise Battalion/Battery Commanders on conventional/organizational maintenance.

66 HB08A08 - Provide training for engineer/vehicle operators.

67 HB08A09 - Maintain assigned vehicles/trailers.

68 HB08X01 - Assist in convoy organization/movement.

69 HB08X02 - Provide organizational maintenance to battalion transportation section (augmentation).

HB 09 S-4

70 HB09A00 - Receive, store and issue supplies to all batteries of the battalion.

71 HB09A01 - Manage and distribute supplies to battalion units.

72 HB09A02 - Plan and supervise transportation of personnel equipment and supplies.

73 HB09A03 - Evaluate and advise the Battalion Commander on logistics matters (supply points, routes of supply).

74 HB09A04 - Provide property accounting and other logistics services.

75 HB09A05 - Plan, supervise, and provide services to include construction of facilities and fortifications, billeting, property control, food service, personal services, grave registration and NBC decontamination supplies.

76 HB09A06 - Supervise and prepare logistics budgets and monitor funds.

80 HB09X03 - Manage supply economy in battalion.

HB 10 Bn Medical Section

81 HB10A00 - Provide medical service to the battalion.

82 HB10A01 - Provide emergency/routine medical service for battalion personnel and POW's.

83 HB10A02 - Operate Battalion Aid Station.

84 HB10X01 - Assist in decontamination programs.

85 HB10X02 - Provide medical training (i.e., first aid, preventive medicine, extreme weather).

HB 11/12 Fire Dist. Br/Radar Sections

88 HB11/12A00 - Provide command, control and coordination for ADA Battalion.

89 HB12A01 - Provide on-site maintenance for the TSQ-73.

90 HB12A02 - Operate manual BOC.

91 HB12A03 - Review, evaluate and disseminate Air Defense Command and Control information and conduct Air Battle as a crew.

92 HB12A04 - Provide MANPADS Teams and provide early warning to MANPADS Team.

93 HB12A05 - Conduct training/evaluations.

94 HB12A06 - Assist in Air Space Management.

95 HB12A07 - Operate ADC Net Control Station.

96 HB12A08 - Emplace and prepare TSQ-73 System for operation.

97 HB12X01 - Maintain/monitor the status/situation boards (equipment-fire unit status).

98 HB12X02 - Coordinate ECM Operations.

HB 13 Bn Electronics Section

99 HB13A00 - Provide battalion with organic inspection and evaluation teams to insure operational readiness of units and BOC.

100 HB13B00 - Provide operator/crew training with the AN/TPQ-29.

__ HB13A01 - Conduct/assist evaluations and inspections to insure operational readiness of units and BOC.

102 HB13B01 - Conduct operator training.

103 HB13B02 - Perform organizational maintenance on the AN/TPQ-29.

104 HB13B03 - Serve as Battalion Electronics Warfare Officer.

105 HB13X01 - Provide technical assistance to maintenance/battery personnel.

107 HB13X03 - Advise Battalion/Battery Commanders and staff on matters relating to operations, maintenance and training.

HB 14 HQ Btry Security Section

108 HB14A00 - Provide physical security for classified systems components.

109 HB14A01 - Control access.

110 HB14A02 - Assist in RSOP, Security/Traffic control.

111 HB14A03 - Assist in preparation of security SOP.

112 HB14X01 - Maintain internment facility for POW's.

113 HB14X02 - Perform law enforcement functions.

HB 15 Bn Transportation Section (semi-mobile only)

114 HB15A00 - Furnish transportation support to the battalion elements as required (augmentation for SEMIMOBILE).

115 HB15A01 - Augment any transportation requirements normally performed by unit.

FB 01 Firing Btry HQs

116 FB01A00 - Provide for administration, management and personnel services for battery personnel.

117 FB01A01 - Process personnel actions, correspondence (include unit strength and report).

118 FB01A02 - Perform morale enhancing services (mail, entertainment, etc).

119 FB01A03 - Oversee Air Defense Operations.

120 FB01A04 - Provide supplies, ammunition, billeting and mess support for battery personnel.

121 FB01A05 - Provide for field sanitation.

122 FB01A06 - Operate Command Post.

123 FB01A07 - Coordinate NBC Operations.

124 FB01A08 - Prepare plans/SOP's (tactical).

125 FB01X01 - Organize speciality teams (see common list).

FB 02 Btry Commo Section

127 FB02A00 - Operate and maintain battery communication nets.

128 FB02A01 - Provide wire communication net for battery.

129 FB02A02 - Coordinate battery communications.

130 FB02A03 - Operate message center.

131 FB02A04 - Provide organizational maintenance on battery communication equipment, except for multichannel (31M assigned to Firing Platoon).

132 FB02A05 - Conduct radio/telephone operator training.

208 FB02X01 - Operate FM radios.

FB 03 Btry System Maint Section

134 FB03A00 - Provide system organization support for the two firing platoons and coordinate with the maintenance battery.

135 FB03A01 - Provide technical assistance and operator training on the Hawk System.

136 FB03A02 - Maintain missile system PLL.

137 FB03A03 - Prepare maintenance SOP.

138 FB03A04 - Provide system organizational maintenance.

139 FB03A05 - Coordinate support with maintenance battery.

140 FB03X01 - Assist in C^2 operations.

141 FB03X02 - Assist in operator functions i.e., TCO, TCA, FCO.

FB 04 Base Platoon

142 FB04A00 - Engage and destroy low to medium altitude hostile aircraft and missiles. Provide tactical command and control. Provide operational control of Assault Platoon when deployed with Base Firing Platoon.

143 FB04A01 - Command/Control AFU when deployed together.

144 FB04A02 - Engage and destroy low to medium altitude hostile aircraft and missiles.

145 FB04A03 - Provide MANPADS Defense Teams.

146 FB04A04 - Provide tactical communications.

147 FB04A05 - Assist in Air Space Management.

148 FB04A06 - Deploy Firing Platoon for Air Defense operations (March Order, Emplacement System Preparation).

149 FB04X01 - Perform decanning and service operation.

FB 08 Btry Motor Maint

150 FB08A00 - Provide organizational maintenance for all assigned vehicles and small generators.

151 FB08A01 - Provide for fuel resupply.

152 FB08A02 - Maintain small power generators for battery.

153 FB08A03 - Provide for vehicle recovery.

154 FB08A04 - Maintain conventional PLL for the battery.

155 FB08A05 - Prepare/maintain records and reports.

156 FB08A06 - Provide training (vehicle operators, generator licenses).

157 FB08A07 - Prepare readiness reports.

158 FB08A08 - Maintain vehicles/trailers.

159 FB08X01 - Assist in convoy organization/movement.

160 FB08X02 - Maintain fuel basic load.

FB 10 Btry Generator Section

161 FB10A00 - Provide operator/organizational maintenance for missile system engineer support.

162 FB10A01 - Maintain records/reports.

163 FB10A02 - Compute POL basic load for precise power equipment.

164 FB10A03 - Maintain missile system generators, air conditioners, heaters, scoop loader, compressors.

165 FB10A04 - Provide for terrain preparation and equipment revetment.

166 FB10A05 - Operate missile system generators and support equipment (load banks).

167 FB10A06 - Maintain POL resupply for generators.

168 FB10A07 - Provide operator training.

169 FB10X01 - Perform decontamination of battery equipment.

170 FB10X02 - Provide limited Electrical Engineer Support.

FB 11 Aslt Platoon

171 FB11A00 - Engage and destroy low to medium altitude hostile aircraft.

172 FB11A01 - Operate as a separate fire unit.

173 FB11A02 - Engage and destroy low to medium altitude hostile aircraft.

174 FB11A03 - Provide MANPADS Team.

175 FB11A04 - Provide tactical communications.

176 FB11A05 - Assist in Air Space Management (compare w/Base Platoon).

177 FB11A06 - Provide for early warning information (uplink).

178 FB11X01 - Perform decanning service operations.

FB 14 Btry Security Section

179 FB14A00 - Provide physical security for classified system components.

180 FB14A01 - Control access.

181 FB14A02 - Assist in RSOP, Security/Traffic Control.

182 FB14A03 - Assist preparation of security SOP.

183 FB14X01 - Maintain internment facility for POW's.

184 FB14X02 - Perform law enforcement functions.

COMMON IMPLIED MISSIONS:

1	Sustain operations
2	Assist in perimeter defense
3	Maintain section equipment and TAMMS
4	Assist in specialty teams: a. RSOP b. Firefighting c. Evacuation d. Camouflage e. Smoke/Deception f. Convoys g. Reaction Force h. Deployment/TAC/STRA
5	Provide small arms air defense
6	Implement/prepare Denial Plan
7	Safekeeping classified material
8	Conduct section training
9	Assist in unit deployment
10	Responsible for appropriate annexes for orders, plans and SOPs
11	OPSEC/ELSEC

APPENDIX B

MISSION CRITICALITY ASSESSMENT INSTRUCTIONS AND RATING FORMS

Introduction

The Collective Branch of the Hawk Division, Instructional Systems Development, Directorate of Training Developments, Fort Bliss, has been tasked to conduct a Collective Front-End Analysis (CFEA) of Hawk Battalions. The mission analysis portion of the Hawk CFEA was completed recently. At this point in the CFEA process it is necessary to convent a Board of Subject Matter Experts (SMEs) in order to assess the criticality of the various missions identified in the mission analysis. Essentially, the assessment of mission criticality seeks to determine which of all the missions must be performed successfully in order for a Hawk Battalion to accomplish its primary mission and survive on the battlefield. Your experience with the Hawk system has given you the background necessary to evaluate mission criticality. For this reason you have been asked to participate on the mission-criticality-assessment board. Your assistance is greatly appreciated.

All of the instructions you need to make the mission criticality assessment are provided. Before you get started, however, we will give you some background on the goals of the Hawk CFEA and a description of how the Hawk mission analysis was conducted. This background information should make your role in the process more meaningful.

Overview

Collective Front-End Analysis is the systematic process of identifying and analyzing those tasks and missions necessary for the accomplishment of a unit's mission. During the process, the table of organization and equipment (TO&E) capability of the unit, the unit's mission (stated and implied), the most current tactical doctrine and applicable threat doctrine are integrated to determine the actual missions and actual tasks of a unit. These actual missions and tasks are developed into training and evaluation outline (T&EO) and published in the ARTEP document. The difference between a task and a mission will be explained later in this introduction.

Based on your background, your assistance is needed in the assessment of the criticality of missions performed by a Hawk Battalion and its organizational elements.

Rationale for the Collective Front-End Analysis

USAADS has the mission of preparing selected officers, noncommissioned officers and soldiers to perform air defense duties required in peace and war with emphasis on the act of command and leadership. To support the USSADS mission, Directorate of Training Developments is charged with developing and coordinating all training programs for occupational specialties,

TO&Es and material system for which the Air Defense School is the proponent. Recently, first priority programs for TRADOC and USAADS training and development efforts have been needed to support the rapid and complete implementation of the Officer and Enlisted Personnel Management System. Corresponding Collective Front-End Analysis efforts were deferred pending resources. The Collective Front-End Analysis must be performed in the context of the total systematic approach to training. The data resulting from this process will assist the developers of ARTEPs and drills. It will also provide the task analyst(s) with basic data required to conduct individual task analysis. Service schools, training centers and other training activities will apply the Systems Approach to Training (SAT) in the development, implementation, and evaluation of all new and revised training and training support material. TRADOC Regulation 310-2 outlines the specific, sequential interrelated processes required for ARTEP and drill development. The CFEA process is the first step in the development of proponent training materials efforts.

Implications of Collective Front-End Analysis

The following will probably occur as a result of the Collective Front-End Analysis:

1. Change of mission list.
2. Change of collective/individual task list.
3. Revision of ARTEP 44-245.
4. Modifications to collective training devices.
5. Revision of collective training package Program of Instruction.
6. Revision of training products, JPSs, SMs, SQTs, IGs, etc.
7. Revision of MOS descriptions.
8. Revision of resident courses.
9. Revision of course prerequisites.
10. Revision of publications (TMs, FMs, etc.).
11. Revision of TO&Es.

Unit Density Within the Force Structure

The analysis process looked generally at all possible configurations of Hawk, Square, Triad and Biad. The detailed analysis was done on the DA base TO&E due to the many differences in MTO&Es. Listed below are the applicable TO&Es.

1. TO&E 44-245, ADA, BN HAWK
2. TO&E 44-245, HHB, ADA, BN HAWK
3. TO&E 44-247, ADA BTRY, HAWK
4. TO&E 09-248, MAINT BTRY, DS HAWK
5. TO&E 44-265, ADA, BN HAWK, TRIAD
6. TO&E 44-266, HHB, ADA, BN HAWK, TRIAD
7. TO&E 44-267, ADA BTRY, HAWK TRIAD
8. TO&E 44-268, MAINT BTRY, DS, TRIAD

Personnel Involved/Constraints

The analysis team for this effort is composed of personnel from Hawk Division, DTD and a civilian contracted team, Applied Science Associates. Their contract is let by the Army Research Institute.

Participants are:

MAJ James Paige, Chief, Collective Training Branch

GS-11 Don Tarnosky, Collective Training Branch

GS-09 Glen Bowers, Collective Training Branch

MSG Chester Stepney, Collective Training Branch

Ms Martha Woods, Applied Science Associates, Analyst

Mr. Bryan Brett, Applied Science Associates, Analyst

Mr. Bill Chapman, Applied Science Associates, Analyst

The participants from ASA are all school trained analysts and are familiar with several different methods of training analysis. DTD personnel have extensive backgrounds in the Hawk system including, Battery Command, Staff, Maintenance and EMMO Teams. MOS incumbents have recently returned from overseas Hawk assignments.

The process is constrained generally to a detailed analysis of the Hawk battalion in its preparation for the AFCE Tac Eval. The four major sub-areas, Reaction, Support Function, Air Battle and Survival were analyzed separately and as they interface with each other. No attempt was made to alter or challenge command doctrine or existing regulations. RDF and Reforger Units were also analyzed to see what training, equipment, or personnel shortages may exist.

ASSESSMENT OF MISSION CRITICALITY

The assessment of mission criticality is an important step in the identification of the critical collective tasks performed in a battalion. Ultimately, a primary goal of a CFEA is to produce a list of critical collective tasks which will drive development of a training and evaluation outline (T&EO) and an Army Training and Evaluation Program (ARTEP). Critical collective tasks are those collective tasks which have been given a high priority for training purposes.

There are a number of factors that influence the criticality of a task for training. Some of these factors are the difficulty of performing the task, the frequency with which the task is performed, and the rate at which ability to perform the task decays in the absence of practice. An important factor influencing task criticality is the criticality of the mission that a task supports. Generally mission criticality refers to the extent to which success or failure of a mission affects accomplishment of a unit's primary mission. Collective tasks that support performance of critical missions are, generally, identified as critical collective tasks. Before criticality of collective tasks can be determined the criticality of the missions they support must be established.

Before getting into the instructions for performing the criticality assessment, we will define what we mean by mission and collective task. This is important because our orientation is a little bit different than the orientation that most people adopt in CFEA. Also, this information will help you provide the criticality assessment because we ask you to identify those mission statements that you think are really collective tasks.

First, we will define what we mean by missions. In CFEA missions are defined at two levels, battalion missions and missions of the different organizational elements of the battalion. In a mission analysis battalion missions are defined first. There are two types of battalion missions, primary and secondary. A primary battalion mission is a statement of the reason for existence of the battalion or a statement of a goal or objective the battalion might be required to achieve. The primary mission of a Field Artillery battalion, for example, is to destroy, neutralize, or suppress enemy troops and vehicles and to disrupt communication and supply lines via cannon, rocket, or missile fires. The statement describes why a Field Artillery battalion exists.

A secondary battalion mission describes a requirement in addition to its primary mission that might be imposed on a battalion for one of several reasons. First, a secondary mission might enable the battalion to perform its primary mission(s). Redeployment missions, for example, might be given to CONUS C/V battalions so that they can provide air defense (their primary mission) for units in Europe. Another type of secondary mission is a requirement placed on a battalion which has nothing to do with the battalion's primary mission but is imposed because the battalion provides an organized, disciplined pool of manpower. An example of such a mission is disaster relief.

Once battalion level missions have been specified, the missions of the different elements of the battalion are derived. Battalion element missions are really statements of the responsibilities a given battalion element has as it supports accomplishment of a specific battalion-level mission. In the Hawk CFEA we concentrated on identifying battalion element missions related to accomplishment of what we identified as the primary mission of a Hawk battalion, to provide low to medium altitude air defense against hostile targets.

There are three types of battalion element missions, primary missions, sub-missions of primary missions, and implied missions. Primary missions are the stated TO&E mission(s) of a given battalion element. Generally primary missions are broad statements of the responsibilities of a battalion element. Because primary mission statements are very broad or general it is often necessary to state specifically what is required in a primary mission. Sub-missions are detailed statements of the responsibilities encompassed in a primary mission. As an example, a primary mission of the supply section of a battalion might be to provide certain classes of supplies necessary for the battalion to sustain operations. In fulfilling this mission of resupply the supply section would have responsibility for acquiring supplies, storing supplies, dispensing supplies, and maintaining records. These are certain tasks that would be performed under each sub-mission.

The third type of battalion element missions is implied missions. Often responsibilities are imposed on battalion elements that are not stated TO&E missions. These can be thought of as additional duties. An example of an implied mission is participation in ground defense. Identification of implied missions is an important part of CFEA. Often implied missions reflect activities that must be performed if the unit is to accomplish its mission successfully but for which adequate training and/or personnel are not provided. It is important that such shortfalls be identified and remedied.

The mission analysis provides the foundation for development of collective tasks. The mission statements developed for battalion elements are descriptions of ongoing activities or responsibilities that an element performs continuously. Within each of these areas of ongoing activities personnel in a battalion element perform discrete units of work called tasks. Once the mission analysis is complete the next step in CFEA is to specify the collective tasks that are performed under a given mission.

It should be noted that some of the tasks performed under a mission are individual and that these can also be identified in CFEA. The primary focus of CFEA, however, is on delineation of collective tasks. A collective task is defined as "a unit of work requiring more than one individual for its completion" (TRADOC Pam 310-8). As with any task a collective task should have a definite starting point and ending point and should have a meaningful or definable output. The statement "maintain the TSQ-73" for example, is not a task statement. Maintenance is an ongoing activity that must be performed on the system. Therefore the statement "maintain the TSQ-73" is a mission or sub-mission statement that encompasses a collection of tasks. One of the tasks involved in maintaining the TSQ-73 is "isolate a fault in the ADP." This is a unit of work with a definite beginning and end (begins with improper system functioning and ends with location of the fault) and has a definable or meaningful output, identification of the component that requires repair or replacement.

When you read the mission statements that have been prepared for Hawk your first impression might be that many of the statements are really titles for collective tasks like those you have seen in ARTEPs and Tac Evals. We think that there has been confusion over the definition of a collective task and that all too often a statement that is presented as describing a collective task is really a description of a collection of tasks (really a mission statement), some of which are collective tasks and some of which are individual tasks. Our orientation to the definition of missions and collective tasks has produced a much longer or detailed mission list than is usually produced in CFEA. We think this approach will result in a more complete list of collective and individual tasks than has been generated before and will ultimately result in a better description of the training requirements of a Hawk battalion.

INSTRUCTIONS FOR ASSESSMENT OF MISSION CRITICALITY

The board must assess the criticality of both battalion and battalion element missions. Procedures used to assess criticality of the two sets of missions differ. The assessment of criticality of battalion missions is described first. Assessment of criticality of battalion-element missions is described next.

Instructions for Rating Criticality of Hawk Battalion Mission Statements

On the page that follows is a list of missions for a Hawk battalion. Read each statement carefully, then:

1. Identify each mission as primary or secondary. If you identify the mission statement as a primary mission, record a "P" in the column to the right of the mission statement that is labeled "P or S."

   If you identify the mission statement as a secondary mission, record an "S" in the column to the right of the mission statement that is labeled "P or S."

2. If you identify a mission as secondary (S) rate the criticality of the secondary mission. Record your response in the column labeled "Rating." Rate the criticality of the secondary mission using one of the following three rating factors:

   H - High criticality. The secondary mission must be performed successfully if the battalion is to accomplish its primary mission.

   M - Moderate criticality. Successful performance of the secondary mission will facilitate or aid accomplishment of the battalion's primary mission.

   L - Low criticality. Performance of the secondary mission has little or no effect on accomplishment of the battalion mission or there is a very low likelihood that performance of the mission would ever be required.

Rating Form for Hawk Battalion Mission Statements

MISSION NUMBER	MISSION STATEMENT	P or S	Rating
BN00A00	Provide low altitude air defense against hostile targets	P	
BN00B00	Provide disaster relief	S	L
BN00C00	Control civil disturbances	S	L
BN00D00	Participate in rear area protection plan (RAPP)	S	M
BN00E00	Engage in tactical deception	S	M
BN00F00	Conduct rapid deployment (RD)	S	H
BN00G00	Deploy as part of Reforger	S	L

Instructions for Rating Criticality of Hawk Sub-Missions

Instructions for rating criticality of Hawk sub-missions of the mission "provide low altitude air defense against hostile targets": Rate the criticality of each sub-mission as H, M or L applying the following definitions of each rating.

H - High criticality. The sub-mission is well within the capability of a battalion to perform and there is a high likelihood that the battalion will be required to perform the mission.

M - A battalion would have some difficulty performing the mission because of equipment or mobility limitations, or it is not a mission that a battalion would be required to perform frequently.

L - A battalion would not be able to perform the mission because of equipment or mobility limitations, or it is a mission that a battalion would be required to perform very infrequently.

Ratings of sub-missions of Hawk battalion mission of "provide low altitude air defense against hostile targets."

BN00A01 Provide low altitude air defense for division maneuver elements. Rating:_____

BN00A02 Provide low altitude air defense for corps elements. Rating:_____

BN00A03 Provide low altitude air defense in forward missile defense zone. Rating:_____

BN00A04 Provide low altitude air defense for vital assets/areas. Rating:_____

BN00A05 Provide low altitude air defense or rear area (Theater Army). Rating:_____

Instructions for Rating the Criticality of Battalion-Element Missions

In the pages that follow statements of the missions of each organizational element of a Hawk battalion are listed. As described above, the missions are of three different types, primary missions, sub-missions of primary missions, and implied missions. If you are interested in determining the type of any one particular mission you can use the identifying number of the mission recorded in the column listed "Mission Number."

