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DEVELOPMENT OF A MODEL JOB PERFORMANCE TEST FOR A COMBAT OCCUPATIONAL SPECIALTY

Volume I. Test Development

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The high costs of performance tests provided the impetus for the conduct of this project. The rationale was as follows: Tests are needed that are less expensive to administer and score than are job performance tests. To be useful, the less expensive tests must be validated. Since combat performance cannot be used as a criterion in validation studies, "less-than-ultimate" criteria are needed, namely, model performance tests. However, these performance tests should require not only that the responses elicited in

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20. testing be similar to those will be performed on the job, but also that the responses made in testing be elicited by stimuli that are similar to those that will be encountered on the job.

Such a test can be constructed by the use of modules in which several tasks are imbedded, with instructions given only for performance of the first task in the module. Completion of one task then serves as the stimulus for the initiation of the next task. This approach is referred to as "functionally integrated performance testing."

Results of the project indicated that the concept of functionally integrated performance tests is a feasible one. But revisions need to be made before the test can be implemented in the field. The test must remain experimental until reliability issues are resolved. The test is perhaps too costly to use for ongoing proficiency evaluation programs, but may be used experimentally, as a best possible criterion for examining the relevance of other measures of job proficiency.

The functionally integrated performance test may also be viewed as a comprehensive test of the jobs, from which samples of the job can be selected for use in lower-cost tests. But optimal methods for sampling from the "item pool" have not yet been developed.

SUMMARY

PROBLEM

Army personnel and training managers need valid job proficiency measures for quality control of training, evaluating MOS proficiency, evaluating the effects of changes in selection and assignment criteria, baseline data for personnel research, and evaluating unit readiness. Three general types of evaluation instruments are available for measuring job proficiency: performance ratings, knowledge tests, and performance tests.

Performance ratings are inexpensive to generate, widely used, but frequently unreliable.

Job knowledge tests also are widely used, but questions persist not only about predictive validity, but also about possible discriminatory effects associated with exclusive reliance on verbal ability.

Job performance tests require applying knowledge and demonstrating skill by eliciting behavior that is the same or nearly the same as the behavior required in job performance. While performance tests may be highly relevant to job performance, they also may be extremely costly to administer and score. Costs are especially high in testing for most combat jobs, where the requirements for support personnel and materiel are great.

The high costs of performance tests provided the impetus for the conduct of this project. The rationale was as follows: Tests are needed that are less expensive to administer and score than are job performance tests. To be useful, the less expensive tests must be validated. Since combat performance cannot be used as a criterion

in validation studies, "less-than-ultimate" criteria are needed; namely, model performance tests.

Before, or in the course of, developing model job performance tests, several issues need to be addressed. One issue involves the use, in performance-testing situations, of stimuli that have little or no relevance to stimulus conditions that will be encountered on the job. In a performance test of cleaning small arms, for example, subjects may be required to respond to a test administrator's command, "Disassemble and clean your sidearm." Or in "station-to-station" performance tests, subjects respond to whatever directions are presented at each station. Responses to such commands and directions may provide useful information about whether the subject can perform the response, but tell us nothing about whether the subject will perform it in the presence of competing response tendencies on the job. For many job tasks, the use of unrealistic stimuli in performance testing negates any benefits associated with the job-relevance of the responses. Performance tests should require not only that the responses elicited in testing be similar to those that will be performed on the job, but also that the responses made in testing be elicited by stimuli that are similar to those that will be encountered on the job.

PURPOSE

A job performance test was needed, against which lesser-fidelity tests might be validated -- a criterion or model performance test that would permit evaluation, not only of a soldier's mastery of

skills and knowledge, but also of his ability to react to stimulus conditions that would be encountered on the job. Such a test can be constructed by the use of modules in which several tasks are imbedded, with instructions given only for performance of the first task in the module. Completion of one task then serves as the stimulus for initiation of the next task. This approach is referred to as "functionally integrated performance testing."

Although the concept of functionally integrated performance testing appears to have advantages over traditional methods of job performance testing, several issues have to be resolved before the approach can be implemented on a wide scale. To resolve the issues, the research focused on two major objectives:

1. To examine the feasibility of developing a functionally integrated performance test for a combat occupational specialty.

2. To examine the applicability of a functionally integrated job performance test from the standpoint of:

   - Sampling tasks.
   - Scoring reliability.
   - Indicating a range of mastery.
   - Evaluating individual proficiency in a team context.

METHOD

A four-phase approach was used to develop the functionally integrated performance test. The phases were entitled:

1. MOS and duty position selection.

2. Task selection.

3. Test development.

4. Field tryout.

MOS AND DUTY POSITION SELECTION

Two MOSs, the Armor Reconnaissance Specialist (11D), and the Armor Crewman (11E) were proposed as candidates for the functionally integrated test. The 11D was selected for use in the project because incumbents in the MOS perform many tasks that, though not common soldiering tasks, are performed by incumbents in the other combat MOSs. A model test for the 11D MOS would therefore have points of contact with other combat specialties. The 11D MOS offers a greater variety of combat-related tasks than does the 11E MOS, which is heavily comprised of tasks performed in or on a tank.

Within the 11D MOS one duty position from each of the 11D10, 11D20, and 11D40 skill levels was selected. The duty positions were Scout Observer (11D10), Vehicle Driver (11D20), and Vehicle Commander (11D40). These duty positions are the densest at the respective skill levels; thus, a test evaluating mastery of tasks relevant to each of these duty positions would have wider applicability than if other positions had been used.

TASK SELECTION

A test that included all tasks in the duty positions selected for inclusion in the study would have been too expensive to develop and use. Decisions therefore had to be made with respect to which tasks to include in the test. Several criteria for task selection were discussed and discarded, with task criticality ultimately used as the basis for task selection.

To establish task criticality, a panel of experts was formed, which included two junior officers with a minimum of three years' experience in Armor Reconnaissance, and two junior NCOs with three years' Armor Reconnaissance service. Members of the HumRRO staff also were on the panel. Their main responsibilities were to insure that the job experts concentrated on the relationship of the task to the duty position, and that all panel members had the same understanding of what the task included. Using lists of tasks from a previous study* at the Armor School, Fort Knox, the panel members judged which of the tasks were most critical. Interrater reliability and interrater agreement were computed for all rater pairs for each duty position. Low interrater reliability for some of the rater pairs appeared to be due to the low variance in ratings.

TEST DEVELOPMENT

Test development was comprised of five sets of activities, summarized under the headings,

1. Mission development.
2. Task assignment.
3. Test conditions.
4. Performance assessment factors.
5. Scoring criteria.

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* Development of Performance Objectives for Critical Tasks in Eight Combat Arms MOSs, Contract DAHC 19-74-C-0043, HumRRO Division No. 4, Fort Benning, Georgia.

Mission Development

The critical tasks provided the background for developing a realistic combat mission for the Armor Reconnaissance Specialist. The mission was comprised of independent modules combined to form a realistic representation of the major job requirements. These modules were:

1. Module I Preoperations.
2. Module II Route Reconnaissance.
3. Module III Specific Reconnaissance.
4. Module IV Night Operation.
5. Module V Postoperations.

These modules comprised a "combat-mission" test, which requires 12 hours to complete. The 12-hour test length had advantages and disadvantages. Advantages include:

1. A realistic sampling of the full range of job tasks, including tasks performed during darkness. (A test achieves greater content validity as the sample of job tasks included in the test increases.)
2. Repetitive testing of tasks. Repeated measures are required for establishing test reliability.
3. Realistic stimulus conditions for performing self-initiated tasks.

Disadvantages of a lengthy performance test include:

1. Control becomes more difficult as time and distance are extended.
2. Support requirements for the test are extremely difficult for most units to meet.

Task Assignment

Tasks were assigned to modules according to two criteria:

1. Tasks were grouped in real-world mission sequences, to provide natural settings for appropriate initiating cues (leader, environment, self).

2. Tasks which could be tested in any of two or more modules were assigned to the module which allowed the more efficient use of supporting test resources.

Test Conditions

Test conditions were developed by identifying:

1. Environmental, equipment, and other conditions under which the tasks were to be performed.

2. Variations in conditions that would require different behaviors.

3. Variations in conditions that would result in different likelihoods of errors in performance.

Performance Assessment Factors

Criteria to be used in judging whether task performance was satisfactory or unsatisfactory were identified on the basis of the project staff's experience in performing the tasks, available literature, and informal interviews with others who were knowledgeable about task performance.

Scoring Criteria

Criteria were specified as performance assessment factors for each task. Task performance was scored as "GO" or "NO-GO" depending on whether the criteria specified on the scoring sheet were met. A "Should Have Performed But Did Not" category also was provided, for self-initiated or "affective" tasks; i.e., tasks whose essence of performance was recognizing the stimulus conditions requiring a response.

FIELD TRYOUT

A field tryout of the fully integrated performance test was conducted at Fort Bliss, Texas. The 3rd Armored Cavalry Regiment (3rd ACR) provided the following support:

1. Sixteen squads (32 vehicles).
2. Six evaluators.
3. Support personnel and equipment.
4. Two days for a "dry run" to pilot test the evaluation instruments.
5. Three days for the "wet run," to collect data.

Raters were briefed on the concept of functionally integrated performance testing, and on the evaluation procedure. The scoring instruments reflected the activities which comprised the Field Tryout, and were designed to enable evaluation of both situational and continuous tasks. Situational tasks, such as "service weapons" and "classify bridge," occur during a particular portion of a module and are evaluated immediately. Continuous tasks, such as "observe sectors" and "operate a vehicle under tactical conditions," occur at least once during each module and must be evaluated each time they are performed (or not performed).

Interrater reliability was determined by computing percentages of rater agreement. An inspection of the data compiled for Situational Tasks indicated:

1. A range of mean rater agreement within runs for VC tasks of 44 percent to 78 percent.

2. A range of mean rater agreement within runs for SO tasks of 70 percent to 98 percent.

3. No apparent differences in rater agreement based on amount of practice as a rater. (C_1C_2 and C_4 are experienced raters; O_2O_3 N_4 N_5 N_6 are inexperienced raters).

4. A tendency for rater agreements to be consistently higher for SO tasks.

Inspection of the data compiled for Continuous Tasks indicated:

1. A range of mean rater agreement within runs for VC tasks of 51 percent to 85 percent.

2. A range of mean rater agreement within runs for VC tasks of 77 percent to 95 percent.

3. A range of mean rater agreement within runs for SO tasks of 87 percent to 97 percent.

4. No apparent differences in rater agreement based on amount of practice as a rater. (C_1C_2 and C_4 are experienced raters; O_2O_3 N_4 N_5 N_6 are inexperienced raters).

5. A tendency for mean rater agreements to be consistent for all three duty positions within runs.

DISCUSSION

Reliability is an essential characteristic of good measurement, and must be incorporated into instruments and procedures that are used to determine MOS proficiency. Several revisions were made in the functionally integrated performance test that should increase reliability. The main changes are:

1. One vehicle is used on each test run. This provides standardized conditions for each individual being tested and eliminates the problem of having one vehicle do nothing more than provide overwatch.

2. The test is arranged to insure that stimuli for performing self-initiated tasks occur under conditions which require their performance.

3. Raters are positioned for optimum observation of task performance to facilitate recognition of task performers.

4. The rater/platoon leader may interrupt the test whenever the crew members fail to react to a situation, particularly when a group of tasks would follow the reaction. The soldier receives a NO-GO on the initial task in the sequence but he does have an opportunity to perform the remaining tasks.

5. The modules are separated so that their beginning and ending are clearly discernible both to the raters and on the rating instrument.

6. The test is designed to allow sufficient time for the crew members to perform all of the tasks. Additionally, the vehicle commander will be aware of the time constraints for each module.

7. When the stimulus to initiate task performance is simulated, the simulation will be of high fidelity to elicit realistic behaviors.

8. Equipment must be in proper repair and fully operational at the beginning of each test.

In addition to the specific revisions noted above, several hypotheses were offered on how to increase the reliability of performance measurement in general, by manipulating certain variables in the preparation, observation, and recording-and-reporting stages of measurement.

CONCLUSIONS

1. Development and use of functionally integrated performance tests for combat MOSs seems feasible. Such a test was developed, pilot-tested, and revised during this project.

2. Functionally integrated performance tests are expensive to develop and to use. The high costs of developing and using functionally integrated performance tests seem justifiable, however, on at least three grounds:

   - Criterion measures are needed, against which to validate "low-fidelity" tests, and as means for assessing the relevance of training. In the absence of opportunities for measuring performance in combat, the fully integrated performance test seems to be the best (i.e., most job-relevant) criterion.

   - Performance of some combat tasks -- namely, "self-initiated" ones -- can be measured properly only in a functionally integrated context.

   - The availability of functionally integrated tests provides a basis for developing more cost-effective tests, which would combine, for example, station-by-station or other low-cost or highly standardized techniques for evaluating "externally initiated" performance, while reserving more costly functionally integrated techniques for evaluating "self-initiated" performance.

3. The assessment of individual proficiency in a team context presents problems, the only solution to which seems to be to sacrifice some realism for the sake of achieving standardization. These problems include:

- Difficulty in standardizing stimulus conditions where the behavior of one team member or crew constitutes the stimulus condition for the performance of another individual or crew. One solution to this problem is to use "standardized others." A better solution in our view is simply to decrease opportunities for generation of unpredictable stimulus conditions; e.g., by testing only one crew at a time rather than testing in sections or squads.

- Job tasks that can be performed by more than one team member may, in the test situation, be performed by only one team member. In the present study, for example, some team members performed so infrequently as to make assessment of their performance impossible. Administrative intervention (at some cost in realism) seems necessary if this problem is to be avoided.

4. In cases where raters could agree (a) that a task had indeed been performed, and (b) on who had performed the task, interrater agreement on the adequacy of performance (GO or NO-GO) was about 75 percent. Raters appeared to have difficulty, however, in determining whether and by whom some tasks were performed. Such problems can be solved by increasing the distinctions among test modules, and by improving vantage points for raters.

5. Manipulation of certain variables that operate in the preparation, observation, and recording-and-reporting phases of performance measurement can be expected to increase measurement reliability. The variables include:

    - In rater preparation:

        - Specificity of instructions.

        - Timing of instructions.

        - Practice in observing and recording.

        - Testing raters.

. In observation:

  - Properties of the events or things to be measured.

  - Strategies, rules, and procedures for measurement.

. In recording and reporting:

  - Timing (interval between observation and recording).

  - Design of recording forms.

PREFACE

This is the first volume of the final report on a project entitled, "Development of a Model Job Performance Test for a Combat Occupational Specialty." The project was directed toward the development and field test of an experimental job proficiency test, which evaluates not only the soldier's mastery of skills and knowledges required in his MOS, but also his ability to respond without prompting to realistic stimulus conditions. This volume covers the rationale for developing a functionally integrated performance test, a description of the test development methodology, a discussion of the test revisions and reliability issues, and conclusions. The second volume is a manual for administering a functionally integrated performance test.

Work reported here was conducted by the Human Resources Research Organization (HumRRO) under Contract No. DAHC 19-74-C-0054 with the U.S. Army Research Institute for the Behavioral and Social Sciences. The research was performed at HumRRO's Central Division (Louisville) under the supervision of William Osborn, who is currently Director of the Louisville Office and was the Project Director. Dr. Wallace W. Prophet is Director of the HumRRO Central Division. The project staff included James H. Harris, Roy C. Campbell, John A. Boldovici, and Peter B. Wylie. Dr. Milton H. Maier, the Contracting Officer's Technical Representative, and Dr. Mazie Knerr, the Alternate Contracting Officer's Technical Representative, provided administrative guidance throughout the project. LTC Willis G. Pratt, Military Chief of ARI's Fort Knox Field Unit, was instrumental in securing support at Fort Bliss for the project.

Appreciation is expressed to the 3rd Armored Cavalry Regiment (ACR), Fort Bliss, Texas for allowing HumRRO personnel to observe the conduct of the Scout Squad Proficiency Course (SSPC). The SSPC was conducted by the 2/3 Cavalry without whose continuous cooperation the evaluation could not have been carried out. LTC Willard Burleson, CO, 2/3 Cavalry and CPT E.R. Lamison, S-3, 2/3 Cavalry, despite a full field-training schedule and the pressure of other training requirements, provided valuable time in assisting the HumRRO research effort. We are most grateful to 1LT C.G. Canavera, 1LT D.D. Newlin, 2LT C.H. Berlin III, SFC J. Ferguson, SSG E.J. Meyers, and SSG C. McCarty, who gave their time and experience as raters during the field tryout, and participated with forebearance and enthusiasm during the many test runs.

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VOLUME I. TEST DEVELOPMENT

INTRODUCTION

Job proficiency tests are integral components of the U.S. Army's management systems. These tests provide information vital to sound training and personnel decisions. Job proficiency tests play an important role in decisions relating to:

1. Evaluating training.
2. Evaluating MOS proficiency.
3. Evaluating changes to the personnel system.
4. Conducting personnel research.
5. Determining unit readiness.

Job proficiency tests are valuable quality control tools for evaluating training. Data from such tests are important in deciding when to advance a student to a higher level of training or ultimately into a job position. The importance of valid evaluations to diagnose deficiencies in a student's performance is not so obvious. If a trainee fails two out of ten stations testing performance in a given area, then his general areas of performance deficiency would be identified. Additionally, if a significant number of students fails the same station(s), the evaluator has a reliable indicator of a weakness in the training program.

Valid job proficiency evaluation instruments also are important in the MOS testing program. Proficiency tests are used to evaluate an incumbent soldier's current job proficiency. The results of the tests are used to identify soldiers to be promoted, or to be rewarded for exceptional proficiency, or to be released from service.

A third application of job proficiency tests is to provide data for evaluating changes in the personnel system. One important contribution of job proficiency tests relates to the value of the test as a criterion for validity of selection and classification tests. To expect a candidate for induction or AIT assignment to be able to demonstrate mastery of the tasks relevant to a specific job is unreasonable. Yet selection and classification tests make it possible to predict which men will be able to master the job requirements. The criterion measure must be a valid indication of a soldier's mastery of job tasks.

The fourth important application of job proficiency test results is as a criterion for personnel research. Army personnel research encompasses many subjects. Changes in training methods, rewriting technical and field manuals, altering the procedure to perform a job, and redesigning equipment are among the subjects addressed in personnel research. The usual design of a research project includes before and after measures of job proficiency. The validity of conclusions in such studies depends ultimately on the validity of the job proficiency tests.

The fifth crucial use for job proficiency tests is to assess the readiness of a unit. Insofar as the job proficiency tests validly measure mastery of tasks performed by members of the unit, strengths and weaknesses of the unit can be identified. Such results then become the basis for conducting remedial on-the-job training.

Training and personnel managers have three general types of evaluation instruments available to measure job proficiency -- ratings of job performance, job knowledge tests and job performance tests.

Job performance ratings, whether contributed by supervisors, subordinates or peers, represent the most convenient, inexpensive and widely used method of evaluating job proficiency. But performance ratings lack the standardization which tests have, and also are fraught with various rater errors and biases.

Job knowledge tests also are widely used. Despite the widespread use of such tests, there is a persistent question concerning the degree to which job knowledge tests can adequately assess job performance, both in the sense of the range of job performances that are validly represented in job knowledge, and in the sense that knowledge testing in a paper-and-pencil mode presumes at least minimal literacy skills.

Job performance tests call for application of knowledge and demonstration of skill by eliciting behaviors that are equivalent, or nearly equivalent, to those required in actual job performance. Because of excessive demands on time and resources, performance tests may be very expensive, and usually cover only part of what people do and are expected to do on the job.

The expense of performance tests is inherent in the nature of a test which seeks to represent the real work environment with all its cues and required behaviors as closely as possible. Such a representation of the real world is expensive. Many users think performance

tests require too much equipment and personnel to administer. Others find that wear on equipment increases maintenance costs unacceptably. And the level of professional skill to develop and supervise administration of performance tests may not be readily available to users.

