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PREDICTING TRAINABILITY OF M1 CREWMEN

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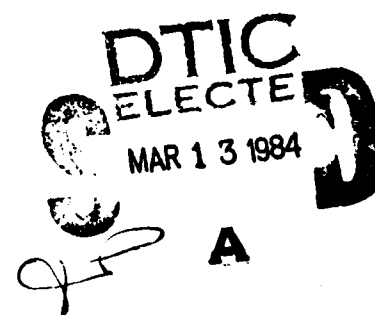
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ratings of trainees, as well as two composite criteria. Data collection was conducted among 146 soldiers in the first two M1 OSUT classes at Ft Knox. The analyses involved a series of multiple regressions, first on the ASVAB subtests and then on the remaining measures. Regression equations that reliably predicted criteria were crossvalidated between OSUT using both regression weighted and unit weighted models.

ASVAB subtest scores were examined to determine: 1) if the aptitude area scores CO and GT were predictive of M1 OSUT soldier performance and 2) to ascertain whether or not a new combination of subtests might improve upon CO, the current Armor selector. Finally, job sample test scores were evaluated to determine if their inclusion in a composite predictor with CO would result in a significant improvement in predictability above that from CO alone. Results of regression analyses demonstrated that CO predicted M1 OSUT performance in both samples while GT did not, a new combination of subtests had validity coefficients equivalent to those of CO in each company and were apparently more consistent in strength, and job sample tests while consistently identified as predictors, did not significantly improve upon the correlation obtained from CO alone. Consideration of the results of this research should be tempered by the understanding that moderate sample sizes were involved, no academic failures occurred in either OSUT company and criterion measures most appropriate to the validation of the job sample tests were not available.

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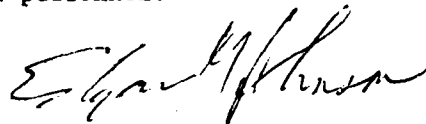
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FOREWORD

The Fort Knox Field Unit has conducted research in the area of Armor personnel assignment for the past several years. Research efforts have involved both paper-and-pencil and job sample performance tests as predictors of performance potential. The primary focus of the research has been on unit assignment of tank crewman to the gunner and tank commander positions. Paralleling these efforts, some research has been directed toward the assignment of Armor enlistees to position specific or tank specific tracks within Armor Initial Entry Training (IET).

The recent fielding of the Army's new main battle tank, the M1 Abrams, and the subsequent institution of initial entry training programs for the new MOS 19K, raised questions as to the generalizability of present assignment methods to this sophisticated new system. More specifically, the questions concerned whether the minimum score for the current Armor selector, the Combat Operations (CO) Composite of the Armed Services Vocational Aptitude Battery (ASVAB), should be increased; whether some alternative composite of ASVAB subtests might better predict M1 training outcome, and whether job sample performance tests might add to the effectiveness of performance prediction.

This report describes the results of preliminary research on the assignment of Armor recruits to M1 training. Initial Entry Training test scores and training performances for two companies of M-1 trainees were analyzed. Since there were no academic failures, increasing the present selector score did not appear justified. The present CO composite provided the best prediction of training success. However, further screening of Armor recruits using additional ASVAB subtests (Numerical Operations and Electronics Information) and some measures from the job sample tests might increase the effectiveness of assignment. The results of this effort provide an empirical base for the future examination of these predictors with reference to their validity and cost effectiveness in the selection and assignment of Armor personnel.



EDGAR M. JOHNSON
Technical Director

BRIEF

Requirements:

Examine ASVAB data, biographic information, and job sample tests as predictors of M1 training success.

Procedure:

Data was collected on 146 soldiers in two OSUT. Scores of ten subtests, aptitude area scores on CO and GT and AFQT scores were taken from the ASVAB. Five variables tapped soldiers' backgrounds and personal characteristics. Five job sample tests were also used: tracking, target acquisition, fire control computer, use of the TM, and round sensing. The criteria used were GATE scores, instructors' evaluations, and Tank Table VII firing hits. A series of multiple regressions were calculated and crossvalidated by means of unit weighted composites.

Findings:

Four ASVAB subtest (CS, AS, EI, and NO) were found for which the unit weighted composite predicts training slightly better than CO. Among the job sample tests, computer accuracy was linked as a suppressor variable to GATE scores and rankings, computer time and round sensing accuracy appear to be associated with firing hits, and target acquisition time is a predictor of rankings.

Utilization of Findings:

Because of weaknesses in the measurement of training performance, no recommendation was made to change from CO to some other method of selection for M1 training. The job sample test approach is theoretically sound, and development of such measures should continue. Until criterion measures of the performance they are intended to predict are adequately defined and reliably obtained, the predictive power of job sample tests cannot be accurately assessed.

PREDICTING TRAINABILITY OF M1 CREWMEN

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PREDICTING TRAINABILITY OF M1 CREWMEN

INTRODUCTION

The US Army, in the mid-1970's, became interested in profiling the type soldier best suited to serve on what would later become the Army's main battle tank, the M1 Abrams. Questions were raised at that time concerning how personnel should be selected to serve on M1 tanks, what the requisite aptitudes and abilities were and how the personnel side of the man-machine interface could best be used to achieve maximum capability from this complex armor system. However, it was not until the introduction of prototype M1 tanks and the implementation of institutional courses for initial entry training of M1 crewmen late in 1980 that the necessary test bed to address these questions was provided.

The US Army Research Institute (ARI) has conducted research using these first M1 training courses to address the following questions: (1) could an aptitude measure be developed using the Army's current test battery which would predict success in M1 initial entry training and (2) could hands-on tests be developed as indicators of future performance of M1 crewmen.

In an initial overview of the problem, Black and Kraemer (1981) analyzed aptitude requirements for the four crew positions in the M1 tank. The results of these analyses provided identifiable duty and task differences between M60A1 crew positions and M1 crew positions. It was concluded that the US Army's selection requirements for M60A1 Armor crewmen might not be adequate to select potential M1 crewmen, if the differences noted in the M1 task analyses reflect substantial differences in the underlying aptitude requirements. For example, because the M1 ballistic fire control system is computerized, electronic or skilled technical aptitudes may be necessary prerequisites for operating the fire control system. Measures of these aptitudes are not currently included in the M60A1 Armor crewman selection battery. Based on these analyses, the current Armor selection procedures and the relevant testing literature were reviewed. This review was the first step in the development of predictors of M1 crewman training performance.

Current Armor Selection Procedures

The Army and the other armed services administer the Armed Services Vocational Aptitude Battery (ASVAB) to all recruits. The ASVAB yields scores on ten subtests (see Table 1). Subtest scores are standardized to a mean of 50 and standard deviation of 10, and composite scores are formed for various aptitude areas by summing standardized scores for particular subtests. The composites are then standardized again to a mean of 100 and standard deviation of 20, and validated for particular occupations within the military community. Cutoff scores are established based on the obtained validation coefficient, the manpower input and the manpower need. To qualify for service in the Army in any MOS, a recruit must obtain a minimum Armed Forces Qualification Test (AFQT) score of 38 (i.e., 10th percentile); AFQT is a weighted composite of the Arithmetic Reasoning, Word Knowledge, Paragraph Comprehension, and Numeric Operations subtest raw scores. At present, a

Table 1
ASVAB Subtests

SUBTESTS
General Science (GS)
Arithmetic Reasoning (AR)
Word Knowledge (WK)
Paragraph Comprehension (PC)
Numerical Operations (NO)
Coding Speed (CS)
Automotive/Shop Information (AS)
Mathematics Knowledge (MK)
Mechanical Comprehension (MC)
Electronics Information (EI)

recruit desiring to enter any Military Occupational Specialty (MOS) in Armor must obtain a minimum score of 85 on the Combat Operations (CO) aptitude composite; CO is composed of the Arithmetic Reasoning, Coding Speed, Automotive/Shop Information, and Mechanical Comprehension standardized subtests. Currently these two ASVAB scales define the entrance requirements for Armor.

Testing Literature Review

Paper-and-Pencil Tests. Several attempts have been made to improve upon CO as a predictor of M60A1 tank crewman performance (see Table 2 for summaries). Greenstein and Hughes (1977) administered 11 specialized paper-and-pencil tests to Armor trainees prior to training. These tests included, for example, Visual Memory, Attention-to-Detail, and Locations Tests (Lauer, 1952). In addition, AFQT and three aptitude area scores (Combat Operations, Field Artillery, and Motor Maintenance) from the Army Classification Battery (forerunner of the ASVAB) were obtained. These measures were then related to performance on tests of tank firing, driving and loading. Significant intercorrelations were obtained among the 11 paper-and-pencil tests and the aptitude area scores, indicating that the tests were probably tapping a generalized aptitude rather than the job specific aptitudes for which they were developed. CO did not correlate with any of the criterion measures, although seven of the 11 paper-and-pencil tests were predictive of loading errors, as were three of the four ASVAB composites (FA, MM, and AFQT). Five paper-and-pencil tests and AFQT were predictive of driving performance. The results were viewed "as broadly indicating the existence of empirically identified relations between a class of predictor variables and criterion performance in driving and loading" (p. 18).

In contrast to the Greenstein and Hughes (1977) effort using Armor trainees, Eaton (1978) implemented concurrent validation research with incumbent unit tank commanders (TC) and gunners. He used seven of the Greenstein and Hughes paper-and-pencil tests and added two tests to the list of potential predictors, Mechanical Abilities and Object Completion. Using the criterion measure of total score on main gun tank qualification firing (Table VIII) resulted in no significant correlations for TC performance; only the Locations Test predicted gunner performance.

Eaton, Bessemer and Kristiansen (1979) searched for combinations of ASVAB subtests and specialized paper-and-pencil tests which would predict trainee and unit soldier performance in tank gunnery and driving. Initial results with trainees identified six gunnery predictors and seven driving predictors but the results were not replicated with either a second sample of trainees or a sample of gunners and TC.

Maitland, Eaton, and Neff (1980) conducted an extensive crossvalidation of the ASVAB predictors initially identified by Eaton, et al. (1979). Predictor equations resulting from this research were used in 1979 and 1980 by the Armor Center for assigning soldiers to training as tank drivers or as gunner/loaders. The need for these equations was eliminated when a subsequent change in training policy led to cross training of crewmen on all positions.