Primary missions are distinguished by a capital letter followed by two zeros (e.g., FB01A00) in the last three places of the mission number. Sub-missions of a primary mission are distinguished by a capital letter in the fifth position of the mission number followed by two digits other than zero and zero (e.g., FB01A05). The capital letter in the fifth position of a sub-mission identification number refers to the primary mission that the sub-mission supports (e.g., sub-mission FB01A05) supports primary mission FB01A00). Finally, implied missions are distinguished by an "X" in the fifth position of the mission identification number (e.g., FB01X01).

Rating the mission statements:

a. Before beginning the rating process read each mission statement carefully.

b. If you think a mission statement is really a collective task, make a note of this on the data sheet by the mission statement.

c. Rate the missions on each of the six factors described below using the rating responses defined for each factor.

FACTOR

1. Is this mission critical to the accomplishment of the overall unit mission?

   L. Success or failure will not measurably affect overall mission.

   M. Failure could hinder or reduce unit mission accomplishment.

   H. Failure will seriously degrade or prevent overall unit mission accomplishment.

Think about the primary mission(s) you identified earlier and ask yourself this question, "how much will success or failure of the mission under consideration affect accomplishment of that/those primary mission(s)?"

FACTOR

2. Is this mission critical to the accomplishment of another mission? (List mission(s) affected if M or H) _____

   _____

   L. Success or failure has no measurable effect on other mission.

   M. Failure may hinder or reduce accomplishment of other unit mission or missions.

   H. Failure will degrade or prevent accomplishment of other mission or missions.

This factor is important because sometimes there are missions that do not seriously affect accomplishment of the unit mission but that do affect performance of other missions which do have an important impact on accomplishment of the unit mission. If you identify such a mission, please list the supported missions on another sheet of paper.

FACTOR

3. What is the immediate/direct result of mission failure on combat effectiveness?

   L. Has little or no effect on combat mission performance.

   M. Could degrade or delay performance of combat mission.

   H. Could prevent performance of combat mission.

Here, we are concerned with the effects of failure of battalion-element missions involved in the tactical employment of the Hawk system (e.g., missions performed by the Fire Direction Section, Firing Plt, etc.). Consider the organizational element whose missions are being evaluated, ask yourself if any of the missions of that element are related to tactical employment of the Hawk system and, then, rate the criticality of the mission.

FACTOR

4. What is the immediate/direct result of mission failure on survival of the unit in combat?

   L. Has little or no effect on survival of personnel or equipment.

   M. Mission failure could endanger personnel or equipment.

   H. Mission failure will result in unacceptable loss of personnel or equipment.

By survival we mean the ability of the unit to react to and protect itself from enemy activities that would result in a loss of personnel and equipment that would impair the units' ability to accomplish its primary mission. We view survival as separate from support related functions (e.g., resupply of personnel and equipment) which help the unit sustain operations. There is another rating factor that deals with sustained operations. Example of missions that impact a unit's ability to survive are provision for ground defense, provision of SHORAD, and conduct of NBC operations.

FACTOR

5. Is this mission Wartime oriented?

   L. Mission is only performed in peacetime and is not combat related.

   M. Mission is performed in both peace and war in the same manner.

   H. Mission is performed only in Wartime.

During the mission analysis we sought to identify only those missions that would be performed in wartime. Missions thought to be performed only in peacetime were omitted. It is possible, however, that some of the missions on the list are performed only in peacetime. Factor 5 is used to identify these missions. Also, you will note that we are distinguishing between missions performed in both war and peace and missions performed only in war. This is because the training requirements for tasks under the two mission types differ. Tasks performed as part of missions occurring during war and peace get exercised more than tasks performed as part of missions performed only in war. In order to maintain proficiency, special training must be developed to exercise wartime tasks. By determining which missions are wartime-only-missions it will be easier to identify the wartime-only-tasks.

FACTOR

6. Will mission failure affect the unit's ability to sustain or continue its primary mission?

   L. Mission failure does not seriously affect the unit's ability to sustain operations.

   M. Mission failure could degrade or reduce the unit's capability to continue operations.

   H. Mission failure will seriously affect the unit's ability to sustain operations.

The focus here is on the criticality of missions involved in support of combat operations such as resupply of personnel and equipment, maintenance and repair of equipment, etc. We need to know which of the support related missions have the greatest impact on a unit's ability to perform its mission over a long period of time.

d. When rating the different missions, select one rating factor and rate all of the missions on that factor. Then select another factor and rate all the missions on that factor. Continue this process until all the missions have been rated on each factor. We have found that his is the most effective means of making ratings. It speeds the process because you don't have to jump back and forth between the factors and continually reorient yourself to the meaning of the various factors.

e. Be sure that you consider each mission individually. Do not fall into the habit of using the same rating for a primary mission and its sub-missions. Upon careful consideration you might decide that they differ in criticality.

f. Try not to spend too much time rating a mission. Generally your first impression is the best, go with it.

g. If you can think of any critical missions that were omitted, please write them down of a sheet of paper and identify the battalion element that performs the mission.

Organization HEADQUARTERS HEADQUARTERS BATTERY MISSION CRITICALITY ASSESSMENT WORKSHEET

Section ADMINISTRATION, CHAPLIN AND S-1

Section # 03

sion ber	Mission Statement	Critical to Overall Mission 1	Critical to Other Missions (List Affected Missions) 2	Results of Failure on Combat Effectiveness 3	Results of Failure on Survival 4	Is Mission Wartime Oriented 5	Results of Failure for Sustained 6
803A00	Provide personnel administration for battalion	L	L	L	L	L	L
803A01	Process personnel actions, including legal actions, promotions, units strengths, discharges, reenlistments, commissions, reduction, military justice and DACs. Provide replacements, correspondence, reports, report losses, SIDPERS, filing system and distribution	L	L	L	L	L	L
803A02	Perform morale enhancing services - chaplains, parties, awards, mail, sports, personnel/professional development, billetings unit fund	L	L	L	L	L	L
803A03	Process POW's	L	M	L	L	M	L
803A04	Oversee Battalion safety program	L	L	L	L	L	L
803A05	Oversee comptroller functions	L	L	L	L	L	L
803A06	Serve as Public Information Officer	L	L	L	L	L	L
803A07	Maintain unit historical file w/S-3	L	L	L	L	L	L

INSTRUCTIONS FOR RESOLUTION BOARD

Introduction

The activities performed today are the last step in the assessment of HAWK mission criticality. Based on the rating data provided by the Board, HAWK missions have been sorted into three categories: Critical Missions that should be retained and used in ARTEP development and other training development efforts in the schools, Non-critical Missions that should be dropped from the Mission List, and missions whose criticality could not be established clearly and must be resolved by the Board. The Board will review the list of non-critical missions and indicate points of agreement and disagreement. In addition, the Board will establish the criticality of those missions for which no criticality assessment has been provided. This is the last opportunity the Board has to influence the Mission List developed in the HAWK CFEA, and, as a result, will be the last chance many Board members have to influence development of the new HAWK ARTEP and other HAWK training materials. Before beginning the resolution process we would like to take this opportunity to thank you for the time you have devoted to the mission criticality assessment to date. We feel that the list of critical missions developed using your input will drive development of an improved HAWK ARTEP and other HAWK training materials that ultimately will result in a more effective HAWK system.

Background on Analysis of Mission Criticality

Of 207 missions submitted for analysis, 173 were determined to be critical, 14 were determined to be non-critical, and 20 were set aside for resolution by the Board. The process of determining whether a mission is critical or non-critical consisted of two steps. In the first step ratings of a mission on each of the criticality factors were tallied to determine the number of board members rating the mission as H, M or L on each factor. Then, the tallies were reviewed to determine the general consensus of the Board and the mission was given a final rating on each factor that reflected the Boards' consensus. If, for example, one Board member rated a mission as high (H) on factor one, five members rated the mission as moderate (M) on factor one, and two rated the mission as low (L), the general consensus of the Board was toward a rating of Moderate (M) and the mission was given a final rating of moderate (M).

In the second step, the final ratings of a mission were compared against a set of logical criteria which identified the mission as critical or non-critical. The logical criteria specified ratings on a particular factor or combination of factors that would result in a mission being identified as critical or non-critical. If, for example, a mission was rated as H on factors one, two, three, four, or six it was identified as critical. A

mission was also identified as critical if it was rated as moderate on factor one and moderate on factors three, four, or six. An evaluation of low criticality was given to missions with ratings of low on factors one, two, three, four and six.

As noted earlier it was not always possible to clearly identify a mission as critical or non-critical. In some instances there was no clear consensus in the ratings of a mission on a factor or factors (e.g., a mission factor might be rated as low by four Board members and moderate by four others). Also, in a few instances the logical consistency of the final ratings of a mission was low. By logical consistency we mean the agreement seen between ratings of a mission on different factors (e.g., if a mission was rated as moderate on factor one, effect on overall mission, we expected to see a rating of moderate or high on factor three, influence on combat effectiveness, four, effects on survival, or five, effects on sustained operations). Missions for which there was no clear consensus in Board ratings or for which logical consistency was low were not assessed as critical or non-critical but were set aside for resolution by the Board today.

In the analysis of mission criticality, data provided by the Board served as the primary basis for determining which missions are critical and which are non-critical. It should be noted at this point, however, that the HAWK CFEA team can override the Board's assessment of a mission. The process of override is not often used, though, because Boards generally provide valid evaluations of missions. Also, the override process is avoided by CFEA teams, because it requires extensive documentation in the audit trail. In the HAWK CFEA, the criticality of only one mission has been determined by the CFEA team and this assessment was driven by doctrinal concerns. Among the Board members there was some difference of opinion on the criticality of the mission, "Participate in rear area protection plan (RAPP)." Given the dispersion in ratings, this mission ordinarily would have been referred to the Board for resolution. However, because current doctrine states that HAWK battalions will provide support for RAPP, the CFEA team decided to identify the mission as critical.

Instructions for the Resolution Board

As described above, the Board's job is to:

1) review the list of non-critical missions and determine whether you are in agreement with the contents of the list.

2) make a final determination of the criticality of the mission for which a criticality assessment has not been made.

In resolving mission criticality, a mission will not be rated on factors pertaining to criticality. Instead, the Board will simply make an assessment of critical or non-critical for each mission to be resolved. For each mission, the resolution process will consist of a period of discussion in which Board members express their evaluation of a mission and the reasons for that evaluation followed by a vote on criticality of the mission.

When resolving a mission's criticality consider criticality in these terms. When we refer to the criticality of a mission we are ultimately trying to determine the importance of a mission for training purposes. A good question to ask yourself when assessing a mission's criticality is whether you would want to include the mission in the ARTEP. Generally, the orientation of the CFEA team was that any mission whose failure could degrade or result in failure of the overall mission should be retained for training purposes and, hence, should be identified as critical.

APPENDIX C

CRITICAL MISSION LIST

#	MISSION #	CRITICAL MISSION LIST
193	HB04A08	Monitor tactical situation
194	HB04A09	Supervises physical security, i.e., process clearances rosters
195	HB04A10	Sets-up and operates Bn, HQ, CP, TOC
196	HB04A11	Supervises battalion operations (TSQ-73)
197	HB04A12	Provide liaisons
38	HB04B00	Inform the Bn Commander on supported units or area priorities for air defense protection of supported elements
39	HB04B01	Provide liaison between Bn Commander and supported units
40	HB04B02	Act as representative for Bn Commander at supported staff level
41	HB04B03	Coordinate DAME information with the Bn elements
42	HB04B04	Assist in preparing air defense plans
43	HB04B05	Keep the supported units informed on all pertinent changes of the tactical situation, by use of status boards and situations maps (i.e., preplanned flights, air corridors, and air defense weapons status)
44	HB04B06	Coordinate Bn movement/redeployment (provide route, road and position clearances)
201	HB04X04	*Interface with other coordinating officers
202	HB04X05	Assist in planning for supported fires
203	HB04X06	Conducts patrols (recon)
204	HB04X07	Coordinates missile resupply with S-4
205	HB04X08	Supervises RSOP operations
206	HB04X09	Request/stores and issues maps
207	HB04X10	Conduct map reconnaissance
48	HB05A00	Install, operate and maintain wire and radio communications for the battalion, and automatic data link for fire distribution system
49	HB05A01	Establish and maintain wire communications within the battalion to batteries and adjacent units (CCS)
50	HB05A02	Install and operate message center and switchboard (secure and non-secure) (CCS)
51	HB05A03	Establish and maintain all necessary radio commo with higher/subordinate, adjacent and other HQ (CCS)

#	MISSION #	CRITICAL MISSION LIST
52	HB05A04	Establish liaison with Service Support Units and coordinate support for maintenance of signal equipment for battalion elements (PH/CEO)
53	HB05A05	Develop and implement Bn Communication Plan (PH/CE)
54	HB05A06	Provide automatic data link for fire distribution and control (RRT)
55	HB05A07	Provide and maintain secure system (AN/TSC-76) (RRT)
56	HB05A08	Maintain journals, logs, reports and store/issue COMSEC material (CE/PH) (CCS/RRT)
57	HB05X01	Provide training and technical assistance to batteries as required (PH/RRT/CCS)
58	HB08A00	Provide organizational maintenance for all assigned vehicles and engineer equipment
59	HB08A01	Provide for fuel resupply
60	HB08A02	Operate and maintain power generators for radar/fire distribution sect
61	HB08A03	Provide for vehicle recovery
62	HB08A04	Maintain conventional PLL for HQ Battery
63	HB08A05	Prepare/maintain records, reports and TAMMS
65	HB08A07	Advise Battalion/Battery Commanders on conventional/ organizational maintenance
66	HB08A08	Provide training for engineer/vehicle operators
67	HB08A09	Maintain assigned vehicles/trailers
68	HB08X01	Assist in convoy organization/movement
69	HB08X02	Provide organizational maintenance to battalion transportation section (augmentation)
70	HB09A00	Receive, store and issue supplies to all batteries of the battalion
71	HB09A01	Manage and distribute supplies to battalion units
72	HB09A02	Plan and supervise transportation of personnel equipment and supplies
73	HB09A03	Evaluate and advise the Battalion Commander on logistics matters (supply points, routes of supply)
74	HB09A04	Provide property accounting and other logistics services
75	HB09A05	Plan, supervise, and provide services to include construction of facilities and fortifications, billeting, property control, food service, personal services, grave registration and NBC decontamination supplies

#	MISSION #	CRITICAL MISSION LIST
76	HB09A06	Supervise and prepare logistics budgets and monitor funds
80	HB09X03	Manage supply economy in battalion
81	HB10A00	Provide medical service to the battalion
82	HB10A01	Provide emergency/routine medical service for battalion personnel and POWs
83	HB10A02	Operate Battalion Aid Station
84	HB10X01	Assist in decontamination programs
85	HB10X02	Provide medical training (i.e., first aid, preventive medicine, extreme weather)
88	HB11/12A00	Provide command, control and coordination for ADA Battalion
89	HB12A01	Provide on-site maintenance for the TSQ-73
90	HB12A02	Operate manual BOC
91	HB12A03	Review, evaluate and disseminate Air Defense Command and Control information and conduct Air Batter as a crew
92	HB12A04	Provide MANPADS Teams and provide early warning to MANPADS Team
93	HB12A05	Conduct training/evaluations
94	HB12A06	Assist in Air Space Management
95	HB12A07	Operate ADC Net Control Station
96	HB12A08	Emplace and prepare TSQ-73 System for operation
97	HB12X01	Maintain/monitor the status/situation boards (equipment-fire unit status)
98	HB12X02	Coordinate ECM Operations
99	HB13A00	Provide battalion with organic inspection and evaluation teams to insure operational readiness of units and BOC
100	HB13B00	Provide operator/crew training with the AN/TPQ-29
101	HB13A01	Conduct/assist evaluations and inspections to insure operational readiness of units and BOC
102	HB13B01	Conduct operator training
103	HB13B02	Perform organizational maintenance on the AN/TPQ-29
104	HB13B03	Serve as Battalion Electronics Warfare Officer
105	HB13X01	Provide technical assistance to maintenance/battery personnel

#	MISSION #	CRITICAL MISSION LIST
107	HB13X03	Advise Battalion/Battery Commanders and staff on matters relating to operations, maintenance and training
108	HB14A00	Provide physical security for classified systems components
109	HB14A01	Control access
110	HB14A02	Assist in RSOP, Security/Traffic control
111	HB14A03	Assist in preparation of security SOP
112	HB14X01	Maintain internment facility for POWs
113	HB14X02	Perform law enforcement functions
114	HB15A00	Furnish transportation support to the battalion elements as required (augmentation for SEMIMOBILE)
115	HB15A01	Augment any transportation requirements normally performed by unit
116	FB01A00	Provide for administration, management and personnel services for battery personnel
117	FB01A01	Process personnel actions, correspondence (include unit strength and reports)
118	FB01A02	Perform morale enhancing services (mail, entertainment, etc.)
119	FB01A03	Oversee Air Defense Operations
120	FB01A04	Provide supplies, ammunition, billeting and mess support for battery personnel
121	FB01A05	Provide for field sanitation
122	FB01A06	Operate Command Post
123	FB01A07	Coordinate NBC Operations
124	FB01A08	Prepare plans/SOP's (tactical)
125	FB01X01	Organize specialty teams (see common list)
127	FB02A00	Operate and maintain battery communication nets
128	FB02A01	Provide wire communication net for battery
129	FB02A02	Coordinate battery communications
130	FB02A03	Operate message center
131	FB02A04	Provide organizational maintenance on battery communication equipment, except for multichannel (31M assigned to Firing Platoon)

#	MISSION #	CRITICAL MISSION LIST
132	FB02A05	Conduct radio/telephone operator training
208	FB02X01	Operate FM radios
134	FB03A00	Provide system organization support for the two firing platoons and coordinate with the maintenance battery
135	FB03A01	Provide technical assistance and operator training on the Hawk System
136	FB03A02	Maintain missile system PLL
137	FB03A03	Prepare maintenance SOP
138	FB03A04	Provide system organizational maintenance
139	FB03A05	Coordinate support with maintenance battery
140	FB03X01	Assist in C^2 operations
141	FB03X02	Assist in operator functions, i.e., TCO, TCA, FCO
142	FB04A00	Engage and destroy low to medium altitude hostile aircraft and missiles. Provide tactical command and control. Provide operational control of Assault Platoon when deployed with Base Firing Platoon
143	FB04A01	Command/Control AFU when deployed together
144	FB04A02	Engage and destroy low to medium altitude hostile aircraft and missiles
145	FB04A03	Provide MANPADS Defense Teams
146	FB04A04	Provide tactical communications
147	FB04A05	Assist in Air Space Management
148	FB04A06	Deploy Firing Platoon for Air Defense operations (March Order, Emplacement System Preparation)
149	FB04X01	Perform decanning and service operation
150	FB08A00	Provide organizational maintenance for all assigned vehicles and small generators
151	FB08A01	Provide for fuel resupply
152	FB08A02	Maintain small power generators for battery
153	FB08A03	Provide for vehicle recovery
154	FB08A04	Maintain conventional PLL for the battery
155	FB08A05	Prepare/maintain records and reports
156	FB08A06	Provide training (vehicle operators, generator licenses)
157	FB08A07	Prepare readiness reports

#	MISSION #	CRITICAL MISSION LIST
158	FB08A08	Maintain vehicles/trailers
159	FB08X01	Assist in convoy organization/movement
160	FB08X02	Maintain fuel basic load
161	FB10A00	Provide operator/organizational maintenance for missile system engineer support
162	FB10A01	Maintain records/reports
163	FB10A02	Compute POL basic load for precise power equipment
164	FB10A03	Maintain missile system generators, air conditioners, heaters, scoop loader, compressors
165	FB10A04	Provide for terrain preparation and equipment revetment
166	FB10A05	Operate missile system generators and support equipment (load banks)
167	FB10A06	Maintain POL resupply for generators
168	FB10A07	Provide operator training
169	FB10X01	Perform decontamination of battery equipment
170	FB10X02	Provide limited Electrical Engineer Support
171	FB11A00	Engage and destroy low to medium altitude hostile aircraft
172	FB11A01	Operate as a separate fire unit
173	FB11A02	Engage and destroy low to medium altitude hostile aircraft
174	FB11A03	Provide MANPADS Team
175	FB11A04	Provide tactical communications
176	FB11A05	Assist in Air Space Management (compare w/Base Platoon)
177	FB11A06	Provide for early warning information (uplink)
178	FB11X01	Perform decanning service operations
179	FB14A00	Provide physical security for classified system components
180	FB14A01	Control access
181	FB14A02	Assist in RSOP, Security/Traffic Control
182	FB14A03	Assist preparation of security SOP
183	FB14X01	Maintain internment facility for POW's
184	FB14X02	Perform law enforcement functions

COMMON IMPLIED MISSIONS:

1	Sustain operations
2	Assist in perimeter defense
3	Maintain section equipment and TAMMS
4	Assist in specialty teams: a. RSOP b. Firefighting c. Evacuation d. Camouflage e. Smoke/Deception f. Convoys g. Reaction Force
5	Provide small arms air defense
6	Implement/prepare Denial Plan
7	Safekeeping classified material
8.	Conduct section training
9	Assist in unit deployment
10	Responsible for appropriate annexes for orders, plans and SOPs
11	OPSEC/ELSEC

List of Non-Critical Missions
(Missions Dropped from Original Mission List)

BN00E00 Provide disaster relief
BN01C00 Control civil disturbances
HB02X02 Prepare and implement NEO plan
HB04A04 Oversee battalion safety program
HB03A05 Oversee comptroller functions
HB03A06 Serve as public information officer
HB03A07 Maintain unit historical file with S-3
HB03X02 Oversee NEO operations
HB03X03 Manage battalion headquarters
HB03X04 Coordinate support services
HB03X05 Support community, post activities
HB04B07 Provide systems analysis to supported elements
HB08A06 Operate battalion welding shop
HB09A07 Supervise preparation of plans for area damage control
HB09X01 Provide training in supply procedures
HB09X02 Process personal effects
HB10X03 Coordinate veterinary medical support for security section
HB10X04 Assist in graves registration
HB13X02 Conduct initial investigation of missile incidents/accidents
FB01X02 Prepare and implement NEO plan
FB02A06 Provide public address system
HB04A02 Coordinate/monitor and oversee unit training and testing
HB04X01 Maintain battalion learning center
HB04X02 Responsible for small arms range operations
HB04X03 Responsible for training ammunition