The second characteristic of performance tests noted above -- the capability to evaluate only part of a job incumbent's responsibilities -- is not inherent in performance tests; rather, it reflects conventional approaches to developing performance tests. Where performance tests are used, mainly in BCT and some AIT programs, they tend to focus on discrete tasks. A test administrator typically orients a soldier to a job setting, tells him what to perform, and the time limitation if there is one. After the soldier completes one task the tester orients him to another task. The soldier thus progresses task-by-task until he has demonstrated mastery of the minimum job requirements. This process precludes testing on some tasks, and for others ignores a vital component of task mastery -- the soldier's ability to initiate his own performance from cues he typically receives on the job.

Logistical considerations have led to widespread use of task-by-task, station-by-station performance testing. This method excludes an important aspect of job performance: responding to stimulus conditions without prompting. It would be of little benefit to inform a soldier, "At this station you will demonstrate your ability not to smoke around gasoline;" or, "You have just detected a noxious odor that you believe to be poison gas. Give the alarm." In both cases

important aspects of task performance are excluded. Not smoking around gasoline is a capability that everyone has. The essence of the performance is some combination of attentiveness to the hazardous stimulus (gasoline) and a willingness to respond (not smoke). The critical performance in the CBR example is detecting the presence of gas when unalerted to that possibility. Actually giving the alarm, while important, is the more perfunctory element of task performance.

Shortcomings of the task-by-task approach to performance testing center around occasional failures to incorporate important aspects of task performance in the test situation. Tasks of the sort mentioned are typically time-shared and call for a response under unalerted conditions. Any attempt to structure a separate test on one of these tasks necessarily precludes an unalerted set.

A possible solution to this problem lies in an approach to job performance testing which evaluates not only the soldier's mastery of skills and knowledges, but also his ability to recognize and react to conditions which initiate task performance. The tests would evaluate mastery of each task in a job-related module which would include several other tasks. Because each task is tested in a functional context which maintains the logical relationship of the tasks, the approach is termed here "functionally integrated performance testing." This distinguishes the approach from the conventional method of testing each task as a discrete incident.

The concept of functionally integrated testing is based on an analysis of task performance that indicates three types of stimuli which control initiation of task performance:

1. Leader.
2. Environment.
3. Self.

The first type of stimulus is the command of a leader. A soldier is typically told when to begin performing such tasks as "load the main gun on a tank," "classify a bridge," or "execute the manual of arms with a rifle." Tasks of this sort lend themselves well to conventional testing as separate and individual tasks.

The second type of initiating stimulus is controlled by the environment. Two varieties of environmentally controlled tasks are worth distinguishing. One variety involves immediate reaction to infrequent and unpredictable stimuli. A stimulus condition may be blatantly obvious, as a rifle misfiring, which cues a reaction to clear the weapon. Similarly, the appearance of two or more enemy targets cues a target selection decision. The stimulus condition, on the other hand, may be subtle and require vigilance, as in avoiding contact with poison plants or detecting an enemy infiltrator. But in either case the stimulus is unpredictable if not totally unexpected, and an appropriate test situation should create an unalerted set on the part of the person being tested.

The third type of stimulus is from within the soldier himself. Tasks which do not require much skill of the soldier but do require recognition of the situation that calls for the task and a willingness to perform the task are termed affective tasks. Tasks with a substantial affective component such as "maintain noise discipline," "perform during-operations checks on a vehicle," and "service an individual weapon" typically fall into this category. For tasks in which the essence of the criterion behavior is affective, the question is not can the individual perform the task, rather will he perform the task in the presence of competing response tendencies. To determine if the soldier will perform affective tasks, unobtrusive testing methods must be used.

As a demonstration of the difference between functionally integrated testing and discrete-task testing, consider the mission of occupying and operating an observation post. This mission encompasses six tasks among others:

1. Select a position for an individual observation post.
2. Place the TA/1 telephone into operation.
3. Camouflage field wire.
4. Perform communications check.
5. Observe sector of terrain.
6. Transmit a spot report.

A discrete-task job performance testing approach would result in evaluating mastery of each task separately. The soldier would be told which task to perform and when to begin. Tasks 2, 4, and 6

would typically be tested at a communications station and Task 1 would be tested at a tactics station. Tasks 3 and 5 might very well not be tested at all because they seem to be relatively simple and nonproceduralized.

A functionally integrated job performance testing approach would group the tasks into a module. The orienting instructions would tell the soldier to set up an observation post, designate an observational sector, and require him to perform communications checks at a specified interval. The stimulus for performing Tasks 1 and 4 is initiated by the leader. Task 2 might appear to be environmentally initiated, since the soldier could not perform a communications check without placing the telephone into operation, but it has neither the vigilance nor immediate reaction features of an environmentally cued task; and as it is so closely tied to the communications check it is better viewed as a leader-initiated task. Tasks 5 and 6 are controlled by the environment. Observing a sector of terrain requires sustained attention in order to detect the presence or activity of the enemy, and transmission of a spot report is initiated by, and is a reaction to that detection. Task 3 is initiated by the soldier himself. Camouflaging field wire does not require much skill of the soldier, but it does require recognition of the situation that calls for the task and a willingness to perform the task. A personal commitment to camouflaging the wire is of particular significance, as are many tasks that are essentially safety precautions, because the system will operate perfectly well without it; therefore, under pressure the soldier may overlook it or be tempted to ignore it.

The functionally integrated test should be able to claim a higher level of validity than more conventional performance tests because it preserves the initiating cues of the real work environment. That is, training or personnel managers should be more confident that a soldier who passes the functionally integrated test will perform his job acceptably than they would be if the soldier passed the six discrete-task tests. Further, the higher validity may not raise the cost of the performance test, since the functionally integrated test would require no more equipment than would tests on the separate tasks. It is even possible that the functionally integrated test may be cheaper because it eliminates the time soldiers spend moving between stations, and testers spend reading orienting instructions. Of course, in economy, the functionally integrated test cannot compare with group administered paper-and-pencil tests or with ratings of job proficiency, but it should at least offer a highly relevant criterion against which paper-and-pencil tests or ratings can be objectively validated.

Although the concept of functionally integrated testing appears to have distinct advantages over the more traditional methods of job performance testing, several issues had to be resolved before the approach could be implemented on a wide scale. This report details the development and analysis of a functionally integrated performance test and focuses on two major objectives:

1. To examine the feasibility of developing a functionally integrated job performance test for a combat occupational specialty.

2. **To examine the applicability of a functionally integrated job performance test from the standpoint of:**

   - Sampling tasks.
   - Scoring reliability.
   - Indicating a range of mastery.
   - Evaluating individual proficiency in a team context.

METHOD

This section is devoted to the following areas:

1. MOS and duty position selection.
2. Task selection.
3. Test development.
4. Field tryout.

MOS AND DUTY POSITION SELECTION

Two MOSs, the Armor Reconnaissance Specialist (11D), and the Armor Crewman (11E), were proposed as candidates for the functionally integrated test. The 11D was selected for use in the project because incumbents in the MOS perform many tasks that, though not common soldiering tasks, are performed by incumbents in the other combat MOSs. A model test for the 11D MOS would therefore have points of contact with other combat specialties. The 11D MOS also offers a greater variety of combat-related tasks than does the 11E MOS, which is heavily comprised of tasks performed in or on a tank.

Within the 11D MOS one duty position from each of the 11D10, 11D20, and 11D40 skill levels was selected. The duty positions were Scout Observer (11D10), Vehicle Driver (11D20), and Vehicle Commander (11D40). These duty positions are the densest at the respective skill levels; thus, a test evaluating mastery of tasks relevant to each of these duty positions would have wider applicability than if other positions had been used.

TASK SELECTION

Task criticality was used as the criterion for selecting tasks for inclusion in the performance test. Task criticality is most frequently based upon judgments about the importance of task accomplishment in relation to the functioning of a larger system. Mission accomplishment and survivability on the battlefield are included in military definitions of task criticality.

The task list used as the basis for criticality ratings for this project was developed by the Armor School during the Eight MOS Study.[1] The Armor School also compiled criticality ratings for these tasks. Unfortunately, the results were not suitable for this project for two reasons:

1. Respondents were not supposed to consider any aspect of task training; however, it appears that in some cases the respondents considered the "training world" rather than the "real world" in rating the tasks. This tended to eliminate tasks which were crucial but might be difficult to train. Conversely, tasks were rated crucial which were currently trained and for which training methods and facilities existed.

2. The criticality ratings in certain instances are so diverse that it appears the respondents misinterpreted the scope of some task statements.

[1] Development of Performance Objectives for Critical Tasks in Eight Combat Arms MOSs, Contract DAHC 19-74-C-0043, HumRRO Division No. 4, Fort Benning, Georgia.

The Armor School task list and subtasks identified as a result of PERFORM-TEC II,[2] were the point of departure in identifying the most critical tasks for the Scout Observer (SO), Vehicle Driver (VD), and Vehicle Commander (VC).

A panel of experienced supervisors and job incumbents participated in the rating sessions. The panel members included two junior officers with a minimum of three years' experience in Armor Reconnaissance, and two junior NCOs with three years of Armor Reconnaissance service including experience at the three duty positions selected for test development. Each respondent was given a rating booklet (Appendix A) which contained an environment statement, a description of the major job requirements for each duty position, an explanation of the task value scale, a list of task categories, and a list of the tasks, by categories, to be rated.

There were 716 tasks for each duty position in the rating booklet. One hundred forty-six tasks were eliminated without rating because they involved equipment, behaviors, and weapons not pertinent to the duty positions under investigation. All tasks in the following categories were eliminated: wheeled vehicles; pistols; dismounted drill and inspections; operations and intelligence staff duties; mortars; tracked vehicle tasks, other than the M114A1; and machinegun tasks, other than the M60 and the 20mm automatic gun. The number of tasks to be rated was reduced to 570.

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[2] See Note 1.

A member of the project staff compiled the ratings after panel members completed the initial ratings and eliminated tasks which all raters agreed were no more critical than a value of 1. Tasks rated at least as critical as a value of 2 by all raters were retained for a second criticality rating. When the values assigned a particular task by the raters differed significantly, e.g., (1,0,3,3) (0,1,2,3) (0,3,3,3) (0,1,1,3), the differences were discussed by the panel members until a consensus was reached. Rating differences were caused by:

1. Confusion concerning the relationship of the task to the duty position.
2. A misunderstanding of what a task included.

The initial criticality ratings yielded the following results:

Duty Position	Tasks Rated Critical/Important (Task Value of 2 or Greater)	Percent of Original N (N = 570)
Scout Observer	162	28
Vehicle Driver	113	20
Vehicle Commander	389	68

The tasks rated critical/important for each duty position were rated again to determine which of them were most critical. The second rating was to reduce the population of tasks to a more workable number and to overcome the effects of inflated ratings. The tasks initially rated critical/important for each duty position

were greater than the mean of all the tasks in criticality; therefore, the panel members were forced to sort tasks such that the distribution would resemble the upper half of the normal curve. Table 1 displays the normalized distribution of tasks rated critical/important. The sum of the ratings for each task in each duty position was used to select tasks to be addressed in the test. Tasks consistently rated high were included, those consistently rated low were excluded. Tasks which had a high variance in terms of their criticality ratings were considered for possible inclusion. A list of tasks for the two most critical levels is in Table 2.

Interrater reliability and interrater agreement were computed for all rater pairs for each duty position. Interrater reliability represents the degree to which the ratings of different raters are proportional when expressed as deviations from their means. This means that the relationship of one rated task to other rated tasks is the same although the absolute numbers used to express this relationship may vary from rater to rater. Interrater agreement represents the extent to which the different raters tend to make exactly the same judgments about the rated task.[3] The results of these computations are displayed in Table 3. Raters #1 and #2 are the junior NCOs, raters #3 and #4 the junior officers. The low

[3] Tinsley, H.E.A. and Weiss, D.J. "Interrater Reliability and Agreement of Subjective Judgments," Journal of Counseling Psychology, 1975, Vol. 22, No. 4, 358-376.

TABLE 1

NORMALIZED DISTRIBUTION OF TASKS RATED CRITICAL AND IMPORTANT

	Levels of Criticality					
Duty Position	Very Critical (5)† (4.5%)∇	Hi[illegible] Criti[illegible] (4) (8.8%)	Critical (3) (18.4%)	Slightly Critical (2) (30.0%)	Not Critical (1) (38.3%)	Total
Scout Observer	7	14	30	49	62	162
Scout Driver	5	10	21	34	43	113
Vehicle Commander	18	34	72	117	148	389

† *Value of a task receiving this rating.*

∇ *Percent of tasks for each duty position to receive this rating.*

TABLE 2

TASKS RATED VERY CRITICAL OR HIGHLY CRITICAL
BY DUTY POSITION

Vehicle Commander

1. Maintain contact with the enemy.
2. Disseminate information and orders.
3. Engage targets with the 20mm automatic gun mounted in an M114A1.
4. Select tactical positions.
5. Develop the situation.
6. Communicate information over tactical wire and FM radio nets.
7. Prepare a spot report on enemy activity.
8. Conduct mounted tactical movement.
9. Determine own location on the ground by comparing terrain features from the location with those shown on the map.
10. Select alternate and supplementary positions.
11. Adjust aerial delivered fires.
12. Classify a route.
13. Operate radio remote control equipment.
14. Conceal movement through route selection.
15. Identify enemy vehicles and equipment.
16. Assemble non-electric detonation system.
17. Operate radio AN/GRC-160.
18. Collect/report information of potential intelligence value.
19. Designate targets.
20. Reconnoiter a route: classify vehicles.
21. Determine the enemy's strength and dispositions.
22. Prepare selected TOE weapons and equipment for patrol.
23. Construct roadblocks.
24. Emplace a non-electric/electric detonation system appropriate to destroy obstacles with explosives.
25. Organize resources for mission accomplishment.
26. Occupy/operate a listening post.

TABLE 2 (cont'd)

Vehicle Commander (cont'd)

27. Occupy/operate an observation post
28. Select listening post site.
29. Select observation post site.
30. Identify enemy aircraft.
31. Put on protective mask.
32. Recognize CBR hazards.
33. Indicate objectives of route, zone, and specific reconnaissance.
34. Record route classification information on a map overlay.
35. Assemble an electric detonation system.
36. Select explosives appropriate to mission.
37. Deceive the enemy as to the existence, location, strength, and plans of the unit.
38. Locate a point on a map using the Military Grid Reference System.
39. Camouflage positions.
40. Maintain noise discipline to reduce danger of detection.
41. Interpret CBR alarms and signals.
42. Give CBR alarm.
43. Navigate from one point on the ground to another with the aid of a compass.
44. Measure ground distance on a map.
45. Clear field of fire.
46. Control fires of the other weapons.
47. Lead and control patrol actions at danger areas.
48. Prepare a range card for an M114A1 command and reconnaissance carrier.
49. Engage targets at night with a 20mm automatic gun.
50. Prepare NBC-1 reports.
51. Maintain fire discipline to reduce the danger of detection.
52. Maintain light discipline to reduce the danger of detection
53. Identify chemical agents using a chemical agent detector.
54. Select a movement route using a map.

TABLE 2 (cont'd)

Vehicle Driver

1. Operate an M114A1 command and reconnaissance carrier.
2. Perform before/during/after operations maintenance checks and services on an M114A1 command and reconnaissance carrier.
3. Select individual battlefield positions that afford concealment and cover.
4. Communicate information over tactical wire and FM radio nets.
5. Operate vehicular intercommunications equipment.
6. Extinguish a fire in an M114A1 command and reconnaissance carrier.
7. Engage targets with the 20mm automatic gun mounted in an M114A1.
8. Operate radio AN/GRC-160.
9. Camouflage positions.
10. Maintain light discipline to reduce the danger of detection.
11. Put on protective mask.
12. Recognize CBR hazards.
13. Respond to ground guide signals while driving an M114A1 command and reconnaissance carrier.
14. Take immediate action to reduce a stoppage of the 20mm automatic gun.
15. Engage targets at night with a 20mm automatic gun.
16. Interpret CBR alarms and signs.
17. Prepare combat vehicle crewman's helmet for operation.

TABLE 2 (cont'd)

Scout Observer

1. Engage a target with an M203 grenade launcher.
2. Engage a moving target with an M60 machinegun.
3. Load/unload/clear an M60 machinegun.
4. Prepare an M7242 LAW for firing.
5. Correct malfunctions in an M60 machinegun.
6. Apply immediate action to reduce a stoppage on an M60 machinegun.
7. Maintain an M60 machinegun.
8. Identify malfunctions in an M60 machinegun.
9. Engage targets at night with an M60 machinegun.
10. Engage an area target with an M60 machinegun.
11. Engage a stationary/point target with an M60 machinegun.
12. Load/unload/clear an M203 grenade launcher.
13. Engage aircraft with individual and crew-served weapons.
14. Disassemble/assemble an M60 machinegun.
15. Correct malfunctions in an M203 grenade launcher.
16. Traverse terrain dismounted in a tactical situation.
17. Prepare an M114A1 command and reconnaissance carrier and weapons for tactical operation.
18. Occupy/operate an observation post.
19. Disassemble/assemble an M203 grenade launcher.
20. Camouflage positions.
21. Put on protective mask.

TABLE 3

INTERRATER RELIABILITY (PEARSON'S r) AND INTERRATER AGREEMENT (%) FOR TASK CRITICALITY RATINGS (ALL RATER PAIRS FOR EACH DUTY POSITION)

VEHICLE COMMANDER

RATER	#2 (NCO) r	#2 (NCO) %	#3 (OFF) r	#3 (OFF) %	#4 (OFF) r	#4 (OFF) %
#1 (NCO)	.10	36	.46	45	.23	34
#2 (NCO)			.48	33	.33	35
#3 (OFF)					.38	41

VEHICLE DRIVER

RATER	#2 (NCO) r	#2 (NCO) %	#3 (OFF) r	#3 (OFF) %	#4 (OFF) r	#4 (OFF) %
#1 (NCO)	.04	34	.14	35	.20	27
#2 (NCO)			.58	36	.44	37
#3 (OFF)					.30	31

SCOUT OBSERVER

RATER	#2 (NCO) r	#2 (NCO) %	#3 (OFF) r	#3 (OFF) %	#4 (OFF) r	#4 (OFF) %
#1 (NCO)	.31	37	.45	41	.09	34
#2 (NCO)			.52	42	.32	30
#3 (OFF)					.07	38

interrater reliability for some of the rater pairs (e.g., #1 and #2 - Vehicle Commander; #3 and #4 - Scout Observer) is due to the low variance in the ratings. Interrater agreement is better than interrater reliability as an indicator of the stability of the ratings.

TEST DEVELOPMENT

The test development approach is based, in part, on the results of the field tryout and is divided into the following steps:

1. Mission development.
2. Task assignment.
3. Test conditions.
4. Performance assessment factors.
5. Scoring criteria.

Mission development. The critical tasks provided the background for developing a realistic combat mission for Armor Reconnaissance Specialist. The tasks selected for inclusion in the test reflect the descriptions of the major job requirements of the Armor Reconnaissance Specialist. The major job requirements are:

1. Scout Observer (11D10): Conducts systematic observation for indications of enemy activity while participating in area and route reconnaissance and security patrols, both mounted and dismounted. Operates and maintains assigned vehicle weapons and individual weapons. Assists in crew maintenance of assigned vehicles.

2. Vehicle (Scout) Driver (11D20): Operates tracked...vehicles for scout elements in conduct of reconnaissance and security operations. Selects routes which provide cover and concealment. Performs operator maintenance and keeps vehicle records as required. Stows and maintains on-vehicle material.

3. Vehicle Commander (11D40): Commands scout squad, section or vehicle to which assigned in mounted or dismounted combat and reconnaissance patrols. Selects routes, assembly and bivouac areas, and attack or firing positions for following units... Evaluates and disseminates intelligence information. Supervises crew maintenance of unit vehicles, weapons and equipment.

The mission is comprised of independent modules combined to form a realistic representation of the "real world." The modules which follow were selected because they realistically reflect the major job requirements:

1. Module I Preoperation.
2. Module II Route Reconnaissance.
3. Module III Specific Reconnaissance.
4. Module IV Night Operation.
5. Module V Post Operation.