Table 2
Correlations Obtained for Paper-And-Pencil Tests and
Firing, Driving and Loading Criteria Across Three Research Efforts

TESTS	FIRING CRITERIA				DRIVING CRITERIA				LOADING CRITERIA	
	Greenstein & Hughes (1977)	Eaton (1978)		Eaton, Bessemer, & Kristiansen (1979)	Greenstein & Hughes (1977)	Eaton (1978)	Bessemer, & Kristiansen (1979)	Eaton, Bessemer, & Kristiansen (1979)	Greenstein & Hughes (1977)	
		TC	GNR							
Attention to Detail	.27**	.26	.10	N/R	N/R	.32**	-.10	N/R	.16	
Patterns Test	.11	.04	-.21	N/R	N/R	.50***	-.26	N/R	.06	
Related Forms	.03	N/A	N/A	N/R	N/R	.23	N/A	N/R	.25**	
Locations	.19	.13	-.30*	N/R	N/R	.47***	-.16	N/R	.31**	
Army Perceptual Speed	-.02	N/A	N/A	N/R	N/R	.22	N/A	N/R	.08	
Visual Recognition	-.23	-.02	-.02	.21**	N/R	.32**	.10	N/R	.23**	
Visual Memory	.12	-.02	-.14	.22**	N/R	.44***	.08	.17**	.39**	
Speed of Perception	.10	-.21	.09	N/R	N/R	.23	.17	N/R	.31**	
Lateral Perception Span	.06	.03	.17	N/R	N/R	.20	.33*	.29**	.33**	
Reaction to Signals	-.07	N/A	N/A	N/R	N/R	.15	N/A	N/R	.30**	
Simulated Zeroing	.25	N/A	N/A	N/R	.20**	-.20	N/A	N/R	-.06	
Object Completion	N/A	.14	.01	.21**	N/R	N/A	.19	N/R	N/A	
Mechanical Abilities	N/A	.26	-.09	N/R	N/R	N/A	.21	N/R	N/A	
ASVAB Subtests										
Atten. to Detail	N/A	N/A	N/A	N/R	.26**	N/R	N/A	N/A	N/A	
Word Knowledge	N/A	N/A	N/A	.20**	N/R	N/R	N/A	N/R	N/A	
Mech. Comprehension	N/A	N/A	N/A	.25**	N/R	N/R	N/A	N/R	N/A	
Math. Knowledge	N/A	N/A	N/A	.18*	N/R	N/R	N/A	N/R	N/A	
Num. Operations	N/A	N/A	N/A	N/R	N/R	N/R	N/A	.17**	N/A	
Arith. Reasoning	N/A	N/A	N/A	N/R	N/R	N/R	N/A	.21**	N/A	
Elec. Information ^a	N/A	N/A	N/A	N/R	N/R	N/A	N/A	.18**	N/A	
Auto. Information ^a	N/A	N/A	N/A	N/R	N/R	N/A	N/A	.34**	N/A	
Classif. Inv. - Elec. ^a	N/A	N/A	N/A	N/R	N/R	N/A	N/A	.26**	N/A	

NOTE: N/A - Not Administered. N/R - Not Reported.

^aUsed in earlier versions of the ASVAB (before 1980).

* $p < .10$

** $p < .05$

*** $p < .01$

This research on the current Armor selection process indicates that ASVAB scores tend to correlate with performance but, more often than not, the obtained relationships fail to crossvalidate. One explanation for this is the difficulty in obtaining reliable measures of criterion performance. Tests are seldom administered the same way twice, and gunnery tables are not necessarily conducted identically more than once, especially among trainees. In addition, considerable difficulty exists in obtaining relevant criteria. Predictions of gunner performance, for example, have had to rely on measures of crew rather than individual performance as criteria. Another explanation is that historically paper-and-pencil tests have been designed as measures of general abilities, not job specific aptitudes, and thus lack the requisite behavioral consistency with criterion measures.

Efforts to measure specific Armor crewman aptitudes through the development of specialized paper-and-pencil tests have proved no more fruitful than earlier efforts with the ASVAB. However, the trend initiated by the Greenstein and Hughes (1977) attempt to use tests which tapped specific job aptitudes such as acquiring targets (Locations Test), troubleshooting (Attention to Detail), and zeroing (Simulated Zeroing Test) paved the way for the use of actual Armor equipment as well as high fidelity simulators in job aptitude testing. Measuring job aptitude from part task performance on critical portions of the overall job has been referred to as job sample testing (Campion, 1972).

Job Sample Tests. The potential of job sample tests as predictors of performance in manual or mechanical occupations has been examined because of the low validity of paper-and-pencil aptitude tests. Hinrichs (1970) supported an earlier finding of Fleishman (1960) when he noted that "different ability requirements for initial stages of learning in comparison with ability requirements at the final stages of proficiency can have important implications for the prediction of ultimate performance on any task" (p. 56). He concluded that for an applied setting, job sample tests or training progress measures would likely provide better performance prediction than would basic ability tests. He advocated structuring the tests to measure final proficiency skills, not initial proficiency skills.

Wernimont and Campbell (1968) were among the first to distinguish between the two approaches, referring to basic ability tests such as ASVAB or psychomotor tests as "signs" of successful work performance and job sample tests as "samples" of work performance which are behaviorally consistent with the job itself. The behavioral consistency notion is especially important for jobs where job knowledge and job ability are not equivalent. Certain jobs appear to be more amenable to the job sample predictor test approach than others. Particular examples are those jobs involving object manipulation such as typing, bulldozing, welding, or keypunching (Muchinsky, 1975). Paper-and-pencil tests might allow job applicants to demonstrate job-relevant knowledge but not ability.

The advantages offered by the job sample approach include increases in the job relevance of the test and improvement in the applicants' perceptions of the fairness of the testing process (Schmidt, Greenthal, Hunter, Berner, & Seaton, 1977) and significant increases in correlations between predictors and criteria (Siegel & Bergman, 1975). However, one disadvantage involves practicality. Because they are usually individually administered, job sample

tests require considerable time and resources. In the future, it is possible that this disadvantage may be overcome with the development of computer-controlled simulators which may obviate the use of operational equipment and numerous test administrators. A second disadvantage is that, as originally conceived, job sample tests were to be used in selecting from among applicants presenting themselves as qualified for a job, not from among personnel requesting training for specific job skills, an obvious need in any large organization. While it is clear that job sample testing is useful for the selection of skilled workers (Gael, Grant & Ritchie, 1975) and avoids some of the pitfalls of paper-and-pencil testing (Schmidt et al., 1977), it is not so clear how these tests can be used as measures of the trainability or the future job performance of untrained applicants.

Addressing this issue, Siegel and Bergman (1975) described a job learning approach to performance prediction which was an offshoot of the job or work sample testing approach discussed by Campion (1972), O'Leary (1973), and Asher and Sciarrino (1974). They compared the validity of their miniature job training and evaluation approach to that of the Navy's tests for machinists and found theirs to be superior. Although Cohen and Penner (1976) questioned Siegel and Bergman's statistical analyses, they did encourage further research on the job learning approach.

While the Siegel and Bergman article first drew attention to this new approach in the United States in 1975, researchers at the Industrial Training Research Unit at Cambridge University had been conducting research using a similar approach since 1968 (Downs, 1968). Their approach was called trainability assessment and was defined as a "practical interview which takes the form of an instruction period followed by a test on what has been demonstrated" (Smith & Downs, 1975, p. 39). The development of trainability assessments requires an initial job analysis followed by the selection of critical tasks for inclusion in the assessment.

The selected tasks must "1) be based on crucial elements of the job, 2) use only such skill and knowledge as can be imparted during the learning period, 3) be sufficiently complex to allow a range of observable errors to be made, and 4) be capable of being carried out in a reasonable time" (p. 39). Trainability assessment has been demonstrated to be successful in selecting electronic assemblers (Smith, 1972), fork lift truck drivers (Downs, 1972), and sewing machine operators (Downs, 1973).

Both the job sample approach for selecting from among job incumbents and the trainability assessment approach for selecting from among trainees have been used in military testing research. Eaton (1978) applied the job sample approach to the prediction of tank gunnery performance by using job incumbents in an Armor unit (i.e., TC and gunners) who were tested on several job skill tests. These tests were administered using a table top tank gunnery simulator (Willey Burst-on-Target Trainer), the Tank Crew Gunnery Skills Test contained in TC 17-12-5 and a mini-tank (subcaliber) range. Criterion data were obtained from the unit's annual tank gunnery qualification exercise and consisted of such measures as total crew score and number of successful stationary precision engagements. Eaton reported significant zero-order correlation coefficients (see Table 3). This was viewed as a preliminary effort in the area of job sample testing in a military context but one which showed promise for improvement over previous paper-and-pencil testing approaches.

Table 3
Correlations Between Job Sample Tests
and Gunnery Criteria
(Eaton, 1978)

Variable	Gunners (N=27)		Tank Commanders (N=40)	
	Total Score	Successful Engagements ^a	Total Score	Successful Engagements ^b
Willey BOT Time	.04	.38**		
Willey BOT Hits	-.13	.04		
FMTRC ^c : Table VII(Moving)	-.06	-		
Table IV(Stat.)	.14	-.30		
TCGST ^d : Gun Laying Time			.24	.37**
Ranging Time			.26	.10
Ranging Error			.07	.08

^aBattlesight engagements.

^bPrecision-stationary engagements.

^cField Mini-Tank Range Complex, TC 17-12-6.

^dTank Crew Gunnery Skills Test, TC 17-12-5.

**p < .01

The most recent research in tank gunnery performance prediction was conducted in three major phases by Eaton, Johnson, and Black (1980) (see Table 4). The first phase, a concurrent validation effort among trained tank gunners, resulted in the identification of two job sample tests which were predictive of gunnery performance: diamond tracking error and round sensing error. In the second phase of the research samples of trained gunners and trained drivers were tested. The diamond tracking error relationship replicated but the round sensing did not. However, when crossvalidation techniques were employed for gunners in the second phase using regression weights from the first, the result was a significant correlation. A test of the difference in job sample test performance between drivers and gunners revealed no significant effect, indicating that the tests might reflect gunnery aptitude rather than achievement, because drivers had received no gunnery training.

With tentative evidence that the job sample tests as constructed might be indicative of aptitude, the final phase of research was initiated. The trainability assessment approach was used with two groups of gunner trainees; one group was tested during their tenth week of training and the other group was tested prior to training. Significant correlations were obtained between the diamond tracking test and several gunnery performance measures for both tenth and initial week trainees. In contrast to findings during the second phase, trainees with experience (tenth week) performed significantly better on the trainability assessment tests than did trainees without experience (initial week).

Although these studies seem at first to be distressingly inconsistent, a closer look reveals several encouraging trends. Attempts to predict training performance, as measured by testing soon after the soldier had completed driving or gunnery training, were more often successful than attempts to predict performance of experienced drivers or gunners. This is consistent with the position taken by Brown and Ghiselli (1952), by Fleischman (1957), and by Hinrichs (1970), that predictors of trainability are not necessarily predictive of job proficiency.

The results of these studies suggest that continued research on ASVAB measures and job sample tests as predictors of trainability in Armor would be worthwhile. With the introduction of the M1 tank and the new training it requires, investigation of trainability should focus on both the new composites of ASVAB scores and on additional job sample tests.

Purpose of the Research

The purpose of the current research effort is threefold. The first major emphasis was to examine the ASVAB subtest scores of soldiers entering M1 training and determine whether ASVAB subtests, as existing aptitude area scores or in new composites, could be used to predict success in M1 training. The second was to test certain background variables and personal characteristics of soldiers for their ability to improve the prediction provided by the ASVAB. The variables to be examined were reading skills, education, age, dominant hand, and whether the soldier wore glasses.

Table 4

Correlations Between Job Sample Tests and
Gunnery Performance Criteria for Trained and Untrained Crewmen
(Eaton, Johnson, & Black, 1980)

<u>Phase I: Trained Gunners</u>	<u>N</u>	<u>1st Round Hits</u>	<u>2nd Round Hits</u>	<u>Moving Tgt. Hits</u>	<u>Table VI Score</u>
Diamond Tracking Error	26	.50**	.18	.26	.41**
Round Sensing Error	31	.29	.35	-.09	.34*
<u>Phase II: Trained Gunners</u>					
Diamond Tracking Error	24	.43**	.46**	.41**	.49**
Round Sensing Error	24	.33	.35*	.36*	.41**
Unit Weighted Error Composite	24	-	-	-	.64**
<u>Phase III: Gunners-10 Weeks</u>					
Diamond Tracking Time	57	.26	-	.15	.32**
Diamond Tracking Error	57	.24**	-	.03	.25**
Round Sensing Error	57	-	.08	-	.08
<u>Phase III: Gunners-No Training</u>					
Diamond Tracking Time	31	-.12	-	.08	-.08
Diamond Track Error	31	-.11	-	.15	-.06
Round Sensing Error	31	-	-.11	-	-.26

* $p < .10$

** $p < .05$

*** $p < .01$

The third purpose was directed toward development and evaluation of M1 trainability assessment tests¹ to augment the ASVAB prediction. The tests were based on tasks selected from the analyses of Black and Kraemer (1980) and the techniques used were similar to those pioneered by the Cambridge University group (Smith & Downs, 1975). The tasks selected were gunner tracking, target acquisition, operation of the M1 fire control computer, and round sensing. A fifth test covered using the M1 Technical Manual (TM), because of reports from M1 crewmen that the TM was difficult to use.