APPENDIX D

HAWK CFEA ORIGINAL TASK LISTING

HAWK CFEA ORGINAL TASK LISTING:

1. HB02A04 - PROVIDES SUPPLY, AMMO, BILLETING AND MESS SUPPORT FOR BATTERY AND BATTALION HQ PERSONNEL:
   1. Set-up dining facility
   2. Prepare a meal
   3. Clean mess facilities
   4. Set-up supply room activities

2. HB02A06 - OPERATE BTRY CP:
   1. Set-up CP
   2. Prepare/organize and implement unit defense plan
   3. Establish and monitor commo

3. HB02A07 - PREPARE PLANS AND SOP'S (TACTICAL):
   1. Manage preparation of Btry Sop's annexes (tactical)

4. HB02A08 - ORGANIZE SPECIALITY TEAMS:
   1. Direct employment of ----------

5. HB02X03 - COORDINATE NBC OPERATIONS:
   1. Coordinate NBC Operations
   2. Set-up NBC Cell
   3. Set-up Decon facility
   4. Collect/evaluate & disseminate NBC information

6. HB04A01 - PREPARE PLANS, ORDERS AND SOP'S:
   1. Prepare AD/OPS plans
   2. Prepare orders (frag, movement, warning, OPs)
   3. Prepare deployment plan (changed to prepare strategic deployment plan)
   4. Prepare SOP's
   5. Prepare training plan

7. HB04A03 - GATHER, EVALUATE AND DISSEMINATE INTELLIGENCE DATA:
   1. Collective information (interrogation, patrols and listening posts)
   2. Process information for intelligence
   3. Prepare SITREPS

8. HB04A06 - PROCESS POW'S:
   1. Search POW's

9. HB04A07 - INITIATE AND MAINTAIN OPSEC REQUIREMENTS:
   1. Oversee the establishment and operation of Dummy sites

10. HB04A10 - SETS-UP AND OPERATES BN HQ CP, TOC:
   1. Set-up Bn Hq CP, TOC
   2. Establish and monitor commo
   3. Maintain and monitor situation maps
   4. Process and react to message imputs

5. Plan & coordinate Btry movement (air, land and sea)

11. HB05A01 - ESTABLISHES AND MAINTAINS ALL WIRE COMMO WITHIN THE BN TO BTRYS AND ADJACENT UNITS (CCS):
    1. Set-up wire nets
    2. Troubleshoot wire nets

12. HB05A02 - INSTALL AND OPERATE MESSAGE CENTER AND SWITCHBOARD SECURE & NON-SECURE) (CCS):
    1. Set-up antenna
    2. Emplace message center/switchboard

13. HB05A03 - ESTABLISH AND MAINTAIN ALL NECESSARY RADIO COMMO WITH HIGHER/SUBORDINATE, ADJACENT AND OTHER HQ (CCS):
    1. Establish all radio nets (RATT)
    2. Set-up radio relay station
    3. Set-up antennas (as required)
    4. Troubleshoot radio net problems/malfunctions

14. HB05A05 - DEVELOP AND IMPLEMENT BN COMMUNICATIONS PLAN (PH/CE):
    1. Develop Battalion Communications Plan
    2. Assist in implementing plan

15. HB05A06 - PROVIDE AUTOMATIC DATA LINK FOR THE FIRE DISTRUBTION SYSTEM (RRT):
    1. Deploy relay teams to Fire Units
    2. Establish and maintain multichannel circuits

16. HB05A07 - PROVIDES AND MAINTAINS SECURE SYSTEM (AN/TSQ-73) (RRT):
    1. Establish secure system (RATT)

17. HB08A09 - MAINTAIN ASSIGNED VEHICLES/TRAILERS.
    1. Perform periodic/special vehicle services

18. HB09A03 - EVALUATE AND ADVISE COMMANDER ON LOGISTICS MATTERS:
    1. Establishes/coordinates Material Readiness Plan

19. HE10A01 - PROVIDE EMERGENCY/ROUTINE MEDICAL SERVICE FOR BN PERSONNEL AND POW'S:
    1. Conduct Sickcall (screening/treatment)
    2. Perform surgical operations techniques
    3. Stabilize seriously wounded personnel
    4. Establish preventive maint programs (immunization, vector control, weight control, etc)

20. HB10A02 - OPERATE BN AID STATION:
    1. Set-up aid station
    2. Process casualties
    3. Transport casualties
    4. Maintain medical supplies

21. HE10X01 - ASSIST IN DECONTAMINATION PROGRAM:
    1. Assist in setting up decontamination program
    2. Aids in personnel decon and NBC monitoring
    3. Decon section equipment

22. HB12A02 - OPERATE MANUAL FDC (PERFORM SAME FUNCTION AS AN/TSQ-73 OPERATIONS):
    1. Set-up manual FDC van (changed to Set-up manual FDC capability)
    2. Establish commo
    3. Emplace power equipment
    4. Conduct crew drill

23. HB12A03 - REVIEWS, EVALUATES, DISSEMINATES AD COMMAND & CONTROL INFORMATION AND CONDUCT AIR BATTLES AS A CREW:
    1. Identify/correlate targets
    2. Assign and control engagements
    3. Monitor tactical situation

24. HB12A04 - PROVIDE MANPAD TEAMS AND EARLY WARNING TO MANPADS TEAMS (FDC)
    1. Deploy MANPADS Teams (FDC)
    2. Provide Early Warning to MANPADS Teams (FDC)

25. HB12A05 - CONDUCT TRAINING AND EVALUATIONS:
    1. Conduct exercises
    2. Conduct crew drills/ORE's
    3. Train MANPADS Team

26. HB12A06 - ASSIST IN AIR SPACE MANAGEMENT:
    1. Report violations of restricted air space
    2. Increase surveillance and report track information to FDC

27. HB12A08 - EMPLACE AND PREPARE AN/TSQ-73 SYSTEM FOR OPERATION:
    1. Emplace system
    2. Provide power
    3. Establish commo
    4. Initialize system for operation

28. HB13A01 - CONDUCT/ASSIST IN EVALUATIONS AND INSPECTIONS TO INSURE OPERATIONAL READINESS OF UNITS AND FDC:
    1. Conduct ORE's
    2. Assist in TAC Evaluations
    3. Conducts equipment/maintenance operations, inspections

29. HB13B01 - CONDUCT OPERATOR TRAINING:
    1. Conduct Btry crew training (TPQ-29) (AD OPS clear and electronic warfare)
    2. Train and certify operators (TCO, TCA, Crew Certification)
    3. Assist in ARTEP/TAC EVAL training

4. Conduct ASP training
5. Assist in SQT training
6. Train personnel in movement operations (air, land and sea)
7. Train personnel in electro magnetic protection
8. Conduct OC ORE's

30. HB13X01 - PROVIDE TECHNICAL ASSISTANCE TO MAINTENANCE/BTRY PERSONNEL:
1. Assist maintenance/Firing Btry personnel in isolating/repairing HAWK system faults

31 HB14A01 - CONTROL ACCESS:
1. Control entrance to the Btry Tac Site and conducts security check/search

32. HB14A02 - ASSIST IN RSOP SECURITY/TRAFFIC CONTROL:
1. Conducts a sweep operation (mine & NBC)
2. Secure RSOP perimeter
3. Set-up and test NBC alarm

33. HB14X01 - MAINTAIN INTERMENT FACILITY FOR POW'S:
1. Guard interment area

34. FB01A04 - PROVIDES SUPPLY, (AMMO), BILLETING AND MESS SUPPORT FOR BTRY PERSONNEL:
1. Set-up dining facility
2. Prepare a meal
3. Clean mess facilities
4. Set-up supply room

35. FB01A06 - OPERATE CP - HQ:
1. Plan and conduct RSOP
2. Plan movement to tactical location
3. Prepare, organize, and implement Unit Defense Plan
4. Set-up Command Post (Btry HQ)
5. Establish commo
6. Establish SHORAD Defense (Btry HQ)

36. FB01A07 - COORDINATE NBC OPERATIONS - HQ:
1. Set-up NBC Cell
2. Set-up Decontamination facility
3. Collect, evaluate and disseminate NBC information

37. FB01A08 - PREPARE PLANS AND SOP'S (TACTICAL) - HQ:
1. Manage preparation of Btry SOP and Annexes
2. Prepare/organize and implement Deployment Plan

38. FB01X01 - ORGANIZE SPECIALITY TEAMS - HQ:
1. Direct employment of speciality teams

39. FB02A01 - PROVIDE WIRE COMMUNICATION - COMMUNICATIONS:
1. Set-up wire net

2. Troubleshoot wire net
3. Recover wire

40. FB02A04 - PROVIDE ORGANIZATIONAL MAINTENANCE ON BTRY COMMO EQUIP:
1. Maintain/sustain radio net

41. FB03A01 - PROVIDE TECHNICAL/ASSISTANCE AND OPERATOR TRAINING ON HAWK SYSTEM - SYSTEM SUPPORT:
1. Conduct ORE (Btry) training
2. Conduct ASP training
3. Conduct system technical inspections

42. FB03A02 - MAINTAIN MISSILE SYSTEM SUPPORT PLL - SYSTEM SUPPORT:
1. Maintain PLL reference record reports
2. Store and transport PLL
3. Requisition/turn-in repair parts
4. Compute PLL stockage
5. System check repair parts
6. Conduct inventories and reviews
7. Manage Missile system logistical funding data/ records/reports
8. Prepare PLL annex to Btry maintenance SOP

43. FB03A03 - PREPARE AND IMPLEMENT SOP - SYSTEM SUPPORT:
1. Collect and maintain references
2. Coordinate preparation of individual annexes
3. Provide and implement SOP

44. FB03A04 - PROVIDE SYSTEM ORGANIZATIONAL MAINTENANCE:
1. Perform periodic/special system checks and adjustments
2. Troubleshoot Hawk System malfunctions
3. Troubleshoot communications subsystem
4. MANPADS (REDEYE-STINGER) maintenance
5. Provide assistance when TPQ-29 is intergrated into Btry system
6. Provide system support for AFP when deployed separately
7. Provide quality control during maintenance activities

45. FB03A05 - COORDINATE SUPPORT WITH MAINTENANCE BTRY:
1. Request technical assistance on maintenance problems and assist in performing system repairs
2. Schedule periodic checks/services

46. FB03X02 - ASSIST IN OPERATOR FUNCTIONS (TCO, TCA, FCO):
1. Perform O/A as a crewmember
2. Perform ICS's as a crewmember
3. Preform emplacement of equipment as a crewmember
4. Preform preparation for travel as a crewmember
5. Perform Alert Drills as a crewmember

47. FB04A01 - c2 AFP WHEB DEPLOYED TOGETHER - (BASE PLATOON):
1. Assign targets to AFP for engagements

2. Monitor AFP target engagements
3. Provide Early Warning and plot-tell information to AFP

48. FB04A02 - ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT AND MISSILES:
1. Perform Battle Stations Drill
2. Detect Targets
3. Evaluate Targets
4. Engage, monitor, assess engagement results
5. Engage High speed hostile aircraft
6. Engage Low speed hostile aircraft
7. Engage Helicopter
8. Engage maneuvering target
9. Engage Air to Surface Missiles
10. Combat ECM
11. Conduct emergency Disarm and Relaod

49. FB04A03 - PROVIDE MANPADS DEFENSE TEAMS:
1. Provide Early Warning and c2 information and identification to SHORAD Team Chief (in CP)

50. FB04A04 - PROVIDE TACTICAL COMMUNICATIONS (PRIMARY/SECONDARY):
1. Establish required nets
2. Maintain/sustain required nets

51. FB04A05 - ASSIST IN AIR SPACE MANAGEMENT:
1. Report violations of restricted air space
2. Increase surveillance and report track information to FDC

52. FB04A06 - DEPLOY FIRING PLATOON FOR AIR DEFENSE OPERATIONS:
1. Recall/movement to tactical location
2. Load vehicles according to load plan
3. Plan and conduct RSOP
4. Prepare for travel (MARCH ORDER)
5. Assist in convoy organization
6. Prepare platoon equipment for internal air load
7. Prepare platoon equipment for external/enternal air load by cargo helicopter
8. Prepare platoon equipment for land travel (rail, flatbed truck
9. Prepare platoon equipment for shipment by sea
10. Emplace Hawk Missile System
11. Prepare system for Air Defense Operation

53. FB04X01 - PERFORM DECANNING AND SERVICE OPERATIONS:
1. Decan replacement missiles
2. Assemble replavement missiles
3. Load replacement missiles

54. FB08A08 - MAINTAIN PERIODIC/SPECIAL VEHICLE SERVICES:
1. Perform periodic/special vehicles services

55 FB11A01 - OPERATE AS A SEPARATE FIRE UNIT: (AFP)
1. Load vehicles according to load plan
2. Plan and conduct RSOP
3. Prepare for travel
4. Assist in convoy organization
5. Prepare platoon equipment for internal air load
6. Prepare platoon equipment for internal/external air load by cargo helicopter
7. Prepare platoon equipment for land travel (rail, flatbed truck)
8. Prepare platoon equipment for shipment by sea
9. Emplace Assult Fire Platoon equipment
10. Prepare system for Air Defense operation
11. Establish Platoon Command Post
12. Operate Platoon Command Post and coordinate combat service support
13. Provide EW, c2 information and identification to SHORAD Team Chief

56. FB11A02 - ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT (AFP):
1. Perform Battle Stations Drill
2. Detect Targets
3. Evaluate Targets
4. Engage HI-Speed Targets
5. Engage, Monitor, Assess Engagement Results
6. Engage Helicopter
7. Engage Maneuvering Target
8. Engage Air to Surface Missile
9. Combat ECM
10. Conduct Emergency Disarm and Reload

57. FB11A03 - PROVIDE MANPADS TEAM:
1. Provide Early Warning to SHORAD Team Chief

58. FB11A04 - PROVIDE TACTICAL COMMUNICATIONS:
1. Establish regulation nets
2. Sustain/maintain regulation nets

59. FB11A05 - ASSIST IN AIR SPACE MANAGEMENT:
1. Report violation of restricted Air Space
2. Increase surveillance and report track information to FDC

60. FB11X01 - PERFORM DECANNING PERFORMANCE OPERATIONS:
1. Decan replacement missiles
2. Assemble replacement missiles
3. Load replacement missiles

61. FB14A01 - CONTROL ACCESS:
1. Control entrance to the Btry Tac Site and conducts

security checks/searches

62. FB14A02 - ASSIST IN RSOP SECURITY/TRAFFIC CONTROL:
1. Conduct a sweep operations (mine & NBC)
2. Secure RSOP perimeter
3. Set-up and test NBC chemical alarm

63. FB14X01 - MAINTAIN INTERMENT FACILITY FOR POW'S:
1. Guard interment area

64. SUSTAIN OPERATIONS:
1. Provide for crew rotation for continuous operations
2. Replenish supplies and equipment for continuous operations

65. ASSIST IN PERIMETER SECURITY:
1. Man crew served weapons

66. ASSIST IN SPECIALTY TEAMS (RSOP):
1. Secure perimeter
2. Man crew served weapons
3. Conduct NBC/Mine sweep

67. ASSIST IN SPECIALTY TEAMS (FIREFIGHTING):
1. Extinguish different types of fires

68. ASSIST IN SPECIALTY TEAMS (EVACUATION OF CASUALTIES):
1. Transport individual casualties by stretcher

69. ASSIST IN SPECIALTY TEANS (SMOKE/DECEPTION):
1. Construct and erect a dummy site
2. Modify equipment silhouettes

70. ASSIST IN SPECIALTY TEAMS (CONVOYS):
1. Check vehicles and loads
2. Load vehicles in accordance with loading plans
3. Operate vehicles in black out conditions
4. Defend convoy against air attack

71. ASSIST IN SPECIALTY TEAMS (REACTION FORCE):
1. Conduct an intelligence patrol (reconnaissance)
2. Repal ground attack
3. Control civil disturbance
4. Re-enforce perimeter defense

72. PROVIDE SMALL ARMS AIR DEFENSE:
1. Defend position against attacking aircraft w/crew served weapons
2. Defend convoy against attacking aircraft w/crew served weapons
3. Defend position against attacking aircraft w coordinated mass fire

4. Defend convoy against attacking aircraft w/coordinated mass fire

73. IMPLEMENTS/PREPARES DENIAL PLAN:
1. Prepares and implement a plan to destroy equipment with gunfire
2. Prepares and implement a plan to destroy equipment machanically
3. Prepares and implement a plan to destroy equipment using explosives
4. Prepares and implement a plan to render equipment inoperative by removing and destroying critical selected parts

74. CONDUCT SECTION TRAINING:
1. Conduct crew drills/training

75. ASSIST IN UNIT DEPLOYMENT:
1. Preparation for movement of unit and equipment
2. Equipment emplacement
3. Initialization for system operations
4. Participate in unit movement

76. RESPONSIBLE FOR APPROPRIATE ANNEXES FOR ORDERS, PLANS AND SOP'S:
1. Provide annexes as required

APPENDIX E

TASK CRITICALITY ASSESSMENT
INSTRUCTIONS, RATING FORMS, AND RESULTS

Instructions for Collective
Task Criticality Assessment

As part of the HAWK CFEA, one of the steps in the process is to conduct an assessment of collective task criticality. The task criticality assessment will determine which collective tasks are included in the new HAWK ARTEP. Because of your in-depth knowledge of HAWK operations you have been asked to participate in the assessment of task criticality.

When we talk about task criticality we really mean the importance of training a task. That is, of all the collective tasks, which ones should we concentrate our training resources on. A number of factors affect task criticality. Of course, one of the most important factors determining criticality is the importance of a task to accomplishment of the mission it supports. Other factors also impact criticality. Tasks that are difficult to perform, for example, should be considered as critical for training because there is a good chance that performance proficiency will deteriorate over time. Therefore, periodic retraining of the task is required to maintain proficiency.

Nine factors have been selected to assess task criticality. These factors have been developed by combining factors from several different criticality assessment procedures. We feel that the factors used here are the best available. The nine factors and the ratings used for each factor are presented on the page that follows.

Thanks for your assistance.

Task Criticality Dimensions

A. Learning Difficulty - Is the task hard to learn?
   L = Easy to learn - can be self-trained
   M = Some difficulty in learning - requires some assistance to learn
   H = Hard to learn - requires supervision, extensive practice or special procedures to learn

B. Performance Difficulty - Is the task hard to perform?
   L = Easy to perform - can perform correctly on initial effort and each repetition - includes only simple general skills
   M = Some difficulty in performing - requires practice and assistance to perform in field unit - moderate level skills
   H = Hard to do - requires considerable practice and assistance to perform in field unit - High probability of some performance failures - includes complex skills

C. Time Delay Tolerance - What is the time allowed between receiving the task cue and starting the performance?
   L = No need to start task at any specific time
   M = Task start can be delayed for several minutes to a few hours
   H = Must begin immediately or within a few minutes after cue - primarily are actions that must be performed in an emergency situation

D. Consequence of Inadequate Performance - How serious is the effect of improper performance or non-performance on survival of personnel and/or equipment.
   L = Has little or no effect on personnel and/or equipment survival.
   M = Could mildly affect personnel and/or equipment survival.
   H = Would result in injury or death to self or others or damage or destruction of equipment.

E. Immediacy of performance - How soon after arrival in field unit could task performance be required?
   L = Not for several months
   M = Within the first several weeks (4-12 weeks)
   H = Within the first one or two weeks

F. Task Importance
   L = Failure or non-performance would have little or no effect on mission accomplishment
   M = Failure or non-performance would degrade overall mission performance
   H = Task must be performed successfully for mission to be accomplished

G. Frequency of Performance - How often is the task called for?
   L = Infrequently - once a month or less
   M = Occasionally - once every one to three weeks
   H = Frequently - more often than once a week

H. Wartime Task - Is the task oriented towards wartime operations?
   1 = Peacetime only - task is not performed during wartime
   2 = War & Peace - task is performed both in peace and in war
   3 = Wartime only - task is never performed until wartime

I. Proficiency Decay Rate - How frequently must the task be performed to assure that skills are not reduced below task standards?
   L = Task skills require little or no practice to retain
   M = Task requires infrequent practice - once every one to three months
   H = Frequent practice required - more often than once a month

J. C^2 refers to command and control.

CRITICALITY ASSESSMENT
OF COLLECTIVE TASKS
PERFORMED BY HQ & HQ BTRY
FB03A00 - Firing Btry System Maint

Name_____

Duty Position_____

Date_____

MOS_____

Title_____

Mission - Tasks	Sec	Learning Difficulty	Performance Difficulty	Time Delay Tolerance	Consequence of Inadequate Performance	Immediacy of Performance	Task Importance	Frequency of Performance	Wartime Task	Proficiency Delay Rate
46. FB03X02 - Assist in operator functions (TCO, TCA, FCO)										
1. Perform O/A as a cremember 14D, 16D, 16#										
2. Perform ISC's as a crewmember 14D, 16D, 16E										
3. Perform emplacement of equipment as a crewmember 14D, 16D, 16E										
4. Perform preparation for travel as a crewmember 14D, 16D, 16E										
5. Perform alert drills as a crewmember 14D, 16D, 16E										

RESULTS OF TASK CRITICALITY ASSESSMENT

THE FOLLOWING TASKS ARE RECOMMENDED FOR INCLUSION IN THE ARTEP.