The vehicle commander receives the mission in the form of an oral frag order. The frag order is the initial performance stimulus. All activities which follow are initiated by this order. At the conclusion of each module, the vehicle commander receives updated frag orders which initiate his performance on the next module. The test administrator provides no other orienting instructions during the test. Controls built into the test insure consistency each time the test is administered. Control measures include clearly defined reconnaissance routes and standard locations for all mission interruptions (enemy attack, CBR attack, bridge crossings, roadblocks).

The "combat mission" test requires 12 hours to complete. A test of this length has advantages and disadvantages. Advantages include:

1. A realistic testing of a full range of tasks (including tasks performed during darkness). A test achieves greater content validity as the sample of tasks tested increases.

2. Repetitive testing of tasks. Repeated measures are required for establishing test reliability.

3. Realistic stimulus conditions for performing self-initiated tasks.

Disadvantages of this approach include:

1. Control becomes more difficult as time and distance are extended.

2. A test of such length is difficult for most units to support.

Task assignment. One purpose of the functionally integrated approach to performance testing is to measure realistically the performance of tasks whose essential dimension is recognizing the performance stimulus. Leader-initiated tasks lend themselves well to conventional testing as separate and individual tasks. However, these kinds of tasks must be included in the functionally integrated performance test to present realistically the stimuli for performing environment- and self-initiated tasks. Tasks for this project are defined as "brief statements, usually consisting of an active verb and a direct object, of the behavior addressed by the objective."[4] "Observe sectors" is a task statement for armor reconnaissance.

[4] Kraemer, R.E., Boldovici, John A., and Boycan, G. Gary, Job Objectives for M60A1AOS Tank Gunnery Compared to Proposed Training, Volume 1: Development and Results, Contract DAHC 19-73-C-0057, March 1975.

Tasks were assigned to the modules according to two major criteria:

1. Tasks were grouped in "real world" mission sequence to provide natural settings for appropriate initiating cues (leader, environment, self).

2. Tasks which could be tested in any of two or more modules were assigned to the module which would allow the most efficient utilization of supporting test resources.

The second criterion was modified to provide a method to measure task performance more than once. Some of the tasks which logically fit more than one module were put in all the modules in which they might occur on the job. Repeated measures of task performance are, of course, necessary for determining both test and scorer reliability.

Test conditions were developed next. The very essence of any proficiency measure which professes to be a test is that of standardized conditions. It is mandatory that all personnel tested be presented identical stimulus conditions. The test conditions must cover the circumstances under which a task is performed. Test conditions "refer to any circumstances that might be expected to alter the quality or the productivity of the task or activity that is to be performed."[5] Day and night, physical threat, stationary and moving vehicle, all are "conditions" for the armor reconnaissance activity, "observe sectors." Vineberg and Taylor describe a three-fold process for developing test conditions:[6]

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[5] See Note 4.

[6] Vineberg, Robert and Taylor, Elaine N. Performance Test Development for Skill Qualification Testing -- A Manual. Draft Research Product 75-5, HumRRO RP-WD-CA-75-5, July 1975.

1. Determine if all variations in conditions affecting task performance are identified.

2. Decide whether variations in conditions require different behaviors.

3. Decide whether variations in conditions result in different likelihoods of error in performance.

The test developer can use Table 4 to make these decisions.

Examine each type of condition listed in column 1. Decide whether it has relevance to the task as it relates to the module of which it is a part. Decide next whether the conditions identified are constant or variable in the performance of the task from one time to another. If they are constant, their specification is sufficient for the next step in test development. Variable conditions (cross-country navigation at night, in daylight, over jungle terrain, desert, for example) must be examined to determine if they call for differences in behavior to perform the task. If they do, the behaviors must be identified before the task is included in a particular module. If variable conditions do not call for differences in task behavior, then the test developer must decide whether performance under one condition is more difficult (more chance of error) than another. If the difficulty of the task varies under different conditions, a particular condition has to be selected for test construction and the standards made appropriate for that condition.

TABLE 4

SITUATIONAL AND ENVIRONMENTAL CONDITIONS WHICH MAY AFFECT PERFORMANCE

	Constant or Not Applicable	Variable	If Variable: Do Task Behaviors Change? Yes	If Variable: Do Task Behaviors Change? No	If Variable: Does Chance of Error Change? Yes	If Variable: Does Chance of Error Change? No
Illumination						
Temperature						
Humidity						
Noise (and other environmental distractions)						
Terrain						
Physical Threat						
Time Pressure						
Equipment						
Job Aids (Manuals ARs, reports, etc.)						
Other						

Standardized test conditions, in their final form, must describe the particular environment and equipment statuses necessary for task performance.

Performance assessment factors (standards) were identified on the basis of the project staff's experience in performing the task, available literature and interviews with others who were knowledgeable about task performance. Performance assessment factors for evaluation of task performance must be stated in terms of the presence or absence of particular behaviors or particular characteristics of products. Performance assessment factors must not be subject to interpretation by the individual rater. Two or more raters, observing the same performance or product, should show complete consistency in what has been rated as properly (or improperly) performed. Subjective judgments by raters usually result in unreliable measurement. Unreliable performance measurement is not worthwhile.

Scoring criteria for each module were developed next. The major factor to be considered was the use of dichotomous (GO/NO-GO) versus continuous rating of task performance. GO/NO-GO rating of job performance is based on the systems rationale that a soldier must be able to perform each job task to a standard. That standard reflects the minimum level of proficiency necessary to enable the system (squad, company, or battalion, for example) to function effectively. This implies that a soldier's poor performance on one task cannot be offset by superior performance on another. GO/NO-GO

criteria, derived from task standards, were specified as Performance Assessment Factors for each task. The soldier receives a GO if he performs the task to the criterion specified on the scoring sheet; he receives a NO-GO if he performs the task incorrectly. A "Should Have Performed But Did Not" rating is provided for tasks whose essence of performance is recognizing the stimulus conditions which require a response. Tasks which are performed more than once during the test are rated each time they are performed. This provides a method for continuous task rating.

Volume II of this report provides detailed instructions and procedures for conducting the functionally integrated performance test.

FIELD TRYOUT

This section describes the field tryout in three phases:

1. Preparation.
2. Conduct.
3. Results.

Preparation. The extensive resource requirements necessary to conduct a functionally integrated performance test made support for the field tryout difficult to secure. We accepted an offer from the 3rd Armored Cavalry Regiment (3rd ACR) to observe and evaluate the performance of the 2/3 Cavalry during their scheduled Scout Squad Proficiency Course (SSPC). This arrangement was not ideal from our standpoint because we had no control over the administration and

standardization of the course runs. However, the SSPC did include approximately 90 percent of the tasks rated critical/important during the task selection phase of this project and live fire exercises on a relatively unrestricted basis.

The 3rd ACR agreed to provide the following for the field tryout:

1. Sixteen squads from the 2/3 Cavalry. (A squad is two vehicles of three men each.)
2. Six raters (three junior officers and three NCOs each with a minimum of two years' experience in armor reconnaissance).
3. Two days for "dry run" to pilot the rating instruments.
4. Three days for "wet run" to collect data.

Rating instruments and an evaluation plan were designed next. The rating instruments reflected the activities to be conducted during the SSPC. (The rating instruments are Appendix B of this report.) They were designed to enable the rating team to rate both situational and continuous tasks. Situational tasks, such as "service weapons," "classify bridges," and "call for artillery fire," occur during a particular portion of a module and are rated immediately. Continuous tasks, such as "operate a vehicle under tactical conditions," or "observe sectors," occur at least once during each module and must be rated each time they are performed or not performed.

Table 5 summarizes the design of the evaluation plan by which interrater reliability was to be computed for both situational and continuous tasks. The contractor provided four experienced

TABLE 5

EVALUATION PLAN

Run #	OPERATIONS ORDER PRE-COMBAT OPERATIONS				COMBAT COURSE			
	WEST VEHICLE		EAST VEHICLE		WEST SQUAD VEHICLE		EAST SQUAD VEHICLE	
	#1	#2	#1	#2	#1	#2	#1	#2
1	C_1C_2	O_1	O_2O_3	C_3	C_1C_2	O_1	O_2O_3	C_3
2	N_4N_6	N_4N_6	N_5C_4	N_5C_4	N_4N_6	C_1	N_5C_4	O_2
3	O_1C_2	O_1C_2	O_3C_3	O_3C_3	C_1C_2	O_1	O_2O_3	C_3
4	N_4N_6	N_4N_6	N_5C_4	N_5C_4	N_4N_6	C_2	N_5C_4	O_3
5	C_1C_2	O_1	O_2O_3	C_3	C_1C_2	O_1	O_2O_3	C_3
6	N_4N_6	N_4N_6	N_5C_4	N_5C_4	N_4N_6	C_1	N_5C_4	O_2

KEY: O = Commissioned Officer

N = Non-commissioned Officer

C = Civilian

civilian raters. Raters were paired for three course runs as follows:

1. Commissioned officer with commissioned officer.
2. Non-commissioned officer with non-commissioned officer.
3. Civilian with civilian.
4. Civilian with non-commissioned officer.

Following the design of the rating instruments and evaluation plan, the project staff coordinated plans for the field tryout with the 3rd ACR. Coordination activities included insuring that rating instruments covered all of the tasks to be performed during the exercise and arranging the time schedule for each test run.

Conduct. The conduct phase began with a briefing for the raters, which addressed the following five items:

1. The purpose of the project: Develop job proficiency test which represents as closely as possible an ultimate criterion measure of job performance; i.e., the test represents the soldier's job.
2. Current testing in the Army: Current MOS testing is primarily job knowledge -- little evidence to indicate connection between test performance and job performance. Other end of test spectrum -- performance testing. Performance tests are expensive and often do not justify the expense because they test only part of a man's job.
3. A functionally integrated approach to performance testing: Consider the parts of a job that are usually left out. There are three signals (stimuli) which initiate a soldier's task performance. His leader tells him to do it; the environment requires him to do it; he initiates the task himself. A meaningful performance test must test the soldier's ability to recognize the conditions which require him to perform the task. The functionally integrated approach attempts to combine tasks in a logical

sequence to provide the soldier with the signals for task performance which are like those signals he encounters under real world combat conditions. Affective tasks -- not can he but will he perform the task; i.e., smoking around POL point, noise discipline, observe sectors.

4. "Why was I chosen to do this:" We want to determine if it is possible to develop an evaluation instrument which tests not only a soldier's skills and knowledges but also his ability to recognize the conditions which require him to perform the task. To aid in this determination we need scout squads performing their job in a realistic environment. The Scout Squad Proficiency Course provides this. We need people who know what the jobs of the scout squad members are -- that is you, the rater. Once we have these two components, we can determine whether the test is feasible.

5. The rating instrument: Part of test feasibility is whether the test can be scored objectively. Explained "Instructions to Raters." Went through each item on each rating package; discussed what to look for, when to record ratings, how to shift from situation to situation. Emphasized: attempt to determine inter-rater reliability to reduce number of raters; importance of making own ratings, no comparison of ratings, no discussion among raters. Discussed evaluation plan.

Each section of the 2/3 Cavalry went through a "dry run" practice course prior to participating in the SSPC. A section is two squads. The rating team observed two sections during the dry-run phase. The purpose of the dry run was twofold: to pilot the rating instruments, and to familiarize the raters with observing and rating task performance.

The SSPC was conducted over a two-day period. Eight sections (32 vehicles) participated. Each section was comprised of an east squad and a west squad of two vehicles each. Two vehicles were provided for the evaluators. One vehicle followed the east squad,

and the other followed the west squad. Three raters rode in each vehicle. A rater pair (e.g., O_2O_3) observed and rated the actions of the crew members in one of the vehicles in the east squad, while the third rater (C_3) observed and rated the actions of the crew in the second vehicle. The west squad was observed and rated concurrently by C_1C_2 and O_1. The rating procedure is summarized in Figure 1.

Results. The data for each task were coded in terms of the following response categories:

Code	Response Category
0	NO GO (performed incorrectly)
2	NO GO (should have performed but did not)
1	GO (performed correctly)
3	N/A (not necessary for any crew member to perform)
4	NO RESPONSE
5	COULD NOT EVALUATE
6	PERFORMED BY OTHER CREW MEMBER

Situational tasks performed by the vehicle driver were so few that the data for these tasks were excluded from the analysis. Data from the third, unpaired rater in each run were excluded too, since our primary interest was in rater agreement. Data for the Operation Order/Precombat phase of the test also were collected but excluded because precombat operations tasks were performed the evening before

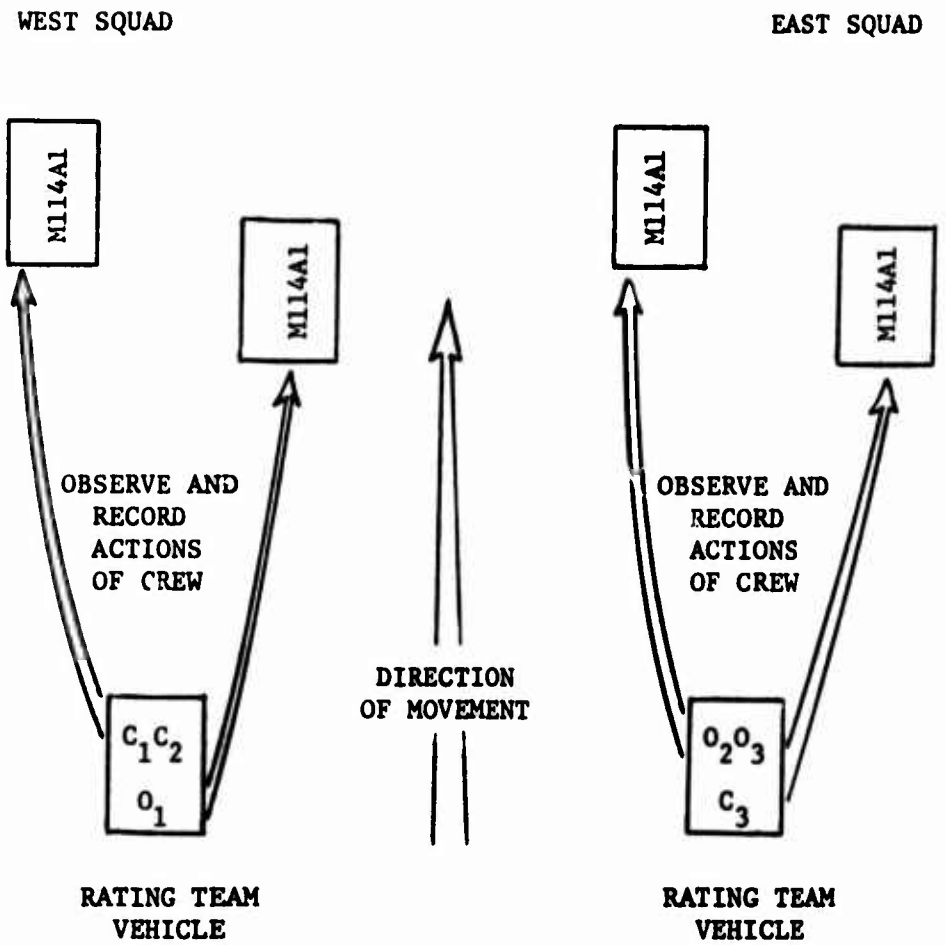

FIGURE 1. Rating procedure.

the test, and, after the initial test run all section leaders were aware of and had discussed the operation order.

All remaining data were collapsed into three scoring categories for analysis:

Code	Scoring Category
0 2	NO-GO
1	GO
3 4 5 6	OTHER

Interrater reliability was estimated in terms of percentage agreement:

$$\text{Percentage Agreement} = \frac{\text{Number of tasks jointly scored as NO-GO, GO, or OTHER}}{\text{Total number of tasks per run}} \times 100$$

Estimates of scorer reliability, computed for each pair of raters, are shown in Tables 6 and 7.

Inspection of the interrater reliability data for Situational Tasks (Table 6) indicates:

1. A range of mean rater agreement within runs for VC tasks: 44 to 78 percent.
2. A range of mean rater agreement within runs for SO tasks: 70 to 98 percent.
3. No apparent differences in rater agreement based on amount of practice as a rater. (C_1 C_2 and C_4 are experienced raters; O_2 O_3 N_4 N_5 N_6 are inexperienced raters.)
4. A tendency for rater agreements to be consistently higher for SO tasks.

TABLE 6

PERCENT AGREEMENT ON SITUATIONAL TASKS BY RATER PAIRS
(BY SITUATIONS WITHIN RUNS FOR DUTY POSITIONS VC AND SO)

SITUATION	NO. OF TASKS	DUTY POSITION	Rater Pair											
			C_1C_2			O_2O_3			N_4N_6			N_5C_4		
			Runs											
			1W	3W	5W	1E	3E	5E	2W	4W	6W	2E	4E	6E
#3	4	VC	75	75	25	50	75	75	0	75	0	75	0	25
		SO	100	100	100	100	100	100	100	100	100	100	100	100
#4	7	VC	86	86	57	43	86	100	100	43	71	29	43	57
		SO	57	100	100	71	100	100	100	100	100	100	100	57
#5	8	VC	50	75	88	38	13	88	88	100	25	0	88	50
		SO	63	88	100	63	75	100	100	100	100	100	100	88
#6	6	VC	100	83	50	100	0	33	0	50	0	50	67	17
		SO	50	67	100	100	0	67	50	100	100	50	100	33
#7	9	VC	56	100	44	56	100	100	100	78	44	33	100	89
		SO	100	100	67	56	100	100	100	67	56	78	100	44
#8	9	VC	22	100	89	100	100	11	100	100	44	100	33	89
		SO	11	100	100	100	100	100	100	100	100	100	89	100
#9	7	VC	29	71	100	100	100	100	57	100	0	86	86	86
		SO	86	71	100	100	100	100	100	100	86	100	100	100
#10	8	VC	*	*	*	25	88	75	*	*	*	13	50	25
		SO	*	*	*	100	100	100	*	*	*	88	100	100
#11	8	VC	100	0	38	*	*	*	100	50	100	*	*	*
		SO	100	100	75	*	*	*	100	13	100	*	*	*
#12	5	VC	0	40	0	0	100	20	100	60	100	100	100	80
		SO	80	100	80	80	100	80	100	80	100	100	100	100
MEAN WITHIN RUN		VC	57	59	59	59	75	67	78	75	44	51	65	60
		SO	70	92	90	84	87	95	95	83	92	90	98	78

* *Situation involved live-fire and could be performed only by the other squad in the section.*

TABLE 7

PERCENT AGREEMENT ON CONTINUOUS TASKS BY RATER PAIRS
(BY SITUATIONS WITHIN RUNS FOR DUTY POSITIONS VC, VD AND SO)

SITUATION	NO. OF TASKS	DUTY POSITION	Rater Pair											
			C_1C_2			O_2O_3			N_4N_6			N_5C_4		
			Runs											
			1W	3W	5W	1E	3E	5E	2W	4W	6W	2E	4E	6E
#3	26	VC	42	84	69	62	62	65	42	69	38	54	38	46
		VD	96	92	92	77	85	85	65	65	85	88	73	72
		SO	92	81	85	73	92	92	88	81	88	96	85	77
#4	10	VC	60	70	90	50	70	80	100	100	40	10	30	90
		VD	70	80	80	40	40	100	100	10	20	50	50	100
		SO	70	100	80	80	80	90	100	70	70	70	80	100
#5	25	VC	28	48	56	48	60	100	96	100	4	28	80	44
		VD	64	76	84	72	92	100	100	100	100	68	100	80
		SO	72	72	68	100	88	100	100	100	100	76	100	84
#6	26	VC	46	65	73	54	38	62	27	77	19	23	81	42
		VD	85	85	88	92	77	77	58	77	85	50	96	77
		SO	88	69	88	96	92	88	65	77	100	77	100	69
#7	15	VC	40	53	60	47	100	100	100	47	47	100	100	33
		VD	40	47	73	87	100	100	100	47	53	100	100	60
		SO	80	87	87	93	100	100	100	87	93	100	100	87
#8	26	VC	46	54	65	100	100	100	100	100	50	85	96	46
		VD	65	62	65	100	100	100	100	100	58	88	96	50
		SO	81	85	88	100	100	100	100	100	69	92	100	73
#9	26	VC	65	69	81	100	100	100	69	100	92	65	35	100
		VD	77	77	73	100	100	100	88	100	88	73	65	100
		SO	88	81	85	100	100	100	100	100	100	85	73	100
#10	25	VC	100	100	100	60	100	72	52	100	100	96	76	80
		VD	100	100	100	72	100	96	72	100	100	92	100	100
		SO	100	100	100	88	100	96	80	100	100	96	100	100
#11	26	VC	62	100	81	100	100	100	100	27	100	100	100	100
		VD	65	100	92	100	100	100	100	69	100	100	100	100
		SO	81	100	92	100	100	100	100	85	100	100	100	100
#12	26	VC	62	81	62	35	35	77	69	46	22	96	100	100
		VD	88	100	65	73	62	100	85	81	82	100	100	100
		SO	89	96	96	96	92	100	92	100	93	100	100	100
MEAN WITHIN RUN		VC	55	73	73	68	76	85	76	76	51	68	75	68
		VD	77	84	82	84	88	95	87	81	84	82	90	84
		SO	87	87	87	94	95	97	90	91	94	90	94	88

An inspection of the reliability data for Continuous Tasks (Table 7) indicates:

1. A range of mean rater agreement within runs for VC tasks: 51 to 85 percent.

2. A range of mean rater agreement within runs for VD tasks: 77 to 95 percent.

3. A range of mean rater agreement within runs for SO tasks: 87 to 97 percent.

4. No apparent differences in rater agreement based on amount of practice as a rater. (C_1 C_2 and C_4 are experienced raters; O_2 O_3 N_4 N_5 N_6 are inexperienced raters.)