The criteria were training test scores, main gun firing hits, and instructors' evaluations of soldiers' proficiency. The training test scores and main gun firing data were to be provided by the training brigade because both testing and firing were under their control.

A twofold standard of success was set for every potential predictor: the predictor-criterion correlation must crossvalidate to a second group of soldiers, and it must improve on the prediction provided by the CO aptitude area score and the AFQT of the ASVAB.

¹Throughout the remainder of this report, the tests are referred to as job sample tests in order to maintain consistency with earlier research.

METHOD

Subjects

The subjects were soldiers in the first two classes of One Station Unit Training (OSUT) for M1 soldiers at Fort Knox. Criterion data were obtained for 88 soldiers who completed M1 OSUT in the first class (OSUT I). In the second class (OSUT II), data were collected for 60 soldiers who completed training.

Procedure

Data were collected from soldiers in five phases: Reception Station testing (ASVAB and biographic questionnaire), job sample testing, class performance testing, main gun firing (Table VII), and instructor ranking.

Reception Station Testing. During their first days at Fort Knox, soldiers were administered the ASVAB (Version 8A).¹ ASVAB were scored by Reception Station personnel. The standardized scores from the 10 subtests, the unstandardized and standardized CO and GT (General Technical) aptitude area scores, and the AFQT percentile score were coded for the analyses. GT was included as a measure of overall cognitive ability; it is composed of the Arithmetic Reasoning, Word Knowledge, and Paragraph Comprehension subtests. Soldiers' ages were also determined during ASVAB testing.

In addition to the ASVAB, soldiers were tested on the Adult Basic Learning Examination (ABLE), which is a reading skills test, and completed a biographic questionnaire which was developed to obtain information on the soldier's education, dominant hand, and whether or not he wore glasses. A copy of the questionnaire is at Appendix A.

Job Sample Tests. This phase of data collection was also conducted during the first days of the soldier's activities at Fort Knox. Five job sample tests were administered: gunner tracking, target acquisition, operation of the fire control computer, use of the TM, and round sensing. The testing required that each soldier be tested on tracking before being tested on target acquisition. Both tests were conducted using a Willey Burst-On-Target Trainer, a device designed to simulate tank gunnery engagements. The sequence constraint was necessary to ensure equivalent practice on the Willey among all soldiers for the tracking test.

The introductory briefing and initial instructions for soldiers are in Appendix B. The procedures and test materials for the testing are presented in Appendices C through G and described briefly below. The tests are also summarized in Table 5, with the job requirements and criteria for which each was designed and descriptions of the variables from each test used in the analyses.

¹Although they had all been tested on the ASVAB (Version 8A, 8B, 9A, 9B, 10A or 10B) before their enlistment, this second administration was deemed necessary because parallelism of scores on the different forms of the ASVAB had not yet been established.

Table 5
Job Sample Tests, Test Requirements, Training Criteria, and Variables

Job Sample	Test Requirement	Job Requirement	Training Criteria	Job Sample Test Variables
Tracking	Operate simulated gunner's controls to move sight reticle around and within the bounds of a diamond track (4 trials, alternating directions)	Operate tank controls to maintain sight reticle on a target	Main gun firing hits (moving targets)	Speed: (Total Trace/Time), trials 1-4 (TRKSPEED) Accuracy: (1-(Error Trace/Total Trace)), trials 1-4 (TRKACCY) Speed and Accuracy: ((1-(Error Trace/Total Trace))/Time), trials 1-4 (TRKSPAC)
Target Acquisition	Operate simulated gunner's controls to search scenes for partially hidden targets (16 scenes)	Operate tank controls to acquire targets	Main gun firing hits	Time: Average search time (ACQTIME) Accuracy: Proportions of 16 targets located (ACQHITS)
Fire Control Computer	Follow written instructions to enter and verify data in simulated fire control computer (11 data entries in 10 time segments)	Follow TM instructions to enter and verify data in the fire control computer	GATE tests on computer data check and self test	Time: Average time to enter and verify data on 10 segments (COMPTIME) Accuracy: Proportion of 11 entries correct (COMPACCY)
Technical Manual	Locate information in the TM index (3 items), on given pages (5 items), in given sections (5 items)	Locate and use information in the TM	GATE tests requiring use of the TM	Accuracy: Percent of 13 items correct (TMPERCNT)
Round Sensing	Sense the location of impact of simulated rounds fired at target scenes (16 scenes)	Sense the location of impact of fired rounds with respect to the target	Main gun firing hits (subsequent rounds)	Accuracy: Number of rounds sensed within a 2-grid radius of actual burst (RSENSE)

- . Gunner Tracking. This was one of two tests for which soldiers had to use the Willey Burst-On-Target Trainer. A brief instruction and controlled practice session on the use of the Willey's gunner control handles was presented before the test began. For the test, the soldier used the control handles to move the sight reticle in his view within the bounds of a nearly diamond shaped track. Perspective in the scene provided the illusion of a three-dimensional view, as opposed to the two-dimensional figures used by Eaton et al. (1980).

The scorer timed each of the soldier's trials. A plotter connected electrically to the Willey recorded a trace of each trial. The trace was later measured using a template of the track boundary to determine the total length of the trace and the length of the trace that fell outside the bounds of the track. The soldier's speed and accuracy on four trials were used in the analyses. If the soldier's time or tracing was not obtained for at least three of those trials, his scores were coded as missing.

Tracking test materials are at Appendix C.

- . Target Acquisition. This was a job sample analog of the object completion test reported by Eaton (1978). Slides of several scenes with partially hidden targets were prepared for the soldier's briefing. For the test itself, the soldier used the control handles to expose segments of 16 scenes while searching for the hidden target (tank, jeep, or APC) in each scene. The scorer timed the soldier from each target appearance until he "fired", and recorded whether or not he correctly located the target.

The target acquisition test materials are presented at Appendix D.

- . Fire Control Computer. This test was included to tap the soldier's ability to translate written instructions into appropriate actions for entering and checking data in the fire control computer. Instructions were prepared, using the M1 TM as a model, for the soldier to follow to enter various kinds of fire control data into a simulated fire control computer. Ten pieces of data were to be entered. Additionally, the computer always entered the last bit of data incorrectly, requiring that the soldier correct the error by clearing and entering the data again. The scorer recorded whether or not the soldier correctly entered the 10 data items and corrected the last one, and timed the soldier on each of the 10 procedures.

The computer test materials are at Appendix E.

- . Use of the TM. The TM test had 13 items in three parts. The first three items tested the soldier's ability to use the TM index. The next part directed the soldier to turn to specific pages in the TM and therein to find the answers to five questions. The remaining five items required the soldier to find answers within a given section of the TM. The soldier's score was the percent of items answered correctly.

The TM test materials are at Appendix F.

- . Round Sensing. The round sensing task originally reported in Eaton et al. (1980) was considerably changed and reflected a greater point-to-point relationship with the criterion, ability to detect the impact location of a fired round.¹ The formerly binocular task was modified to monocular as would be required in a tank, and the improved response procedure did not require the trainee to change his field of view away from the target area. The soldier viewed various target scenes through a simulated gunner's sight. When he pressed the trigger on his power control handles, a red dot--the round burst--was superimposed on the target scene for one half second. The soldier then manipulated a handle to move a spotlight to the place where he perceived the burst. The scorer used a transparent grid overlay marked at 5 millimeter intervals to determine the two-coordinate deviation of the soldier's sensing from the true location of the burst. Any sensing within a 2-grid-square radius was scored as correct.

The round sensing test materials are presented at Appendix G.

Class Performance Testing. During the fourth, eighth and thirteenth weeks of OSUT, soldiers were administered the Graduate Armor Tests (GATES). The first of these, GATE I, covered only non-Armor topics, and the scores were not used. GATES II and III tested Armor and M1-specific tasks; in OSUT I, 19 GATE tests covered a total of 54 M1 tasks, and in OSUT II 14 GATE tests covered 41 M1 tasks (listed in Appendix H). The tests were developed by the Training Design/Development Division of the Directorate for Training Developments, and scored by NCO from the Tests and Evaluation Branch of the Directorate of Plans and Training. The criterion score used was the proportion of GATE II and III tests for which the soldier passed all steps of all tasks on the first attempt.

¹Round sensing and subsequent fire adjustments are required only when the M1 tank is not fully operational.

The original intent was to obtain the number of steps passed on the fire control computer tests and on tests of tasks performed with the TM. Scores on steps passed were not provided for any tests, however. Furthermore, only one-third of OSUT I soldiers were tested on GATE tests of the fire control computer. And while many of the GATE tests required soldiers to use the TM (74% of the tests in OSUT I and 86% in OSUT II), there was no GATE test which was solely a test of skill on the TM. Plans to relate GATE and job sample tests of the computer and GATE and job sample tests of the TM were therefore modified; the two job sample tests would both be evaluated as predictors of total GATE test performance, because both job samples tests required soldiers to use the TM, and nearly all GATE tests required at least recollection of the TM, if not its actual use during testing.

Main Gun Firing (Table VII). For the first OSUT class, after GATE III, each soldier fired Tank Table VII, which consisted of one stationary tank engagement and five moving tank engagements. All targets were stationary, and were at ranges of 800 to 1200 meters. Observers located in the range control tower noted whether or not each round hit the target. Because the TC selected the targets for the moving engagements in random order, and because dust from the moving tank and from blast effects frequently obscured the targets, the observers were not always able to sense the rounds. Unsensed rounds were coded as missing data.

The observers in the tower were also able to listen to radio communications between TC and gunner, to measure opening times from when the TC announced "Gunner" to the firing of the main gun. Variations in TC fire commands and communications equipment malfunctions resulted in so many instances of missing times that this measure was dropped.

For the second OSUT class, after GATE III testing, soldiers fired 10 engagements, two from a stationary tank followed by eight from a moving tank; all were at stationary targets, at ranges of 800 to 1200 meters. Target hits were again scored by observers in the control tower. Cassette tape recorders were placed in each tank to record gunner/TC radio interactions for later scoring of opening times, but equipment malfunctions resulted in such a considerable loss of data that the measure was again dropped.

Hits were averaged for each soldier across all engagements for which data were obtained. If the number of engagements with data was less than four, the soldier's score was coded as missing.

It had been anticipated that engagements would include moving targets as well as moving tanks, and second rounds would be fired if the first missed. These would provide the appropriate criterion data for the tracking and round sensing job sample tests. However, the range allocated for soldiers' firing on Table VII had no moving targets, and all moving tank engagements required soldiers to fire while approaching the target; thus little or no tracking was required. Additionally, the TC did not have soldiers adjust fire if a round missed the target and thus no round sensing was required. Reports from TC also indicated that soldiers did not acquire targets as they would on the job, but rather the TC laid the gun crosshair on the target before relinquishing control to the gunner. Therefore, the job sample tests of tracking, target acquisition and round sensing were no longer specifically represented in the criteria. Despite these shortcomings in the firing data, the job

sample tests were included in the analyses on the assumption that they still held promise as general measures of psychomotor behavior requiring hand-eye coordination.