RECORD # 2 HB02A04.01: SET UP/OPERATE FIELD KITCHEN
RECORD # 3 HB02A04.02: PREPARE AND SERVE MEAL
RECORD # 4 HB02A04.03: CLEAN MESS FACILITIES
RECORD # 5 HB02A04.04: SET UP SUPPLY ROOM ACTIVITIES
RECORD # 6 HB02A06.01: SET UP CP
RECORD # 7 HB02A06.02: PREPARE/ORGANIZE AND IMPLEMENT UNIT DEFENSE PLAN
RECORD # 8 HB02A06.03: ESTABLISH AND MONITOR COMMO
RECORD # 9 HB02A07.01: SUPERVISE PREPARATION OF BATTERY SOP'S ANNEXES (TACTICAL)
RECORD # 10 HB02A09.01: ORGANIZE SPECIALITY TEAMS
RECORD # 11 HB02X03.01: CO-ORDINATE NBC OPS
RECORD # 12 HB02X03.02: SET UP NBC CELL
RECORD # 13 HB02X03.03: SET UP DECON FACILITY
RECORD # 14 HB02X03.04: COLLECT/EVALUATE AND DISSEMINATE NBC INFORMATION
RECORD # 15 HB04A01.01: PREPARE AD/OPS PLAN
RECORD # 16 HB04A01.02: PREPARE ORDERS (FRAG
RECORD # 17 HB04A01.03: PREPARE DEPLOYMENT PLAN
RECORD # 18 HB04A01.04: PREPARE SOP'S
RECORD # 20 HB04A03.01: COLLECT INFO (INTERROGATION)
RECORD # 21 HB04A03.02: PROCESS INFO FOR INTELLIGENCE
RECORD # 22 HB04A03.03: PREPARE SITREPS
RECORD # 23 HB04A06.01: SEARCH POW'S
RECORD # 24 HB04A07.01: OVERSEE ESTABLISHMENT & OPERATION OF DUMMY SITES
RECORD # 25 HB04A10.01: SET-UP BATTALION HQ/CP/TOC
RECORD # 26 HB04A10.02: ESTABLISH AND MONITOR COMMO
RECORD # 27 HB04A10.03: MAINTAIN AND MONITOR SITUATION MAPS
RECORD # 28 HB04A10.04: PROCESS AND REACT TO MESSAGE IMPUTS
RECORD # 29 HB04A10.05: PLAN AND COORDINATE BATTERY MOVEMENT
RECORD # 30 HB05A01.01: SET-UP WIRE NETS
RECORD # 31 HB05A01.02: TROUBLESHOOT WIRE NETS
RECORD # 32 HB05A02.01: SET-UP ANTENNA
RECORD # 33 HB05A02.02: EMPLACE MESSAGE CENTER SWITCHBOARD
RECORD # 34 HB05A03.01: ESTABLISH ALL RADIO NETS
RECORD # 35 HB05A03.02: SET-UP RADIO RELAY STATION
RECORD # 36 HB05A03.03: SET-UP ANTENNAS (AS REQUIRED)
RECORD # 37 HB05A03.04: TROUBLESHOOT RADIO NET PROBLEMS & MALFUNCTIONS
RECORD # 38 HB05A05.01: DEVELOP BATTALION COMMUNICATIONS PLAN
RECORD # 39 HB05A05.02: ASSIST IN IMPLEMENTING PLAN
RECORD # 40 HB05A06.01: DEPLOY RELAY TEAMS TO FIRING UNITS
RECORD # 41 HB05A06.02: ESTABLISH & MAINTAIN MULTICHANNEL CIRCUITS
RECORD # 42 HB05A07.01: ESTABLISH SECURE SYSTEM
RECORD # 43 HB08A09.01: PERFORM PERIODIC/SPECIAL VEHICLE SERVICES
RECORD # 44 HB09A03: ESTABLISHES/COORDINATES BN MATERIAL READINESS PLAN
RECORD # 45 HB10A01.01: CONDUCT SICK CALL (SCREENING-TREATMENT)
RECORD # 46 HB10A01.02: PERFORM SURGICAL OPERATIONS TECHNIQUES

RECORD = 87 MB10A01.03 STABLIZE SERIOUSLY WOUNDED PERSONNEL
RECORD = 88 MB10A01.04 ESTABLISH PREVENTIVE MAINT PROGRAMS
RECORD = 89 MB10A02.01 SET-UP AID STATION
RECORD = 90 MB10A02.02 PROCESS CASUALTIES
RECORD = 91 MB10A02.03 TRANSPORT CASUALTIES
RECORD = 92 MB10A02.04 MAINTAIN MEDICAL SUPPLIES
RECORD = 93 MB10X01.01 ASSIST IN SETTING UP DECONTAMINATION PROGRAM
RECORD = 94 MB10X01.02 AIDS IN PERSONNEL DECON & NBC MONITORING
RECORD = 95 MB10X01.03 DECON SECTION EQUIPMENT
RECORD = 96 MB12A01.01 SET-UP MANUAL BOC VAN
RECORD = 97 MB12A02.01 ESTABLISH COMMUNICATIONS
RECORD = 98 MB12A02.03 EMPLACE POWER EQUIPMENT
RECORD = 99 MB12A02.04 CONDUCT CREW DRILL
RECORD = 100 MB12A03.01 IDENTIFY/CORRELATE TARGETS
RECORD = 101 MB12A03.02 ASSIGN AND CONTROL ENGAGEMENTS
RECORD = 102 MB12A03.03 MONITOR TACTICAL SITUATION
RECORD = 103 MB12A04.01 DEPLOY MANPADS TEAM
RECORD = 104 MB12A04.02 PROVIDE EARLY WARNING TO MANPADS TEAM
RECORD = 105 MB12A05.01 CONDUCT EXERCISES
RECORD = 106 MB12A05.02 CONDUCT CREW DRILLS/ORE'S
RECORD = 107 MB12A05.03 TRAIN MANPADS TEAM
RECORD = 108 MB12A06.01 REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD = 109 MB12A06.02 INCREASE SURVEILLANCE & REPORTING TRACK INFO TO CP TSQ-73
RECORD = 110 MB12A06.03 MAINTAIN/UPDATE AIR UTILIZATION MAP
RECORD = 111 MB12A08.01 ESTABLISH COMMUNICATIONS
RECORD = 112 MB12A08.02 EMPLACE SYSTEM
RECORD = 113 MB12A08.03 PROVIDE POWER
RECORD = 114 MB12A08.04 INITIALIZE SYSTEM FOR OPERATIONS
RECORD = 116 MB13A01.02 ASSIST IN TAC EVALUATIONS
RECORD = 123 MB13B01.06 TRAIN PERSONNEL IN MOVEMENT OPERATIONS
RECORD = 124 MB13B01.07 TRAIN PERSONNEL IN ELECTRO MAGNETIC PROTECTION
RECORD = 126 MSX13A01.01 ASSIST MAINT/FIRING BTRY PERSONNEL IN ISOLATING/REPAIRING HAWK SYSTEM
RECORD = 127 MB14A01.01 CONTROL ENTRY TO BTRY TAC SITE & CONDUCT SECURITY CHECK/SEARCH
RECORD = 128 MB14A02.01 CONDUCTS SWEEP OPERATIONS
RECORD = 129 MB14A02.02 SECURE RSOP PERIMETER
RECORD = 130 MB14A02.03 SET AND TEST NBC CHEMICAL ALARM
RECORD = 131 MB14X01.01 GUARD INTERMENT AREA
RECORD = 132 FB01A04.01 SET-UP AND OPERATE FIELD KITCHEN
RECORD = 133 FB01A04.02 PREPARE AND SERVE MEAL
RECORD = 134 FB01A04.03 CLEAN MESS FACILITIES
RECORD = 135 FB01A04.04 SET-UP SUPPLY ROOM
RECORD = 136 FB01A06.01 SET-UP CP
RECORD = 137 FB01A06.02 ESTABLISH SHORAD DEFENSE
RECORD = 138 FB01A06.03 PREPARE/ORGANIZE & IMPLEMENT UNIT DEFENSE PLAN
RECORD = 139 FB01A06.04 ESTABLISH COMMUNICATIONS
RECORD = 140 FB01A06.05 PLAN AND CONDUCT RSOP
RECORD = 141 FB01A06.06 PLAN & CONDUCT MOVEMENT TO TACTICAL LOCATION
RECORD = 142 FB01A07.01 SET-UP NBC CELL
RECORD = 143 FB01A07.02 SET-UP DECON FACILITY
RECORD = 144 FB01A07.03 COLLECT/EVALUATE & DISSEMINATE NBC INFORMATION
RECORD = 146 FB01A08.02 PREPARE/ORGANIZE & IMPLEMENT DEPLOYMENT PLAN
RECORD = 147 FB01X01.01 DIRECT EMPLOYMENT OF SPECIALITY TEAMS

RECORD # 108 FB02A01 01. SET-UP WIRE NET
RECORD # 109 FB02A01 02 TROUBLESHOOT WIRE NET
RECORD # 111 FB02A04 01. MAINTAIN/SUSTAIN RADIO NET
RECORD # 112 FB03A01 01 CONDUCT ORE (BTRY) TRAINING
RECORD # 115 FB03A02.01: MAINTAIN PLL REFERENCE RECORDS/REPORTS
RECORD # 116 FB03A02.02: STORE AND TRANSPORT PLL
RECORD # 117 FB03A02 03: REQUISITION/TURN-IN REPAIR PARTS
RECORD # 118 FB03A02.04: COMPUTE PLL STOCKAGE
RECORD # 119 FB03A02.05: SYSTEM CHECK REPAIR PARTS
RECORD # 120 FB03A02.06. CONDUCT INVENTORIES AND REVIEWS
RECORD # 121 FB03A02.07. MANAGE MSL SYSTEM LOGISTICAL FUNDING REPORTS
RECORD # 122 FB03A02 08: PREPARE PLL ANNEX TO BTRY MAINT SOP
RECORD # 123 FB03A03.01: COLLECT AND MAINTAIN REFERENCES
RECORD # 124 FB03A03 02: COORDINATE PREPARTION OF INDIVIDUAL ANNEXES
RECORD # 125 FB03A03.03: PROVIDE AND IMPLEMENT SOP
RECORD # 126 FB03A04.01: PERFORM PERIODIC/SPECIAL SYSTEM CHECKS
RECORD # 127 FB03A04.02: TROUBLESHOOT HAWK SYSTEM MALFUNCTIONS
RECORD # 128 FB03A04 03 TROUBLESHOOT COMMO SUBSYSTEM
RECORD # 129 FB03A04.04: MANPADS (REDEYE-STINGER) MAINTENANCE
RECORD # 130 FB03A04 05 PROVIDE ASSISTANCE WHEN TFQ-29 IS INTERGRATED INTO SYSTEM
RECORD # 131 FB03A04 06 PROVIDE SYSTEM SUPPORT FOR AFP WHEN DEPLOYED SEPARATELY
RECORD # 132 FB03A04.07 PROVIDE QUALITY CONTROL DURING MAINT ACTIVITIES
RECORD # 133 FB03A05 01. REQUEST MAINT ASSISTANCE ON MAINT PROBLEMS
RECORD # 134 FB03A05 02 SCHEDULE PERIODIC CHECKS/SERVICES
RECORD # 135 FB03A02.01: PERFORM O/A AS A CREWMEMBER
RECORD # 136 FB03X02 02 PERFORM ISC'S AS A CREWMEMBER
RECORD # 137 FB03X02 03: PERFORM EMPLACEMENT AS A CREWMEMBER
RECORD # 138 FB03X02 04: PERFORM PREPARTION FOR TRAVEL AS A CREWMEMBER
RECORD # 139 FB03X02 05: PERFORM ALERT DRILLS AS A CREWMEMBER
RECORD # 140 FB04A01 01. ASSIGN TARGETS TO AFP FOR ENGAGEMENT
RECORD # 141 FB04A01 02 MONITOR AFP TARGET ENGAGEMENTS
RECORD # 142 FB04A01 03: PROVIDE EW & PLOT-TELL INFO TO AFP
RECORD # 143 FB04A02.01: PERFORM BATTLE STATIONS CREW DRILL
RECORD # 144 FB04A02 02: DETECT TARGETS
RECORD # 145 FB04A02.03: EVALUATE TARGETS
RECORD # 146 FB04A02.04: ENGAGE/MONITOR/ASSESS ENGAGEMENT RESULTS
RECORD # 147 FB04A02.05: ENGAGE HI SPEED HOSTILE AIRCRAFT
RECORD # 148 FB04A02.06. ENGAGE LOW SPEED HOSTILE AIRCRAFT
RECORD # 149 FB04A02.07: ENGAGE HELICOPTER
RECORD # 150 FB04A02.08 ENGAGE MANEUVERING AIRCRAFT
RECORD # 151 FB04A02 09. ENGAGE AIR TO SURFACE MISSILES
RECORD # 152 FB04A02.10: COMBAT ECM
RECORD # 153 FB04A02.11: OPERATE IN ECM ENVIRONMENT
RECORD # 154 FB04A02.12. CONDUCT MISSILE RELOAD
RECORD # 155 FB04A02 13. CONDUCT EMERGENCY DISARM
RECORD # 156 FB04A03 01: PROVIDE C2 INFO & IDENTIFICATION TO SHORAD TEAM CHIEF (IN CP)
RECORD # 157 FB04A04.01: ESTABLISH REQUIRED NETS
RECORD # 158 FB04A04.02. MAINTAIN/SUSTAIN REQUIRED NETS
RECORD # 159 FB04A05.01. REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 160 FB04A05 02: INCREASE SURVEILLANCE & REPORT TRACK INFO TO OC/CRC
RECORD # 161 FB04A06.02. LOAD VEHICLES ACCORDING TO LOAD PLAN
RECORD # 162 FB04A06.02 PLAN AND CONDUCT RSOP

RECORD # 163 FB04A06.04: PREPARE FOR TRAVEL
RECORD # 164 FB04A06.05: ASSIST IN CONVOY ORGANIZATION
RECORD # 165 FB04A06.06: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD
RECORD # 166 FB04A06.07: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD
RECORD # 167 FB04A06.08: PREPARE PLATOON EQUIP FOR LAND TRAVEL
RECORD # 168 FB04A06.09: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA
RECORD # 169 FB04A06.10: EMPLACE PLATOON EQUIPMENT
RECORD # 170 FB04A06.11: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS
RECORD # 171 FB04X01.01: DECAN REPLACEMENT MISSILES
RECORD # 172 FB04X01.02: ASSEMBLE REPLACEMENT MISSILES
RECORD # 173 FB04X01.03: LOAD REPLACEMENT MISSILES
RECORD # 174 FB04X01.04: PERFORM EMERGENCY DISARM
RECORD # 175 FB08A08.01: PERFORM PERIODIC/SPECIAL VEHICLE SERVICES
RECORD # 176 FB11A01.01: LOAD VEHICLES (AFP)
RECORD # 177 FB11A01.02: PLAN AND CONDUCT RSOP (AFP)
RECORD # 178 FB11A01 03: PREPARE FOR TRAVEL (AFP)
RECORD # 179 FB11A01 04: ORGANIZE CONVOY (AFP)
RECORD # 180 FB11A01.05: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD (AFP)
RECORD # 181 FB11A01.06: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD (AFP)
RECORD # 182 FB11A01.07: PREPARE PLATOON EQUIP FOR LAND TRAVEL (AFP)
RECORD # 183 FB11A01.08: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA (AFP)
RECORD # 184 FB11A01.09: EMPLACE PLATOON EQUIP (AFP)
RECORD # 185 FB11A01.10: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS (AFP)
RECORD # 186 FB11A01.11: ESTABLISH PLATOON CP (AFP)
RECORD # 187 FB11A01.12: OPERATE PLATOON CP (AFP)
RECORD # 188 FB11A01.13 PROVIDE COMBAT SERVICE SUPPORT/COORD W/SUPPORTED UNITS (AFP)
RECORD # 189 FB11A01.14: PROVIDE SHORAD EARLY WARNING (AFP)
RECORD # 190 FB11A01.15: OPERATE IN CENTRALIZED/DECENTRALIZED MODE (AFP)
RECORD # 191 FB11A02.01: PERFORM BATTLE STATIONS CREW DRILL (AFP)
RECORD # 192 FB11A02.02: DETECT TARGETS (AFP)
RECORD # 193 FB11A02.03: EVALUATE TARGETS (AFP)
RECORD # 194 FB11A02.04: ENGAGE HI SPEED TARGETS (AFP)
RECORD # 195 FB11A02.05: ENGAGE LOW SPEED TARGETS (AFP)
RECORD # 196 FB11A02 06: ENGAGE HELICOPTERS (AFP)
RECORD # 197 FB11A02.07: ENGAGE MANEUVERING TARGETS (AFP)
RECORD # 198 FB11A02.08: ENGAGE AIR TO SURFACE MISSILES (AFP)
RECORD # 199 FB11A02.09: COMBAT ECM (AFP)
RECORD # 200 FB11A02.10: OPERATE IN ECM ENVIRONMENT (AFP)
RECORD # 201 FB11A02.11. PERFORM MISSILE RELOAD (AFP)
RECORD # 202 FB11A02.12: PERFORM EMERGENCY DISARM (AFP)
RECORD # 203 FB11A03.01: DEPLOY MANPADS TEAM (AFP)
RECORD # 204 FB11A03.02: PROVIDE EW TO SHORAD TEAM CHIEF (AFP)
RECORD # 205 FB11A04.01: ESTABLISH REGULATION NETS (AFP)
RECORD # 206 FB11A04.02: SUSTAIN/MAINTAIN REGULATION NETS (AFP)
RECORD # 207 FB11A05.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE (AFP)
RECORD # 208 FB11A05.02: INCREASE SURVEILLANCE & REPORTING TRACK INFO TO TOC/CRC (AFP)
RECORD # 209 FB11X01.01: DECAN REPLACEMENT MISSILES (AFP)
RECORD # 210 FB11X01.02. ASSEMBLE REPLACEMENT MISSILES (AFP)
RECORD # 211 FB11X01.03: LOAD REPLACEMENT MISSILES (AFP)
RECORD # 212 FB14A01.01: CONTROL ENTRANCE TO BTRY TAC SITE
RECORD # 213 FB14A02.01: CONDUCT SWEEP OPERATIONS (MINE & NBC)
RECORD # 214 FB14A02.02: SECURE RSOP PERIMETER

RECORD # 215 FB14A02.03: SET-UP & TEST NBC CHEMICAL ALARM
RECORD # 216 FB14X01.01: GUARD INTERMENT AREA
RECORD # 217 64.01: PROVIDE FOR CREW ROTATION FOR CONTINUOUS OPERATIONS
RECORD # 218 64.02: REPLINISH SUPPLIES & EQUIP DURING CONTINUOUS OPERATIONS
RECORD # 219 65.01: MAN CREW SERVED WEAPONS
RECORD # 220 66.01: SECURE PERIMETER
RECORD # 221 66.02: MAN CREW SERVED WEAPONS
RECORD # 222 66.03: CONDUCT NBC/MINE SWEEP
RECORD # 223 67.01: EXTINGUISH DIFFERENT TYPES OF FIRES
RECORD # 224 68.01: TRANSFORT INDIVIDUAL CASUALTIES BY STRETCHER
RECORD # 225 69.01: CONSTRUCT AND ERECT A DUMMY SITE
RECORD # 226 69.02: MODIFY EQUIPMENT SILHOUETTES
RECORD # 227 70.01: CHECK VEHICLES AND LOADS
RECORD # 228 70.02: LOAD VEHICLES IN ACCORDANCE WITH LOADING PLANS
RECORD # 229 70.03: OFERATE VEHICLES IN BLOCKOUT GONDITIONS
RECORD # 230 70.04: DEFEND CONVOY AGAINST AIR ATTACK
RECORD # 231 70.05: DEFEND CONVOY AGAINST GROUND AMBUSH
RECORD # 232 71.01: CONDUCT AN INTELLIGENCE PATROL (RECON)
RECORD # 233 71.02: REPEL GROUND ATTACK
RECORD # 234 71.03: CONTROL CIVIL DISTURBANCE
RECORD # 235 71.04: REENFORCE PERIMETER DEFENSE
RECORD # 236 72.01: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 237 72.02: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 238 72.03: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 239 72.04: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 240 73.01: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT WITH GUNFIRE
RECORD # 241 73.02: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT MECHANICALLY
RECORD # 242 73.03: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT USING EXPLOSIVES
RECORD # 243 73.04: PREPARES & IMPLEMENT PLAN TO RENDER EQUIP NON-OP BY REMOVING/DESTROYING
RECORD # 244 74.01: CONDUCT CREW DRILLS/TRAINING
RECORD # 245 75.01: PREPARTION FOR MOVEMENT OF UNIT/EQUIPMENT
RECORD # 246 75.02: EMPLACE EQUIPMENT
RECORD # 247 75.03: INITIALIZE SYSTEM FOR OPERATIONS
RECORD # 248 75.04: PARTICIPATE IN UNIT MOVEMENT
RECORD # 249 76.01: PROVIDE ANNEXES AS REQUIRED
RECORD # 250 77.01: CONVOY OPERATIONS

THE FOLLOWING TASKS SHOULD BE TRAINED IN A RESIDENT SCHOOL.