5. A tendency for mean rater agreements to be consistently higher for SO and VD tasks.

Interrater reliability statistics shown in Tables 6 and 7 are somewhat misleading in that they are based on a large number of "Other" (task not scorable) agreements. The reason for this is that most tasks could be performed by the vehicle commander or the scout observer in either of two vehicles. Since rater pairs observed only one vehicle, and agreement was tabulated by crew position, many of the agreement percentages consist largely of rater concurrence in scoring tasks as "performed by other crew member" or "not necessary to perform." This is reflected in the large number of 100 percent agreement entries in Table 6. In fact, one may assume that:

1. Where rater agreement was 100 percent for both VC and SO for a particular situation within-run, most if not all tasks were performed by crewmen in the other vehicle.

2. Where rater agreement was 100 percent for the SO, but less than 100 percent for the VC, most if not all tasks were performed by the VC.

The same generally holds for the continuous tasks (Table 7) in that where rater agreement was 100 percent for VC, SO and VD for a particular situation within-run, most tasks were not performed by the crew.

Because of the considerations noted above, additional analyses were performed of data for tasks actually observed by both members of a rater pair. The question was, "Of tasks which both raters agreed were performed by a given crewman, how many were scored as GO or NO-GO by both, and on how many did they disagree (one GO, the other NO-GO)?" Results of this analysis yielded estimates of pass-fail scores for crewmen, as well as estimates of rater agreement in assigning such scores. The results are shown in Tables 8 through 11 for Situational Tasks and in Tables 12 through 15 for Continuous Tasks.

Three features of the data in Tables 8 through 11 should be highlighted:

1. The number of tasks performed by a crewman.
2. Pass-fail rate on tasks performed.
3. Agreement between raters in scoring tasks performed.

Inspection of the total number of tasks performed by run suggests either that relatively few were performed or that raters often disagreed as to whether a task was performed. Of 63 possible tasks

TABLE 8

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR SITUATIONAL TASKS JUDGED BY BOTH C_1&C_2 AS HAVING BEEN PERFORMED

SCORER PAIR	RUN		SITUATION 3		4		5		6		7		8		9		10		11		12		TOTAL		PERCENT PASS▽		PERCENT AGREEMENT	
			NUMBER OF TASKS POSSIBLE 4		7		8		6		9		9		7		8		8		5									
			CREW POSITION VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO
C_1C_2	1W	GO	1	0	0	0	3	0	3	0	5	0	0	0	1	0	*	*	0	0	0	0	13	0				
		NG	2	0	0	0	0	0	1	0	0	0	0	0	0	0	*	*	0	0	0	0	3	0				
		DA	1	0	0	0	1	0	0	0	1	0	0	0	1	0	*	*	0	0	3	4	7	4	81	0	70	0
		TOT	4	0	0	0	4	0	4	0	6	0	0	0	2	0	*	*	0	0	3	4	23	4				
C_1C_2	3W	GO	3	0	0	0	2	0	4	0	0	0	0	0	4	0	*	*	0	0	0	0	13	0				
		NG	0	0	0	0	2	0	1	0	0	0	1	0	1	0	*	*	0	0	2	0	7	0				
		DA	0	0	0	0	1	0	0	0	0	0	0	0	1	0	*	*	0	0	3	0	5	0	65	-	80	-
		TOT	3	0	0	0	5	0	5	0	0	0	1	0	6	0	*	*	0	0	5	0	25	0				
C_1C_2	5W	GO	1	0	4	0	1	0	0	0	2	0	0	0	0	0	*	*	3	1	0	0	11	1				
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	0	0				
		DA	2	0	1	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	3	0	100	100	79	100
		TOT	3	0	5	0	1	0	0	0	2	0	0	0	0	0	*	*	3	1	0	0	14	1				
TOTAL		GO	5	0	4	0	6	0	7	0	7	0	0	0	5	0	*	*	3	1	0	0	37	1				
		NG	2	0	0	0	2	0	2	0	0	0	1	0	1	0	*	*	0	0	2	0	10	0				
		DA	3	0	1	0	2	0	0	0	1	0	0	0	2	0	*	*	0	0	6	4	15	4	79	100	76	20
		TOT	10	0	5	0	10	0	9	0	8	0	1	0	8	0	*	*	3	1	8	4	62	5				

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

▽ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

* *Situation involved live-fire and could be performed only by the other squad in the section.*

TABLE 9

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR SITUATIONAL TASKS JUDGED BY BOTH O_2 & O_3 AS HAVING BEEN PERFORMED

SCORER PAIR	RUN		SITUATION 3		4		5		6		7		8		9		10		11		12		TOTAL		PERCENT PASS∇		PERCENT AGREEMENT	
			NUMBER OF TASKS POSSIBLE 4		7		8		6		9		9		7		8		8		5							
			CREW POSITION VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO
O_2O_3	1E	GO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	1	0				
		NG	1	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	*	*	0	0	5	0				
		DA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	*	*	0	0	5	0	17	-	55	-
		TOT	2	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0	*	*	0	0	11	0				
O_2O_3	3E	GO	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	*	*	0	0	2	1				
		NG	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	*	*	0	0	2	2				
		DA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	50	33	100	100
		TOT	1	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	*	*	0	0	4	3				
O_2O_3	5E	GO	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	*	*	0	0	3	0				
		NG	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	*	*	1	0	2	1				
		DA	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	*	*	0	0	3	1	60	0	63	50
		TOT	3	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	*	*	1	0	8	2				
TOTAL		GO	4	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	*	*	0	0	6	1				
		NG	1	0	0	0	2	0	3	3	0	0	0	0	0	0	2	0	*	*	1	0	9	3				
		DA	1	0	0	0	0	0	2	1	0	0	0	0	0	0	5	0	*	*	0	0	8	1	40	25	65	80
		TOT	6	0	0	0	2	0	7	5	0	0	0	0	0	0	7	0	*	*	1	0	23	5				

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

∇ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

* *Situation involved live-fire and could be performed only by the other squad in the section.*

TABLE 10

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR SITUATIONAL TASKS JUDGED BY BOTH N_4 & N_6 AS HAVING BEEN PERFORMED

SCORER PAIR	RUN		SITUATION 3		4		5		6		7		8		9		10		11		12		TOTAL		PERCENT PASS∇		PERCENT AGREEMENT	
			NUMBER OF TASKS POSSIBLE 4		7		8		6		9		9		7		8		8		5							
			CREW POSITION VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO
N_4N_6	2W	GO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	0	0				
		NG	0	0	0	0	0	0	0	0	1	1	1	0	0	0	*	*	0	0	0	0	2	1				
		DA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	2	0	0	0	50	100
		TOT	2	0	0	0	0	0	0	0	1	1	1	0	0	0	*	*	0	0	0	0	4	1				
N_4N_6	4W	GO	3	0	3	1	0	0	1	1	3	3	0	0	0	0	*	*	0	0	3	0	13	5				
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	0	0				
		DA	0	0	1	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	1	0	100	100	93	100
		TOT	3	0	4	1	0	0	0	1	3	3	0	0	0	0	*	*	0	0	3	0	14	5				
N_4N_6	6W	GO	0	0	5	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0	5	0				
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	1	0	1				
		DA	3	0	0	0	0	0	0	0	0	0	1	0	0	0	*	*	0	0	1	0	5	0	100	0	50	100
		TOT	3	0	5	0	0	0	0	0	0	0	1	0	0	0	*	*	0	0	1	1	10	1				
TOTAL		GO	3	0	8	1	0	0	1	1	3	3	0	0	0	0	*	*	0	0	3	0	18	5				
		NG	0	0	0	0	0	0	0	0	1	1	1	0	0	0	*	*	0	0	0	1	2	2				
		DA	5	0	1	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	1	0	8	0	90	71	71	100
		TOT	8	0	9	1	0	0	1	1	4	4	2	0	0	0	*	*	0	0	4	1	28	7				

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

∇ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

* *Situation involved live-fire and could be performed only by the other squad in the section.*

TABLE 11

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR SITUATIONAL TASKS JUDGED BY BOTH N_5 & C_4 AS HAVING BEEN PERFORMED

SCORER PAIR	RUN		SITUATION 3		4		5		6		7		8		9		10		11		12		TOTAL		PERCENT PASS∇		PERCENT AGREEMENT	
			NUMBER OF TASKS POSSIBLE 4		7		8		6		9		9		7		8		8		5							
			CREW POSITION VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO	VC	SO
N_5C_4	2E	GO	3	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	*	*	0	0	7	0				
		NG	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	*	*	0	0	1	0				
		DA	1	0	0	0	2	0	1	2	0	0	0	0	0	0	2	0	*	*	0	0	6	2	88	0	57	0
		TOT	4	0	1	0	2	0	4	2	0	0	1	0	0	0	2	0	*	*	0	0	14	2				
N_5C_4	4E	GO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0				
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	0	0				
		DA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	2	0	0	-	0	-
		TOT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	2	0				
N_5C_4	6E	GO	0	0	0	0	3	0	1	0	5	0	0	0	0	0	0	0	*	*	0	0	14	0				
		NG	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	0	0	3	0				
		DA	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	*	*	0	0	4	0	82	-	81	-
		TOT	1	0	4	0	3	0	3	0	5	0	5	0	0	0	0	0	*	*	0	0	21	0				
TOTAL		GO	3	0	1	0	3	0	4	0	5	0	5	0	0	0	0	0	*	*	0	0	21	0				
		NG	1	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	*	*	0	0	4	0				
		DA	3	0	2	0	2	0	3	2	0	0	0	0	0	0	2	0	*	*	0	0	12	2	84	0	68	0
		TOT	7	0	5	0	5	0	7	2	5	0	6	0	0	0	2	0	*	*	0	0	37	2				

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

∇ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

* *Situation involved live-fire and could be performed only by the other squad in the section.*

TABLE 12

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES[+] FOR CONTINUOUS TASKS JUDGED BY BOTH C_1 & C_2 AS HAVING BEEN PERFORMED

RATER PAIR	RUN		SITUATION 3			4			5			6			7			8			9			10			11			12			TOTAL			PERCENT PASS[▽]			PERCENT AGREEMENT		
			NUMBER OF TASKS POSSIBLE 26			10			25			26			15			26			26			10			26			26											
			CREW POSITION V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	VC	VD	SO	VC	VD	SO	VC	VD	SO
C_1C_2	1W	GO	2	6	0	0	5	0	0	3	0	2	6	0	0	0	0	0	0	0	5	6	0	0	0	0	0	0	0	0	0	1	9	26	1						
		NG	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	3	82	100	33	39	90	66
		DA	9	1	0	1	1	1	4	1	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	17	3	2						
		TOT	11	7	0	1	6	1	4	4	1	5	6	1	0	0	0	0	0	0	7	6	1	0	0	0	0	0	0	0	0	2	28	29	6						
C_1C_2	3W	GO	9	6	2	2	6	2	6	2	2	8	3	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	32	17	7						
		NG	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	97	89	100	85	90	88
		DA	1	0	1	1	0	0	2	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6	2	1						
		TOT	10	6	3	3	6	2	8	3	2	10	6	1	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	39	21	8						
C_1C_2	5W	GO	5	7	0	3	6	0	4	4	1	5	6	1	3	4	0	0	0	0	6	6	0	0	0	0	7	7	2	0	0	0	33	40	4						
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	100	94	91	57
		DA	0	0	0	0	1	0	1	1	1	0	0	0	1	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	4	3						
		TOT	5	7	0	3	7	0	5	5	2	5	6	1	4	6	1	0	0	0	6	6	1	0	0	0	7	7	2	0	0	0	35	44	7						
TOTAL		GO	16	19	2	5	17	2	10	9	3	15	15	2	3	4	0	0	0	0	18	12	0	0	0	0	7	7	2	0	0	1	74	83	12						
		NG	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	2	3	96	98	80	74	90	71
		DA	10	1	1	2	2	1	7	3	1	3	1	0	1	2	1	0	0	0	2	0	1	0	0	0	0	0	0	0	0	1	25	9	6						
		TOT	26	20	3	7	19	3	17	12	5	20	18	3	4	6	1	0	0	0	21	12	2	0	0	0	7	7	2	0	0	2	102	94	21						

[+] *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

[▽] *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

TABLE 13

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR CONTINUOUS TASKS JUDGED BY BOTH O_2 & O_3 AS HAVING BEEN PERFORMED

RATER PAIR	RUN		SITUATION 3	4	5	6	7	8	9	10	11	12	TOTAL			PERCENT PASS▽			PERCENT AGREEMENT		
			NUMBER OF TASKS POSSIBLE 26	10	25	26	15	26	26	10	26	26									
			CREW POSITION V C / V D / S O										VC	VD	SO	VC	VD	SO	VC	VD	SO
O_2O_3	1E	GO	1 5 0	0 0 0	3 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	0 0 0	5	5	0	36	83	0	88	75	75
		NG	3 0 2	0 0 0	1 0 1	0 0 0	0 0 0	0 0 0	0 0 0	5 1 0	0 0 0	0 0 0	9	1	3						
		DA	2 2 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	2	2	1						
		TOT	6 7 3	0 0 0	4 0 1	0 0 0	0 0 0	0 0 0	0 0 0	6 1 0	0 0 0	0 0 0	16	8	4						
O_2O_3	3E	GO	1 4 0	1 2 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	2	6	0	100	86	0	40	100	50
		NG	0 1 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0	1	1						
		DA	2 0 0	1 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	3	0	1						
		TOT	3 5 1	2 2 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	5	7	2						
O_2O_3	5E	GO	0 0 0	0 0 0	0 0 0	2 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	2	0	2	100	0	100	33	-	50
		NG	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0	0	0						
		DA	1 0 0	0 0 1	0 0 0	2 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	4	0	2						
		TOT	1 0 0	0 0 1	0 0 0	4 0 2	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 1	6	0	4						
TOTAL		GO	2 9 0	1 2 0	3 0 0	2 0 1	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	0 0 1	9	11	2	50	85	33	66	87	60
		NG	3 1 3	0 0 0	1 0 1	0 0 0	0 0 0	0 0 0	0 0 0	5 1 0	0 0 0	0 0 0	9	2	4						
		DA	5 2 1	1 0 2	0 0 0	2 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	9	2	4						
		TOT	10 12 4	2 2 2	4 0 1	4 0 2	0 0 0	0 0 0	0 0 0	6 1 0	0 0 0	1 0 1	27	15	10						

† GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.

▽ Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).

TABLE 14

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR CONTINUOUS TASKS JUDGED BY BOTH N_4 & N_6 AS HAVING BEEN PERFORMED

RATER PAIR	RUN		SITUATION 3			4			5			6			7			8			9			10			11			12			TOTAL			PERCENT PASS∇			PERCENT AGREEMENT		
			NUMBER OF TASKS POSSIBLE 26			10			25			26			15			26			26			10			26			26											
			CREW POSITION V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	VC	VD	SO	VC	VD	SO	VC	VD	SO
N_4N_6	2W	GO	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	1						
		NG	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0						
		DA	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	80	100	100	96	100	29
		TOT	8	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	1						
N_4N_6	4W	GO	13	2	1	3	0	0	0	0	0	11	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	9	2						
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
		DA	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	100	100	100	96	64	100
		TOT	14	2	1	3	5	0	0	0	0	11	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	14	2						
N_4N_6	6W	GO	3	7	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	8	1						
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
		DA	11	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	6	0	100	100	100	39	57	100
		TOT	14	7	1	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	14	1						
TOTAL		GO	20	11	3	7	1	0	0	0	0	11	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	19	4						
		NG	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0						
		DA	15	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	11	0	97	100	100	72	63	100
		TOT	36	11	3	7	12	0	0	0	0	11	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	30	4						

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

∇ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

TABLE 15

AGREE AND DISAGREE ON "GO" AND "NO-GO" SCORES† FOR CONTINUOUS TASKS JUDGED BY BOTH N_5 & C_4 AS HAVING BEEN PERFORMED

RATER PAIR	RUN		SITUATION 3			4			5			6			7			8			9			10			11			12			TOTAL			PERCENT PASS▽			PERCENT AGREEMENT		
			NUMBER OF TASKS POSSIBLE: 26			10			25			26			15			26			26			10			26			26											
			CREW POSITION: V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	V C	V D	S O	VC	VD	SO	VC	VD	SO	VC	VD	SO
N_5C_4	2E	GO	8	3	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4	1						
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
		DA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	100	90	100	100
		TOT	9	3	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	4	1						
N_5C_4	4E	GO	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1						
		NG	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0						
		DA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	60	50	100	83	100	100
		TOT	4	2	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	1						
N_5C_4	6E	GO	4	2	0	0	0	0	7	1	1	4	0	0	0	0	0	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	20	4	2						
		NG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
		DA	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	100	100	100	80	100	100
		TOT	4	2	0	0	0	0	12	1	1	4	0	0	0	0	0	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	25	4	2						
TOTAL		GO	15	6	1	1	1	1	7	1	1	4	0	0	0	0	0	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	32	9	4						
		NG	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0						
		DA	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	94	90	100	85	100	100
		TOT	17	7	1	1	1	1	12	1	1	6	0	0	0	0	0	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	41	10	4						

† *GO = agreed on "GO" scores; NG = agreed on "NO-GO" scores; DA = disagreements (one "GO" score, one "NO-GO" score); TOT = total number of "GO" or "NO-GO" scores.*

▽ *Percent pass is based only on tasks which both raters scored as "GO" or "NO-GO" (see text for explanation).*

(71 less 8 in Situations 10 or 11), the total number performed in the judgment of both raters, ranged from a low of 2 (Run 4E) to a high of 27 (Run 1W). There are several reasons for the "missing tasks," most of which resulted from factors beyond control of the raters. Consider for example Run 4E, the worst case:

1. All tasks in Situations 5, 6, and 7 were performed by the other vehicle in the squad.

2. In Situation 4, a target engagement situation, the crew did not detect the target and therefore was unable to perform any of the tasks.

3. In Situations 8 and 10 one rater reported that he was unable to observe crew performance.

4. Situation 9, a bridge classification, was the one situation that could be performed by either squad, and was performed normally by one of the vehicles in the West Squad.

5. Situation 12, the last one in the run, was not performed because the squad was running behind time, and the next run had to get started.

These and other conditions also prevented the observation by one or both raters of individual task performance in other situations.