Instructor Ranking. Subjective judgments of the soldiers' success in training were obtained in the form of instructor rankings at the end of training. This criterion was not specifically linked by hypothesis to any of the predictors, but rather was intended as a variable representing overall success in training as judged by instructors.

Each instructor of the training brigade (drill sergeants and TC) was asked to rank-order soldiers within platoons according to how he would select soldiers for his own tank crew (instructions are at Appendix I). Each of the six drill sergeants ranked only the soldiers in his own platoon (two drill sergeants for each of the three platoons), but the TC (seven in OSUT I and eight in OSUT II) ranked soldiers with whom they had worked within each of the three platoons. Thus each soldier had rankings from two drill sergeants, and from one to seven or eight TC. The rankings within each platoon from each instructor were linearly transformed to a 50-point scale, with 50 defined as the highest rating and 1 the lowest,¹ to eliminate differences in rank scores due solely to differing numbers of soldiers in the three platoons. Each soldier's rankings were then averaged across all TC and drill sergeants who had ranked him.

Composite Criteria. Two additional criterion variables were constructed based on the GATE scores, firing hits, and instructor rankings. One composite was computed as the sum of the standardized GATE scores and rankings, and another as the sum of standardized GATE scores, hits, and rankings. These were considered to be overall indicators of success in training, based on actual performance and instructor judgment.

¹The transformation of a rank of X on a scale of 1 to N, where 1 is the highest score, to a rank of X' on a scale of 1 to 50 where 50 is highest, is:

$$X' = 50 - \frac{(X - 1)}{(N - 1)} \cdot (49)$$

RESULTS

Data Descriptions

The sample distributions of the data were first examined for differences between the two OSUT classes in the distributions of predictor or criterion variables. Such differences would bring into question the representativeness of the samples and weaken generalizations to the population of soldiers or applications of results Army-wide. The means, standard deviations, and results of initial tests of differences are reported in Appendix J.

ASVAB Subtests and Composites. OSUT I soldiers had average scores that were about three points higher than the averages for OSUT II soldiers on four of the 10 ASVAB subtests: AR, PC, AS, and MK (see Table J.1). When the two OSUT groups were combined, four subtests (NO, CS, AS, and MC) had means significantly higher than the scaled subtest means of 50; the difference was less than two points for NO and from two to four points for CS, AS, and MC. Since the CO aptitude area score on which soldiers are selected for Armor includes these last three scales, it is not surprising (and not a problem) that the subtest scores are higher among M1 OSUT soldiers than in the Army population.

The two ASVAB aptitude area scores (CO and GT) were examined using the conversion to Army standard scores, and AFQT was examined using percentile scores. Converted scores were used so that they could be compared also to scores of soldiers Army-wide. There were no significant differences between OSUT I and OSUT II soldiers on mean scores for any of the three ASVAB composites (see Table J.2). For CO the Army standard score mean for OSUT I and OSUT II combined is four points higher than the scaled mean of 100 ($t = 3.235$, $p < .01$) and five points higher than an observed mean of 98.9 ($t = 4.237$, $p < .01$) for a recent Army-wide sample of nearly 8000 soldiers (Grafton, 1981). But again, because CO is the selection measure for these soldiers, it was expected that their mean CO would be higher than for the Army as a whole. When compared to a recently observed mean CO of 102.7 for a sample of 84 soldier trainees in another Armor specialty, Cavalry Scout (Grafton, 1981), the two point difference in the means is not significant ($t = .656$). The GT average for the combined OSUT does not differ significantly from the test mean of 100 ($t = .415$), the Army-wide mean of 99.0 ($t = 1.210$) or the mean of 101.40 ($t = .351$) for the sample of Cavalry Scout soldiers. On AFQT, soldiers in the two OSUT classes as a group scored very close to the 50th percentile.

Background and Personal Characteristics. Means and standard deviations for the background and personal characteristics are presented in Table J.3. Soldiers in both OSUT averaged about 37 points on the ABLE. OSUT I soldiers averaged three and a half years of high school, while OSUT II soldiers averaged three years, but the difference between them is not statistically significant.

Job Sample Tests. On the job sample tests, performances differed significantly between OSUT I and OSUT II soldiers on four of the nine variables (see Table J.4). Soldiers in OSUT II scored higher on tracking accuracy, being inside the track boundary for 68% of the total trace as

compared to 63% for OSUT I soldiers, and on target acquisition accuracy, where they detected an average of nearly seven (of 16) targets, versus 5.5 for soldiers in OSUT I. Soldiers in OSUT I, on the other hand, scored higher on round sensing accuracy, locating an average of 9.6 rounds out of 20 as compared to 7.5 rounds for OSUT II soldiers, and on computer time, where they averaged about 8 seconds less (51 versus 59 seconds) for each computer procedure than did OSUT I soldiers.

Criterion Measures. Soldiers in OSUT I and OSUT II were not significantly different on the average GATE scores, with means of 88% and 90% respectively (see Table J.5). On GATE scores for TM tasks, the means were nearly equal, 91.9% for OSUT I and 91.6% for OSUT II. The groups are substantially different on main gun firing hits: OSUT I soldiers averaged about 66% hits on six engagements while OSUT II soldiers averaged nearly 80% hits on ten engagements. The difference does not appear to be due to the different number of engagements, in that OSUT II soldiers averaged 81% hits on their first six engagements.

The small differences between OSUT I and OSUT II in instructor rankings is artifactual, reflecting only differences in numbers of soldiers ranked by each instructor. Interrater reliabilities ranged from .75 to .90 (see Table J.6).

Because of the method of constructing the two criterion composite variables, by adding standardized scores of GATE scores and rankings or GATE score, ranking, and firing hits, the mean of each criterion composite for each OSUT is zero.

For both OSUT classes, the correlation of about .36 (see Appendix K) between GATE scores and rankings was significant. Instructors may have been influenced in their rankings by knowledge of soldiers' GATE performance, or by knowledge of soldiers' competencies which would also be reflected in GATE scores; in either event, the high correlations are neither unexpected nor undesirable. Neither GATE scores nor rankings were correlated with firing hits. The two composite variables were highly correlated with the variables they comprise, as well as with each other, in both OSUT (all $p < .01$).

Although some differences were discovered between OSUT I and OSUT II, they are not so large or so many as to preclude the planned analyses, but they may be expected to affect the results. In particular, differences on predictor or criterion scores make it less likely that predictor equations derived from data of one OSUT class will crossvalidate in the other OSUT. The absence of significant differences between OSUT soldiers and an independent sample of Armor trainees on CO, GT, and AFQT, and the numerically small differences on the four ASVAB subtests between OSUT and the scale means increases our confidence that the results will be generalizable to the Armor population and applicable Army-wide.

ASVAB Predictors of OSUT Success

Exploration of the use of ASVAB subtest scores for M1 OSUT began with stepwise multiple regressions of ASVAB subtests on each of the three original criterion measures and the two composite criteria. The analyses

were performed separately for the two OSUT, in order that a double cross-validation could be conducted by applying any regression equations that emerged to the other OSUT. The equations were to be evaluated on the basis of how well they worked (i.e., significance of R) in both OSUT and whether they predicted better than selected existing ASVAB composites (CO, GT, or AFQT).¹

Zero order correlations between ASVAB subtests and composites and the criterion variables for OSUT I and II are presented in Appendix K. For OSUT I, CO was the best of the ASVAB composites in predicting all criteria except firing hits; for OSUT II, AFQT was uniformly the best predictor, again except for hits. None of the three ASVAB composites was correlated significantly with firing hits. For the combined OSUT, CO was the best of the three in predicting all criteria.

The results of the five regressions, including regression weights and multiple R, are summarized in Table 6. The regression procedure identified predictors for GATE scores, rankings, and both combined criteria for both OSUT I and OSUT II, and for firing hits in OSUT I. No predictors were found for firing hits in OSUT II. No more than two subtests were selected for any of the regressions, but six of the ten subtests were chosen at least once. The four subtests comprised in the CO aptitude score (AR, AS, MC, and CS) never entered a regression together, although AS emerged as a predictor of GATE in OSUT II and with CS as a predictor of GATE in OSUT I, and MC (with NO) as a predictor of the combined GATE-hits-rankings criterion in OSUT I. The only result that was replicated--that is, appeared independently in both OSUT--is the selection of AS as a predictor of GATE scores. The regression derived predictor equations all have multiple correlations that exceed the zero order correlations of CO, GT, and AFQT with the criteria.

The first test of these regression derived predictors lay in their ability to predict criteria in an independent group of soldiers. Unit weighted predictions were made for each OSUT criterion as the sum of scores on subtests selected by the regression.² Unit weighted predictions are simpler, more robust, and less influenced by sample differences than regression weighted predictions, and tend to provide virtually the same results (Wainer, 1976). Each predicted criterion score was correlated with the obtained criterion score for each OSUT. Thus for each criterion measure two predictions were being evaluated: the unit weighted subtests from the

¹The multiple regressions were performed using the Statistical Packages for the Social Sciences (SPSS) New Regression procedure as presented in SPSS Release 7-9 (Hull & Nie, 1979). The method enters or removes predictors one at a time according to their multiple correlation with other predictors in the equation and with the criterion. The procedure stops when no additional predictors would add significantly ($p < .05$) to the equation, and when no variable meets the criterion ($p > .10$) for removal.

²Normally, construction of a unit weighted predictor involves adding standardized scores. Because ASVAB subtest scores are already standardized, with a mean of 50 and standard deviation of 10, the transformation was not made.

Table 6

Results of Stepwise Regressions of ASVAB Subtests
on OSUT Criteria

<u>OSUT I</u>				
<u>Criteria</u>	<u>N</u>	<u>Predictor Equation^a</u>	<u>R</u>	<u>R²</u>
GATE Scores	88	(.366)AS + (.197)CS	.434**	.189
Firing Hits	82	(.278)NO	.278*	.078
Instructor Rankings	88	(.275)MK + (.221)PC	.422**	.178
GATE-Rankings	88	(.396)AS + (.281)CS	.510**	.260
GATE-Hits-Rankings	82	(.323)NO + (.280)MC	.478**	.229
<u>OSUT II</u>				
<u>Criteria</u>	<u>N</u>	<u>Predictor Equation^a</u>	<u>R</u>	<u>R²</u>
GATE Scores	58	(.358)AS	.358**	.128
Firing Hits	58	[no predictors]	-	-
Instructor Rankings	58	(.405)NO + (.253)EI	.508**	.258
GATE-Rankings	58	(.353)EI + (.347)NO	.530**	.280
GATE-Hits-Rankings	58	(.298)MK + (.286)AS	.461**	.212

^aRegression weights for standardized subtest scores.

*p < .05.

**p < .01.

regression within an OSUT, and the unit weighted subtests from the regression in the other OSUT. The obtained correlations are presented in Table 7.

The prediction of GATE scores based on AS and CS crossvalidated from OSUT I to OSUT II with a coefficient of .298. Likewise the prediction of GATE scores using AS also crossvalidated from OSUT II to OSUT I with a coefficient of .388. The prediction of rankings using NO and EI, derived from OSUT II data, was also successful for OSUT I, but the prediction of rankings using MK and PC failed to crossvalidate from OSUT I to OSUT II. The prediction of firing hits using NO also failed to crossvalidate to OSUT II. The two combined criteria predictions were crossvalidated in both directions.