RECORD # 2 HB02A04.01: SET UP/OPERATE FIELD KITCHEN
RECORD # 3 HB02A04.02: PREPARE AND SERVE MEAL
RECORD # 5 HB02A04.04: SET UP SUPPLY ROOM ACTIVITIES
RECORD # 6 HB02A06.01: SET UP CP
RECORD # 7 HB02A06.02: PREPARE/ORGANIZE AND IMPLEMENT UNIT DEFENSE PLAN
RECORD # 8 HB02A06.03: ESTABLISH AND MONITOR COMMO
RECORD # 9 HB02A07.01: SUPERVISE PREPARATION OF BATTERY SOP'S ANNEXES (TACTICAL)
RECORD # 10 HB02A08.01: ORGANIZE SPECIALITY TEAMS
RECORD # 11 HB02X03.01: CO-ORDINATE NBC OPS
RECORD # 12 HB02X03.02: SET UP NBC CELL
RECORD # 13 HB02X03.03: SET UP DECON FACILITY
RECORD # 14 HB02X03.04: COLLECT/EVALUATE AND DISSEMINATE NBC INFORMATION
RECORD # 15 HB04A01.01: PREPARE AD/OPS PLAN
RECORD # 16 HB04A01.02: PREPARE ORDERS (FRAG
RECORD # 17 HB04A01.03: PREPARE DEPLOYMENT PLAN
RECORD # 18 HB04A01.04: PREPARE SOP'S
RECORD # 19 HB04A01.05: PREPARE TRAINING PLAN
RECORD # 20 HB04A03.01: COLLECT INFO (INTERROGATION)
RECORD # 21 HB04A03.02: PROCESS INFO FOR INTELLIGENCE
RECORD # 22 HB04A03.03: PREPARE SITREPS
RECORD # 24 HB04A07.01: OVERSEE ESTABLISHMENT & OPERATION OF DUMMY SITES
RECORD # 25 HB04A10.01: SET-UP BATTALION HQ/CP/TOC
RECORD # 26 HB04A10.02: ESTABLISH AND MONITOR COMMO
RECORD # 27 HB04A10.03: MAINTAIN AND MONITOR SITUATION MAPS
RECORD # 28 HB04A10.04: PROCESS AND REACT TO MESSAGE IMPUTS
RECORD # 29 HB04A10.05: PLAN AND COORDINATE BATTERY MOVEMENT
RECORD # 30 HB05A01.01: SET-UP WIRE NETS
RECORD # 31 HB05A01.02: TROUBLESHOOT WIRE NETS
RECORD # 32 HB05A02.01: SET-UP ANTENNA
RECORD # 33 HB05A02.02: EMPLACE MESSAGE CENTER SWITCHBOARD
RECORD # 34 HB05A03.01: ESTABLISH ALL RADIO NETS
RECORD # 35 HB05A03.02: SET-UP RADIO RELAY STATION
RECORD # 36 HB05A03.03: SET-UP ANTENNAS (AS REQUIRED)
RECORD # 37 HB05A03.04: TROUBLESHOOT RADIO NET PROBLEMS & MALFUNCTIONS
RECORD # 38 HB05A05.01: DEVELOP BATTALION COMMUNICATIONS PLAN
RECORD # 39 HB05A05.02: ASSIST IN IMPLEMENTING PLAN
RECORD # 40 HB05A06.01: DEPLOY RELAY TEAMS TO FIRING UNITS
RECORD # 41 HB05A06.02: ESTABLISH & MAINTAIN MULTICHANNEL CIRCUITS
RECORD # 42 HB05A07.01: ESTABLISH SECURE SYSTEM
RECORD # 43 HB08A09.01: PERFORM PERIODIC/SPECIAL VEHICLE SERVICES
RECORD # 44 HB09A03: ESTABLISHES/COORDINATES BN MATERIAL READINESS PLAN
RECORD # 45 HB10A01.01: CONDUCT SICK CALL (SCREENING-TREATMENT)
RECORD # 46 HB10A01.02: PERFORM SURGICAL OPERATIONS TECHNIQUES
RECORD # 47 HB10A01.03: STABLIZE SERIOUSLY WOUNDED PERSONNEL
RECORD # 48 HB10A01.04: ESTABLISH PREVENTIVE MAINT PROGRAMS
RECORD # 49 HB10A02.01: SET-UP AID STATION
RECORD # 50 HB10A02.02: PROCESS CASUALTIES
RECORD # 51 HB10A02.03: TRANSPORT CASUALTIES
RECORD # 52 HB10A02.04: MAINTAIN MEDICAL SUPPLIES

RECORD # 53 MB10X01.01: ASSIST IN SETTING UP DECONTAMINATION PROGRAM
RECORD # 54 MB10X01.02: AIDS IN PERSONNEL DECON & NBC MONITORING
RECORD # 55 MB10X01.03: DECON SECTION EQUIPMENT
RECORD # 56 MB12A02.01: SET-UP MANUAL BOC VAN
RECORD # 57 MB12A02.02: ESTABLISH COMMUNICATIONS
RECORD # 58 MB12A02.03: EMPLACE POWER EQUIPMENT
RECORD # 59 MB12A02.04: CONDUCT CREW DRILL
RECORD # 60 MB12A03.01: IDENTIFY/CORRELATE TARGETS
RECORD # 61 MB12A03.02: ASSIGN AND CONTROL ENGAGEMENTS
RECORD # 62 MB12A03.03 : MONITOR TACTICAL SITUATION
RECORD # 64 MB12A04.02: PROVIDE EARLY WARNING TO MANPADS TEAM
RECORD # 65 MB12A05.01: CONDUCT EXERCISES
RECORD # 66 MB12A05.02: CONDUCT CREW DRILLS/ORE'S
RECORD # 67 MB12A05.03: TRAIN MANPADS TEAM
RECORD # 68 MB12A06.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 69 MB12A06.02: INCREASE SURVEILLANCE & REPORTING TRACK INFO TO CP TSQ-73
RECORD # 70 MB12A06.03: MAINTAIN/UPDATE AIR UTILIZATION MAP
RECORD # 71 MB12A08.01 : ESTABLISH COMMUNICATIONS
RECORD # 72 MB12A08.02: EMPLACE SYSTEM
RECORD # 73 MB12A08.03: PROVIDE POWER
RECORD # 74 MB12A08.04: INITIALIZE SYSTEM FOR OPERATIONS
RECORD # 75 MB13A01.01: CONDUCT ORE'S
RECORD # 76 MB13A01.02: ASSIST IN TAC EVALUATIONS
RECORD # 77 MB13A01.03: CONDUCTS EQUIPMENT MAINTENANCE
RECORD # 78 MB13B01.01: CONDUCT BTRY CREW TRAINING (TPQ-29)
RECORD # 79 MB13B01.02 : TRAIN AND CERTIFY OPERATORS
RECORD # 80 MB13B01.03: ASSIST IN ARTEP/TAC EVAL TRAINING
RECORD # 81 MB13B01.04: CONDUCT ASP TRAINING
RECORD # 82 MB13B01.05: ASSIST IN SQT TRAINING
RECORD # 83 MB13B01.06: TRAIN PERSONNEL IN MOVEMENT OPERATIONS
RECORD # 84 MB13B01.07: TRAIN PERSONNEL IN ELECTRO MAGNETIC PROTECTION
RECORD # 85 MB13B01.08: CONDUCT OC ORE'S
RECORD # 86 MBX13A01.01: ASSIST MAINT/FIRING BTRY PERSONNEL IN ISOLATING/REPAIRING HAWK SYSTE
RECORD # 88 MB14A02.01: CONDUCTS SWEEP OPERATIONS
RECORD # 89 MB14A02.02: SECURE RSOP PERIMETER
RECORD # 90 MB14A02.03: SET AND TEST NBC CHEMICAL ALARM
RECORD # 92 FB01A04.01: SET-UP AND OPERATE FIELD KITCHEN
RECORD # 93 FB01A04.02: PREPARE AND SERVE MEAL
RECORD # 95 FB01A04.04: SET-UP SUPPLY ROOM
RECORD # 96 FB01A06.01: SET-UP CP
RECORD # 97 FB01A06.02: ESTABLISH SHORAD DEFENSE
RECORD # 98 FB01A06.03: PREPARE/ORGANIZE & IMPLEMENT UNIT DEFENSE PLAN
RECORD # 99 FB01A06.04: ESTABLISH COMMUNICATIONS
RECORD # 100 FB01A06.05: PLAN AND CONDUCT RSOP
RECORD # 101 FB01A06.06: PLAN & CONDUCT MOVEMENT TO TACTICAL LOCATION
RECORD # 102 FB01A07.01: SET-UP NBC CELL
RECORD # 103 FB01A07.02: SET-UP DECON FACILITY
RECORD # 104 FB01A07.03: COLLECT/EVALUATE & DISSEMINATE NBC INFORMATION
RECORD # 105 FB01A08.01: MANAGE PREPARTION OF BTRY SOP'S & ANNEXES
RECORD # 106 FB01A08.02: PREPARE/ORGANIZE & IMPLEMENT DEPLOYMENT PLAN

RECORD # 107 FB01X01.01: DIRECT EMPLOYMENT OF SPECIALITY TEAMS
RECORD # 108 FB02A01.01: SET-UP WIRE NET
RECORD # 109 FB02A01.02: TROUBLESHOOT WIRE NET
RECORD # 111 FB02A04.01: MAINTAIN/SUSTAIN RADIO NET
RECORD # 112 FB03A01.01: CONDUCT ORE (BTRY) TRAINING
RECORD # 113 FB03A01.02: CONDUCT ASP TRAINING
RECORD # 114 FB03A01.03: CONDUCT SYSTEM TECHNICAL INSPECTIONS
RECORD # 115 FB03A02.01: MAINTAIN PLL REFERENCE RECORDS/REPORTS
RECORD # 116 FB03A02.02: STORE AND TRANSPORT PLL
RECORD # 118 FB03A02.04: COMPUTE PLL STOCKAGE
RECORD # 119 FB03A02.05: SYSTEM CHECK REPAIR PARTS
RECORD # 120 FB03A02.06: CONDUCT INVENTORIES AND REVIEWS
RECORD # 121 FB03A02.07: MANAGE MSL SYSTEM LOGISTICAL FUNDING REPORTS
RECORD # 122 FB03A02.08: PREPARE PLL ANNEX TO BTRY MAINT SOP
RECORD # 123 FB03A03.01: COLLECT AND MAINTAIN REFERENCES
RECORD # 124 FB03A03.02: COORDINATE PREPARTION OF INDIVIDUAL ANNEXES
RECORD # 125 FB03A03.03: PROVIDE AND IMPLEMENT SOP
RECORD # 126 FB03A04.01: PERFORM PERIODIC/SPECIAL SYSTEM CHECKS
RECORD # 127 FB03A04.02: TROUBLESHOOT HAWK SYSTEM MALFUNCTIONS
RECORD # 128 FB03A04.03: TROUBLESHOOT COMMO SUBSYSTEM
RECORD # 129 FB03A04.04: MANPADS (REDEYE-STINGER) MAINTENANCE
RECORD # 130 FB03A04.05: PROVIDE ASSISTANCE WHEN TPQ-29 IS INTERGRATED INTO SYSTEM
RECORD # 131 FB03A04.06: PROVIDE SYSTEM SUPPORT FOR AFP WHEN DEPLOYED SEPARATELY
RECORD # 132 FB03A04.07: PROVIDE QUALITY CONTROL DURING MAINT ACTIVITIES
RECORD # 133 FB03A05.01: REQUEST MAINT ASSISTANCE ON MAINT PROBLEMS
RECORD # 134 FB03A05.02: SCHEDULE PERIODIC CHECKS/SERVICES
RECORD # 135 FB03A02.01: PERFORM O/A AS A CREWMEMBER
RECORD # 136 FB03X02.02: PERFORM ISC'S AS A CREWMEMBER
RECORD # 137 FB03X02.03: PERFORM EMPLACEMENT AS A CREWMEMBER
RECORD # 138 FB03X02.04: PERFORM PREPARTION FOR TRAVEL AS A CREWMEMBER
RECORD # 139 FB03X02.05: PERFORM ALERT DRILLS AS A CREWMEMBER
RECORD # 140 FB04A01.01: ASSIGN TARGETS TO AFP FOR ENGAGEMENT
RECORD # 141 FB04A01.02: MONITOR AFP TARGET ENGAGEMENTS
RECORD # 142 FB04A01.03: PROVIDE EW & PLOT-TELL INFO TO AFP
RECORD # 143 FB04A02.01: PERFORM BATTLE STATIONS CREW DRILL
RECORD # 144 FB04A02.02: DETECT TARGETS
RECORD # 145 FB04A02.03: EVALUATE TARGETS
RECORD # 146 FB04A02.04: ENGAGE/MONITOR/ASSESS ENGAGEMENT RESULTS
RECORD # 147 FB04A02.05: ENGAGE HI SPEED HOSTILE AIRCRAFT
RECORD # 148 FB04A02.06: ENGAGE LOW SPEED HOSTILE AIRCRAFT
RECORD # 149 FB04A02.07: ENGAGE HELICOPTER
RECORD # 150 FB04A02.08: ENGAGE MANEUVERING AIRCRAFT
RECORD # 151 FB04A02.09: ENGAGE AIR TO SURFACE MISSILES
RECORD # 152 FB04A02.10: COMBAT ECM
RECORD # 153 FB04A02.11: OPERATE IN ECM ENVIRONMENT
RECORD # 154 FB04A02.12: CONDUCT MISSILE RELOAD
RECORD # 155 FB04A02.13: CONDUCT EMERGENCY DISARM
RECORD # 156 FB04A03.01: PROVIDE C2 INFO & IDENTIFICATION TO SHORAD TEAM CHIEF (IN CP)
RECORD # 157 FB04A04.01: ESTABLISH REQUIRED NETS
RECORD # 158 FB04A04.02: MAINTAIN/SUSTAIN REQUIRED NETS

RECORD # 159 FB04A05.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 160 FB04A05.02: INCREASE SURVEILLANCE & REPORT TRACK INFO TO OC/CRC
RECORD # 161 FB04A06.02: LOAD VEHICLES ACCORDING TO LOAD PLAN
RECORD # 162 FB04A06.02: PLAN AND CONDUCT RSOP
RECORD # 163 FB04A06.04: PREPARE FOR TRAVEL
RECORD # 164 FB04A06.05: ASSIST IN CONVOY ORGANIZATION
RECORD # 165 FB04A06.06: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD
RECORD # 166 FB04A06.07: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD
RECORD # 167 FB04A06.08: PREPARE PLATOON EQUIP FOR LAND TRAVEL
RECORD # 168 FB04A06.09: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA
RECORD # 169 FB04A06.10: EMPLACE PLATOON EQUIPMENT
RECORD # 170 FB04A06.11: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS
RECORD # 171 FB04X01.01: DECAN REPLACEMENT MISSILES
RECORD # 172 FB04X01.02: ASSEMBLE REPLACEMENT MISSILES
RECORD # 173 FB04X01.03: LOAD REPLACEMENT MISSILES
RECORD # 174 FB04X01.04: PERFORM EMERGENCY DISARM
RECORD # 175 FB08A08.01: PERFORM PERIODIC/SPECIAL VEHICLE SERVICES
RECORD # 176 FB11A01.01: LOAD VEHICLES (AFP)
RECORD # 177 FB11A01.02: PLAN AND CONDUCT RSOP (AFP)
RECORD # 178 FB11A01.03: PREPARE FOR TRAVEL (AFP)
RECORD # 179 FB11A01.04: ORGANIZE CONVOY (AFP)
RECORD # 180 FB11A01.05: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD (AFP)
RECORD # 181 FB11A01.06: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD (AFP)
RECORD # 182 FB11A01.07: PREPARE PLATOON EQUIP FOR LAND TRAVEL (AFP)
RECORD # 183 FB11A01.08: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA (AFP)
RECORD # 184 FB11A01.09: EMPLACE PLATOON EQUIP (AFP)
RECORD # 185 FB11A01.10: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS (AFP)
RECORD # 186 FB11A01.11: ESTABLISH PLATOON CP (AFP)
RECORD # 187 FB11A01.12: OPERATE PLATOON CP (AFP)
RECORD # 188 FB11A01.13: PROVIDE COMBAT SERVICE SUPPORT/COORD W/SUPPORTED UNITS (AFP)
RECORD # 189 FB11A01.14: PROVIDE SHORAD EARLY WARNING (AFP)
RECORD # 190 FB11A01.15: OPERATE IN CENTRALIZED/DECENTRALIZED MODE (AFP)
RECORD # 191 FB11A02.01: PERFORM BATTLE STATIONS CREW DRILL (AFP)
RECORD # 192 FB11A02.02: DETECT TARGETS (AFP)
RECORD # 193 FB11A02.03: EVALUATE TARGETS (AFP)
RECORD # 194 FB11A02.04: ENGAGE HI SPEED TARGETS (AFP)
RECORD # 195 FB11A02.05: ENGAGE LOW SPEED TARGETS (AFP)
RECORD # 196 FB11A02.06: ENGAGE HELICOPTERS (AFP)
RECORD # 197 FB11A02.07: ENGAGE MANEUVERING TARGETS (AFP)
RECORD # 198 FB11A02.08: ENGAGE AIR TO SURFACE MISSILES (AFP)
RECORD # 199 FB11A02.09: COMBAT ECM (AFP)
RECORD # 200 FB11A02.10: OPERATE IN ECM ENVIRONMENT (AFP)
RECORD # 201 FB11A02.11: PERFORM MISSILE RELOAD (AFP)
RECORD # 202 FB11A02.12: PERFORM EMERGENCY DISARM (AFP)
RECORD # 203 FB11A03.01: DEPLOY MANPADS TEAM (AFP)
RECORD # 204 FB11A03.02: PROVIDE EW TO SHORAD TEAM CHIEF (AFP)
RECORD # 205 FB11A04.01: ESTABLISH REGULATION NETS (AFP)
RECORD # 206 FB11A04.02: SUSTAIN/MAINTAIN REGULATION NETS (AFP)
RECORD # 207 FB11A05.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE (AFP)
RECORD # 208 FB11A05.02: INCREASE SURVEILLANCE & REPORTING TRACK INFO TO TOC/CRC (AFP)

RECORD # 209 FB11X01.01: DECAN REPLACEMENT MISSILES (AFP)
RECORD # 210 FB11X01.02: ASSEMBLE REPLACEMENT MISSILES (AFP)
RECORD # 211 FB11X01.03: LOAD REPLACEMENT MISSILES (AFP)
RECORD # 212 FB14A01.01: CONTROL ENTRANCE TO BTRY TAC SITE
RECORD # 213 FB14A02.01: CONDUCT SWEEP OPERATIONS (MINE & NBC)
RECORD # 214 FB14A02.02: SECURE RSOP PERIMETER
RECORD # 215 FB14A02.03: SET-UP & TEST NBC CHEMICAL ALARM
RECORD # 218 64.02: REFLINISH SUPPLIES & EQUIP DURING CONTINUOUS OPERATIONS
RECORD # 219 65.01: MAN CREW SERVED WEAPONS
RECORD # 220 66.01: SECURE PERIMETER
RECORD # 221 66.02: MAN CREW SERVED WEAPONS
RECORD # 222 66.03: CONDUCT NBC/MINE SWEEP
RECORD # 223 67.01: EXTINGUISH DIFFERENT TYPES OF FIRES
RECORD # 225 69.01: CONSTRUCT AND ERECT A DUMMY SITE
RECORD # 226 69.02: MODIFY EQUIPMENT SILHOUETTES
RECORD # 229 70.03: OPERATE VEHICLES IN BLOCKOUT CONDITIONS
RECORD # 232 71.01: CONDUCT AN INTELLIGENCE PATROL (RECON)
RECORD # 233 71.02: REPEL GROUND ATTACK
RECORD # 234 71.03: CONTROL CIVIL DISTURBANCE
RECORD # 236 72.01: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 237 72.02: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 238 72.03: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 239 72.04: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 242 73.03: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT USING EXPLOSIVES
RECORD # 243 73.04: PREPARES & IMPLEMENT PLAN TO RENDER EQUIP NON-OP BY REMOVING/DESTROYING CR
RECORD # 244 74.01: CONDUCT CREW DRILLS/TRAINING
RECORD # 245 75.01: PREPARTION FOR MOVEMENT OF UNIT/EQUIPMENT
RECORD # 246 75.02: EMPLACE EQUIPMENT
RECORD # 247 75.03: INITIALIZE SYSTEM FOR OPERATIONS
RECORD # 248 75.04: PARTICIPATE IN UNIT MOVEMENT
RECORD # 249 76.01: PROVIDE ANNEXES AS REQUIRED
RECORD # 250 77.01: CONVOY OPERATIONS

NONE OF THE TASKS ARE RECOMMENDED FOR
OJT

THE FOLLOWING TASKS SHOULD BE CONSIDERED FOR ELIMINATION FROM TRAINING.

RECORD # 4 HB02A04.03. CLEAN MESS FACILITIES
RECORD # 23 HB04A06.01: SEARCH POW'S
RECORD # 91 HB14X01.01. GUARD INTERMENT AREA
RECORD # 94 FB01A04.03. CLEAN MESS FACILITIES
RECORD # 110 FB02A01.03: RECOVER WIRE
RECORD # 216 FB14X01.01. GUARD INTERMENT AREA
RECORD # 217 64.01. PROVIDE FOR CREW ROTATION FOR CONTINUOUS OPERATIONS
RECORD # 224 68.01: TRANSPORT INDIVIDUAL CASUALTIES BY STRETCHER
RECORD # 227 70.01: CHECK VEHICLES AND LOADS
RECORD # 228 70.02: LOAD VEHICLES IN ACCORDANCE WITH LOADING PLANS

THE FOLLOWING TASKS SHOULD BE TRAINED TO CERTIFICATION.