Another notable point pertaining to the overall number of tasks performed is that most were performed by the Vehicle Commander. The scout observer performed no tasks in 4 of the 12 squad runs; and 5 (Run 4W) was the largest number of tasks performed by any SO. Since most tasks can be handled by either the VC or SO, and since the crews were anxious to do as well as possible on the test, vehicle commanders apparently were reluctant to let anyone else perform the situational tasks. So few tasks were performed by the SOs that

corresponding pass-fail and rater agreement percentages will be omitted from the following discussion, although they are presented in the Tables.

Percent pass was based only on those tasks which both raters scored as GO or NO-GO. The 81 percent pass rate shown in Table 8 for the VC in Run 1W, for example, reflects the fact that of 16 tasks scored identically by the raters, 13 were scored GO. The seven tasks on which they disagreed (one GO and one NO-GO) were not included in pass-fail calculations. The relative number of tasks correctly performed by the VC ranged from a low of 0 percent (2W and 4E) to a high of 100 percent (5W), but since the higher percentages tended to result from runs in which more tasks were performed, the overall pass rate was 77 percent.

Percent rater agreement in scoring VC-performed tasks is shown in the last column of Tables 8 through 11. Little variation is evident between rater-pairs: the two Officers agreed 65 percent of the time; the NCO-Civilian pair, 68 percent; the two NCOs, 71 percent; and the Civilian raters, 76 percent. Rater agreement averaged 71 percent overall.

Performance of Continuous Tasks (Tables 12 through 15) was distributed a little more evenly over crew positions, but the SO still performed few tasks relative to the VC. The percentage of Continuous Tasks performed correctly, over all runs and crew positions, averaged 92 percent -- substantially higher than the 77 percent for Situational Tasks. Pass rates averaged 91 percent

for the VC, 96 percent for the VD, and 76 percent for the SO. With the exception of O_2 and O_3, who jointly scored 59 percent of the tasks GO, rater pairs were fairly uniform in the percentage of GOs scored; C_1 C_2, 95 percent; N_4 N_6, 98 percent; N_5 C_4 94 percent.

Rater agreement averaged 79 percent overall, a figure slightly higher than the 71 percent agreement on Situational Tasks. When summed over crew position, agreement by rater pairs averaged 87 percent for N_5 C_4, 82 percent for C_1 C_2, 71 percent for O_1 O_2, and 70 percent for N_4 N_6. Raters tended to agree more in scoring Continuous Tasks performed by the VD than they did for VC and SO performed tasks; average agreement was 85 percent, 75 percent, and 74 percent for VC, VD, and SO respectively.

DISCUSSION

Reliability is a necessary characteristic of good measurement, and must be incorporated into instruments and procedures used to assess MOS proficiency. Fitzpatrick and Morrison[7] summarize the problem:

> One...problem in performance tests is that of reliability. It is characteristic of real life situations that they are difficult to control. The same circumstances do not recur... Good measurement is possible only when each examinee can be observed under similar circumstances; that is, when it is possible to control and hence standardize the displays, the surround, and the responses on which evaluation of performance will be based. Such control is characteristic of tests and is reflected in the high reliability of measurement that can be achieved with a good test. But as the test situation simulates reality more closely, control becomes more difficult. It generally would be agreed by those with experience in the matter that the more closely one tries to simulate a real criterion situation, the less reliable will be one's measurement of the performance.

In the discussion which follows, the reliability issue will be addressed in two contexts. In the first context, those characteristics of the fully integrated performance test that served to undermine interrater reliability will be described, along with revisions that were made in the test in an effort to improve reliability. In the second context, hypotheses will be presented about reliability and performance testing in general.

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[7] Thorndike, Robert L., Editor, Educational Measurement, Fitzpatrick, R. and Morrison, E.J., Performance and Product Evaluation, p. 240, 1971.

TEST REVISIONS

An analysis of the data collected during the field tryout, coupled with observations of the test runs indicated that the functionally integrated performance test developed during this project incorporated several characteristics which served to undermine measurement reliability. These characteristics were as follows:

1. There was no standardization from one run to another with respect to which crews were to perform which tasks. On Run #1, for example, the crew on the east flank performed the bridge classification while the inside vehicle stood overwatch. On Run #2, the inside vehicle performed the bridge classification while the east flank vehicle stood overwatch.

2. On any given run, one or more of the crews did nothing more than have the driver "operate the vehicle under tactical conditions" while the other crew members "observed sectors."

3. Rating of most self-initated tasks was difficult, because the vehicles on any given run were under the command and control of the section leader. When a section leader is aware that his performance is being observed and rated, he tends to tell his personnel what to do.

4. Determining which crew member performed a particular task was difficult when tasks were performed off of the vehicle. During Run 1W, Situation 5, for example, one of the raters gave the VC a GO on the task "probe for mines"; the other rater gave the SO a GO for the same task. This occurred again in Situation 8 for the task "use IM 93/IM174." When crew members perform off of the vehicle, it is difficult to determine from a distance which crewman is performing the task.

5. Confusion arose when rating sequential tasks. Situation #11, Engage Targets, required that the crew "observe and identify" and then perform other tasks which logically follow, such as "deploy," "report," "engage." Some of the raters gave a NO-GO rating for all of the tasks, others gave NO-GO only for "observe and identify" and NA for the remaining tasks. Still other raters gave NA for all of the tasks when the crew members failed to "observe and identify."

6. Some of the tasks were performed so close to one another in time, in so confined a geographic area, or both, that raters had difficulty in "tracking" the operations on their rating forms. This was particularly apparent in situations #5, 6, 7, and 8, which occured with considerable speed and within 200 meters of one another.

7. Administrative interferences often occurred at the end of the runs because of time limitations. Few of the tested crews were able to establish and occupy the OP positions. Conversely, excessive time was used by the crews in the early test situations. The test lacked time-oriented control measures.

8. Low fidelity simulation caused confusion for testees and raters alike. For Situation #5 and #6 a barely discernible fenceline was used to simulate a river with breaks in the fenceline to simulate bridges and fords. Small cards were placed on the fenceline containing the necessary information to classify the bridge or ford. These conditions created situations which made it difficult for crews to react realistically.

9. The components on some vehicles (the 20mm automatic weapon, radios and intercom, for example) were not operable at the start of the run.

The revised test, presented in Volume II of this report, incorporates changes that should increase reliability by solving the problems noted above. The changes are:

1. One vehicle is used on each test run. This provides standardized conditions for each individual being tested and eliminates the problem of having one vehicle do nothing more than provide overwatch.

2. The test is arranged to insure that stimuli for performing self-initiated tasks occur under conditions which require their performance.

3. Raters are positioned for optimum observation of task performance to facilitate recognition of task performers.

4. The rater/platoon leader may interrupt the test whenever the crew members fail to react to a situation, particularly when a group of tasks would follow the reaction. The soldier receives a NO-GO on the initial task in the sequence but he does have an opportunity to perform the remaining tasks.

5. The modules are separated so that their beginning and ending are clearly discernible both to the raters and on the rating instrument.

6. The test is designed to allow sufficient time for the crew members to perform all of the tasks. Additionally, the vehicle commander will be aware of the time constraints for each module.

7. When the stimulus to initiate task performance is simulated, the simulation will be of high fidelity to elicit realistic behaviors.

8. Equipment must be in proper repair and fully operational at the beginning of each test.

As implied in the quotation presented earlier in this section, some realism must be sacrificed for the sake of reliability in performance tests. The revised test incorporates several such concessions. For example, Armor scout reconnaissance missions are normally conducted at squad (two vehicles of three men each) or section (two squads) level. The revised test is conducted with only one vehicle; this insures that all persons participating in the test are exposed to identical stimulus conditions. Realistic conditions in terms of vehicle configuration would require two vehicles with the crew of one vehicle playing the role of the "standardized other." This approach, however, would create more problems than it would solve. There are no guarantees that the "standardized other" would not confront a bridge, a roadblock, an enemy tank or some other stimulus before the individuals being tested. The conditions under which the test is conducted are likely to be different for each test administrator. Standardization of the conditions under which a test is administered is such an important step in achieving test reliability that this minor sacrifice of realism is warranted.

An additional sacrifice of realism for the sake of reliable measurement is in the live firing exercises. The revised test does not provide for live ammunition. This permits the use of "standardized others" to act as aggressor forces. The substitution of blank ammunition for live ammunition is not likely to detract from

the test atmosphere. But the use of blanks precludes the use of the 20mm automatic gun, which does not have a blank round capability.

RELIABILITY AND PERFORMANCE MEASUREMENT

In addition to revising the test as described above, we have reflected on the development, the tryout, and the results of the test in an effort to devise a set of hypotheses about variables that appear to exert strong influences on the reliability of performance measurement. The hypotheses, though (by definition) tentative, may be useful in the design and administration of performance tests other than the one presented in this report.

Performance measurement can be viewed as consisting of three phases:

1. Rater preparation.
2. Observation.
3. Recording and reporting.

Variables that affect measurement reliability are at work within each of the three phases of measurement -- variables that affect the extent to which two or more raters produce similar measuremen. results, and the extent to which measures taken at one time are representative of measures obtained at another. Systematic manipulation of variables within each of the three phases of measurement can increase measurement reliability, as reflected in the following considerations:

Rater Preparation. Reliability of measurement will increase with the consistency or uniformity of understanding among raters as to the rules of observation and recording. Raters should be standardized, and measures should be taken to assess the degree to which they have been standardized. Additionally, manipulation of the following variables in the rater preparation phase will increase measurement reliability:

1. Specificity of instructions. Instructions to raters should be highly specific, not general and loosely stated.

2. Timing of instructions. Instructions to raters should not be given so far in advance of observation as to permit forgetting, or so late as to preclude learning.

3. Practice in observing and recording. Raters should practice measuring and recording the events of interest. The practice variable interacts with timing of instructions in that instructions to raters should be given far enough in advance of observation to allow time for practice.

4. Testing raters. Measurement reliability can be indirectly increased by the use of tests given to raters to make sure that they are capable of performing whatever measurement operations will be required of them.

Observation. Measurement reliability will be affected by variables at work during the observation (measurement) process, even with very careful rater preparation and totally standardized raters. These variables include:

1. Properties of the events or things to be measured. Measurement of unidimensional events will be more reliable than measurement of multidimensional events (all other

things being equal). This is related to perceptual "clutter," or limits on raters' information-processing abilities. Within rather broad limits, raters who are asked to make large numbers of simultaneous observations and measures will produce less reliable results than will raters making smaller numbers of observations. This variable will interact with the practice variable in the rater preparation phase, because of the functionally integrated performance requirement for raters to make large numbers of simultaneous observations and measures.

Other properties of events to be measured that will influence reliability are stability, time-sharing, noise, and "observability"; that is, measurement reliability may be expected to decrease with the extent to which the observed event is:

- Not stable; i.e., transient.
- Time-shared with other events.
- Embedded in noise.
- Not directly observable.

2. Strategies, rules, and procedures for measurement. The appropriate design of measurement strategies and procedures will increase measurement reliability. Raters may be expected to perform more reliably, for example, to the extent that they are:

   - Required to make comparative rather than absolute judgments.
   - Given a well defined standard stimulus.
   - Alerted as to what to observe (anticipate likely errors).
   - Given the opportunity to observe an event more than once.
   - Given scoring aids (templates).
   - Required to measure only, and not process measurement results.

Recording and Reporting. Measurement reliability will be affected by variables operating during the recording and reporting of measurement results even with adequate rater preparation and careful control of the measurement process. These variables include:

1. Timing. Measurement reliability will increase with decreased time between observation of the event of interest and recording of results.

2. Design of recording forms. Well designed data recording forms minimize the amount of judgment and decision-making required for their use, and thereby increase the reliability of recorded results. Simplicity in data-recording forms, for example, minimizes data-recoding time, and therefore allows more time for observation.

The complexity of performance tests for combat units guarantees that measurement reliability problems will be great. In the rater preparation phase, for example, raters may not be standardized for any number of reasons. Instructions for measurement may be too general, and may not be given at the right time. Raters may not have enough practice to permit performing their measurement duties in accordance with the instructions for evaluating performance. Practical constraints (e.g., time, money) may preclude ascertaining whether the raters are capable of performing their measurement duties before they observe and rate an individual's MOS proficiency.

In the observation phase, raters may be required to make simultaneous judgments along more dimensions than human sensory apparatus can comfortably handle. The measurement instruments may permit too much subjectivity and "expertising." Strategies for measurement may be inappropriate (single rather than multiple

observations, for example). And the nature of the required judgments and decisions may invite unreliability.

In the recording and reporting phase, unreliability may be promoted by the length of time between observation and recording of results and by formats for recording results.

The influences of these variables demand that the performance test developed during this project be thoroughly field tested to insure that reliable measurement will be achieved for MOS proficiency testing. Three raters will be required independently to observe and record task performance; however, this requirement is for experimental purposes only. One of the three raters will have additional duties to role-play the platoon leader and control the test. Interrater reliability will be determined between the two "rater only" personnel. If their level of agreement is statistically significant, then interrater reliability will be determined between the rater/platoon leader and each "rater only." If the level of agreement is statistically and practically significant for one or both of these pairs, then the number of raters can be reduced to two, one of whom will act as platoon leader. The rating plan just described provides a method to determine whether a rater can reliably observe and record task performance while attending to an additional duty (platoon leader). We suggest that a minimum of two raters observe and record task performance when the test is used in the field to measure MOS proficiency. This will provide a continuous method for determining test stability.

CONCLUSIONS

1. Development and use of functionally integrated performance tests for combat MOSs seems feasible. Such a test was developed, pilot-tested, and revised during this project.

2. Functionally integrated performance tests are expensive to develop and to use. The high costs of developing and using functionally integrated performance tests seem justifiable, however, on at least three grounds:

   - Criterion measures are needed, against which to validate "low-fidelity" tests, and as means for assessing the relevance of training. In the absence of opportunities for measuring performance in combat, the fully integrated performance test seems to be the best (i.e., most job-relevant) criterion.
   - Performance of some combat tasks -- namely, "self-initiated" ones -- can be measured properly only in a functionally integrated context.
   - The availability of functionally integrated tests provides a basis for developing more cost-effective tests, which would combine, for example, station-by-station or other low-cost or highly standardized techniques for evaluating "externally initiated" performance, while reserving more costly functionally integrated techniques for evaluating "self-initiated" performance.

3. The assessment of individual proficiency in a team context presents problems, the only solution to which seems to be to sacrifice some realism for the sake of achieving standardization. These problems include:

- Difficulty in standardizing stimulus conditions where the behavior of one team member or crew constitutes the stimulus condition for the performance of another individual or crew. One solution to this problem is to use "standardized others." A better solution in our view is simply to decrease opportunities for generation of unpredictable stimulus conditions; e.g., by testing only one crew at a time rather than testing in sections or squads.

- Job tasks that can be performed by more than one team member may, in the test situation, be performed by only one team member. In the present study, for example, some team members performed so infrequently as to make assessment of their performance impossible. Administrative intervention (at some cost in realism) seems necessary if this problem is to be avoided.

4. In cases where raters could agree (a) that a task had indeed been performed, and (b) on who had performed the task, interrater agreement on the adequacy of performance (GO or NO-GO) was about 75 percent. Raters appeared to have difficulty, however, in determining whether and by whom some tasks were performed. Such problems can be solved by increasing the distinctions among test modules, and by improving vantage points for raters.

5. Manipulation of certain variables that operate in the preparation, observation, and recording-and-reporting phases of performance measurement can be expected to increase measurement reliability. The variables include:

    - In rater preparation:
        - Specificity of instructions.
        - Timing of instructions.
        - Practice in observing and recording.
        - Testing raters.

. In observation:

- Properties of the events or things to be measured.

- Strategies, rules, and procedures for measurement.

. In recording and reporting:

- Timing (interval between observation and recording).

- Design of recording forms.

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APPENDIX A

RATING BOOKLET

ENVIRONMENT STATEMENT

The individual and crew duties of the Scout Observer (11D10), M114A1 vehicle driver (11D20) and M114A1 vehicle commander (11D40) are performed in forward combat zones under field conditions for sustained periods of time. Duties are performed both day and night under climatic and terrain conditions normally encountered in the United States and Western Europe. Vehicle movement is normally conducted over secondary or unimproved roads and cross-country. Hasty river/stream crossings of personnel vehicles, weapons and equipment are periodically required. The enemy has a CBR capability; however, nuclear engagements have not been initiated. Friendly forces do not have continuous air superiority. In addition to participation in offensive, defensive and retrograde operations, personnel periodically move to the rear for refitting and retraining. During these periods personnel normally encounter routine administration, military courtesy and discipline and participate in parades and ceremonies.

MAJOR JOB REQUIREMENTS

Scout Observer (11D10): Conducts systematic observation for indications of enemy activity while participating in area and route reconnaissance and security patrols, both mounted and dismounted. Operates and maintains assigned vehicle weapons and individual weapons. Assists in crew maintenance of assigned vehicles.

Scout Driver (11D20): Operates tracked or light wheeled vehicles for scout elements in conduct of reconnaissance and security operations. Selects routes which provide cover and concealment. Performs operator maintenance and keeps vehicle records as required. Stows and maintains on-vehicle material.

Vehicle Commander (11D40): Commands scout squad section or vehicle to which assigned in mounted or dismounted combat and reconnaissance patrols. Selects routes, assembly and bivovac areas, and attack or firing positions for following units. . . Evaluates and disseminates intelligence information. Supervises crew maintenance of unit vehicles, weapons and equipment.

TASK VALUE SCALE

Explained below is a method for judging the importance or criticality of job tasks performed by the scout observer (11D10), M114A1 vehicle driver (11D20) and M114A1 vehicle commander (11D40). These three duty positions comprise an M114A1 vehicle crew. The key question to keep in mind in judging the criticality of a task is: "How essential is this task at each duty position to real world job performance?" Or, to put it another way, if the man cannot perform this task, how serious is it from the standpoint of accomplishing the overall mission? Do not consider the training world (how difficult to train, should he be trained or is he now being trained).

Value 0: Task is not relevant to the ability of a soldier to perform his individual (or crew) duties as a member of an M114A1 vehicle crew. This is a task which is never performed by a crew member or performed only under very remote circumstances.

Examples:

a. The ability of an M60A1 tank driver to compute a position area survey such as is employed in an FA unit.

b. The ability of a scout observer to disassemble and assemble the breech mechanism on an M60A1 tank.

Value 1: Task is relevant to the ability of a soldier to perform his individual (or crew) duties as a member of an M114A1 vehicle crew but is relatively unimportant ("nice to know"). This implies an ability to perform a task which is useful but not essential to real world mission accomplishment.

Examples:

a. The ability of a scout observer to state the physical characteristics of a rifle, e.g., length, weight, PSI required to activate trigger, composition of stock, etc.

b. The ability of an M60A1 tank loader to name all parts of the recoil system of a tank gun.

Value 2: Task is relevant to the ability of a soldier to perform his individual (or crew) duties as a member of an M114A1 vehicle crew and is considered important but not absolutely essential to real world mission accomplishment. This implies the ability to perform a task that would, under reasonable circumstances, enhance mission accomplishment.

Examples:

a. The ability of an armor platoon sergeant to adjust indirect artillery fire.

b. The ability of a scout section leader to prepare a shaped charge for demolition.

Value 3: Task is critical to the ability of a soldier to perform his individual (or crew) duties as a member of an M114A1 vehicle crew. This implies the ability to perform a task that is absolutely essential to real world mission accomplishment.

Examples:

a. The ability of an M60A1 tank gunner to engage targets with a tank main gun.

b. The ability of a radiotelephone operator to use the CEOI.