The results were sufficiently encouraging to continue the search for a set of subtests to challenge CO as the selector for M1 OSUT. CO, rather than GT or AFQT, was designated as the standard because it had overall the highest correlations with the criteria (Appendix K). The GATE scores were predicted for both OSUT by AS and CS, and instructor rankings by NO and EI. Additionally, the composite of GATE scores and rankings was predicted by both pairs of subtests. Because of these consistencies, because the prediction of firing hits was not possible for OSUT II, and because of the lack of consistency in predicting the composite of GATE scores, rankings, and hits, further analyses of ASVAB predictors focused on the prediction of GATE score and rankings. The next step involved combining the two sets of predictors from the separate regressions of GATE scores, rankings, and the composite in an attempt to identify a single set of subtests which could predict both GATE scores and instructor rankings. The four subtests--AS, CS, NO, and EI--were summed to form a composite labelled CO-M1. The distribution of this variable in OSUT I and OSUT II is shown in Table 8, along with its relationship to CO.

The CO-M1 sample statistics are very close to the CO values for both OSUT I and OSUT II--not surprising in view of their high correlation with CO, the overlap in subtests between CO-M1 and CO, and the high subtest intercorrelations. The average intercorrelation of the four subtests in CO is .332 for OSUT I and OSUT II; the average intercorrelation of the four CO-M1 subtests for OSUT I and II is .331.

The predictive power of CO and CO-M1 for GATE scores and ratings are also similar (see Table 9). In OSUT I, the correlations are higher for CO than for CO-M1, and in OSUT II correlations are higher for CO-M1. For the combined group of 146 soldiers in OSUT I and II, the correlations with CO-M1 are higher. None of these apparent differences between correlations using CO or CO-M1 is statistically significant. The squared correlations, which are often interpreted as the proportion of variance in the criterion accounted for by variance in the predictor, are higher by 2% for CO-M1 with GATE scores, and by 6% for CO-M1 with rankings and with the composites criteria.

Because a standardized CO score of 85 (equivalent to 178 unstandardized) is currently the selection criterion for Armor, and CO-M1 is highly

Table 7

Correlations Between Unit Weighted ASVAB Subtest Composites
and OSUT Criteria

<u>Criteria</u>	<u>Predictors Selected in OSUT I Regression</u>	<u>Correlation With Criteria in</u>	
		<u>OSUT I (N=88)</u>	<u>OSUT II (N=58) (Crossvalidation)</u>
GATE Scores	AS+CS	.425**	.298*
Firing Hits ^a	NO	.278*	-.055
Instructor Rankings	MK+PC	.422**	.204
GATE-Rankings	AS+CS	.511**	.431**
GATE-Hits-Rankings ^a	NO+MC	.478**	.381**

<u>Criteria</u>	<u>Predictors Selected in OSUT II Regression</u>	<u>Correlation With Criteria in</u>	
		<u>OSUT I (N=88) (Crossvalidation)</u>	<u>OSUT II (N=58)</u>
GATE Scores	AS	.388**	.358**
Firing Hits	[no predictors]	-	-
Instructor Rankings	NO+EI	.301**	.502**
GATE-Rankings	EI+NO	.371**	.529**
GATE-Hits-Rankings	MK+AS	.406**	.461**

^aN=82

*p < .01

**p < .05

Table 8
Descriptive Statistics and Intercorrelations
for CO and CO-M1 (Raw Score)

	CO		CO-M1		Correlation
	Mean	Standard Deviation	Mean	Standard Deviation	
OSUT I	211.15	24.73	210.40	23.48	.840**
OSUT II	205.79	20.70	206.59	20.44	.792**
Combined OSUT	209.02	23.21	208.89	22.25	.826**

**p < .01.

Table 9
Correlations Between CO and CO-M1 and OSUT Criteria

<u>OSUT I (N=88)</u>		Corrected for		
<u>OSUT Criteria</u>	Correlations With		Restriction in Range	
	<u>CO</u>	<u>CO-M1</u>	<u>CO</u>	<u>CO-M1</u>
GATE Scores	.411**	.390**	.492**	.465**
Instructor Rankings	.391**	.379**	.467**	.454**
GATE-Rankings	.486**	.466**	.572**	.546**
GATE-Hits-Rankings ^a	.440**	.444**	.523**	.526**

<u>OSUT II (N=58)</u>		Corrected for		
<u>OSUT Criteria</u>	Correlations With		Restriction in Range	
	<u>CO</u>	<u>CO-M1</u>	<u>CO</u>	<u>CO-M1</u>
GATE Scores	.278*	.370**	.413**	.546**
Instructor Rankings	.256**	.506**	.383**	.752**
GATE-Rankings	.323**	.530**	.471**	.768**
GATE-Hits-Rankings	.378**	.470**	.539**	.665**

<u>Combined OSUT (N=146)</u>		Corrected for		
<u>OSUT Criteria</u>	Correlations With		Restriction in Range	
	<u>CO</u>	<u>CO-M1</u>	<u>CO</u>	<u>CO-M1</u>
GATE Scores	.327**	.358**	.422**	.459**
Instructor Rankings	.339**	.421**	.436**	.539**
GATE-Rankings	.421**	.485**	.529**	.607**
GATE-Hits-Rankings ^b	.416**	.452**	.524**	.566**

^aN=82

^bN=140

*p < .05

**p < .01

correlated with CO, distributions along both scales are truncated at the low end.¹ Therefore, a correction for restriction in range was applied to the correlations (Lord & Novick, 1968). The corrections had the expected effect of raising the correlations (see Table 9) because the observed standard deviations of standardized CO scores were lower than the population value of 20 for both OSUT I and OSUT II. The increases in the combined group of soldiers are from .09 to .11 for CO and from .10 to .13 for CO-M1. The differences between CO and CO-M1 in terms of squared correlations with criteria are 3% for GATE scores, 10% for rankings, 9% for the GATE-rankings composite, and 5% for the GATE-hits-rankings composite, always in favor of CO-M1. Again, the differences between correlations CO and with CO-M1 are not statistically significant.

Thus there is some indication that CO-M1 may effect a modest improvement over CO in predicting M1 trainability. At the same time, there is no evidence in these data that CO is not itself an effective predictor, except that it is not correlated with firing hits for these soldiers.

Reading Skill and Biographical Data As Predictors of OSUT Success

The purpose of this second portion of the analysis was to look at reading ability and certain biographic variables that could augment the ASVAB composites (CO or CO-M1) in predicting training performance. Both CO and CO-M1 were included in the analyses because both had crossvalidated as predictors of GATE scores, rankings, and the two combined criteria. Because multiple regression often uncovers relationships that are not obvious by inspection of zero-order correlations, firing hits and the GATE-hits-rankings composite were included among the criteria even though none of the independent variables correlated with the criteria. The variables were reading level (ABLE scores), years of high school, age, dominant hand, and need for glasses. The correlations with the criteria are presented in Appendix K.

Multiple regressions were calculated for each of the five OSUT criteria: GATE scores, firing hits, rankings, the GATE-rankings composite, and the GATE-hits-rankings composite. The regressions forced CO or CO-M1 to enter the equation first and on successive steps entered or removed the other variables according to their predictive power and intercorrelations; the regression results are presented in Tables 10 and 11.² In OSUT I for all criteria there were no additional variables that significantly augment the prediction from CO alone or from CO-M1 alone. In OSUT II, CO is not a significant predictor of GATE scores or firing hits, and no variables were

¹Although the data include 13 soldiers who have CO scores below 178 (85 standardized), it should be remembered that these CO scores were not used for placement of soldiers into Armor, but only for research purposes. Lack of equivalence between the form used here and the form used for placement and lack of test-retest stability may account for the below minimum scores.

²The correlations between CO or CO-M1 and the criteria are different here than in Table 9 because of the difference in numbers of soldiers with sufficient data for the regressions.

Table 10

Results of Stepwise Regressions of CO, Reading Ability,
and Biographic Data on OSUT Criteria

OSUT I (N=74)				
Criteria	Predictor Equation ^a	R	R ²	R ² ch ^b
GATE Scores	(.491)CO	.491**	.241	-
Firing Hits ^c	(.061)CO	.061	.004	-
Instructor Rankings	(.357)CO	.357**	.127	-
GATE-Rankings	(.513)CO	.513**	.263	-
GATE-Hits-Rankings ^c	(.452)CO	.452**	.204	-
OSUT II (N=57)				
Criteria	Predictor Equation ^a	R	R ²	R ² ch ^b
GATE Scores	(.255)CO	.255	.065	-
Firing Hits	(.149)CO	.149	.022	-
Instructor Rankings	(.147)CO + (.274)HSY	.335*	.112	.072
GATE-Rankings	(.164)CO + (.316)AGE	.405**	.164	.087
GATE-Hits-Rankings	(.340)CO	.340**	.116	-

^aCO entered first. Regression weights for standardized variables.

^bIncrements to R² with CO alone.

^cN=82.

*p < .05

**p < .01

Table 11

Results of Stepwise Regressions of CO-M1, Reading Ability,
and Biographic Data on OSUT Criteria

OSUT I (N=88)				
Criteria	Predictor Equation ^a	R	R ²	R ² ch ^b
GATE Scores	(.439)CO-M1	.439**	.192	-
Firing Hits ^c	(.139)CO-M1	.139	.019	-
Instructor Rankings	(.327)CO-M1	.327**	.107	-
GATE-Rankings	(.464)CO-M1	.464**	.215	-
GATE-Hits-Rankings ^c	(.455)CO-M1	.455**	.207	-
OSUT II (N=58)				
Criteria	Predictor Equation ^a	R	R ²	R ² ch ^b
GATE Scores	(.351)CO-M1	.351**	.123	-
Firing Hits	(-.037)CO-M1	.037	.001	-
Instructor Rankings	(.469)CO-M1	.469**	.220	-
GATE-Rankings	(.498)CO-M1	.498**	.248	-
GATE-Hits-Rankings	(.437)CO-M1	.437	.191	-

^aCO entered first. Regression weights for standardized variables

^bIncrements to R² with CO alone.

^cN=82.

*p < .05

**p < .01

found to add to CO to yield a significant prediction. Rankings, on the other hand, are not reliably predicted from CO scores alone, but with years of high school added there is a significant prediction. And for the combined GATE-rankings criterion, CO is augmented by age. In both of these predictions, the contribution of the added variable is nearly twice the contribution from CO alone. When CO-MI enters the predictions first, no other variables are added. In predicting hits, CO-MI is not a significant factor.

To crossvalidate the prediction of rankings using CO and years of high school, and the GATE-rankings criterion using CO and age, unit weighted predictor composites were constructed as the sum of standardized predictor scores. The means and standard deviations used to standardize the predictor variables were derived from data of all soldiers from both OSUT, as these represented the most stable estimates. Both sets of predictors derived in OSUT II analyses had significant correlations with the relevant criteria in OSUT I (see Table 12). In fact, both unit weighted composites correlated highly with all criteria except firing hits in each OSUT. In the combined group of soldiers, the correlations between the four predictors--CO, CO-MI, CO plus years of high school, CO plus age--and the four criteria (GATE scores, instructor rankings, the GATE-rankings criterion and the GATE-hits-rankings criterion) were all significant, but none of the predictions from CO-MI, CO and age, or CO and high school was significantly better than the prediction from CO alone.

As with the predictions from ASVAB and ASVAB composites, the predictions using background information are able to improve slightly on CO (though not on CO-MI) for both OSUT. The improvements are not statistically significant, nor are they dramatic enough to be considered definitive at this point.