RECORD # 7 HB02A06 02 PREPARE/ORGANIZE AND IMPLEMENT UNIT DEFENSE PLAN
RECORD # 8 HB02A06.03. ESTABLISH AND MONITOR COMMO
RECORD # 10 HB02A08.01. ORGANIZE SPECIALITY TEAMS
RECORD # 11 HB02X03.01: CO-ORDINATE NBC OPS
RECORD # 12 HB02X03.02: SET UP NBC CELL
RECORD # 13 HB02X03.03: SET UP DECON FACILITY
RECORD # 14 HB02X03.04: COLLECT/EVALUATE AND DISSEMINATE NBC INFORMATION
RECORD # 16 HB04A01.02: PREPARE ORDERS (FRAG
RECORD # 20 HB04A03.01. COLLECT INFO (INTERROGATION)
RECORD # 21 HB04A03.02: PROCESS INFO FOR INTELLIGENCE
RECORD # 27 HB04A10.03. MAINTAIN AND MONITOR SITUATION MAPS
RECORD # 28 HB04A10.04: PROCESS AND REACT TO MESSAGE IMPUTS
RECORD # 29 HB04A10.05: PLAN AND COORDINATE BATTERY MOVEMENT
RECORD # 37 HB05A03.04. TROUBLESHOOT RADIO NET PROBLEMS & MALFUNCTIONS
RECORD # 41 HB05A06.02: ESTABLISH & MAINTAIN MULTICHANNEL CIRCUITS
RECORD # 46 HB10A01.02: PERFORM SURGICAL OPERATIONS TECHNIQUES
RECORD # 47 HB10A01.03: STABLIZE SERIOUSLY WOUNDED PERSONNEL
RECORD # 50 HB10A02.02: PROCESS CASUALTIES
RECORD # 51 HB10A02.03 TRANSPORT CASUALTIES
RECORD # 52 HB10A02.04: MAINTAIN MEDICAL SUPPLIES
RECORD # 54 HB10X01.02: AIDS IN PERSONNEL DECON & NBC MONITORING
RECORD # 60 HB12A03.01: IDENTIFY/CORRELATE TARGETS
RECORD # 61 HB12A03.02. ASSIGN AND CONTROL ENGAGEMENTS
RECORD # 62 HB12A03.03 : MONITOR TACTICAL SITUATION
RECORD # 66 HB12A06.01. REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 69 HB12A06.02: INCREASE SURVEILLANCE & REPORTING TRACK INFO TO GP TSQ-73
RECORD # 70 HB12A06.03: MAINTAIN/UPDATE AIR UTILIZATION MAP
RECORD # 86 HBX13A01.01: ASSIST MAINT/FIRING BTRY PERSONNEL IN ISOLATING/REPAIRING HAWK SYST.
RECORD # 87 HB14A01.01: CONTROL ENTRY TO BTRY TAC SITE & CONDUCT SECURITY CHECK/SEARCH
RECORD # 97 FB01A06.02: ESTABLISH SHORAD DEFENSE
RECORD # 98 FB01A06.03: PREPARE/ORGANIZE & IMPLEMENT UNIT DEFENSE PLAN
RECORD # 99 FB01A06.04: ESTABLISH COMMUNICATIONS
RECORD # 103 FB01A07.02. SET-UP DECON FACILITY
RECORD # 104 FB01A07.03: COLLECT/EVALUATE & DISSEMINATE NBC INFORMATION

RECORD # 111 FB02A04.01: MAINTAIN/SUSTAIN RADIO NET
RECORD # 126 FB03A04.01: PERFORM PERIODIC/SPECIAL SYSTEM CHECKS
RECORD # 127 FB03A04.02: TROUBLESHOOT HAWK SYSTEM MALFUNCTIONS
RECORD # 128 FB03A04.03: TROUBLESHOOT COMMO SUBSYSTEM
RECORD # 129 FB03A04.04: MANPADS (REDEYE-STINGER) MAINTENANCE
RECORD # 131 FB03A04.06: PROVIDE SYSTEM SUPPORT FOR AFP WHEN DEPLOYED SEPARATELY
RECORD # 140 FB04A01.01: ASSIGN TARGETS TO AFP FOR ENGAGEMENT
RECORD # 142 FB04A01.03: PROVIDE EW & PLOT-TELL INFO TO AFP
RECORD # 143 FB04A02.01: PERFORM BATTLE STATIONS CREW DRILL
RECORD # 144 FB04A02.02: DETECT TARGETS
RECORD # 145 FB04A02.03: EVALUATE TARGETS
RECORD # 146 FB04A02.04: ENGAGE/MONITOR/ASSESS ENGAGEMENT RESULTS
RECORD # 147 FB04A02.05: ENGAGE HI SPEED HOSTILE AIRCRAFT
RECORD # 148 FB04A02.06: ENGAGE LOW SPEED HOSTILE AIRCRAFT
RECORD # 149 FB04A02.07: ENGAGE HELICOPTER
RECORD # 150 FB04A02.08: ENGAGE MANEUVERING AIRCRAFT
RECORD # 151 FB04A02.09: ENGAGE AIR TO SURFACE MISSILES
RECORD # 152 FB04A02.10: COMBAT ECM
RECORD # 153 FB04A02.11: OPERATE IN ECM ENVIRONMENT
RECORD # 154 FB04A02.12: CONDUCT MISSILE RELOAD
RECORD # 155 FB04A02.13: CONDUCT EMERGENCY DISARM
RECORD # 156 FB04A03.01: PROVIDE C2 INFO & IDENTIFICATION TO SHORAD TEAM CHIEF (IN CP)
RECORD # 157 FB04A04.01: ESTABLISH REQUIRED NETS
RECORD # 158 FB04A04.02: MAINTAIN/SUSTAIN REQUIRED NETS
RECORD # 159 FB04A05.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 160 FB04A05.02: INCREASE SURVEILLANCE & REPORT TRACK INFO TO OC/CRC
RECORD # 162 FB04A06.02: PLAN AND CONDUCT RSOP
RECORD # 163 FB04A06.04: PREPARE FOR TRAVEL
RECORD # 165 FB04A06.06: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD
RECORD # 166 FB04A06.07: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD
RECORD # 167 FB04A06.08: PREPARE PLATOON EQUIP FOR LAND TRAVEL
RECORD # 168 FB04A06.09: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA
RECORD # 169 FB04A06.10: EMPLACE PLATOON EQUIPMENT
RECORD # 170 FB04A06.11: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS
RECORD # 173 FB04X01.03: LOAD REPLACEMENT MISSILES
RECORD # 177 FB11A01.02: PLAN AND CONDUCT RSOP (AFP)
RECORD # 178 FB11A01.03: PREPARE FOR TRAVEL (AFP)
RECORD # 180 FB11A01.05: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD (AFP)
RECORD # 181 FB11A01.06: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD (AFP)
RECORD # 182 FB11A01.07: PREPARE PLATOON EQUIP FOR LAND TRAVEL (AFP)
RECORD # 183 FB11A01.08: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA (AFP)
RECORD # 184 FB11A01.09: EMPLACE PLATOON EQUIP (AFP)
RECORD # 185 FB11A01.10: PREPARE SYSTEM FOR AIR DEFENSE OPERATIONS (AFP)
RECORD # 187 FB11A01.12: OPERATE PLATOON CP (AFP)
RECORD # 189 FB11A01.14: PROVIDE SHORAD EARLY WARNING (AFP)
RECORD # 190 FB11A01.15: OPERATE IN CENTRALIZED/DECENTRALIZED MODE (AFP)
RECORD # 191 FB11A02.01: PERFORM BATTLE STATIONS CREW DRILL (AFP)
RECORD # 192 FB11A02.02: DETECT TARGETS (AFP)
RECORD # 193 FB11A02.03: EVALUATE TARGETS (AFP)
RECORD # 194 FB11A02.04: ENGAGE HI SPEED TARGETS (AFP)
RECORD # 195 FB11A02.05: ENGAGE LOW SPEED TARGETS (AFP)

RECORD # 196 FB11A02.06 ENGAGE HELICOPTERS (AFP)
RECORD # 197 FB11A02.07 ENGAGE MANEUVERING TARGETS (AFP)
RECORD # 198 FB11A02.08: ENGAGE AIR TO SURFACE MISSILES (AFP)
RECORD # 199 FB11A02.09: COMBAT ECM (AFP)
RECORD # 200 FB11A02.10: OPERATE IN ECM ENVIRONMENT (AFP)
RECORD # 201 FB11A02.11 PERFORM MISSILE RELOAD (AFP)
RECORD # 202 FB11A02.12: PERFORM EMERGENCY DISARM (AFP)
RECORD # 204 FB11A03.02: PROVIDE EW TO SHORAD TEAM CHIEF (AFP)
RECORD # 205 FB11A04.01: ESTABLISH REGULATION NETS (AFP)
RECORD # 206 FB11A04.02: SUSTAIN/MAINTAIN REGULATION NETS (AFP)
RECORD # 211 FB11X01.03: LOAD REPLACEMENT MISSILES (AFP)
RECORD # 212 FB14A01 01: CONTROL ENTRANCE TO BTRY TAC SITE
RECORD # 214 FB14A02.02: SECURE RSOP PERIMETER
RECORD # 221 66.02: MAN CREW SERVED WEAPONS
RECORD # 229 70.03: OPERATE VEHICLES IN BLOCKOUT CONDITIONS
RECORD # 230 70.04: DEFEND CONVOY AGAINST AIR ATTACK
RECORD # 231 70.05: DEFEND CONVOY AGAINST GROUND AMBUSH
RECORD # 233 71.02: REPEL GROUND ATTACK
RECORD # 235 71.04: REENFORCE PERIMETER DEFENSE
RECORD # 236 72.01: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 237 72.02: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 238 72.03: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 239 72.04: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 240 73.01: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT WITH GUNFIRE
RECORD # 241 73.02: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT MECHANICALLY
RECORD # 242 73 03: FREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT USING EXPLOSIVES
RECORD # 246 75 02: EMPLACE EQUIPMENT
RECORD # 247 75 03: INITIALIZE SYSTEM FOR OPERATIONS
RECORD # 248 75.04: PARTICIPATE IN UNIT MOVEMENT

THE FOLLOWING TASKS SHOULD BE CONSIDERED FOR FAMILIARIZATION TRAINING.
RECORD # 63 MB12A04.01: DEPLOY MANPADS TEAM
RECORD # 117 FB03A02.03: REQUISITION/TURN-IN REPAIR PARTS
RECORD # 230 70.04: DEFEND CONVOY AGAINST AIR ATTACK
RECORD # 231 70.05: DEFEND CONVOY AGAINST GROUND AMBUSH

THE FOLLOWING TASKS SHOULD BE CONSIDERED FOR REDUCED TRAINING IN WARTIME.
RECORD # 89 MB14A02.02: SECURE RSOP PERIMETER
RECORD # 176 FB11A01.01: LOAD VEHICLES (AFP)
RECORD # 243 73 04: PREPARES & IMPLEMENT PLAN TO RENDER EQUIP NON-OP BY REMOVING/DESTROYING

THE FOLLOWING TASKS SHOULD BE RETRAINED PERIODICALLY TO MAINTAIN PROFICIENCY.

RECORD # 2 MB02A04.01: SET UP/OPERATE FIELD KITCHEN
RECORD # 7 MB02A06.02: PREPARE/ORGANIZE AND IMPLEMENT UNIT DEFENSE PLAN
RECORD # 8 MB02A06.03: ESTABLISH AND MONITOR COMMO
RECORD # 9 MB02A07.01: SUPERVISE PREPARATION OF BATTERY SOP'S ANNEXES (TACTICAL)
RECORD # 10 MB02A08.01: ORGANIZE SPECIALITY TEAMS
RECORD # 11 MB02X03.01: CO-ORDINATE NBC OPS
RECORD # 12 MB02X03.02: SET UP NBC CELL
RECORD # 13 MB02X03.03: SET UP DECON FACILITY
RECORD # 14 MB02X03.04: COLLECT/EVALUATE AND DISSEMINATE NBC INFORMATION
RECORD # 17 MB04A01.03: PREPARE DEPLOYMENT PLAN
RECORD # 18 MB04A01.04: PREPARE SOP'S
RECORD # 24 MB04A07.01: OVERSEE ESTABLISHMENT & OPERATION OF DUMMY SITES
RECORD # 31 MB05A01.02: TROUBLESHOOT WIRE NETS
RECORD # 37 MB05A03.04: TROUBLESHOOT RADIO NET PROBLEMS & MALFUNCTIONS
RECORD # 59 MB12A02.04: CONDUCT CREW DRILL
RECORD # 65 MB12A05.01: CONDUCT EXERCISES
RECORD # 66 MB12A05.02: CONDUCT CREW DRILLS/CRE'S
RECORD # 67 MB12A05.03: TRAIN MANPADS TEAM
RECORD # 68 MB12A06.01: REPORT VIOLATIONS OF RESTRICTED AIR SPACE
RECORD # 76 MB13A01.02: ASSIST IN TAC EVALUATIONS
RECORD # 82 MB13B01.05: ASSIST IN SQT TRAINING
RECORD # 98 FB01A06.03: PREPARE/ORGANIZE & IMPLEMENT UNIT DEFENSE PLAN
RECORD # 112 FB03A01.01: CONDUCT ORE (BTRY) TRAINING
RECORD # 113 FB03A01.02: CONDUCT ASP TRAINING
RECORD # 122 FB03A02.08: PREPARE PLL ANNEX TO BTRY MAINT SOP
RECORD # 124 FB03A03.02: COORDINATE PREPARTION OF INDIVIDUAL ANNEXES
RECORD # 125 FB03A03.03: PROVIDE AND IMPLEMENT SOP
RECORD # 129 FB03A04.04: MANPADS (REDEYE-STINGER) MAINTENANCE
RECORD # 180 FB11A01.05: PREPARE PLATOON EQUIP FOR INTERNAL AIR LOAD (AFP)
RECORD # 181 FB11A01.06: PREPARE PLATOON EQUIP FOR EXTERNAL AIR LOAD (AFP)
RECORD # 183 FB11A01.08: PREPARE PLATOON EQUIP FOR SHIPMENT BY SEA (AFP)
RECORD # 223 67.01: EXTINGUISH DIFFERENT TYPES OF FIRES
RECORD # 249 76.01: PROVIDE ANNEXES AS REQUIRED

THE FOLLOWING TASKS SHOULD BE GIVEN WARTIME REFRESHER TRAINING.

RECORD # 21 MB04A03.02: PROCESS INFO FOR INTELLIGENCE
RECORD # 76 MB13A01.02: ASSIST IN TAC EVALUATIONS
RECORD # 130 FB03A04.05: PROVIDE ASSISTANCE WHEN TPQ-29 IS INTERGRATED INTO SYSTEM
RECORD # 236 72.01: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 237 72.02: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH CREW SERVED WEAPONS
RECORD # 238 72.03: DEFEND POSITION AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 239 72.04: DEFEND CONVOY AGAINST ATTACKING AIRCRAFT WITH COORDINATED MASS FIRE
RECORD # 242 73.03: PREPARE AND IMPLEMENT A PLAN TO DESTROY EQUIPMENT USING EXPLOSIVES

APPENDIX F

HAWK CFEA FINAL TASK LISTING

HAWK CFEA FINAL TASK LISTING: 4/11/83

1. HB02A04 - PROVIDES SUPPLY, AMMO, BILLETING AND MESS SUPPORT FOR BATTERY AND BATTALION HQ PERSONNEL:
   1. Set-up dining facility (changed to Set-up and operate field kitchen)
   2. Prepare a meal (changed to Prepare and serve meal)
   3. Clean mess facilities
   4. Set-up supply room activities

2. HB02A06 - OPERATE BTRY CP:
   1. Set-up CP
   2. Prepare/organize and implement unit defense plan
   3. Establish and monitor commo

3. HB02A07 - PREPARE PLANS AND SOP'S (TACTICAL):
   1. Manage preparation of Btry Sop's annexes (tactical)

4. HB02A08 - ORGANIZE SPECIALITY TEAMS:
   1. Direct employment of ----------(DELETED)

5. HB02X03 - COORDINATE NBC OPERATIONS:
   1. Coordinate NBC Operations
   2. Set-up NBC Cell
   3. Set-up Decon facility
   4. Collect/evaluate & disseminate NBC information

6. * HB04A01 - PREPARE PLANS, ORDERS AND SOP'S:
   * 1. Prepare AD/OPS plans
   2. Prepare orders (frag, movement, warning, OPs) (moved to HB04A10)
   * 3. Prepare deployment plan (changed to prepare strategic deployment plan)
   * 4. Prepare SOP's
   * 5. Prepare training plan

7. * HB04A03 - GATHER, EVALUATE AND DISSEMINATE INTELLIGENCE DATA:
   * 1. Collective information (interrogation, patrols and listening posts)
   * 2. Process information for intelligence
   * 3. Prepare SITREPS

8. * HB04A06 - PROCESS POW'S:
   * 1. Search POW's

9. * HB04A07 - INITIATE AND MAINTAIN OPSEC REQUIREMENTS:
   * 1. Oversee the establishment and operation of Dummy sites

10. * HB04A10 - SETS-UP AND OPERATES BN HQ CP, TOC:
   * 1. Set-up Bn Hq CP, TOC
   * 2. Establish and monitor commo

* 3. Maintain and monitor situation maps
* 4. Process and react to message inputs
* 5. Plan & coordinate Btry movement (air, land and sea)
* 6. Plan the Air Defense (ADDED TASK)
* 7. Prepare and disseminate orders/messages (ADDED TASK)
* 8. Reconstitution (ADDED TASK)

11. * HB05A01 - ESTABLISHES AND MAINTAINS ALL WIRE COMMO WITHIN THE BN TO BTRYS AND ADJACENT UNITS (CCS):
* 1. Set-up wire nets
* 2. Troubleshoot wire nets
* 3. Recover Wire (ADDED TASK)

12. * HB05A02 - INSTALL AND OPERATE MESSAGE CENTER AND SWITCHBOARD SECURE & NON-SECURE) (CCS):
1. Set-up antenna (DELETED)
* 2. Emplace message center/switchboard
* 2a. Operate message center (ADDED TASK)

13. * HB05A03 - ESTABLISH AND MAINTAIN ALL NECESSARY RADIO COMMO WITH HIGHER/SUBORDINATE, ADJACENT AND OTHER HQ (CCS):
* 1. Establish all radio nets (RATT)
* 1a. Establish all FM/AM radio nets (ADDED TASK)
* 2. Set-up radio relay station
* 3. Set-up antennas (as required)
* 4. Troubleshoot radio net problems/malfunctions

14 * HB05A05 - DEVELOP AND IMPLEMENT BN COMMUNICATIONS PLAN (PH/CE):
* 1. Develop Battalion Communications Plan
* 2. Assist in implementing plan

15. * HB05A06 - PROVIDE AUTOMATIC DATA LINK FOR THE FIRE DISTRUBTION SYSTEM (RRT):
* 1. Deploy relay teams to Fire Units
* 2. Establish and maintain multichannel circuits
* 2a. Establish multichannel (Repeater) (ADDED TASK)
* 2b. Employ ECCM and SICSEG techniques (ADDED TASK)
* 2c. Establish and maintain radio nets (Maintain) (ADDED TASK)

16. * HB05A07 - PROVIDES AND MAINTAINS SECURE SYSTEM (AN/TSQ-73) (RRT):
* 1. Establish secure system (RATT)

17. HB08A09 - MAINTAIN ASSIGNED VEHICLES/TRAILERS:
1. Perform periodic/special vehicle services

18. HB09A03 - EVALUATE AND ADVISE COMMANDER ON LOGISTICS MATTERS:
1. Establishes/coordinates Material Readiness Plan

19. HB10A01 - PROVIDE EMERGENCY/ROUTINE MEDICAL SERVICE FOR BN PERSONNEL AND POW'S:

1. Conduct Sickcall (screening/treatment)
2. Perform surgical operations techniques
3. Stabilize seriously wounded personnel
4. Establish preventive maint programs (immunization, vector control, weight control, etc)

20. MS10A02 - OPERATE BN AID STATION:
1. Set-up aid station
2. Process casualties
3. Transport casualties
4. Maintain medical supplies

21. MS10X01 - ASSIST IN DECONTAMINATION PROGRAM:
1. Assist in setting up decontamination program
2. Aids in personnel decon and NBC monitoring
3. Decon section equipment

22. * MB12A02 - OPERATE MANUAL FDC (PERFORM SAME FUNCTION AS AN/TSQ-73 OPERATIONS):
* 1. Set-up manual FDC van (changed to Set-up manual FDC capability)
* 2. Establish commo
* 3. Emplace power equipment
4. Conduct crew drill (DELETED)

23. * MB12A03 - REVIEWS, EVALUATES, DISSEMINATES AD COMMAND & CONTROL INFORMATION AND CONDUCT AIR BATTLES AS A CREW:
* 1. Identify/correlate targets
* 2. Assign and control engagements
* 3. Monitor tactical situation

24. * MB12A04 - PROVIDE MANPAD TEAMS AND EARLY WARNING TO MANPADS TEAMS (FDC)
* 1. Deploy MANPADS Teams (FDC)
* 2. Provide Early Warning to MANPADS Teams (FDC)

25. * MB12A05 - CONDUCT TRAINING AND EVALUATIONS:
* 1. Conduct exercises
* 2. Conduct crew drills/ORE's
* 3. Train MANPADS Team

26. * MB12A06 - ASSIST IN AIR SPACE MANAGEMENT:
* 1. Report violations of restricted air space
* 2. Increase surveillance and report track information to FDC

27. * MB12A08 - EMPLACE AND PREPARE AN/TSQ-73 SYSTEM FOR OPERATION:
* 1. Emplace system (changed to Emplace FDC equipment)
* 2. Provide power
* 3. Establish commo
* 4. Initialize system for operation

28. MB13A01 - CONDUCT/ASSIST IN EVALUATIONS AND INSPECTIONS TO INSURE OPERATIONAL READINESS OF UNITS AND FDC:
    1. Conduct ORE's
    2. Assist in TAC Evaluations
    3. Conducts equipment/maintenance operations, inspections

29. MB13B01 - CONDUCT OPERATOR TRAINING:
    1. Conduct Btry crew training (TPQ-29) (AD OPS clear and electronic warfare)
    2. Train and certify operators (TCO, TCA, Crew Certification)
    3. Assist in ARTEP/TAC EVAL training
    4. Conduct ASP training
    5. Assist in SQT training
    6. Train personnel in movement operations (air, land and sea)
    7. Train personnel in electro magnetic protection
    8. Conduct OC ORE's

30. MB13X01 - PROVIDE TECHNICAL ASSISTANCE TO MAINTENANCE/BTRY PERSONNEL:
    * 1. Assist maintenance/Firing Btry personnel in isolating/repairing HAWK system faults

31. * MB14A01 - CONTROL ACCESS:
    * 1. Control entrance to the Btry Tac Site and conducts security check/search (changed to Control entrance to Btry Tac Site)

32. MB14A02 - ASSIST IN RSOP SECURITY/TRAFFIC CONTROL:
    1. Conducts a sweep operation (mine & NBC)
    2. Secure RSOP perimeter
    3. Set-up and test NBC alarm

33. MB14X01 - MAINTAIN INTERMENT FACILITY FOR POW'S:
    1. Guard interment area

34. * FB01A04 - PROVIDES SUPPLY, (AMMO), BILLETING AND MESS SUPPORT FOR BTRY PERSONNEL:
    * 1. Set-up dining facility (changed to Set-up and operate field kitchen)
    * 2. Prepare a meal (changed to Prepare and serve meal)
    * 3. Clean mess facilities
    * 4. Set-up supply room