TASK CATEGORIES

1. First Aid
2. Personal Hygiene
3. Land Navigation
4. CBR
5. Military Instruction & Training
6. Dismounted Drill and Inspections (Eliminated)
7. Code of Conduct, Survival, Escape and Evasion
8. Intelligence and Counterintelligence
9. Communications
10. Cover, Concealment and Camouflage
11. General Maintenance
12. Pistols (Eliminated)
13. Rifles
14. Grenade Launcher M203
15. Machineguns
16. Leadership
17. Wheeled Vehicles (Eliminated)
18. Tracked Vehicles
19. Night Vision Devices
20. Demolitions
21. Obstacles, Boobytraps and Mine Warfare
22. Reconnaissance, Security and Combat Patrols
23. Antitank Weapons
24. Fire Requests and Adjustments
25. Tactics
26. Operations and Intelligence Staff Duties (Eliminated)
27. Mortars (Eliminated)
28. Administration, Supply, Mess
29. Hand Grenades
30. Ammunition
31. Early Warning Devices

TASK CATEGORY: 1 FIRST AID

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Determine the injuries a casualty has sustained			
2. Determine the first-aid measures to be applied to a casualty			
3. Determine sequence for applying first-aid measures to a casualty			
4. Clear and maintain the airway of a casualty			
5. Administer artificial respiration to a casualty			
6. Stop bleeding of a wound			
7. Protect the wound(s) of a casualty			
8. Administer shock control measures to a casualty			
9. Apply first-aid measures for burns			
10. Apply first-aid measures for frostbite			
11. Apply first-aid measures for heat exhaustion			
12. Apply first-aid measures for heatstroke			
13. Apply first-aid measures for an eye injury			
14. Apply first-aid measures for bites or stings			
15. Apply first-aid measures for a head wound/injury (other than a face, neck, or eye wound/injury)			
16. Apply first-aid measures for a sucking chest wound			
17. Apply first-aid measures for a fracture, sprain, or dislocation			
18. Apply first-aid measures for a belly wound			
19. Move a casualty over all types of terrain			
20. Conduct medical evaluation of casualties			

TASK CATEGORY: 1 FIRST AID (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
21. Evaluate a casualty's breathing and heartbeat			
22. Apply first-aid measures for electrical shock			
23. Apply first-aid measures for carbon monoxide poisoning			
24. Apply first-aid measures for trench foot and immersion foot			
25. Apply first-aid measures for heat cramps			
26. Apply first-aid measures for convulsions			
27. Apply first-aid measures to an unconscious person			
28. Apply first-aid measures for a face/neck wound			
29. Apply first-aid measures for skin eruptions and blisters			
30. Apply first-aid measures for minor wounds			
31. Evacuate a wounded man from his vehicle			
32. Apply psychological first-aid measures			
33. Establish priority for treating two or more casualties			

TASK CATEGORY: 2 PERSONAL HYGIENE

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Maintain personal cleanliness			
2. Maintain cleanliness of living areas			
3. Construct field sanitation facilties			
4. Dispose of garbage, litter, and human waste			
5. Purify water for personal use			
6. Maintain cleanliness of individual mess gear			
7. Practice foot care			
8. Apply preventive measures to minimize carbon monoxide poisoning			
9. Apply preventive measures to reduce cold/wet weather injury			
10. Apply preventive measures to reduce hot weather injury			
11. Apply preventive measures to control venereal disease			
12. Identify poisonous plants			
13. Enforce preventive medicine program			
14. Apply preventive measures to control disease transmitted by insects and rodents			
15. Wear protective apparel and devices to prevent injury			

TASK CATEGORY: 3 LAND NAVIGATION

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Measure a magnetic azimuth with a lensatic compass			
2. Measure a magnetic azimuth with an M2 compass			
3. Measure an azimuth on a map with a protractor			
4. Compute the back azimuth of an azimuth			
5. Convert a magnetic azimuth to a grid azimuth using the map's declination diagram			
6. Convert a grid azimuth to a magentic azimuth using the map's declination diagram			
7. Measure ground distance on a map			
8. Measure distance while moving on foot from one point to another			
9. Determine direction using the indirect fire technique (marking rounds)			
10. Locate a point on a map using the Military Grid Reference System			
11. Locate a point on the ground using the polar coordinate system			
12. Orient a map using a compass			
13. Orient a map by comparing features on the map with those on the ground			
14. Determine own location on the ground by comparing terrain features visible from the location with those shown on the map			
15. Locate an unknown point on a map or on the ground by intersection			
16. Locate an unknown point on a map or on the ground by resection			

TASK CATEGORY: 3 LAND NAVIGATION (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
17. Locate an unknown point on a map or on the ground using the indirect fire technique (marking rounds)			
18. Select a movement route using a map			
19. Navigate from one point on the ground to another with the aid of a compass			
20. Navigate from one point on the ground to another with the aid of a topographic map			
21. Navigate from one point on the ground to another with the aid of a pictomap			
22. Navigate from one point on the ground to another using a strip map as a substitute for a topographic map			
23. Navigate from one point on the ground to another using the deliberate offset method			
24. Navigate from one point on the ground to another using expedient methods to determine direction and distance			
25. By-pass obstacles by moving at right angles for specified distances			
26. Evaluate terrain using an aerial photo as a supplement to a topographic map/pictomap			
27. Determine the elevation of a point on the ground using a map			
28. Determine degree of slope of terrain using a map			
29. Prepare a map overlay			
30. Prepare a strip map			
31. Inspect a compass for serviceability			
32. Prepare a sketch map			

TASK CATEGORY: 3 LAND NAVIGATION (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
33. Maintain orientation while in a moving air, ground, or water vehicle by comparing terrain features visible from the vehicle with those shown on the map			
34. Determine the limit of line-of-sight using a terrain profile			
35. Determine the scale of an aerial photograph			
36. Locate position on ground using aircraft overhead			
37. Measure a grid azimuth using an M2 compass			
38. Prepare a visibility diagram			

TASK CATEGORY: 4 CBR

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Recognize CBR hazards			
2. Give CBR alarm			
3. Interpret CBR alarms and signs			
4. Put on protective mask			
5. Seek cover as protection against CBR hazards			
6. Decontaminate self, equipment, and supplies			
7. Identify chemical agents using a chemical agent detector			
8. Prepare NBC-1 reports			
9. Apply first-aid measures to a chemical or riot control agent casualty			
10. Re-impregnate clothing using M13 kit			
11. Measure radiation using radiac instruments			
12. Protect vehicle interior from CBR agents			
13. Maintain protective mask and accessories			
14. Assist in preparing unit CBR defense plan			
15. Wear protective clothing as protection against CBR hazards			
16. Mark areas contaminated by CBR agents			
17. Initiate radiological monitoring			
18. Prepare M8 tactical CS launcher for firing			
19. Protect food and personal equipment from CBR agents			
20. Prepare track vehicle for nuclear attack			

TASK CATEGORY: 4 CBR (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
21. Maintain the gas particulate unit of an M114A1 command and reconnaissance carrier			

TASK CATEGORY: 5 MILITARY INSTRUCTION AND TRAINING

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Identify the level of individual and unit proficiency			
2. Identify individual and unit training needs			
3. Develop performance oriented training objectives for quantifiable task or subtask statements (both for individual and unit)			
4. Develop performance oriented training objectives for non-quantifiable task or subtask statements (both individual and unit)			
5. Determine priorities for conducting training			
6. Determine the equipment, supplies, devices, and training aids needed to support training			
7. Prepare training aids needed to support training			
8. Determine the training areas/facilities needed to support training			
9. Plan use of available training time			
10. Develop lesson plans for training to be presented			
11. Conduct a lecture, conference or demonstration			
12. Conduct performance oriented training			
13. Administer training tests			
14. Evaluate training test results			
15. Administer training test			
16. Conduct a post test analysis of training			
17. Recommend personnel to attend specialized training			
18. Identity individual and unit training goals			

TASK CATEGORY: 5 MILITARY INSTRUCTION AND TRAINING (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
19. Select personnel to present training			
20. Select the methods of instruction to be used to accomplish training objectives (conference, lecture, demonstration, practical exercise, peer instruction, etc.)			
21. Select the media for training (film, tape, e.t.v., etc.)			
22. Determine the instructional materials and publications needed to support training programs			
23. Develop training tests			
24. Develop remedial training			

TASK CATEGORY: 7 CODE OF CONDUCT, SURVIVAL ESCAPE AND EVASION

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Avoid capture when the ability to engage the enemy no longer exists			
2. Organize fellow PWs			
3. Plan escape as a PW			
4. Implement plan for escape as a PW			
5. Traverse enemy-controlled territory			
6. Forage for food and water while evading			
7. Construct improvised shelters while evading			
8. Construct expedient weapons while evading			
9. Locate friendly units while evading			
10. Establish contact with friendly units while evading			
11. Resist enemy interrogation, indoctrination, and exploitation if captured			
12. Report enemy information upon rejoining friendly forces			

TASK CATEGORY: 8 INTELLIGENCE AND COUNTERINTELLIGENCE

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Deceive the enemy as to the existence, location, strength, and plans of the unit			
2. Identify enemy vehicles and equipment			
3. Capture enemy personnel			
4. Process known or suspected enemy personnel			
5. Interrogate known or suspected enemy personnel for information of immediate tactical value			
6. Control movement of unauthorized personnel in area of responsibility			
7. Collect/report information of potential intelligence value			
8. Identify enemy aircraft			
9. Process captured documents and material			
10. Safeguard classified information			
11. Maintain an informal situation map			
12. Identify personnel using challenge and password			
13. Exchange intelligence information with adjacent and attached units			
14. Maintain noise discipline to reduce danger of detection			
15. Maintain light discipline to reduce the danger of detection			
16. Maintain litter discipline to reduce the danger of detection			
17. Maintain fire discipline to reduce the danger of detection			

TASK CATEGORY: 8 INTELLIGENCE AND COUNTERINTELLIGENCE (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
18. Determine azimuth to enemy indirect fire delivery means from shell crater			
19. Identify type of enemy indirect fire by analyzing shell fragments and shell crater			
20. Coordinate the employment of ground surveillance radar			
21. Interview refugees and POWs			
22. Identify "immediate use" intelligence information			
23. Obtain combat intelligence information from aerial photographs			
24. Prepare a spot report on enemy activity			
25. Control distribution of maps			

TASK CATEGORY: 9 COMMUNICATIONS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Perform operator maintenance on tactical FM (RT524 and R442) radios and accessories			
2. Prepare tactical FM (RT524 and R442) radios and equipment for operation			
3. Operate tactical FM (RT524 and R442) radios and accessories			
4. Perform operator checks for malfunctions on tactical (RT524 and R442) radios and accessories			
5. Erect and dismantle RC-292 antenna			
6. Perform operator maintenance on RC-292 antenna			
7. Erect and dismantle field-expedient antennas			
8. Perform operator maintenance on field telephones			
9. Install field telephones			
10. Operate field telephones			
11. Perform operator checks for malfunctions on field telephones			
12. Perform operator maintenance on communications wire and wire laying equipment			
13. Install and recover communication wire lines			
14. Develop communications plan			
15. Communicate information over tactical wire and FM radio nets			
16. Operate a radio net control station			
17. Enter radio communications net			
18. Leave radio communications net			

TASK CATEGORY: 9 COMMUNICATIONS (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
19. Apply low level anti-jamming procedure			
20. Operate vehicular intercommunications equipment			
21. Destroy communications equipment to prevent enemy use			
22. Perform operator maintenance on radio remote control equipment			
23. Perform operator checks on radio remote control equipment			
24. Install radio remote control equipment			
25. Operate radio remote control equipment			
26. Transmit information using visual signaling techniques			
27. Install "hot loop" wire communication			
28. Prepare speech security equipment TSECKY-38 for operation			
29. Prepare radio AN/GRC-160 for operation			
30. Operate radio AN/GRC-160			
31. Perform operator maintenance on radio AN/GRC-160			
32. Prepare written messages			
33. Place a track external phone into operation			
34. Perform operator maintenance on track external phone			
35. Prepare an AN/GRC-160 for dismounted operation			
36. Remove/install vehicular antenna AS-1729/VRC (main antenna)			
37. Remove/install vehicular antenna AT-912 (old type main antenna			

TASK CATEGORY: 9 COMMUNICATIONS (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
38. Prepare combat vehicle crewman's helmet for operation			
39. Perform operator's maintenance on RT-246/PRC			
40. Prepare tactical FM radio (RT-246/PRC) for operation			
41. Operate tactical FM radio (TR-246/PRC)			
42. Perform operator checks for malfunctions on tactical FM radio (RT-246/PRC)			
43. Preset tactical FM radio (RT-246/PRC)			

TASK CATEGORY: 10 COVER, CONCEALMENT, AND CAMOUFLAGE

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Select individual battlefield positions that afford concealment and cover			
2. Camouflage equipment and supplies			
3. Camouflage self			
4. Camouflage weapons			
5. Camouflage positions			
6. Enforce camouflage discipline			
7. Construct individual defensive positions			
8. Construct bunkers			
9. Construct crew-served weapons positions			
10. Conceal movement by using weather and light conditions			
11. Conceal movement through route selection			
12. Conceal sound of movement by use of battlefield noise			
13. Remove or conceal track, tire, and foot impressions			
14. Conceal movement using smoke			
15. Construct revetments to protect equipment and supplies			
16. Conceal assembly areas			
17. Remove evidence of previously occupied positions			
18. Construct a parapet for a cannon			

TASK CATEGORY: 11 GENERAL MAINTENANCE

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Establish priorities for general maintenance			
2. Spot check operator/crew maintenance using the Operator's Technical Manual			
3. Perform scheduled preventive maintenance under the supervision of unit maintenance personnel			
4. Perform preventive maintenance on common hand tools (includes pioneer tools)			
5. Perform preventive maintenance on optical equipment			
6. Perform preventive maintenance on radiac instruments			
7. Perform preventive maintenance on canvas items			
8. Perform preventive maintenance on fueled stoves and lanterns			
9. Perform preventive maintenance on individual equipment (that organizational equipment assigned to the individual, excluding TOE equipment)			
10. Perform preventive maintenance on fire extinguishers			
11. Perform preventive maintenance on dry cell battery powered devices (flashlight, etc.)			
12. Maintain operator's part of equipment log book: fill out DA Form 2404			
13. Maintain operator's part of equipment log book: fill out DA Form 2408-1 (daily)			
14. Maintain operator's part of equipment log book: fill out accident report forms			
15. Prepare operator portion of DA 2400 (Equipment Utilization Record)			
16. Submit equipment improvement recommendations on a DA 2407 (Maintenance Request)			

TASK CATEGORY: 11 GENERAL MAINTENANCE (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
17. Perform Equipment Serviceability Criteria evaluation on reportable equipment			
18. Repair equipment using field expedients			
19. Store fuels, cleaning materials, and lubricants			
20. Perform operator's checks and services on generator sets			
21. Request repair parts			
22. Locate information in operator's technical manual			
23. Determine operator responsibilities for lubrication from a lubrication order (LO)			

TASK CATEGORY: 13 RIFLES

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Disassemble/assemble an M16A1 rifle			
2. Service an M16A1 rifle			
3. Service an M16A1 rifle magazine			
4. Service an M16A1 rifle bayonet knife			
5. Load/unload an M16A1 rifle magazine			
6. Load/unload/clear an M16A1 rifle			
7. Conduct M16A1 rifle marksmanship training: a. Conduct mechanical training with the rifle			
b. Conduct preparatory marksmanship training using a 25-meter range			
c. Conduct a field firing exercise with the M16A1 rifle			
d. Conduct record fire with the M16A1 rifle			
e. Conduct night rifle marksmanship training with the M16A1 rifle			
f. Conduct training in automatic rifle fire with the M16A1 rifle			
g. Conduct training using the pointing technique and quick-fire with an M16A1 rifle			
8. Zero the M16A1 rifle			
9. Engage a stationary target with an M16A1 rifle			
10. Engage a moving target with an M16A1 rifle			
11. Engage an aerial target with an M16A1 rifle			
12. Fire the M16A1 rifle using night-firing techniques			

TASK CATEGORY: 13 RIFLES (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
13. Engage a target during periods of limited visibility with an M16A1			
14. Apply immediate action to reduce a stoppage of an M16A1 rifle			
15. Identify malfunctions in an M16A1 rifle			
16. Correct malfunctions in an M16A1 rifle			
17. Conduct ground target detection training			
18. Destroy an M16A1 rifle to prevent enemy use			
19. Perform test for correct assembly on an M16A1 rifle			
20. Attach the M3 bipod to an M16A1 rifle			

TASK CATEGORY: 14 GRENADE LAUNCHER M203

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Disassemble/assemble an M203 grenade launcher			
2. Service an M203 grenade launcher			
3. Mount/dismount the barrel assembly from grenade launcher attached to M16A1 rifle			
4. Load/unload/clear an M203 grenade launcher			
5. Zero an M203 grenade launcher			
6. Engage a target with an M203 grenade launcher			
7. Apply immediate action to reduce a stoppage in an M203 grenade launcher			
8. Identify malfunctions in an M203 grenade launcher			
9. Correct malfunctions in an M203 grenade launcher			
10. Service an M79 grenade launcher			
11. Disassemble/assemble an M79 grenade launcher			
12. Engage a target with an M79 grenade launcher			
13. Load/unload/clear an M79 grenade launcher			
14. Adjust fire of an M79 grenade launcher			
15. Identify malfunctions in an M79 grenade launcher			

TASK CATEGORY: 15 MACHINEGUNS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Disassemble/assemble an M60 machinegun			
2. Maintain an M60 machinegun			
3. Mount/dismount an M60 machinegun on a tripod			
4. Load/unload/clear an M60 machinegun			
5. Conduct M60 machinegun marksmanship training			
6. Zero an M60 machinegun			
7. Engage a stationary/point target with an M60 machinegun			
8. Engage a moving target with an M60 machinegun			
9. Engage an area target with an M60 machinegun			
10. Engage targets at night with an M60 machinegun			
11. Engage aerial targets with an M60 machinegun			
12. Fire a final protective line with an M60 machinegun			
13. Apply immediate action to reduce a stoppage on an M60 machinegun			
14. Identify malfunctions in an M60 machinegun			
15. Correct malfunctions in an M60 machinegun			
16. Destroy an M60 machinegun to prevent enemy use			
17. Lay a machinegun using expedient methods			
18. Prepare a range card for a machinegun			
19. Engage targets from assault fire with an M60 machinegun			
20. Observe/adjust fire for a machinegunner			

TASK CATEGORY: 15 MACHINEGUNS (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
21. Destroy tank and reconnaissance vehicle mounted machineguns to prevent enemy use			
22. Mount/dismount an M60 machinegun on the M114A1 command and reconnaissance carrier			
23. Disassemble/assemble an M139 automatic gun			
24. Service the M139 automatic gun (before and after firing)			
25. Load/clear the M139 automatic gun			
26. Install/remove the M139 automatic gun on/from its mount			
27. Adjust fire of M139 on stationary target using BOT			
28. Adjust fire of M139 on stationary target using the alternate method of adjustment			
29. Adjust fire of M139 on a moving target			
30. Identify malfunctions of an M139 automatic gun			
31. Correct M139 automatic gun malfunctions			
32. Boresight an M139 automatic gun:			
a. Prepare the M139 for boresighting at 1000 meters			
b. Boresight the M120 sight on the M139 at 1000 meters			
c. Boresight the AN/TVS2A night vision sight on the M139 at 1000 meters			
d. Boresight the upper sight assembly on the M139 at 1000 meters			
e. Boresight the lower sight assembly on the M139 at 1000 meters			
f. Prepare the M139 for boresighting at 40 feet			

TASK CATEGORY: 15 MACHINEGUNS (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
g. Boresight the M120 telescope using the indoor boresight target			
h. Boresight the AN/TVS-2A night vision device using the indoor boresight target			
i. Boresight the upper sight assembly using the indoor boresight target			
j. Boresight the lower sight assembly using the indoor boresight target			
33. Zero the M139 automatic gun			
34. Perform operational checks on the M139 automatic gun			
35. Conduct M139 automatic gun marksmanship training			

TASK CATEGORY: 16 LEADERSHIP

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Recognize personal strength and weakness through self-analysis			
2. Assume a leadership position: plan initial leadership actions			
3. Assume a leadership position: evaluate unit			
4. Establish an effective senior/subordinate relationship			
5. Implement policies and actions which will build cooperative behavior among subordinates and superiors			
6. Implement policies and actions which will develop self-discipline and confidence in subordinates			
7. Assist men in handling natural fears and avoiding panic			
8. Receive and orient newly assigned unit personnel			
9. Establish goals and standards for subordinates			
10. Communicate objectives and standards to subordinates so that they understand them			
11. Disseminate information and orders			
12. Develop standing operating procedures for subordinates			
13. Organize resources for mission accomplishment			
14. Assign tasks to subordinates			
15. Supervise subordinates' job performance			
16. Influence subordinates' behavior by the use of rewards and punishments			
17. Initiate action to relieve an incompetent subordinate			