Job Sample Tests As Predictors of OSUT Success

The final set of analyses explored the potential contributions of job sample test variables to predictions of success in OSUT. The nine job sample test variables defined earlier (Table 5) were used. Preliminary examination first focussed on the zero order correlations between the computer and TM test variables and GATE scores, and between the tracking, target acquisition, and round sensing variables and the firing data (Appendix K). Computer speed was significantly correlated with GATE in OSUT I, but not in OSUT II; neither computer accuracy nor the TM test score was correlated with GATE scores in either OSUT. Among the psychomotor job sample test variables, only round sensing accuracy was correlated with firing hits, and that only in OSUT II.

For each of the five criterion measures, multiple regression procedures were used to determine whether any of the relevant job sample tests could add to the predictions from CO, CO and age, CO and years of high school, or CO-MI. For GATE scores, the computer and TM test variables were deemed relevant, and for firing hits the tracking, target acquisition, and round sensing variables were relevant. All job sample test variables were included in regressions on instructor rankings and on the two combined criteria. Four separate regressions on each criterion were used: one forced CO to enter the prediction first, the second entered CO and age first, the third forced CO and high school to be entered first, and the fourth forced CO-MI in first. The relevant job sample test variables were then considered for possible contributions. In this way, the job sample tests acted on only that portion of

Table 12

Correlations Between Unit Weighted
ASVAB and Background Composites, CO, and CO-M1,
and OSUT Criteria

OSUT I (N=88)

Criteria	CO	CO + AGE	CO + HSY	CO-M1
GATE Scores	.411**	.304**	.425**	.390**
Firing Hits ^a	.068	.147	.086	.104
Instructor Rankings	.391**	.450**	.411**	.379**
GATE-Rankings	.486**	.463**	.507**	.466**
GATE-Hits-Rankings ^a	.440**	.471**	.457**	.444**

OSUT II (N=58)

Criteria	CO	CO + AGE	CO + HSY	CO-M1
GATE Scores	.278*	.354**	.278*	.370**
Firing Hits	.144	.080	.104	-.035
Instructor Rankings	.256**	.364**	.370**	.506**
GATE-Rankings	.323**	.433**	.392**	.530**
GATE-Hits-Rankings	.378**	.445**	.420**	.470**

Combined OSUT (N=146)

Criteria	CO	CO + AGE	CO + HSY	CO-M1
GATE Scores ^b	.327**	.315**	.305**	.358**
Firing Hits ^b	.052	.096	.013	.036
Instructor Rankings	.329**	.371**	.378**	.421**
GATE-Rankings	.421**	.450**	.446**	.485**
GATE-Hits-Rankings ^b	.416**	.459**	.442**	.452**

^aN=82.^bN=140.

*p < .05

**p < .01

variance in a criterion that was not already explained by the ASVAB and/or biographic data variables. In terms of utility, it addresses the predictive power of job sample test variables, given that soldiers are already screened on the basis of the ASVAB and/or biographic data variables. The results of the four regressions on each of the five criteria for both OSUT are summarized in Table 13 through 16.

Six of the job sample test variables entered the regressions. For OSUT I soldiers, computer accuracy¹ was entered for all four predictions of instructor rankings, and except for CO-M1, for all predictions of the GATE-rankings criterion. Computer accuracy also entered with computer time in all predictions of the GATE-hits-rankings criterion except with CO-M1. Tracking accuracy was a predictor of the GATE-rankings criterion with CO-M1. The four predictions of GATE scores did not draw in any job sample test variables, nor did the prediction of the GATE-hits-ranking criterion from CO-M1. The four regressions on firing hits yielded no significant predictions.

In OSUT II, computer accuracy was included in three equations to predict GATE scores, all except with CO-M1, and in two equations to predict the GATE-hits-rankings criterion. Round sensing was drawn into the remaining two predictions of the GATE-hits-ranking criterion, as well as into all four predictions of firing hits. Target acquisition time is a factor in two predictions of instructor rankings and in two predictions of the GATE-rankings criterion. Tracking speed was added to one prediction of instructor rankings. No job sample test variables were added to augment the prediction of the GATE-rankings criterion from CO and years of high school or from CO-M1; GATE score and instructor ranking predictions from CO-M1 were also not affected by the availability of job sample test variables. The amount of additional variance explained by the job sample test variables (the change in the squared correlation) ranges from 5% to 11% in both OSUT.

Crossvalidations of the unit weighted predictors (Table 17) for the 27 regression-derived predictor equations resulted in 22 significant cross-validation coefficients. The predictions that did not crossvalidate were the four involving round sensing and firing hits from OSUT II, and the prediction of instructor rankings from CO and computer accuracy from OSUT I.

At first glance, there would appear to be too many dimensions to the analyses to permit interpretation. There are two ASVAB predictors (CO and CO-M1), one of which is also augmented by two biographic variables (age or years of high school). These four, in predicting five criteria, drew in six job sample test variables in various configurations, among two groups of OSUT soldiers. But by considering the intercorrelations among the variables and the nature of the criteria, certain patterns begin to emerge. In these data, the computer accuracy variable was consistently associated with instructor

¹A reasonable explanation of the negative weight on computer accuracy is not immediately obvious; computer accuracy may be acting as a suppressor variable, by explaining variance in the other independent variables already in the equation that is not related to variance in the criteria, or may actually be inversely related to variance in the criteria which is not related to the other independent variables.

Table 13
Results of Stepwise Regressions of CO and
Job Sample Test Variables on OSUT Criteria

OSUT I				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	88	(.411)CO	.411**	-
Firing Hits	81	(.077)CO	.077	-
Instructor Rankings	87	(.469)CO - (.274)COMPACCY	.464*	.068
GATE-Rankings	87	(.543)CO - (.237)COMPACCY	.521**	.051
GATE-Hits-Rankings	81	(.383)CO - (.340)COMPACCY - (.274)COMPTIME	.530**	.099

OSUT II				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	58	(.345)CO - (.263)COMPACCY	.377*	.065
Firing Hits	58	(.167)CO + (.331)RSENSE	.360*	.110
Instructor Rankings	58	(.166)CO - (.299)ACQTIME	.383*	.082
GATE-Rankings	58	(.241)CO - (.273)ACQTIME	.415**	.068
GATE-Hits-Rankings	58	(.445)CO - (.266)COMPACCY	.458**	.066

^aCO entered first. Regression weights for standardized variables.

^bIncrement to R² with CO alone.

*p < .05

**p < .01

Table 14
Results of Stepwise Regressions of CO, Age, and
Job Sample Test Variables on OSUT Criteria

OSUT I				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	88	(.421)CO + (.043)AGE	.413**	-
Firing Hits	81	(.036)CO + (.168)AGE	.180	-
Instructor Rankings	87	(.412)CO + (.223)AGE - (.264)COMPACCY	.512**	.063
GATE-Rankings	87	(.514)CO + (.112)AGE - (.232)COMPACCY	.532**	.048
GATE-Hits-Rankings	81	(.338)CO + (.197)AGE - (.338)COMPACCY - (.268)COMPTIME	.563**	.097

OSUT II				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	58	(.257)CO + (.228)AGE - (.257)COMPACCY	.432*	.062
Firing Hits	58	(.161)CO + (.017)AGE + (.353)RSENSE	.361	.106
Instructor Rankings	58	(-.004)CO + (.379)AGE - (.385)ACQTIME	.513**	.128
GATE-Rankings	58	(.060)CO + (.403)AGE - (.364)ACQTIME	.551**	.114
GATE-Hits-Rankings	58	(.275)CO + (.326)AGE + (.289)RSENSE	.527**	.078

^aCO and Age entered first. Regression weights for standardized variables.

^bIncrement to R² with CO and Age.

*p < .05

**p < .01

Table 15
Results of Stepwise Regressions of CO, Years of High School, and
Job Sample Test Variables on OSUT Criteria

OSUT I				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	88	(.386)CO + (.144)HSY	.435**	-
Firing Hits	81	(.069)CO + (.052)HSY	.093	-
Instructor Rankings	87	(.441)CO + (.149)HSY - (.272)COMPACCY	.487**	.067
GATE-Rankings	87	(.507)CO + (.190)HSY - (.234)COMPACCY	.553**	.050
GATE-Hits-Rankings	81	(.340)CO + (.201)HSY - (.358)COMPACCY -(.304)COMPTIME	.565**	.112
OSUT II				
Criteria	N	Predictor Equation ^a	R	R ² _{ch} ^b
GATE Scores	58	(.320)CO + (.118)HSY - (.268)COMPACCY	.394*	.067
Firing Hits	58	(.172)CO + (.025)HSY + (.333)RSENSE	.361	.109
Instructor Rankings	58	(.151)CO + (.278)HSY + (.271)TRKSPEED	.458**	.072
GATE-Rankings	58	(.272)CO + (.232)HSY	.394**	-
GATE-Hits-Rankings	58	(.399)CO + (.222)HSY - (.276)COMPACCY	.506**	.071

^aCO and Years of High School (HSY) entered first. Regression weights for standardized variables.

^b Increment to R^2 with CO and HSY.

* $p < .05$

$$**p < .01$$

Table 16
Results of Stepwise Regressions of CO-M1 and
Job Sample Test Variables on OSUT Criteria

OSUT I				
Criteria	N	Predictor Equation ^a	R	R ² ch ^b
GATE Scores	88	(.390)CO-M1	.390**	-
Firing Hits	81	(.116)CO-M1	.116	-
Instructor Rankings	87	(.424)CO-M1 - (.225)COMPACCY	.432**	.048
GATE-Rankings	87	(.394)CO-M1 + (.232)TRKACCY	.502**	.051
GATE-Hits-Rankings	81	(.431)CO-M1	.431**	-
OSUT II				
Criteria	N	Predictor Equation ^a	R	R ² ch ^b
GATE Scores	58	(.370)CO-M1	.370**	-
Firing Hits	58	(-.006)CO-M1 + (.319)RSENSE	.320	.101
Instructor Rankings	58	(.506)CO-M1	.506**	-
GATE-Rankings	58	(.530)CO-M1	.530**	-
GATE-Hits-Rankings	58	(.491)CO-M1 + (.237)RSENSE	.526**	.056

^aCO-M1 entered first. Regression weights for standardized variables.

^bIncrement to R^2 with CO-M1.

*p < .05

$$**p < .01$$

Table 17

Correlations Between Unit Weighted Predictions
Including Job Sample Test Variables and OSUT Criteria

Criteria	Predictors Selected in OSUT I Regressions	Correlations With Criteria In	
		OSUT I(N=88)	OSUT II(N=58) (Crossval.)
GATE Scores	[no new predictors]	-	-
Firing Hits	[no predictors]	-	-
Instructor Rankings	CO - COMPACCY	.442**	.233
	CO + AGE - COMPACCY	.502**	.362**
	CO + HSY - COMPACCY	.468**	.369**
	CO-M1 - COMPACCY	.406**	.391**
GATE-Rankings	CO - COMPACCY	.475**	.363**
	CO + AGE - COMPACCY	.478**	.479**
	CO + HSY - COMPACCY	.516**	.445**
	CO-M1 + TRKACCY	.492**	.343**
GATE-Hits-Rankings	CO - COMPACCY - COMPTIME	.536**	.382**
	CO + AGE - COMPACCY - COMPTIME	.565**	.474**
	CO + HSY - COMPACCY - COMPTIME	.569**	.463**

Criteria	Predictors Selected in OSUT II Regressions	Correlations With Criteria In	
		OSUT I(N=88) (Crossval.)	OSUT II(N=58)
GATE Scores	CO - COMPACCY	.342**	.368**
	CO + AGE - COMPACCY	.288**	.431**
	CO + HSY - COMPACCY	.384**	.367**
Firing Hits ^a	CO + RSENSE	.113	.347**
	CO + AGE + RSENSE	.168	.264*
	CO + HSY + RSENSE	.122	.269*
	CO-M1 + RSENSE	.143	.228
Instructor Rankings	CO - ACQTIME	.425**	.377**
	CO + AGE - ACQTIME	.481**	.469**
	CO + HSY + TRKSPEED	.334**	.453**
GATE-Rankings	CO - ACQTIME	.472**	.415**
	CO + AGE - ACQTIME	.481**	.524**
GATE-Hits-Rankings ^a	CO - COMPACCY	.452**	.428**
	CO + AGE + RSENSE	.472**	.526**
	CO + HSY - COMPACCY	.468**	.486**
	CO-M1 + RSENSE	.447**	.477**

^aFor OSUT I, N=82.