35. * FB01A06 - OPERATE CP - HQ:
    * 1. Plan and conduct RSOP
    * 2. Plan movement to tactical location
    * 3. Conduct tactical movement (Road) (ADDED TASK)
    * 4. Prepare, organize, and implement Unit Defense Plan
    * 5. Set-up Command Post (Btry HQ)
    * 6. Establish commo
    * 7. Establish SHORAD Defense (Btry HQ)

36 * FE01A07 - COORDINATE NBC OPERATIONS - HQ:
* 1. Set-up NBC Cell
* 2. Set-up Decontamination facility
* 3. Collect, evaluate and disseminate NBC information

37 * FE01A08 - PREPARE PLANS AND SOP'S (TACTICAL) - HQ:
* 1. Manage preparation of Btry SOP and Annexes
* 2. Prepare/organize and implement Deployment Plan

38 FE01X01 - ORGANIZE SPECIALITY TEAMS - HQ:
1. Direct employment of speciality teams (DELETED)

39 * FE02A01 - PROVIDE WIRE COMMUNICATION - COMMUNICATIONS:
* 1. Set-up wire net
* 2. Troubleshoot wire net
* 3. Recover wire

40 * FE02A04 - PROVIDE ORGANIZATIONAL MAINTENANCE ON BTRY COMMO EQUIP:
* 1. Maintain/sustain radio net (changed to Maintain/sustain required nets)

41 * FE03A01 - PROVIDE TECHNICAL/ASSISTANCE AND OPERATOR TRAINING ON HAWK SYSTEM - SYSTEM SUPPORT:
* 1. Conduct ORE (Btry) training
* 2. Conduct ASP training (changed to Conduct training for live fire exercises (LFE)
* 3. Conduct system technical inspections

42 * FE03A02 - MAINTAIN MISSILE SYSTEM SUPPORT PLL - SYSTEM SUPPORT:
* 1. Maintain PLL reference record reports
* 2. Store and transport PLL
* 3. Requisition/turn-in repair parts
* 4. Compute PLL stockage
* 5. System check repair parts
* 6 Conduct inventories and reviews
7. Manage Missile system logistical funding data/ records/reports (DELETED)
* 8. Prepare PLL annex to Btry maintenance SOP

43 * FE03A03 - PREPARE AND IMPLEMENT SOP - SYSTEM SUPPORT:
* 1. Collect and maintain references
* 2. Coordinate preparation of individual annexes (changed to Coordinate prepartion of individual SOP annexes to maintenance SOP)
* 3. Provide and implement SOP

44 * FE03A04 - PROVIDE SYSTEM ORGANIZATIONAL MAINTENANCE:
* 1. Perform periodic/special system checks and adjustments (changed to Perform periodic organizational maintenance checks)
* 2. Troubleshoot Hawk System malfunctions (changed to

Troubleshoot/repair Hawk system malfunctions)

* 3. Troubleshoot communications subsystem (changed to Trouble shoot/repair interbattery commo subsystem)
* 4. MANPADS (REDEYE-STINGER) maintenance (changed to MANPADS maintenance)
* 5. Provide assistance when TPQ-29 is intergrated into Btry system (changed to Provide assistance when TPQ-29 is intergrated into system)
* 6. Provide system support for AFP when deployed separately
* 7. Provide quality control during maintenance activities

45. * FB03A05 - COORDINATE SUPPORT WITH MAINTENANCE BTRY:

* 1. Request technical assistance on maintenance problems and assist in performing system repairs
* 2. Schedule periodic checks/services (changed to Schedule/coordinate/assist inperformance of checks & services)

46. * FB03X02 - ASSIST IN OPERATOR FUNCTIONS (TCO, TCA, FCO):

* 1. Perform O/A as a crewmember
* 2. Perform ICS's as a crewmember (changed to Train and assist ISC's as a crewemember)
* 3. Preform emplacement of equipment as a crewmember (changed to Supervise/assist in emplacement)
* 4. Preform preparation for travel as a crewmember
* 5. Perform Alert Drills as a crewmember

47. * FB04A01 - c2 AFP WHEB DEPLOYED TOGETHER - (BASE PLATOON):

* 1. Assign targets to AFP for engagements
* 2. Monitor AFF target engagements (changed to Monitor AFP target engeoement)
* 3. Provide Early Warning and plot-tell information to AFP

48. * FB04A02 - ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT AND MISSILES:

* 1. Perform Battle Stations Drill
* 2. Detect Targets
* 3. Evaluate Targets
* 4. Engage, monitor, assess engagement results
* 5. Engage High speed hostile aircraft (changed to Engage high speed targets)
* 6. Engage Low speed hostile aircraft (changed to Engage low speed/maneuvering targets)
* 7. Engage Helicopter
8. Engage maneuvering target (DELETED)
* 9. Engage Air to Surface Missiles
* 10. Combat ECM
* 11. Conduct emergency Disarm and Relaod (COMBINED TASK)

49. * FB04A03 - PROVIDE MANPADS DEFENSE TEAMS:

* 1. Provide Early Warning and c2 information and identification to SHORAD Team Chief (in CP)

50. * FB04A04 - PROVIDE TACTICAL COMMUNICATIONS (PRIMARY/SECONDARY):
    * 1. Establish required nets
    * 2. Maintain/sustain required nets

51. * FB04A05 - ASSIST IN AIR SPACE MANAGEMENT:
    * 1. Report violations of restricted air space
    * 2. Increase surveillance and report track information to FDC

52. * FB04A06 - DEPLOY FIRING PLATOON FOR AIR DEFENSE OPERATIONS:
    * 1. Recall/movement to tactical location
    * 2. Load vehicles according to load plan
    * 3. Plan and conduct RSOP
    * 4. Prepare for travel (MARCH ORDER) (changed to Prepare Firing Platoon for travel)
    * 5. Assist in convoy organization
    * 6. Prepare platoon equipment for internal air load
    * 6a. Deploy platoon equipment by internal cargo air load (FIXED WING) (ADDED TASK)
    * 7. Prepare platoon equipment for external/enternal air load by cargo helicopter
    * 7a. Deploy by cargo helicopter (ADDED TASK)
    * 8. Prepare platoon equipment for land travel (rail, flatbed truck
    * 8a. Deploy platoon equipment by land travel (rail, flatbed truck (ADDED TASK)
    * 9. Prepare platoon equipment for shipment by sea
    * 9a. Deploy platoon equipment from shipment by sea (ADDED TASK)
    * 10. Emplace Hawk Missile System
    * 11. Prepare system for Air Defense Operation

53. * FB04X01 - PERFORM DECANNING AND SERVICE OPERATIONS:
    1. Decan replacement missiles
    2. Assemble replavement missiles
    3. Load replacement missiles

54. * FB08A08 - MAINTAIN PERIODIC/SPECIAL VEHICLE SERVICES:
    * 1. Perform periodic/special vehicles services

55. * FB11A01 - OPERATE AS A SEPARATE FIRE UNIT: (AFP)
    * 1. Load vehicles according to load plan
    * 2. Plan and conduct RSOP
    * 3. Prepare for travel (changed to Prepare Assault Firing Platoon for travel)
    * 4. Assist in convoy organization
    * 5. Prepare platoon equipment for internal air load
    * 5a. Deploy platoon equipment by internal cargo air load (Fixed Wing) (ADDED TASK)
    * 6. Prepare platoon equipment for internal/external air load by cargo helicopter
    * 6a. Deploy by cargo helicopter (ADDED TASK)

* 7. Prepare platoon equipment for land travel (rail, flatbed truck)
* 7a. Deploy platoon equipment by land travel (rail, flatbed truck) (ADDED TASK)
* 8. Prepare platoon equipment for shipment by sea
* 8a. Deploy platoon equipment from shipment by sea (ADDED TASK)
* 9. Emplace Assult Fire Platoon equipment
* 10. Prepare system for Air Defense operation
* 11. Establish Platoon Command Post
* 12. Operate Platoon Command Post and coordinate combat service support
* 13. Provide EW, c2 information and identification to SHORAD Team Chief

56. * FE11A02 - ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT (AFP):
* 1. Perform Battle Stations Drill
* 2. Detect Targets
* 3. Evaluate Targets
* 4. Engage HI-Speed Targets
* 5. Engage, Monitor, Assess Engagement Results
* 6. Engage Helicopter
* 7. Engage Maneuvering Target (changed to Engage low speed/ maneuvering target)
* 8. Engage Air to Surface Missile
* 9. Combat ECM
* 10. Conduct Emergency Disarm and Reload (COMBINED TASK)

57. * FB11A03 - PROVIDE MANPADS TEAM:
* 1. Provide Early Warning to SHORAD Team Chief

58. * FB11A04 - PROVIDE TACTICAL COMMUNICATIONS:
* 1. Establish regulation nets
* 2. Sustain/maintain regulation nets

59. * FB11A05 - ASSIST IN AIR SPACE MANAGEMENT:
* 1. Report violation of restricted Air Space
* 2. Increase surveillance and report track information to FDC

60. * FB11X01 - PERFORM DECANNING PERFORMANCE OPERATIONS:
* 1. Decan replacement missiles
* 2. Assemble replacement missiles
* 3. Load replacement missiles

61. FB14A01 - CONTROL ACCESS:
1. Control entrance to the Btry Tac Site and conducts security checks/searches

62 FB14A02 - ASSIST IN RSOP SECURITY/TRAFFIC CONTROL:
1. Conduct a sweep operations (mine & NBC)

2. Secure RSOP perimeter
3. Set-up and test NBC chemical alarm

63. FB14X01 - MAINTAIN INTERMENT FACILITY FOR POW'S:
1. Guard interment area

TASKS LISTED BELOW ARE COMMON TASKS AND WERE NOT ANALYZED DURING HAWK CFEA

64. SUSTAIN OPERATIONS:
1. Provide for crew rotation for continuous operations
2. Replenish supplies and equipment for continuous operations

65. ASSIST IN PERIMETER SECURITY:
1. Man crew served weapons

66. ASSIST IN SPECIALTY TEAMS (RSOP):
1. Secure perimeter
2. Man crew served weapons
3. Conduct NBC/Mine sweep

67. ASSIST IN SPECIALTY TEAMS (FIREFIGHTING):
1. Extinguish different types of fires

68. ASSIST IN SPECIALTY TEAMS (EVACUATION OF CASUALTIES):
1. Transport individual casualties by stretcher

69. ASSIST IN SPECIALTY TEANS (SMOKE/DECEPTION):
1. Construct and errect a dummy site
2. Modify equipment silhouettes

70. ASSIST IN SPECIALTY TEAMS (CONVOYS):
1. Check vehicles and loads
2. Load vehicles in accordance with loading plans
3. Operate vehicles in black out conditions
4. Defend convoy against air attack

71. ASSIST IN SPECIALTY TEAMS (REACTION FORCE):
1. Conduct an intelligence patrol (reconnaissance)
2. Repal ground attack
3. Control civil disturbance
4. Re-enforce perimeter defense

72. PROVIDE SMALL ARMS AIR DEFENSE:
1. Defend position against attacking aircraft w/crew served weapons
2. Defend convoy against attacking aircraft w/crew served weapons
3. Defend position against attacking aircraft w coordinated mass fire

4. Defend convoy against attacking aircraft w/coordinated mass fire

73. IMPLEMENTS/PREPARES DENIAL PLAN:
1. Prepares and implement a plan to destroy equipment with gunfire
2. Prepares and implement a plan to destroy equipment machanically
3. Prepares and implement a plan to destroy equipment using explosives
4. Prepares and implement a plan to render equipment inoperative by removing and destroying critical selected parts

74. CONDUCT SECTION TRAINING:
1. Conduct crew drills/training

75. ASSIST IN UNIT DEPLOYMENT:
1. Preparation for movement of unit and equipment
2. Equipment emplacement
3. Initialization for system operations
4. Participate in unit movement

76. RESPONSIBLE FOR APPROPRIATE ANNEXES FOR ORDERS, PLANS AND SOP'S:
1. Provide annexes as required

TASKS IN ARTEP OR COMMON MODULE THAT ARE TO BE ADDED TO CFEA:

FIRE DISTRUBTUTION CENTER TASKS

77. * 3 II-11-5 - OPERATE DEFENSE ACQUISITION RADAR

78. * 3 II-12-1 - PREPARE TO MOVE (FDC)

79. * 3 II-12-2 - CONDUCT TACTICAL MOVEMENT OF FDC

80. * 3 II-12-5 - PREPARE EARLY WARNING PLOTTING BOARD

81. * 3 II-12-6 - CONSTRUCT RADAR VISIBILITY DIAGRAM

82. * 3 II-12-7 - PREPARE BATTALION AIR DEFENSE PRIORITY LIST

83. * 3 II-12-8 - DEVELOP AND PROCESS TARGET INTELLIGENCE

84. * 3 II-12-11 - MAINTAIN SITUATION MAPS

85. * 3 II-12-12 - SUSTAIN OPERATIONS (DAR)

OPERATIONS AND INTELLIGENCE TASKS

86. * 3 II-4-4.3 - PROCESS CAPTURED DOCUMENTS AND MATERIALS

87. * 3 II-4-5 - DISSEMINATE COUNTERSIGNS AND CODES

88. * 3 II-4-6 - ASSIST IN UNITS S-2 OPERATIONS

(*) Denotes tasks that were analized during the Hawk CFEA

MISSIONS ANALYZED:	44
TASKS ANALYZED:	186
MISSIONS NOT ANALYZED:	32
TASKS NOT ANALYZED:	58

APPENDIX G

HAWK CFEA TASK ANALYSIS WORKSHEETS

BASE PLATOON TASKS

(CORRECTED COPY - 3/25/83)

MISSION. ENGAGE AND DESTROY LOW TO MEDIUM ALTITUDE HOSTILE AIRCRAFT AND MISSILES

THE FOLLOWING COLLECTIVE TASKS SUPPORT THIS MISSION:

1. TASK NUMBER: FB04A02.01

2. TASK TITLE: PERFORM BATTLE STATIONS DRILL

3. CONDITIONS:
Operational Hawk System
Required communications operational
All MOPP and weather conditions
All ECM environments
Properly Trained Crew
Unit directed to assume Battle Stations Readiness Posture

4. STANDARDS:
Hawk Missile System prepared for engagement of hostile aircraft within time limit established by current state of alert, without posing safety hazard to personnel or equipment

5. PERSONNEL PERFORMING TASK:

TCO	24E
TCA	24G
CWTDC (ASIO)	24C
ICCO	
LCHR CREWMAN 1 and 2	
FCO's	
RCO	
LCHR Crew Chief	
LSCBO	

6. EQUIPMENT USED IN TASK PERFORMANCE:
Hawk Missile System Equipment

7. TASK PROCESS/PRODUCT DESCRIPTION:
Battery notified to assume BATTLE STATIONS, system communications are established, selected local checks and adjustments are perform-

ed. selected integrated system checks are performed, launcher section checks are performed, umbilicals are connected, all missiles are armed, and FDC is notified that BATTLE STATIONS have been assumed

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Establishment of system communications
Local system checks (Fire Control)
Local system checks (LCHR)
Designated Integrated System Checks
Report assumption of BATTLE STATIONS

b. INDIVIDUAL TASKS:
TCO: Local checks BCC/ Supervise overall operations, Monitor Hot Loop
TCA: Local checks PAR,ROR/ IFF Challange/Monitor IRR
ASIO: Local checks CWAR, CWTDC
FCO A/B: Local checks HIPIR, FC A/B
ICCO: Local checks ADP, IFF
RCO: Local checks Commo Net
LCHR CREW CHIEF: Overall supervision of crew drill
LSCBO: Monitor's LCHR area safety/ reports status to LCHR crew
LCHR Crewman 1 & 2: Local Checks Launcher

c. ANALYSIS TECHNIQUES:
Standardized Ready for Action Crew Drill
TC 44-90-1
FM 44-90-1

1. TASK NUMBER: FB04A02.02

2. TASK TITLE: Detect Targets

3. CONDITIONS:
Operational HAWK Weapon System
Trained Crew
Unit is in survillience mode
All MOPP and weather conditions
All ECM Environments
Video (ICC), video (CWTDC), or ADP symbol on CRT's

4. STANDARDS:
Video (TCC), or video and/or doppler return (CWTDC) is observed and indentified as valid target video and/or ADP symbology is

observed and correctly interpeted as valid target intrest

5. PERSONNEL PERFORMING TASKS:
TCO
TCA
CWTDC (ASIO)
FCO

6 EQUIPMENT USED IN TASK PERFORMANCE:
PAR
CWAR
TCC
CWTDC
ICC

7. TASK PROCESS/PRODUCT DESCRIPTION:
Detected video is observed on the TCC and/or video or doppler return detected on CWTDC and determined that the target is moving and is a valid target; or ADP symbology is observed on the TCC and is evaluated to determine whether it is a valid target

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Observation of Video/audio/ADP symbology
Determine Target Validity

b. Individual Tasks:
TCO: Obverve video, ADP symbology
TCA: Observe video, ADP symbology
ASIO: Observe video/audio

c. Analysis Techniques:
SME Interview
TM 9-1430-1526-12-1
Standardized Battle Drill

1. TASK NUMBER:FB04A02.03

2. TASK TITLE:EVALUATE TARGETS

3. CONDITIONS:
Operational Hawk Missile System

Trained Crew
Unit Engaged in Air Battle
All MOPP and Weather Conditions
Valid Target Video is Present and/or ADP symbology
All ECM environment

4. STANDARDS:
Aircraft are correctly, determined to be hostile, friendly or unkown utilizing correct identification procedures IAW TSOP, and threat from hostile aircraft is correctly evaluated

5. PERSONNEL PERFORMING TASKS:
TCO
TCA

6. EQUIPMENT USED IN TASK PERFORMANCE:
PAR
CWAR
BCC
HIPIR
IFF
ICC

7. TASK PROCESS/PRODUCT DESCRIPTION.
Detected Target Video is identified using IFF challenge procedures Mode 1-4, track information obtained from FDC, and threat to OSVA or Btry is determined following Hostile Criteria outlined in local TSOP

8. SUMMARY OF ANALYSIS:

a. Components of Task:
IFF Challange
Track information obtained from FDC
Threat to OSVA or Btry is determined
Early Warning Plotting
Lock on Target

b. Individual Tasks:
TCO: Direct BCC Operations, Interface with FDC
TCA: IFF Challange, EW Plot-tell
FCO: Lock On Target
ASIO: Report Target Information

c Analysis Techniques:

TM 9-1430-1526-12-1
Local TSOP
SME Interview

1. TASK NUMBER: FB04A02.04

2. TASK TITLE: ENGAGE, MONITOR, AND ASSESS ENGAGEMENT RESULTS

3. CONDITIONS:
Operational Hawk Weapon System
Trained Crew
Unit at Battle Stations
Unit engaged in Air Battle
All MOPP and Weather conditions
All ECM environments
Target has been determined highest priority threat

4. STANDARDS:
Known Hostile Threat is engaged utilizing appropriate launcher assignment and Method of Fire. Sucess of missile launch and flight and outcome of engagement is correctly assessed. Decision to reengage is made when necessary

5. PERSONNEL PERFORMING TASKS:
TCO
TCA
CWTDC (ASIO)
FCO A/B
ILSCBO

6. EQUIPMENT USED IN TASK PERFORMANCE:
Entire Hawk Missile System

7. TASK PROCESS/PRODUCT DESCRIPTION:
An Aircraft has been determined hostile. Btry has HIPIR locked on target. At FDC direction or at the direction of the TCO. Method of Fire is determined, Firing Section is assigned, LCHR is selected, and missile(s) are launched at hostile aircraft. Success of engagement is assessed and appropriate action taken

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Method of Fire

Section to Fire
Selection of LCHR
Monitor Engagement
Assess engagement results

b. Individual Tasks:
TCO: CEASE FIRE/RESUME FIRE to RESUME FIRE, Determine Method of Fire
Selects Firinc Section, monitors engagement, assesses engagement results
FCO: Selects LCHR, Press Fire Push Button
ILSCBO: LCHR SAFE/OPERATE/ALERT to ALERT

c. Analysis Techniques:
Battle Drill, section V-A
TM 9-1430-1526-12-1
Local TSOP

1. TASK NUMBER:FB04A02.05

2. TASK TITLE:ENGAGE HI SPEED TARGETS

3. CONDITIONS:
Assult Fire Platoon Operational
Trained Crew
Unit at Battle Stations
Unit Engaged in Air Battle
All MOPP and weather conditions
All ECM Environments
Valid Target Video is Present
Threat evaluated, determined hostile

4. STANDARDS:
Known hostile threat to OSVA or Battery is engaged utilizing appropiate launcher selection and method of fire. Sucess of missile launch, flight and outcome of engagement is assessed correctly and decision to reengage is made when necessary

5. PERSONNEL PERFORMING TASKS:
TCO
TCA
ASIO
FCO A/B
ILSCBO
ICCO

RCO

6. EQUIPMENT USED IN TASK PERFORMANCE:
Entire Hawk Missile System

7. TASK PROCESS/PRODUCT DESCRIPTION:
Aircraft has been determined hostile, Btry has HIPIR locked on target. At FDC direction or direction of TCO. method of fire is determined. launcher is selected, and missile(s) is/are fired at threat. Sucess of engagement is assessed and appropiate action taken

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Method of Fire
Selection of LCHR
Monitor Engagement
Evaluation of Engagement

b. Individual Tasks:
ILSCBO: LCHR SAFE/OPERATE/ALERT to ALERT
TCO: CEASE FIRE/RESUME FIRE to RESUME FIRE, determine Method of fire. Selects firing section. monitors engagement. assesses engagement results
FCO: Selects LCHR, press fire push button

c. Analysis Techniques:
SME Interview
Battle Drill, section 5b
TM 9-1430-1526-12-1

1. TASK NUMBER:FB04A02.06

2. TASK TITLE:ENGAGE LOW SPEED/MANEUVERING TARGET

3. CONDITIONS:
Operational Hawk Weapon System
Trained Crew
Unit at Battle Stations
Unit Engaged in Air Battle
All MOPP Conditions
All Weather Conditions
All ECM Environments

Target has been determined highest priority threat

4. STANDARDS:
Known hostile threat is recognized as a Low Speed Maneuvering Aircraft, target lock is established and monitored, decision to engage is correctly determined. Sucess of missile launch and flight and outcome of engagement is correctly assessed. Decision to reengage is made when necessary