TASK CATEGORY: 16 LEADERSHIP (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
18. Initiate measures to satisfy the needs of subordinates			
19. Prepare enlisted efficiency reports			
20. Counsel subordinates on personal affairs and problems			
21. Investigate complaints			
22. Resolve problems			
23. Enforce the UCMJ			
24. Respect the human dignity of others			
25. Respect the rights and privileges of others			
26. Recognize peers for their positive accomplishments			
27. Help peers overcome their performance deficiencies			
28. Counter disruptive influences and acts			
29. Relate the importance of your job to the accomplishment of the unit mission			
30. Conform to military customs and courtesies			
31. Exercise responsibilities under the UCMJ and civil law			
32. Conduct personal affairs in a manner that reflects favorably on the Army			
33. Encourage others to enlist in the Army			
34. Counsel subordinates on re-enlistment			
35. Develop good work habits			

TASK CATEGORY: 18 TRACKED VEHICLES

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Prepare a loading plan for an M114A1 command and reconnaissance carrier			
2. Prepare an M114A1 command and reconnaissance carrier for operation over various types of terrain			
3. Prepare an M114A1 command and reconnaissance carrier for operation under various weather/light conditions			
4. Install/remove the M19 driver's IR periscope in/from an M114A1 command and reconnaissance carrier			
5. Prepare an M114A1 command and reconnaissance carrier for tactical operation			
6. Perform before/during/after operations maintenance checks and services on an M114A1 command and reconnaissance carrier and equipment			
7. Mount vehicle accessories on an M114A1 command and reconnaissance carrier			
8. Load/unload an M114A1 command and reconnaissance carrier according to loading plan			
9. Start the engine of an M114A1 command and reconnaissance carrier			
10. Place an M114A1 command and reconnaissance carrier in motion			
11. Operate an M114A1 command and reconnaissance carrier over various terrain:			
a. Mud, water and marshy areas			
b. Sand and desert areas			
c. Snow and frozen ground			
12. Stop the M114A1 command and reconnaissance carrier			
13. Turn off engine of an M114A1 command and reconnaissance carrier			

TASK CATEGORY: 18 TRACKED VEHICLES (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
14. Operate an M114A1 command and reconnaissance carrier in a convoy			
15. Control movement of a convoy of tracked vehicles			
16. Operate an M114A1 command and reconnaissance carrier while backing with or without a trailer			
17. Guide an M114A1 command and reconnaissance carrier			
18. Respond to ground guide signals while driving an M114A1 command and reconnaissance carrier			
19. Extinguish a fire in an M114A1 command and reconnaissance carrier			
20. Recover an M114A1 command and reconnaissance carrier using expedient means			
21. Destroy an M114A1 command and reconnaissance carrier to prevent enemy use			
22. Take a position at an M114A1 command and reconnaissance carrier crew station			
23. Escape from an M114A1 command and reconnaissance carrier			
24. Prepare an M114A1 command and reconnaissance carrier for towing			
25. Prepare a range card for an M114A1 command and reconnaissance carrier			

TASK CATEGORY: 19 NIGHT VISION DEVICES

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Mount/dismount an AN/PVS-2 to M60 machinegun			
2. Zero an AN/PVS-2 when mounted on M60 machinegun			
3. Engage a target with an M60 machinegun using an AN/PVS-2			
4. Conduct surveillance using an AN/PVS-2 in handheld mode			
5. Install low temperature adapter on AN/TVS-2			
6. Mount/dismount transportable vision sight (AN/TVS-2) bracket to caliber .50 machinegun			
7. Prepare AN/TVS-2 for operation			
8. Store/clean AN/TVS-2			
9. Place metascope (AN/PAS-6) into operation			
10. Store/clean AN/PAS-6			
11. Request/procure batteries for night vision devices			
12. Plan/coordinate use of night vision devices			
13. Conduct surveillance using AN/PAS-6			
14. Mount/dismount portable vision sight (AN/PVS-2) mounting bracket on rifle			
15. Mount/dismount AN/PVS-2 scope on bracket of rifle			
16. Zero AN/PVS-2 when mounted on rifle			

TASK CATEGORY: 19 NIGHT VISION DEVICES (cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
17. Engage a target with an M16A1 rifle using AN/PVS-2			
18. Engage a target with an M16A1 rifle using AN/PVS-2A			
19. Store/carry AN/PVS-2			
20. Store/carry AN/PVS-2A			
21. Prepare NOD (AN/TVS-4) for operation			
22. Locate targets using NOD			
23. Adjust fire using NOD			
24. Store/transport NOD			

TASK CATEGORY: 20 DEMOLITIONS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Select explosives appropriate to mission			
2. Assemble non-electric detonation system			
3. Assemble an electric detonation system			
4. Perform galvanometer tests on electric detonation systems and accessories			
5. Emplace a non-electric/electric detonation system appropriate to mission			
a. Cut timber with explosives			
b. Demolish bridge with explosives			
c. Destroy obstacles with explosives			
d. Crater roadway with explosives			
e. Demolish tunnels/bunkers with explosives			
f. Construct hasty positions/emplacements with explosives			
g. Clear minefields with explosives			
h. Destroy ammunition with explosives to prevent enemy use			
6. Clear demolition misfires			
7. Store demolitions and demolition accessories			
8. Transport demolitions and demolition accessories			
9. Inspect demolitions and demolition accessories for serviceability			
10. Dispose of unserviceable demolitions and demolition accessories			
11. Prepare a shaped charge for detonation			

TASK CATEGORY: 21 OBSTACLES, BOOBYTRAPS AND MINE WARFARE

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Install a Claymore mine			
2. Fire a Claymore mine using a detonator			
3. Recover Claymore mines			
4. Locate mines by probing			
5. Destroy a mine in place			
6. Mark enemy minefields and boobytraps			
7. Search area for mines and boobytraps			
8. Mark the locations of dud munitions			
9. Assemble mine detector AN/PRS-7			
10. Disassemble mine detector AN/PRS-7			
11. Obtain support to deactivate munitions			
12. Plan wire obstacles			
13. Construct a double-apron fence			
14. Construct a triple standard concertina fence			
15. Recover wire obstacles			
16. Arm/disarm the M14AP mine			
17. Arm/disarm the M15AT mine			
18. Arm/disarm the M16A1 mine			
19. Arm/disarm the M21 antitank mine			
20. Diagram a hasty protective minefield			
21. Remove mines with grapnel or rope			
22. Locate mines with AN/PSS-11 mine detector			
23. Locate mines with AN/PRS-7 mine detector			

TASK CATEGORY: 21 OBSTACLES, BOOBYTRAPS AND MINE WARFARE (Cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
24. Service AN/PSS-11 mine detector			
25. Service AN/PRS-7 mine detector			
26. Breach a minefield			
27. Report location and lanes of a minefield			
28. Identify minefield markers			
29. Construct roadblocks			
30. Remove roadblocks			

TASK CATEGORY: 22 RECON, SECURITY AND COMBAT PATROLS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Plan a security patrol			
2. Plan an ambush patrol:			
a. Receive and study mission of the patrol			
b. Plan use of time			
c. Study terrain and situation			
d. Organize the patrol			
e. Select men, weapons, and equipment for patrol			
f. Issue a warning order			
g. Conduct coordination for patrol			
h. Conduct reconnaissance			
i. Complete detailed plan			
j. Issue operations order			
3. Prepare personnel and equipment for a patrol:			
a. Prepare individual equipment for a patrol			
b. Prepare selected TOE weapons and equipment for patrol			
4. Lead a security patrol:			
a. Inspect/supervise patrol personnel			
b. Rehearse patrol personnel			
c. Control passage through friendly lines			
d. Control security actions in the designated patrol area			
e. Lead a contact patrol			
f. Lead a search and attack patrol			

TASK CATEGORY: 22 RECON, SECURITY AND COMBAT PATROLS (Cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
5. Lead an ambush patrol:			
a. Control movement from friendly positions to the objective rally point			
b. Control patrol actions on enemy contact			
c. Control patrol actions at danger areas			
d. Control patrol actions at en route rally points			
e. Control patrol movement from objective rally point to ambush site and deploy men at objective point			
f. Control patrol action in executing an ambush			
g. Control patrol action in returning to and passing through friendly positions			
6. Negotiate danger area as a member of a patrol			
7. Debrief members of a patrol			
8. Report observations during patrol debriefing			
9. Classify a route			
10. Develop the situation			
11. Determine the enemy's strength and dispositions			
12. Conduct a passage of lines			
13. Supervise a route reconnaissance			
14. Supervise a zone reconnaissance			
15. Maintain contact with the enemy			
16. Reconnoiter a route:			
a. Classify vehicles			

TASK CATEGORY: 22 RECON, SECURITY AND COMBAT PATROLS (Cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
b. Classify bridges			
c. Identify critical gradients; compute and record percentage of slope for critical gradients			
d. Measure and record critical curves along a route			
e. Classify river crossing sites			
f. Classify tunnels, underpasses, and similar obstructions			
g. Classify a frozen water barrier			
h. Record route classification information on a map overlay			
i. Classify roads and routes			
17. Estimate distances at night			
18. Indicate objectives of route, zone, and specific reconnaissance			
19. Plan a route reconnaissance			
20. Plan a zone reconnaissance			

TASK CATEGORY: 23 ANTITANK WEAPONS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Conduct M72A2 LAW marksmanship training:			
a. Conduct mechanical training with the M72A2 LAW			
b. Conduct preparatory marksmanship training with the M72A2 LAW			
c. Conduct marksmanship training with the M990 subcaliber device			
d. Conduct a field firing and technique of fire with the M72A2 LAW			
2. Prepare an M72A2 LAW for firing			
3. Engage a stationary target with an M72A2 LAW			
4. Engage a moving target with an M72A2 LAW			
5. Apply immediate action to correct a malfunction in an M72A2 LAW			
6. Restore M72A2 LAW to carrying configuration			
7. Destroy M72A2 LAW to prevent enemy use			

TASK CATEGORY: 24 FIRE REQUESTS AND ADJUSTMENT

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Establish communication with agency controlling/ coordinating aerial fire support			
2. Locate a target for attack by indirect/aerial fires			
3. Issue a call for fire to an indirect aerial fire support agency			
4. Adjust indirect fire using the bracket method			
5. Adjust indirect fire using the creeping method			
6. Adjust illuminating shells delivered by indirect fire support			
7. Terminate an indirect/aerial fire mission			
8. Adjust aerial delivered fires			
9. Identify friendly locations to facilitate the attack of targets by indirect/aerial fires			
10. Adjust indirect fire using sound adjustment techniques			

TASK CATEGORY: 25 TACTICS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Traverse terrain dismounted in a tactical situation			
2. Analyze the defensive situation (make an estimate of the situation)			
3. Inform subordinates of tasks to be executed in implementation of a combat order			
4. Develop counterambush plans			
5. Coordinate organic and supporting fires in the defense			
6. Organize a perimeter defense			
7. Coordinate unit defense plans with adjacent units			
8. Rehearse unit defense plans			
9. Reorganize defensive position after enemy attack			
10. Engage aircraft with individual and crew-served weapons			
11. Take passive measures to prevent detection by enemy aircraft			
12. Mark routes for vehicles			
13. Plan tactical operations			
14. Plan use of time available			
15. Plan unit security			
16. Plan employment of attached units			
17. Plan employment of supporting units			
18. Plan air movement			
19. Select tactical positions			
20. Assign tactical positions			

TASK CATEGORY: 25 TACTICS (Cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
21. Plan troop movement			
22. Inspect tactical positions			
23. Coordinate use of personnel and equipment			
24. Plan an attack			
25. Determine type of fire support required			
26. Determine method of attack			
27. Select advanced fire positions			
28. Select positions for field fortifications			
29. Select targets			
30. Designate targets			
31. Control fires of other weapons			
32. Direct mounted tactical formations			
33. Select river crossing sites			
34. Post traffic control personnel			
35. Select alternate and supplementary positions			
36. Establish a base of fire			
37. Assign fields of fire			
38. Clear fields of fire			
39. Perform quartering party functions			
40. Conduct mounted tactical movement			
41. Conduct administrative movement			
42. Construct field shelters			
43. Organize units for an attack			

TASK CATEGORY: 25 TACTICS (Cont'd)

TASK	Scout Observer	Scout Driver	Vehicle Commander
44. Attack to seize an objective			

TASK CATEGORY: 28 ADMINISTRATION, SUPPLY, MESS

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Request property, supplies, and logistical services			
2. Inventory assigned property			
3. Assign responsibility for property			
4. Turn in property			
5. Process personnel action request			
6. Recommend personnel for promotion			
7. Recommend personnel for decorations and awards			
8. Maintain informal accountability of personnel			
9. Report casualties			
10. Recommend changes to publications (using a DA Form 2028)			
11. Control field feeding			
12. Perform charge of quarters duties			
13. Install lighting sets			
14. Operate portable generators			

TASK CATEGORY: 29 HAND GRENADES

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Maintain hand grenades			
2. Engage the enemy with hand grenades			
3. Engage the enemy using chemical grenades			
4. Provide signals with hand grenades			
5. Conceal activity/location with smoke grenades			
6. Destroy equipment/supplies with hand grenades to prevent enemy use			
7. Conduct hand grenade training			
8. Illuminate an area with hand grenades			

TASK CATEGORY: 30 AMMUNITION

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Transport ammunition			
2. Store ammunition			
3. Service ammunition			
4. Request ammunition			
5. Secure ammunition			
6. Maintain ammunition records			
7. Receipt ammunition			
8. Process turn-in of ammunition			
9. Destroy ammunition to prevent enemy use			

TASK CATEGORY: 31 EARLY WARNING DEVICES

TASK	Scout Observer	Scout Driver	Vehicle Commander
1. Emplace/recover expedient early warning devices			
2. Emplace/recover pyrotechnic early warning devices			
3. Prepare expedient early warning devices			
4. Store/transport electronic anti-intrusion devices			
5. Emplace/recover electronic anti-intrusion devices			
6. Monitor/report activity detected by electronic anti-intrusion devices			
7. Obtain electronic anti-intrusion devices			
8. Plan for employment of electronic anti-intrusion devices			
9. Report locations of electronic anti-intrusion devices			
10. Train subordinates in emplacing electronic anti-intrusion devices			
11. Plan/coordinate employment of expedient early warning devices			

APPENDIX B

FIELD TRYOUT MATERIALS

GENERAL SITUATION

As a result of sweeping aggressor victories in Indochina, the governments of South and Central American countries have been forced to support Aggressor Guerrilla operations in their country. The Aggressor forces are staging guerrilla operations into Southwestern States from Central America. The guerrilla forces are conducting terrorist activities and ambushing military convoys. The 3d Armored Cavalry has been ordered to deploy and conduct stability operations to eliminate guerrilla forces operating in the Hueco, Organ, Jarillo, Sacramento, and Franklin mountains as well as Lincoln National Forest and Gila Forest.

The second squadron has been assigned an area of operations in the Franklin, Organ, San Augustin, Jarillo and Hueco mountain area. Your Troop has been given the mission of locating and destroying Guerrilla forces in the Organ Mountain area.

The Guerrilla forces in the area consist of dissident SLA members and oriental mercenaries. They have mined and booby trapped the approach to their base area. They have the area heavily outposted and there are reported sightings of a few armored twin 40mm carriers stolen from a national guard armory in western New Mexico. The unit runs approximently 200 men armed with the latest aggressor weapons. They have been contaminating areas with stolen chemicals and radio active waste products stolen from a nuclear reactor plant outside of Sandia Base. You may expect to encounter aggressive, well trained troops armed with the latest modern weapons.

OPORDER SSPC

1. SITUATION:

a. Enemy Forces: Elements of the SLA and Oriental mercenaries are conducting guerrilla and terrorist activties and ambushing military convoys in the Organ Mountain area.

b. Friendly: The 2d Squadron is operating in the Franklin, Organ, San Augustine, and the Hueco Mountain area. Your Trp will be operating in the Organ Mt. area. L Trp will be to your right flank and _____ Trp will be operating to your left.

2. MISSION:

_____ scout squads will conduct a zone recon in sector & establish an OP vic PL BLUE to observe the north end of Boulder Canyon.

3. EXECUTION:

a. Concept of operations: Two scout Sqds. abreast will cross the LD/LC at _____hrs. to recon zone. One squad will move in the western section and the other squad will move in the eastern sector. Report any activity as well as crossing PL white, red and blue. Priority of fires to the scout section.

b. PLT (-): Occupy blocking pos on the LD.

c. Coordinating instructions: Restrictive movement can be expected along rattlesnake creek due to enemy mining. Also there are several bridges in the AO that will restrict passage. Your right boundary is approximately 100 meters west of Boulder River and your left boundary is 1000 meters east of a major north/south road. Radiological monitoring will be of the utmost importance due to enemy CBR capability.

4. SERVICE SUPPORT:

a. Combat trains are in vic CF 570550.

b. Resupply and evacuation are along the major north/south road in your sector.

5. COMMAND AND SIGNAL:

a. Current CEOI in effect.

b. I will follow _____.

RATER INSTRUCTIONS AND SCORE SHEETS

Instructions to Raters

You are to rate the members of a scout crew during the performance of a scout mission. The crew will be operating as part of a squad. You will be observing and rating the actions of the vehicle commander (VC), vehicle driver (VD), and scout observer (SO). There are several situations in the mission. Your scoresheet contains a list of tasks which probably should be performed in each situation. In most instances we have indicated which crew member should perform the task.

When you rate performance of the tasks, there are two things to consider:

1. Did the soldier perform the task when it was required?
2. Did the soldier perform the task correctly?

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Locate site (VC,SO)			X			X					
2. Probe site for mines & boobytraps (SO)					X						X
3. Mark & report mines & boobytraps (SO)											X

If a soldier tries to perform a task when it is required, put a mark in the "Was Performed By" column for that crew member. If he performs the task correctly, put a mark in his GO column. Task 1 in the example shows the rating for a task performed when needed and correctly.

Task 2 illustrates rating for a task which a soldier performs incorrectly. In those cases, mark the "Was Performed By" column for the crew member, and put a mark in his NO GO column. If possible, note what he did wrong.

Task 3 shows how to rate a task which should be performed, but is omitted. Do not mark the "Was Performed By" column, just mark the appropriate NO GO column. In the case of Task 3 the scout observer did not mark mines and booby traps.

If the need for performing the task does not arise, put "NA" in the "Note" column. Also if you cannot rate a task, put a "?" in the "Note" column. When you get time, indicate why you could not rate the task such as "watching another task" or "could not see."