*p < .05

**p < .01

rankings of OSUT I soldiers, but with a negative weight. This occurred with CO and with CO-M1, and both with and without the biographic variables. Because CO and CO-M1 are so highly correlated, the key elements are narrowed down to CO aptitude, rankings, and a negatively weighted contribution from the computer accuracy score. Either computer accuracy is related to a portion of the CO score which is not related to rankings, or it is inversely related to a portion of the rankings variance which is not related to the CO aptitude measure. The former explanation is more plausible, that computer accuracy and CO score have something in common, such as reading or test taking skill, that is not a factor in instructor rankings. Black (1980) suggests that a high CO score reflects a high mental category. When the criterion included firing hits as well as rankings, computer accuracy was still a negative predictor, but computer test time also entered. The two computer variables are highly correlated, and overall the pattern suggests that the contribution to the prediction from the computer time score is only important when computer accuracy variance is removed. Speed on the computer test appeared to be largely a matter of repeating a constant sequence of steps for each procedure. Soldiers who picked up the rhythm by simple rote repetition were soon performing with only brief reference to the TM.

In OSUT II, computer accuracy was related to GATE scores, again with a negative weight. Extending the explanation given above, it would appear that CO and computer accuracy have in common something that is not a factor in GATE test performance, such as careful attention to detail; both the computer test and the ASVAB are strictly scored with no tolerance for performance that is only almost correct, while GATE tests were scored less exactly. Target acquisition time tended to be associated with instructor rankings, which may reflect an underlying quick-decision dimension that is highly ranked. Round sensing was a recurring predictor of firing hits in OSUT II, but the relationship did not hold up for OSUT I soldiers. Statistically, this is probably because OSUT I soldiers were better on the round sensing task while OSUT II soldiers scored more hits in firing. The differences in firing accuracy as mentioned earlier, may be a function of different test conditions; possible causes of round sensing differences are not obvious.

An exploratory set of regressions focussed on only the job sample test variables as predictors of the OSUT criteria, as a check on the relationships described above. The regression results are presented in Table 18. Firing hits were not predicted by any of the job sample test variables among OSUT I soldiers. The tracking speed/accuracy measure emerged as the only predictor of GATE scores, and target acquisition time as the only predictor of instructor rankings. For the combined criterion of GATE scores and rankings, tracking accuracy and target acquisition time formed the equation, and for the three-criteria composite, the predictors were the two computer variables. Again, computer accuracy had a negative regression weight. For OSUT II soldiers, no predictors were found for GATE scores among the job sample test variables. Firing hits were predicted by round sensing accuracy alone and target acquisition time was selected as predictor for rankings (as in OSUT I) and for both composite criteria.

The crossvalidations of variables derived from regressions on OSUT I soldiers to data obtained from OSUT II soldiers failed for every relationship except for the prediction of rankings; target acquisition time was selected

Table 18
Results of Stepwise Regressions of
Job Sample Test Variables
on OSUT Criteria

OSUT I				
Criteria	N	Predictor Equation ^a	R	R ²
GATE Scores	87	(.339)TRKSPAC	.339**	.115
Firing Hits	82	[no predictors]	-	-
Instructor Rankings	87	-(.302)ACQTIME	.302**	.091
GATE-Rankings	87	(.279)TRKACCY		
		- (.236)ACQTIME	.399** ^b	.159
GATE-Hits-Rankings	82	-(.472)COMPTIME		
		- (.316)COMPACCY	.422** ^c	.178
OSUT II				
Criteria	N	Predictor Equation ^a	R	R ²
GATE Scores	60	[no predictors]	-	-
Firing Hits	60	(.325)RSENSE	.325**	.106
Instructor Rankings	60	-(.348)ACQTIME	.348**	.121
GATE-Rankings	60	-(.344)ACQTIME	.344**	.118
GATE-Hits-Rankings	60	-(.227)ACQTIME	.227*	.077

NOTE: For all one-variable predictor equations, the cross-validation coefficients for unit weighted predictors are identical to the zero order correlations in Appendix K.

^aRegression weights for standardized variables.

^bFor the unit weighted predictor (- TRKACCY - ACQTIME), the correlation with the criterion in OSUT I is .396 ($p < .01$); in OSUT II it is .198 (p not significant).

^cFor the unit weighted predictor (- COMPTIME - COMPACCY), the correlation with the criterion in OSUT I is .398 ($p < .01$); in OSUT II it is .118 (p not significant).

* $p < .05$

** $p < .01$

as the only predictor of rankings for both OSUT, with correlations of .302 and .348. From OSUT II to OSUT I, round sensing accuracy as a predictor of firing hits did not crossvalidate, but target acquisition was significantly correlated with both composite criteria as well as with rankings. This is consistent with the results of regressions that included CO where target acquisition hits was linked with rankings, and round sensing was associated with firing hits for OSUT II soldiers.

The attempts to use job sample test data to augment ASVAB and background data predictions of training performance were no more or less successful than attempts using only the ASVAB or ASVAB plus biographic data. The moderate improvements to CO provided by job sample test variables were not statistically significant. But the majority of the predictions did crossvalidate, and certain predictors and criteria tend to be consistently associated.

Summary of Results

The three sets of regressions--ASVAB subtests, ASVAB composites with biographic data, and ASVAB composites with background data and job sample test data--produced the following results:

1. The regressions using ASVAB subtests yielded a set of two subtests (AS and CS) which correlated highly with GATE scores for both OSUT, and a second set (EI and NO) which predicted instructor rankings for both OSUT. The composite of the four subtests (labelled CO-MI) correlates higher than CO--but not reliably so--with GATE scores, rankings, and the combined GATE-rankings criterion for the combined OSUT.
2. When biographic data were considered as predictors to augment CO, both age and high school emerged as factors. The two variables are correlated in both OSUT, and it is likely that random error, to which multiple regression is highly sensitive, may be the reason that both, rather, than one or the other, is chosen.
3. Finally, the exploration of job sample tests, to determine whether they could enhance prediction of success in training, yielded a vast array of results. Six job sample test variables--two on the computer and four from the three psychomotor tests--improved ASVAB and biographic data predictions, some by as much as 15%; neither biographic nor job sample test variables correlated higher than the CO with the criteria. Certain relationships appeared consistently:
 - . Computer accuracy and GATE scores.
 - . Computer accuracy and instructor rankings.
 - . Computer time (added to CO and computer accuracy) and firing hits (added to GATE scores and rankings).
 - . Target acquisition time and instructor rankings.
 - . Round sensing accuracy and firing hits (only in OSUT II).

DISCUSSION

Earlier research (Campbell & Drucker, 1981) examined the implications of setting various cut scores on CO on the distribution of GATE scores; the data used were the OSUT I data reported here. The conclusion at that time, based on those data, was that the current CO criterion of 85 (standardized) for entry into M1 OSUT should not be changed. With the larger data set explored here, there is little indication that a new aptitude composite (CO-M1) that includes tests of numeric operations rather than arithmetic reasoning and electronics information rather than mechanical comprehension would improve on CO in predicting training success. The predictions from CO-M1 are not significantly better than from CO, although they are consistently close.

However, such a composite has intuitive appeal for future use. As equipment, manuals, and job aids become more sophisticated, they take over many of the thinking processes formerly required of soldiers, particularly in algebraic manipulations. The soldier no longer uses formulas. He enters a table with certain parameters and finds the necessary solution. Or he enters the parameters into a fire control computer, and the answer is applied to his firing as a correction without him ever knowing it. In some cases he does not enter the input data; many inputs (e.g., crosswind, cant) are sensed automatically. Basic arithmetic, as measured by NO, may be all he needs. Furthermore, the increased sophistication of the M1 tank has relied on vast amounts of electronics equipment. A person familiar with electronics concepts, who does well on EI, may also be the person who quickly becomes comfortable with and proficient on his M1 tank.

But further research relating success in M1 OSUT to CO-M1 is needed before a recommendation to change the selection criterion is justified. This line of research should also be extended to other MOS in Armor (e.g., for Scout and M60 tank crewman training, because: (a) assignment of Armor soldiers trained on one Armor system or for one crew position to another system or position within Armor should not be further complicated by different aptitudes required in different Armor MOS; (b) a different selection criterion only for M1 OSUT would be cumbersome to implement; and (c) technological advances have also been made on other Armor systems such that CO-M1 may be an improvement over CO as an Armor training selector in general.

The addition of age or years of high school to CO seemed to be particularly effective in predicting instructor rankings, although both unit weighted models were also reliable predictors of GATE scores and the combined criterion. But what is the real predictor--maturity, perseverance, achievement motive, or level of education? Or do both enter by virtue of relationship to a third unexplored variable? These questions cannot be answered from the data.

The job sample testing results are not easily interpreted. There are indications that the approach is sound, although the desired point-to-point relationship between the job samples and actual performance was not achieved here. Somewhat mixed success has been experienced in using such tests to predict job performance (Eaton, 1978; Eaton et al., 1980). Additionally, the relationship between trainability and job performance has not been fully explored, and not at all for M1 crewmen. Follow-up of these soldiers after

they are assigned to units would provide the opportunity to examine the relationship between job performance, trainability, and job sample testing.

Weaknesses in the present research should be mentioned so that results may be interpreted accordingly, and future work may be better planned. A significant and unavoidable problem concerns the nature of the criteria. Hypotheses concerning the prediction of soldiers' ability to operate the fire control computer could not be tested because a definitive criterion measure of that behavior could not be derived from GATE tests. Criteria against which to measure the predictive power of the TM job sample test were not available; GATE tests that did require soldiers to use the TM in fact required only that he read aloud given paragraphs in response to scorer questions. Main gun firing data, which were to serve as criteria for the three psychomotor job sample tests, were contaminated (from the researcher's point of view) by admirable (from the trainer's perspective) coaching and assistance from the TC, as well as the simple fact that range conditions did not provide for moving targets and the firing exercise required no tracking, round sensing, or target acquisition. It was, in fact, training and not a test. As such, it provided data that are likely neither valid nor reliable.

If these criteria are measures of what is meant by "success in training," then the conclusion is clear: use either CO or CO-M1 as the selector. These ASVAB composites were both correlated with GATE scores in both OSUT. But until training criteria can be more reliably measured, biographic information and job sample test results will be of little use in predicting trainability. The fact that the job sample variables did predict some of the variance in the criteria that was not explained by CO or CO-M1 indicates that research on job samples in the Army should not be considered complete.