5 PERSONNEL PERFORMING TASKS:
TCO
TCA
FCO A/B
ICC
RCO
ILSCBO

6. EQUIPMENT USED IN TASK PERFORMANCE:
Hawk Missile System

7. TASK PROCESS/PRODUCT DESCRIPTION:
During a normal engagement sequance, target is recognized as a low speed maneuvering target. Manual speed is selected. FCO manually sets speed, TCO manually assesses signal strength and determines whether or not to engage

8. SUMMARY OF ANALYSIS:

a. Components of Task:
Recognize low speed maneuvering target
Method of Fire
Section to fire
LCHR to fire
Monitor engagement
Assess engagement results

b. Individual Tasks:
No specific individual performs task

c. Analysis Techniques:
TSOP's
SME Interview

APPENDIX H

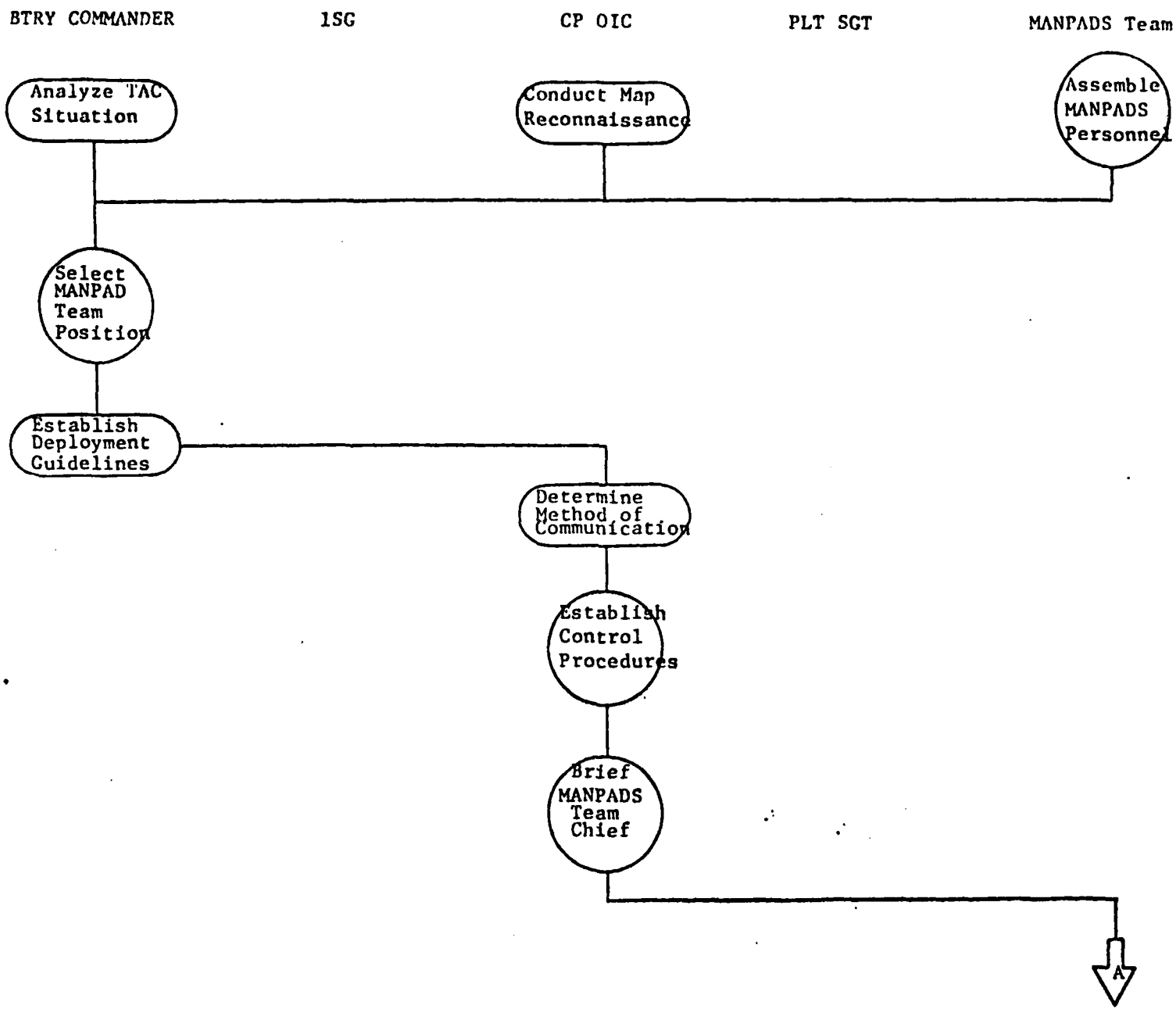
DETAILED TASK ANALYSES

HB04A01.03

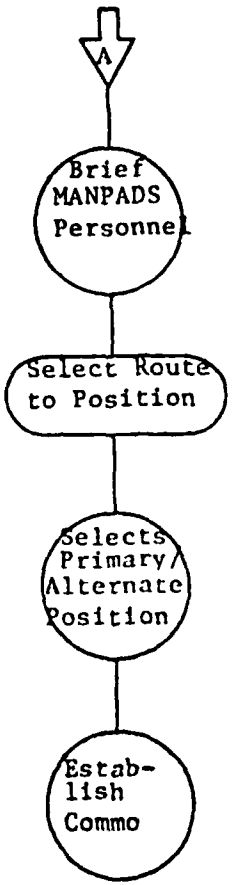
Prepare Strategic Deployment Plan

Commander	S1	S2	S3	S4
1. Analyze mission		1. Provide intelligence data	1. Analyze mission	1.
2.		2.	2. Determine unit operational status	2.
3.	3. Admin support requirements determined	3.	3. Determine equip and personnel requirements	3. Determine support requirements
4.	4.		4.	4. Coordinate non-organic transportation (if necessary)
			5. Assemble data	
			6. Prepare deployment plan	
			7. Disseminate deployment plan to units	

Establish SHORAD Defense



MANPADS Team Chief



ENGAGE HELICOPTER

TCO	TCA	CWTDO (ASIO)	FCO	ICCO	RCO
		3(b) Announce helicopter	3(b) Helicopter		
			(1) Adjust speed control to position intensity marker under target video		
			(2) Press manual speed pushbutton		
			(3) Adjust speed control knob for maximum signal strength indcation on signal strength meter		
			(4) Press missile Code pushbutton.		
			(NOTE) Missile Code cannot be inserted unless manual speed is selected		
			(5) Announce lock on helicopter. Go to step # 5.		

FB04A10.09

Reconstitution

Commander	S1	S2	S3	S4	CE Officer
1. Evaluates Bn assets	1. Evaluate the personnel strength of battalion	1. Intelligence data evaluated: Program expected enemy activity	1. Evaluate Hawk weapon system damage units operational status determined	1. Determine status and availability of pertinent assets	1. Equip status determined
			2. Assemble intelligence data, battle loss of Hawk equip, personnel strength reports, supply status		
			3. Recommends course of action for reconstitution		
4. Evaluates reconstitution plans					
5. Review/ review plan					
6. Implements plan			6. Supervises movement of personnel and/or equip.		

Annex to HAWK Battle Drill:
Engagement of ASMs

Background on ASMs

An ASM is a missile launched from an aircraft to impact on a designated surface target. Reaction time for an ASM is extremely limited and, therefore, the ASM must be engaged without confusion or loss of valuable time if it is to be destroyed successfully. The ASM is definitely a major threat to an air defense system and must be neutralized in order for an air defense system to survive on the battlefield.

An intensive training program should be developed for dealing with ASM engagements. Maximum use of the TPQ-29 should be utilized for this training.

ASMs are generally categorized by the type of guidance system it employs:

inertial guidance
command guidance
laser guidance
electro-optical guidance
beam riding
active, semi-active, and passive radar homing

ASMs that passively home on a radiation source (i.e., Radars) are known as anti-radiation missiles (ARMs). It is, however, impossible to tell the difference between the two types of ASMs from the ground, therefore, it must be assumed that any ASM launched is an ARM.

The defense against ASMs and ARMs is the same and requires special techniques and training. This annex gives a procedure for engagement and destruction of an ASM. It is one procedure and is offered as a guide for training. It will allow the crew members to become proficient in engaging ASM threats.

Procedures for Defending Against ASMs

The most important feature the HAWK weapon system has is the ADP. The ADP has the ability to acquire and evaluate targets very quickly. This is

very important in time sensitive engagements such as those with ASMs. An operational ADP and a knowledge of its operation and use could very well mean the difference between a successful ASM engagement or destruction of an air defense unit by an ASM launch. It is recommended that the ADP be used as much as possible in an ASM environment.

The priority established for engagements of ASMs is:

1. Engage and destroy aircraft before it can launch an ASM. However, this will not always be possible due to tactical situations.

2. Engage and destroy the ASM. Procedures for engagement of ASM are identical to those of high speed aircraft.

3. If ASM cannot be successfully engaged and destroyed, engage the launch aircraft. If two firing sections are available engage both ASM and launch aircraft. Many ASMs require guidance from launching aircraft, therefore destroying the aircraft will cause a greater miss distance.

4. If neither the ASM or launch aircraft can be locked on, unit may consider shutting down its radars. Increases in miss distances may be achieved by denying the ARM a guidance signal 8 to 10 seconds before impact.

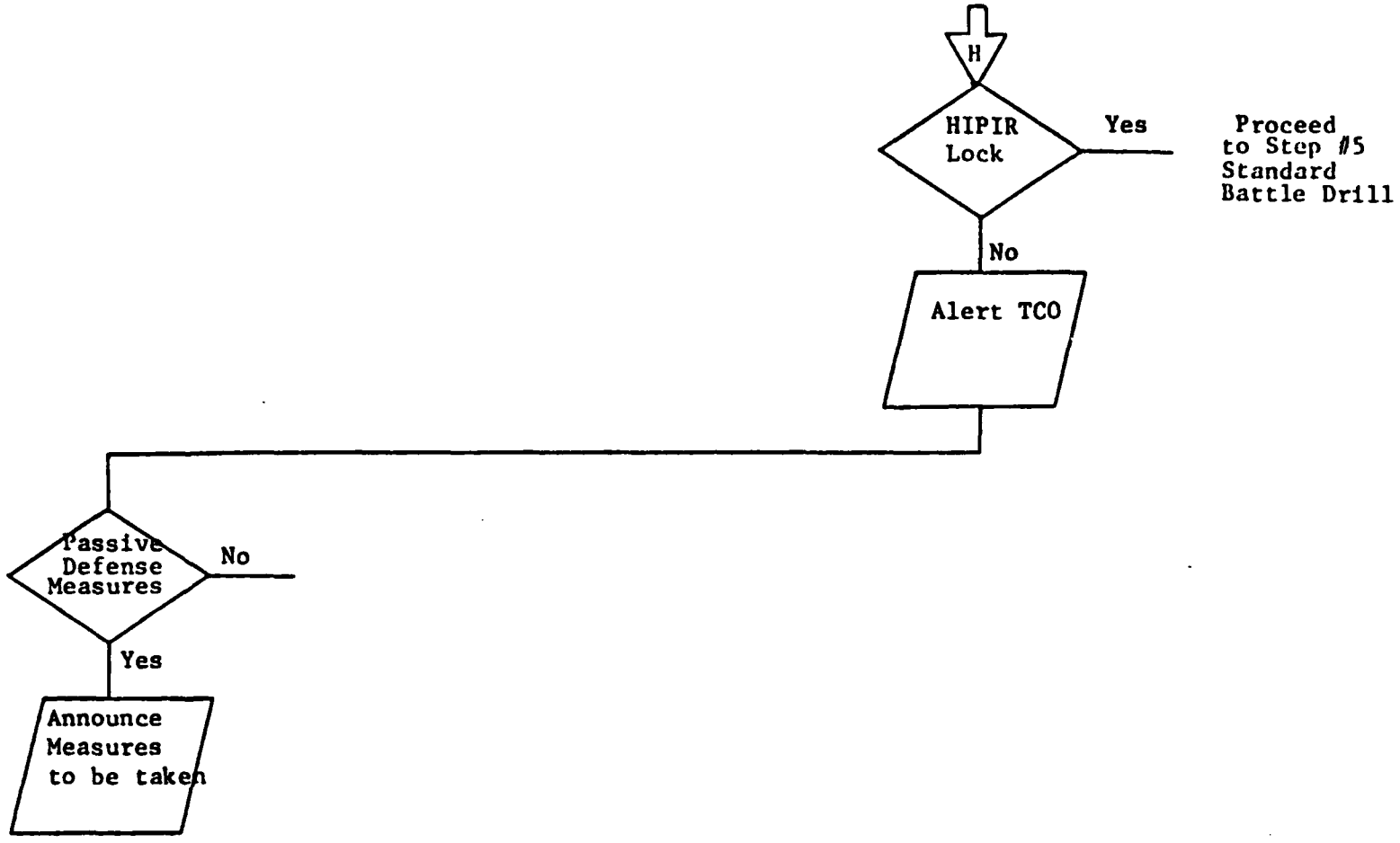
A great deal of care should be exercised to prevent shutting down radars prematurely or unless absolutely necessary. When radars are shut down the enemy <u>has</u> achieved his objective. You have been <u>forced</u> off the air whether or not the ARM impacts your site.

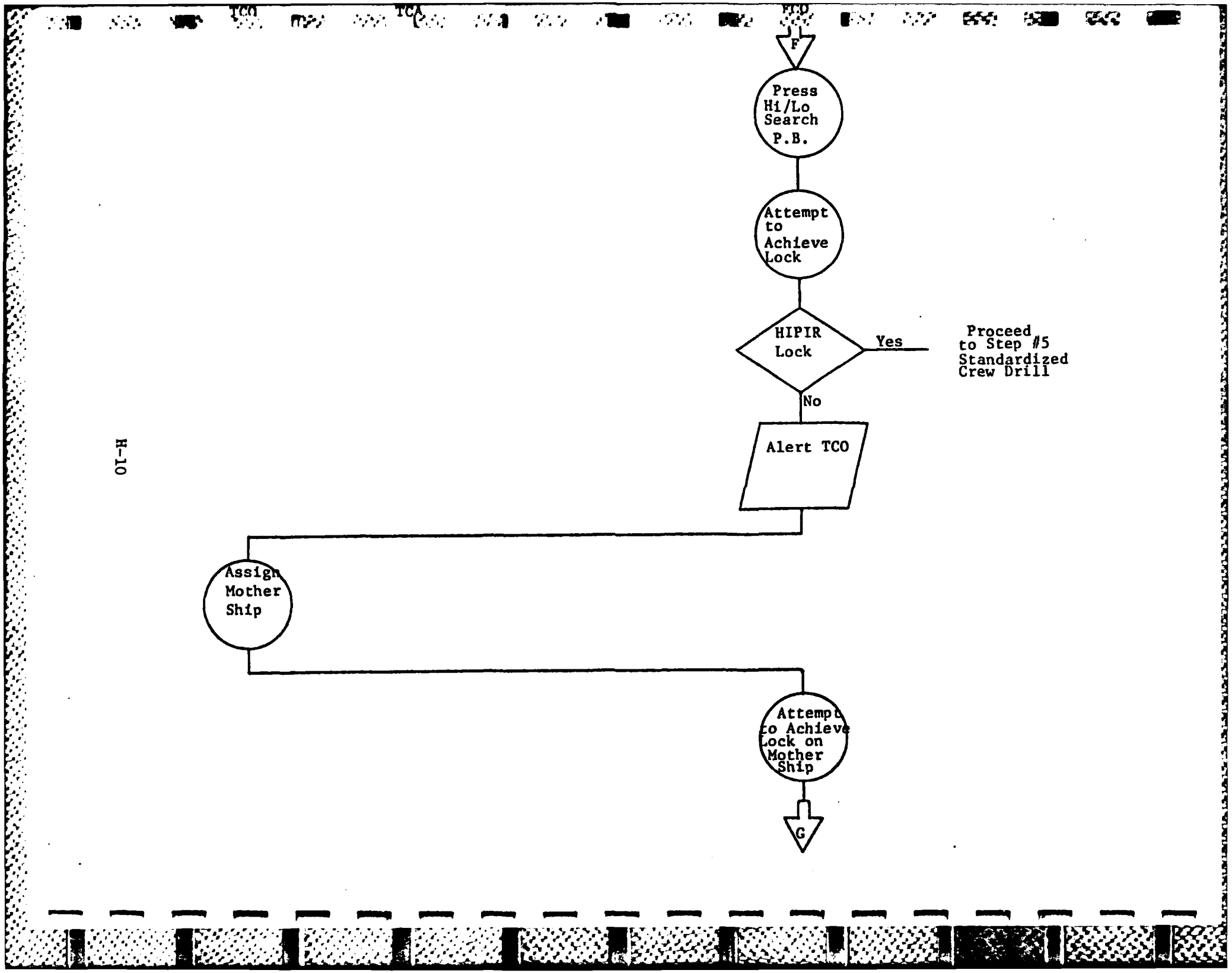
The latest addition to the HAWK weapons system capability is the Tracking Adjunct System (TAS). This system should be extremely useful in the defense against the ASM, since it gives the unit the capability of optically tracking a target without the transmission of RF energy until the HAWK missile is launched. Thus, it is possible to employ passive defense procedures against ASMs and still remain in the air battle.

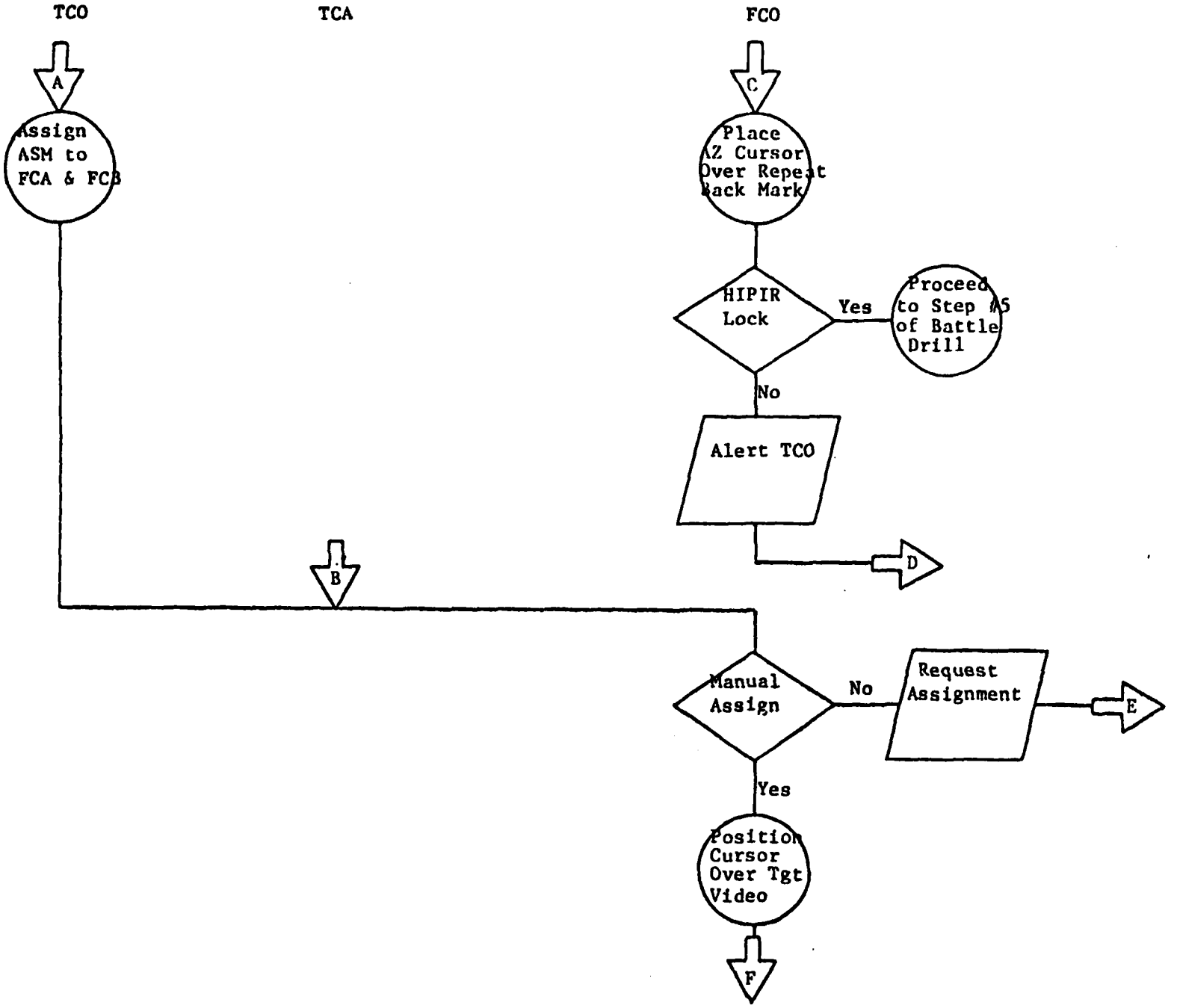
Finally, the best defense against an ASM is a crew that is sufficiently trained in engagements of ASMs, denying the enemy the ability to force you off the air.

Attached is an insert for the HAWK Battle Drill that describes actions performed by BCC personnel during ASM engagements.

TCO TCA FCO


H
HIPIR Lock
Yes
Proceed to Step #5 Standard Battle Drill
No
Alert TCO
Passive Defense Measures
No
Yes
Announce Measures to be taken


TCO
TCA
TCO
F
Press Hi/Lo Search P.B.
Attempt to Achieve Lock
HIPIR Lock
Yes
Proceed to Step #5 Standardized Crew Drill
No
Alert TCO
Assign Mother Ship
Attempt to Achieve Lock on Mother Ship
G


TCO
TCA
FCO
A
Assign ASM to FCA & FCB
C
Place AZ Cursor Over Repeat Back Mark
HIPIR Lock
Yes
Proceed to Step #5 of Battle Drill
No
Alert TCO
D
B
Manual Assign
No
Request Assignment
E
Yes
Position Cursor Over Tgt Video
F

ASM Insert for HAWK Battle Drill