Name: _____

Rater # _____

Run # _____

OPERATIONS ORDER - PRECOMBAT OPERATIONS (S)

Vehicle Number: _____

Names of Crew Members: _____

_____

_____

Situation #1 Receive Operations Order

Task	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go	Note
1. Plan route reconnaissance (VC)										
.Make map reconnaissance										
.Mark sector of responsibility										
.Mark critical reconnaissance areas										
.Copy overlay information										
2. Brief crew (VC)										
.Friendly situation										
.Enemy situation										
.Section/squad mission										
.Move-out time										
.LD location										
.Duties of crew										
3. Plan use of available time (VC)										
.Crew/equipment mission ready at H										
.Supervise crew to prepare for mission										
.Assign specific tasks										

Situation #2 Precombat Operations Checks

Task	Note	Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)					
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Before-operations checks & services M114A1(VD)											
.Suspension system											
.Engine, transmission, geared steering unit oil levels											
.Instruments and gages											
.Controls: Steering, accelerator, shift, brakes											
.Sighting and fire controls											
2. Maintain logbook (VD)											
.DA Form 2404											
.DA Form 2408-1 (daily)											
3. Load equipment & ammunition IAW TM and loading plan (VC,VD,SO)											
4. Perform pre-op checks on vehicular intercom system & CVC helmets (VC,VD,SO)											
.Switches											
.Assemblies											
.Cables											
.Connections											
.Cleanliness											

Situation #2 Precombat Operations Checks (continued)

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
5. Perform pre-op checks on radio set (SO)										
.Switches										
.Assemblies										
.Cables										
.Connections										
.Antenna										
.Cleanliness										
6. Perform intercom & radio communications checks (VC,VD,SO)										
7. Service 20mm automatic gun (VC)										
.Dismount										
.Disassemble										
.Service & lubricate										
.Assemble										
.Mount										
.Operational checks										

Situation #2 Precombat Operations Checks (continued)

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
8. Service M60 machinegun (SO)											
.Dismount											
.Disassemble											
.Service & lubricate											
.Assemble											
.Mount											
.Operational checks											
9. Service caliber .45 pistol (VC)											
.Service & lubricate (if needed)											
.Operational checks											
10. Service M16 (VD)											
.Service & lubricate (if needed)											
.Operational checks											
11. Service M203 (SO)											
.Service & lubricate (if needed)											
.Operational checks											
12. Camouflage vehicle (VD)											
13. Camouflage equipment & self (VC,VD,SO)											

Situation #2 Precombat Operations Checks (continued)

Task	Note	Was Performed By	Vehicle Commander (VC)	Vehicle Driver (VD)	Scout Observer (SO)						
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
14. Boresight 20mm automatic gun (VC)										
.Boresight gun										
.Boresight telescope										
.Boresight upper sight assembly										
15. Zero 20mm automatic gun (VC)										
.Fire warm-up round										
.Fire 3-round shot group										
.Confirmation round within 24 inches										
16. Test-fire M60 machinegun (SO)										
17. Test-fire 20mm automatic gun (VC)										
18. Supervise, inspect all activities performed by crew (VC)										
19. Ground guide (VD)										
.Move vehicle in staging area only under direction of ground guide										

Name: _____

Rater # _____

Run # _____

WEST SQUAD BATTLE RUN (S)

Vehicle Number: _____

Names of Crew Members: _____

_____

_____

Name: _____

Rater # _____

Run # _____

EAST SQUAD BATTLE RUN (S)

Vehicle Number: _____

Names of Crew Members: _____

_____

_____

Situation #3 Cross LD/Route Reconnaissance

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Identify LD on ground (VC)											
2. Cross LD on the move (VC)											
3. Cross LD at H (VC)											
4. Report (VC)											
. Correct RT procedure (VC)											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch (VC)											
. Movement by bounds (VC)											
. Cover & conceal vehicle (VC)											
. Dismount observer as required (VC)											
2. Conduct dismounted tactical movement (VC)											
. When required by situation (VC)											
. Vehicle attended (VC, VD)											
. Establish security (VC)											
. Cover & concealment (VC, SO)											

Situation #3 Cross LD/Route Reconnaissance

Task Recurring Tasks (Cont'd)	Was Performed By Note	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
3. Operate vehicle under tactical conditions (VD)										
. Camouflage & conceal vehicle										
. Respond to vehicle commander										
. React to terrain obstacles										
. Avoid vehicle signature										
. Respond to situation with minimum guidance										
4. Observe sectors (VC, VD, SO)										
5. Maintain noise discipline (VC, VD, SO)										
6. Submit reports (VC)										
. Appropriate time										
. Correct RT procedure										
7. Maintain fire discipline (VC, SO)										
8. During operations checks & services (VD)										
9. Supervise & control crew (VC)										
10. Observe safety requirements (VC,VD,SO)										
. Smoking										
. Vehicle safety										
. Weapons & ammo										
11. Record information (VC)										
12. Radio, discipline & security (VC)										

Situation #4 Target Engagement - 20mm (West Squad)

Task	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)		Note
	VC	VD	SO	Go	No Go	Go	No Go	Go	No Go	
1. Observe & identify (VC,VD,SO)										
2. Deploy (VC)										
3. Report (VC)										
4. Develop situation (VC)										
5. Engage target with 20mm automatic gun										
. Fire adjustment (VC,VD)										
. Immediate action (if necessary)										
. Target coverage										
. Observer continues to observe other sectors										
6. Report results (TC)										
Recurring Tasks										
1. Operate vehicle under tactical conditions (VD)										
. Camouflage & conceal vehicle										
. Respond to vehicle commander										
. React to terrain obstacles										
. Avoid vehicle signature										
. Respond to situation with minimum guidance										
2. Observe sectors (VC,VD,SO)										

Situation #4 Target Engagement - 20mm (West Squad)

Tasks	Recurring Tasks (Cont'd)	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)		Note
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go	
	3. Supervise & control crew (VC)										
	4. Observe safety requirements (VC,VD.SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
	5. Radio, discipline & security (VC)										

Situation #5 Bridge Classification

Task	Note: Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)					
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Establish dismounted security (VC)										
2. Assign one man to remain on each vehicle to man 20mm automatic gun (VC)										
3. Probe bridge approaches for mines & boobytraps (VC, SO)										
4. Mark mines & boobytraps (VC, SO)										
5. Spot report (VC)										
. Correct RT procedures										
. Report appropriate information										
6. Classify bridge site (VC)										
. Report accurate classification (hasty)										
Recurring Tasks										
1. Conduct mounted tactical movement (VC)										
. Overwatch										
. Movement by bounds										
. Cover & conceal vehicle										
. Dismount observer as required										

Situation #5 Bridge Classification

Tasks	Recurring Tasks (Cont'd)	Note	Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)			
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
	2. Conduct dismounted tactical movement (VC, SO)										
	. When required by situation										
	. Vehicle attended										
	. Establish security										
	. Cover & concealment										
	3. Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Respond to situation with minimum guidance										
	4. Observe sectors (VD, VD, SO)										
	5. Maintain noise discipline (VC, VD, SO)										
	6. Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
	7. Maintain fire discipline (VC, SO)										
	8. During operations checks & services (VD)										
	9. Supervise & control crew (VC)										

Situation #5 Bridge Classification

Task	Recurring Tasks (Cont'd)	Note	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)	
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
10.	Observe safety requirements (VC,VD,SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
11.	Record information (VC)										
12.	Radio, discipline & security (VC)										

Situation #6 Fording

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Locate site (VC, SO)											
2. Probe site for mines & boobytraps(VC,SO											
3. Mark & report mines & boobytraps(VC,SO)											
4. Classify fording site (VC)											
. Report accurate classification											
5. Ford river (VC)											
. Vehicles alternate crossing while maintaining security											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch											
. Movement by bounds											
. Cover & conceal vehicle											
. Dismount observer as required											
2. Conduct dismounted tactical movement (VC, SO)											
. When required by situation											
. Vehicle attended											
. Establish security											
. Cover & concealment											

Situation #6 Fording

Task	Recurring Tasks (Cont'd)	Note	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go
	3. Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Avoid vehicle signature										
	. Respond to situation with minimum guidance										
	4. Observe sectors (VC, VD, SO)										
	5. Maintain noise discipline (VC, VD, SO)										
	6. Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
	7. Maintain fire discipline (VC, SO)										
	8. During operations checks & services (VD)										
	9. Supervise & control crew (VC)										
	10. Observe safety requirements (VC,VD,SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
	11. Record information (VC)										
	12. Radio, discipline & security (VC)										

Situation #7 Ambush

Task	Note	Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)					
			VC		VD		SO					
			Go	No Go	Go	No Go	Go	No Go	Go	No Go	Go	No Go
1. Observe & identify (VC,VD,SO)												
2. Deploy (VC)												
3. Report (VC)												
4. Develop situation (VC)												
5. Engage targets with M60 MG (SO)												
. Area fire												
. Target coverage												
. Immediate action (if necessary)												
. Control fire (VC)												
. Report results												
Recurring Tasks												
1. Conduct mounted tactical movement (VC)												
. Overwatch												
. Movement by bounds												
. Cover & conceal vehicle												
. Dismount observer as required												

Situation #7 Ambush

Task	Recurring Tasks (Cont'd)	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go	Note
	2. Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Avoid vehicle signature										
	. Respond to situation with minimum guidance										
	3. Observe sectors (VC, VD, SO)										
	4. Supervise & control crew (VC)										
	5. Observe safety requirements (VC,VD,SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
	6. Radio, discipline & security (VC)										

Situation #8 Radiological Monitoring

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Locate correct monitor area (VC)											
2. Establish dismounted security (VC)											
3. Assign one man to remain on each vehicle (VC)											
4. Use IM 93 and IM 174 (VC, SO)											
5. Submit NBC-4 report (VC)											
6. If gas is encountered: (VC, SO, VD)											
. Mask											
. Give alarm											
. Report											
. Remain masked until "ALL CLEAR" is given											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch											
. Movement by bounds											
. Cover & conceal vehicle											
. Dismount observer as required											

Situation #8 Radiological Monitoring

Task	Recurring Tasks (Cont'd)	Note	Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)					
				VC		VD		SO					
				Go	No Go	Go	No Go	Go	No Go	Go	No Go	Go	No Go
	2. Conduct dismounted tactical movement (VC, SO)												
	. When required by situation												
	. Vehicle attended												
	. Establish security												
	. Cover & concealment												
	3. Operate vehicle under tactical conditions (VD)												
	. Camouflage & conceal vehicle												
	. Respond to vehicle commander												
	. React to terrain obstacles												
	. Avoid vehicle signature												
	. Respond to situation with minimum guidance												
	4. Observe sectors (VC, VD, SO)												
	5. Maintain noise discipline (VC, VD, SO)												
	6. Submit reports (VC)												
	. Appropriate time												
	. Correct RT procedure												
	7. Maintain fire discipline (VC, SO)												
	8. During operations checks & services (VD)												
	9. Supervise & control crew (VC)												

Situation #8 Radiological Monitoring

Task	Recurring Tasks (Cont'd)	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go	Note
	10. Observe safety requirements (VC, VD, SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
	11. Record information (VC)										
	12. Radio, discipline & security (VC)										

Situation #9 Bridge Classification

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Establish dismounted security (VC)											
2. Assign one man to remain on each vehicle to man 20mm automatic gun (VC)											
3. Probe bridge approaches for mines & boobytraps (VC, SO)											
4. Spot report (VC)											
. Correct RT procedures											
. Report appropriate information											
5. Classify bridge site (hasty) (VC)											
. Report accurate classification											
6. Cross bridge tactically (VC)											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch											
. Movement by bounds											
. Cover & conceal vehicle											
. Dismount observer as required											
2. Conduct dismounted tactical movement (VC, SO)											
. When required by situation											
. Vehicle attended											
. Establish security											
. Cover & concealment											

Situation #9 Bridge Classification

Task	Recurring Tasks (Cont'd)	Note	Was Performed By: Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
3.	Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Avoid vehicle signature										
	. Respond to situation with minimum guidance										
4.	Observe sectors (VC, VD, SO)										
5.	Maintain noise discipline (VC,VD,SO)										
6.	Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
7.	Maintain fire discipline (VC, SO, VD)										
8.	During operations checks & services (VD)										
9.	Supervise & control crew (VC)										
10.	Observe safety requirements (VC,SO,VD)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
11.	Record information (VC)										
12.	Radio, discipline & security (VC)										

Situation #10 Engage Targets - 20mm (East Squad)

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)			Scout Observer (SO)		
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Observe & identify (VC, SO)											
2. Deploy (VC)											
3. Report (VC)											
4. Request permission to fire across troop boundary (VC)											
5. Develop situation (VC)											
6. Engage target with 20mm automatic gun											
. Fire adjustment (VC,VD)											
. Immediate action (if necessary)											
. Target coverage											
. Observer continues to observe other sectors											
7. Report results (VC)											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch											
. Movement by bounds											
. Cover and conceal vehicle											
. Dismount observer as required											

Situation #10 Engage Targets - 20mm (East Squad)

Tasks	Recurring Tasks (Cont'd)	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go	Note
	2. Conduct dismounted tactical movement (VC, SO)										
	. When required by situation		•								
	. Vehicle attended										
	. Establish security										
	. Cover & concealment										
	3. Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Respond to situation with minimum guidance										
	4. Observe sectors (VC, VD, SO)										
	5. Maintain noise discipline (VC,VD,SO)										
	6. Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
	7. Maintain fire discipline (VC, SO)										
	8. During operations checks & services (VD)										
	9. Supervise & control crew (VC)										

Situation #10 Engage Targets - 20mm (East Squad)

Task	Recurring Tasks (Cont'd)	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)		Note
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go	
	10. Observe safety requirements (VC,VD,SO)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
	11. Record information (VC)										
	12. Radio, discipline & security (VC)										

Situation #11 Engage Targets (SA/AW)

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Observe & identify (VC, VD, SO)											
2. Deploy (VC)											
3. Report (VC)											
4. Develop situation (VC)											
5. Engage targets with M60 MG (SO)											
. Area fire											
. Target coverage											
. Immediate action (if necessary)											
. Control fires (VC)											
. Report results											
Recurring Tasks											
1. Conduct mounted tactical movement (VC)											
. Overwatch											
. Movement by bounds											
. Cover & conceal vehicle											
. Dismount observer as required											
2. Conduct dismounted tactical movement (VC, SO)											
. When required by situation											
. Vehicle attended											
. Establish security											
. Cover & concealment											

Situation #11 Engage Targets (SA/AW)

Task	Recurring Tasks (Cont'd)	Was Performed By: VC	VD	SO	Vehicle Commander (VC): Go	No Go	Vehicle Driver (VD): Go	No Go	Scout Observer (SO): Go	No Go	Not Performed
3.	Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Avoid vehicle signature										
	. Respond to situation with minimum guidance										
4.	Observe sectors (VC, VD, SO)										
5.	Maintain noise discipline (VC, VD, SO)										
6.	Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
7.	Maintain fire discipline (VC, SO)										
8.	During operations checks & services (VD)										
9.	Supervise & control crew (VC)										
10.	Observe safety requirements (VC, SO, VD)										
	. Smoking										
	. Vehicle safety										
	. Weapons & ammo										
11.	Record information (VC)										
12.	Radio, discipline & security (VC)										

Situation #12 Select and Occupy OP Site

Task	Note	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)	
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
I. Select OP site (VC)										
1. Locate on dominant terrain										
2. Cover probable enemy avenues of approach										
3. Have cover and concealment										
4. Have trafficable routes into and out of OP										
5. Adjust OP locations required by terrain & observation										
II. Occupy OP site										
6. Select vehicle positions (VC)										
7. Park & camouflage vehicles (VD)										
8. Dismount M60 machinegun (SO)										
9. Clear fields of view (SO, VC)										
10. Clear fields of fire (SO, VC)										
11. Assign sectors of fire (VC)										
12. Establish communications (VC)										
13. Camouflage individual positions(SO,VC)										
14. Report OP location (Use COMSEC)										
15. Maintain observation and report activities (VC, SO, VD)										
III. Engage targets (M203) (SO)										
16. Observe & identify targets (SO)										
17. Report targets (VC)										
18. Engage (SO)										

Situation #12 Select and Occupy OP Site

Task	Note	Was Performed By	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)					
			VC		VD		SO					
			Go	No Go	Go	No Go	Go	No Go	Go	No Go	Go	No Go
19. Report results (VC)												
20. Call for artillery (VC)												
. Observe & identify												
. Request artillery fire												
- Observer (call sign)												
- Fire mission												
- Target location and direction												
- Target description												
- Engagement method												
- Control method												
21. Engage targets with organic weapons (VC, SO)												
22. Terminate mission & report results (VC)												
Recurring Tasks												
1. Conduct mounted tactical movement (VC)												
. Overwatch												
. Movement by bounds												
. Cover & conceal vehicle												
. Dismount observer as required												

Situation #12 Select and Occupy OP Site

Task	Recurring Tasks (Cont'd)	Note	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)	
			VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
	2. Conduct dismounted tactical movement (VC, SO)										
	. When required by situation										
	. Vehicle attended										
	. Establish security										
	. Cover & concealment										
	3. Operate vehicle under tactical conditions (VD)										
	. Camouflage & conceal vehicle										
	. Respond to vehicle commander										
	. React to terrain obstacles										
	. Avoid vehicle signature										
	. Respond to situation with minimum guidance										
	4. Observe sectors (VC, VD, SO)										
	5. Maintain noise discipline (VC, VD, SO)										
	6. Submit reports (VC)										
	. Appropriate time										
	. Correct RT procedure										
	7. Maintain fire discipline (VC, SO)										
	8. During operations checks & services (VC)										
	9. Supervise & control crew (VC)										

Situation #12 Select and Occupy OP Site

Task	Recurring Tasks (Cont'd)	Was Performed By			Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)	
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
	10. Observe safety requirements (VC,VD,SO)									
	. Smoking									
	. Vehicle safety									
	. Weapons & ammo									
	11. Record information (VC)									
	12. Radio, discipline & security (VC)									

Situation #13 Withdraw from OP (Hasty)

Task	Note	Was Performed By	Vehicle Commander (VC)			Vehicle Driver (VD)		Scout Observer (SO)			
		VC	VD	SO	Go	No Go	Go	No Go	Go	No Go
1. Request permission or withdraw on order (VC)										
2. Withdraw equipment (VC, SO)										
3. Mount weapons (SO)										
4. Withdraw by covered and concealed routes (VC)										
5. Proceed by most direct route which provides cover and concealment (VC,VD)										
6. Report withdrawal (VC)										
7. Clear weapons (VC, SO)										
Recurring Tasks										
1. Conduct mounted tactical movement (VC)										
. Overwatch										
. Movement by bounds										
. Cover & conceal vehicle										
. Dismount observer as required										
2. Conduct dismounted tactical movement (VC, SO)										
. When required by situation										
. Vehicle attended										
. Establish security										
. Cover & concealment										

Situation #13 Withdraw from OP (Haaty)

Task	Recurring Tasks (Cont'd)	Was Performed By: Vehicle Commander (VC)	Vehicle Driver (VD)	Scout Observer (SO)	Vehicle Commander (VC)		Vehicle Driver (VD)		Scout Observer (SO)	
		Not Performed			Go	No Go	Go	No Go	Go	No Go
3.	Operate vehicle under tactical conditions (VD)									
	. Camouflage & conceal vehicle									
	. Respond to vehicle commander									
	. React to terrain obstacles									
	. Avoid vehicle signature									
	. Respond to situation with minimum guidance									
4.	Observe sectors (VC, VD, SO)									
5.	Maintain noise discipline (VC, VD, SO)									
6.	Submit reports (VC)									
	. Appropriate time									
	. Correct RT procedure									
7.	Maintain fire discipline (VC, SO)									
8.	During operations checks & services (VD)									
9.	Supervise & control crew (VC)									
10.	Observe safety requirements (VC,VD,SO)									
	. Smoking									
	. Vehicle safety									
	. Weapons & ammo									
11.	Record information (VC)									
12.	Radio, discipline & security (VC)									

ARI Distribution List

4 OASD (M&RA)
2 HQDA (DAMI-CSZ)
1 HQDA (DAPE-PBR
1 HQDA (DAMA-AR)
1 HQDA (DAPE-HRE-PO)
1 HQDA (SGRD-ID)
1 HQDA (DAMI-DOT-C)
1 HQDA (DAPC-PMZ-A)
1 HQDA (DACH-PPZ-A)
1 HQDA (DAPE-HRE)
1 HQDA (DAPE-MPO-C)
1 HQDA (DAPE-DW)
1 HQDA (DAPE-HRL)
1 HQDA (DAPE-CPS)
1 HQDA (DAFD-MFA)
1 HQDA (DARD-ARS-P)
1 HQD' 'DAPC-PAS-A)
1 HQ[ )USA-OR)
1 HQL `AMO-RQR)
1 HQD \SG)
1 HQDA (L A10-PI)
1 Ch nsult Div (DA-OTSG), Adelphi, MD
1 Mil Hum Res, ODDR&E, OAD (E&LS)
1 HQ U AL, APO Seattle, ATTN: ARAGP-R
1 HQ F rmy, ATTN: AFKA-OI-TI
2 HQ Fi rmy, Ft Sam Houston
1 Dir, Army Stf Studies Ofc, ATTN: OAVCSA (DSP)
1 Ofc Chief of Stf, Studies Ofc
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