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Appendix A
Biographic Questionnaire

BIOGRAPHIC QUESTIONNAIRE

NAME: _____ (1-30)
 Last First Initial

SOCIAL SECURITY NUMBER: _____ (31-39)

1. What is the last year of High School you completed? (40)

Freshman _____
 Sophomore _____
 Junior _____
 Senior _____
 GED _____

2. How many years of Vocational or Technical School have you completed? (41)

None _____
 One Year _____
 Two Years _____
 Three Years _____
 Four Years _____

3. How many years of College have you completed? (42)

None _____
 One Year _____
 Two Years _____
 Three Years _____
 Four Years _____

4. Do you usually wear glasses? Yes _____ No _____ (43)
 Contact Lenses? Yes _____ No _____

5. How often have you played video games like Atari or Pong?

Often _____
 A few times _____
 Never _____

How good were you? _____

Outstanding _____
 Pretty good _____
 Fair _____
 Poor _____
 Terrible _____

(44,45)

6. How often have you been on amusement park rides like roller coasters?

Often _____
 A few times _____
 Never _____

How sick did you get? _____

Very sick _____
 Just dizzy _____
 Not at all _____

(46,47)

7. How often have you gone hunting?

Often _____
 A few times _____
 Never _____

How good were you? _____

Outstanding _____
 Pretty good _____
 Fair _____
 Poor _____
 Terrible _____

(48,49)

8. How often have you done target shooting at a stationary target like a bullseye panel?

Often _____
 A few times _____
 Never _____

How good were you? _____

Outstanding _____
 Pretty good _____
 Fair _____
 Poor _____
 Terrible _____

(50,51)

9. How often have you done target shooting at moving targets, like skeet or trap shooting?

Often _____
 A few times _____
 Never _____

How good were you? _____

Outstanding _____
 Pretty good _____
 Fair _____
 Poor _____
 Terrible _____

(52,53)

10. How often have you operated a computer terminal?

Often _____
 A few times _____
 Never _____

(54)

11. Do you have any military experience?

Yes _____ →

Active Duty - How many years? _____ (55)

Reserves or NG - How many years? _____ (56)

Military Academy - How many years? _____ (57)

No
VVVV

ROTC - How many years? _____ (58)

12. Why did you join the Army?

Want to have career in the Army _____

(59)

Want the education offered _____

Want the GI benefits _____

Couldn't find any other job _____

Other (Please Describe): _____

13. Your Enlistment Contract includes your job (Armor) and unit of first assignment. What was the MOST IMPORTANT reason you wanted this contract?

I want to be in Armor _____

(60)

I want this unit of first assignment _____

I want the bonus _____

14. Are you right-handed or left-handed?

Right _____

(61)

Left _____

Appendix B

General Administrative Procedures and Materials
For Job Sample Tests

GENERAL ADMINISTRATIVE PROCEDURES FOR
JOB SAMPLE TESTS

SET UP

1. Ensure all scorers are ready.
2. Ensure all station equipment is ready, including intro tapes and stopwatches, including reading material in waiting area.
3. Ensure four Privacy Act Forms have been filled in with the station traffic flow information.
4. When soldiers arrive, have them remove and stow coats, rain gear, etc.
5. Play intro tape/slide in waiting area. Have soldiers complete Privacy Act Form.
6. Scorer takes the Form for the soldier who goes first to the scorer's station, escorts that soldier to the station.

One soldier will begin at Station 5 (Use of the Manual). Either the Station 4 scorer or the driver may administer and monitor Station 5 for the first soldier.

7. As the soldier completes each station, the scorer should initial the soldier's form, return the soldier to the waiting area and put the form at the place designated for forms. The scorer should then check the forms already there to see if the next soldier is ready to be tested.

NOTE: Restore station conditions, if necessary, before taking next soldier to the station.

8. Scorers should keep the completed scoresheets at their stations until they are collected by the test supervisor.

INITIAL INSTRUCTIONS FOR M1 OSUT SOLDIERS
FOR JOB SAMPLE TESTS

[SLIDE 1] This is the Army's new main battle tank, the Abrams M1.

[SLIDE 2] [SLIDE 3] You are members of the first class of M1 OSUT soldiers at the Armor School at Fort Knox. As a part of your training you may participate in several special projects simply because you are a member of the first M1 class. You are here today to help us in one of those special projects. The people who work here are civilians, employed by the Army, to answer questions the Army has about who will perform well as an M1 tanker.

[SLIDE 4] The M1 tank contains many interesting pieces of equipment and you will learn more about them as you receive basic training. Today we want you to operate some equipment like that which the M1 gunner operates in his tank. Your performance scores will not go into your permanent records. They will be combined with the performance scores of other tankers and used for research purposes only. There are four different tasks which you will perform using these pieces of equipment.

[SLIDE 5] The Willey Burst-on-Target Trainer allows gunners to practice their target identification [SLIDE 6] and target tracking skills.

[SLIDE 7] The Allen round sensing device requires the gunner to locate a target, fire a simulated round of ammunition and [SLIDE 8] locate the point at which the round impacts.

[SLIDE 9] The M1 computer panel simulator allows the gunner to learn and practice the procedures necessary to prepare the main gun for firing [SLIDE 10]. Once the computer has been properly programmed, the gunner is ready to engage targets from his station.

[SLIDE 11] In order for the M1 tank crewman to obtain the information he needs to operate his tank he must become familiar with the M1 Technical Manual or TM. While you are in the Waiting Room between tasks we will give you a copy of one of the M1 Technical Manuals. The task we want you to perform involves finding specific information in the TM and writing it on the paper provided.

Tasks involving equipment are set up at four different locations or stations and the TM task is set up in the Waiting Room. You will be given a sheet of paper now which shows which station you go to first, second, third, and fourth. When you arrive at each station, the instructions for the task will be played for you on a cassette tape player. You should listen carefully to the instructions and do your best to follow them. If you have any questions, an instructor will be available to answer them.

On a sheet of paper showing the order in which you go to each station, you will find a place for you to print your name, social security number, and today's date. Please fill out this form now. Carry this sheet with you from station to station. Smoking is not allowed at the stations. However, smoking is allowed in the entrance hallway where ashtrays are provided. The men's room is located across the hall from station 4. Thank you.

GO TO EACH OF THE FOUR (4) LOCATIONS IN THIS ORDER:

	<u>ORDER</u>	<u>COMPLETED</u>
Report to Station #1	_____	_____
Report to Station #2	_____	_____
Report to Station #3	_____	_____
Report to Station #4	_____	_____
Waiting Room	_____	_____

NOTE

If you complete a station early, report to the Waiting Room.

FILL OUT THIS FORM (PRINTING) PLEASE:

NAME: _____
 Last, First Middle Initial

SOCIAL SECURITY NUMBER: _____ - _____ - _____

DATE: _____

YOU MAY KEEP THIS STATEMENT. WHEN YOU FINISH ALL STATIONS TEAR ALONG THIS DOTTED LINE

- PRIVACY STATEMENT -

I understand that my participation in this research is voluntary. I further understand that I need not provide any personal information; that performance is only recorded for research purposes, and will not be put on my permanent record.

This is an experimental personnel data collection form developed by the U.S. Army Research Institute for the Behavioral and Social Sciences pursuant to its research mission as prescribed in AR 70-1. When identifiers (name or Social Security Number) are requested they are to be used for administrative and statistical control purposes only. Full confidentiality of the responses will be maintained in the processing of these data.

Appendix C
Tracking Task Materials

ADMINISTRATIVE PROCEDURES FOR TRACKING TASK

SET UP

Initial

1. Turn on plotter, then Willey. Do not move power control handles unless plotter is on.
NOTE: Plotter must be firmly placed in socket to avoid pen chatter.
2. Ask test supervisor to make daily template.

Before Each Soldier

1. Set Willey to slide #1, the road scene.
2. Ensure plotter pen switch is in "UP" and sweep switch is in RESET.
NOTE: Pen switch will remain in UP throughout. Reset/Sweep switch will be used to control pen lift.
3. Insert paper in plotter. Align to upper right corner guides.
4. Use power control handles to place crosshair at starting spot in lowest corner of track.
5. Ensure introductory tape is rewound.
6. Ensure stopwatch is charged. (Run off electricity if not.)

CONDUCT

1. Seat soldier. Adjust seat, browpad, focus if necessary.
2. Record name, SSN, date, and time on scoresheet.
3. Turn off overhead lights.
4. Run tape. Advance slides as indicated on tape:

Slide 1 - road scene.

Slide 2 - alley maze.

NOTE: Follow the taped instructions explicitly. Do not allow soldier more hands-on practice than is directed in the instructions.

NOTE: After the introductory tape, if the soldier has questions about how to operate the power control handles, you may answer him. Do not allow additional practice.

5. Return to slide #1, road scene. Place crosshair at start point in lowest corner of track. Lower pen to paper by setting sweep switch to SWEEP to make start point mark, then raise pen (set sweep switch to RESET) and overmark start point. Lower pen to paper.

6. Say "Ready"; soldier should look through eyepiece and grasp power control handles.
7. Say "Track Left" or "Track Right."
NOTE: Soldier should alternate left and right tracking.
Begin tracking to the right.
8. Say "Begin" and start timing. Stop timing when soldier reaches the starting point area after one circuit.
9. Record the time and direction (right or left) on the scoresheet. Remove the paper from the plotter and label it with the trial number and direction (right or left).
NOTE: Have the soldier back out of the sight while you record his score and set up the next trial.

NOTE: If the soldier goes the wrong direction (right or left), change the direction on the next trial. Each soldier must have equal numbers of left and right circuits.
10. Insert paper in plotter, aligned to corner guides. Continue at step 4, for a total of 12 trials.

FINAL NOTES: If soldier asks how he's doing, say "We won't know how well anyone has done until everyone has been tested."

If soldier asks to see his tracing, say "You can see one later, after we've finished the test." Then let him see one when he's all done.

Do not tell soldier that the last trial is about to occur.

After last soldier, cap plotter pen.

Recharge stopwatch. Rewind intro tape.

INSTRUCTIONS TO SOLDIERS FOR THE TRACKING TASK

[SLIDE 1] This piece of equipment is called a Willey Burst-on-Target Trainer. It simulates the tank gunner's control handles and the picture he might see through his sight or eyepiece. Place your forehead against the padded bar and look through the gunner's eyepiece. You will see a road and some trees. Move your head slightly and adjust your seat until you can easily view the road and nearby trees. (P) In the sight picture you should also see a set of short lines in the form of a cross. These lines make up what is called a reticle. The center of the reticle is called the crosshair. The gunner uses the crosshair to aim the main gun at enemy targets. For this reason it is important that he be able to accurately control the movement of the crosshair.

Remove your forehead from the padded bar and look at the gunner's control handles. (P) Your task is to act as a gunner and use these control handles to move the reticle along the path of the road you saw in the sight picture.

Listen carefully and follow these instructions. [SLIDE 2] Place your hands on the gunner's control handles (P) and notice the palm switches located on these handles. Look into the eyepiece and squeeze the red palm switches; (P) slowly turn the control handles to the right. When you reach point B, return the control handles to their center upright position and release the palm switches. This will stop the reticle. (P) Squeeze the palm switches again and slowly turn the control handles to the left. When you reach point A, return the control handles to their center upright position and then release the palm switches. Back out of the sight and listen to these instructions about operating the gunner's hand controls. It is important that you stop the reticle by first centering the control handles and then releasing the palm switches. Releasing the palm switches first will cause the reticle to come to a fast stop and it may make it jump off the target. To move the reticle faster simply turn the control handles farther to the right or to the left. The farther you move them from the center upright position the faster the reticle will move.

Place your forehead back on the headrest and your hands on the gunner's control handles. (P) Move the reticle from point A to point C by simply squeezing the palm switches and "pulling" or rotating the top of the gunner's control handles toward your body. Return to point A by squeezing the palm switches and "pushing" or rotating the top of the gunner's control handles away from your body.

You can also move the reticle along a diagonal path up to point D in the sight picture by first squeezing the palm switches, then turning the control handles to the right while at the same time pulling the top of them toward your body. Stop when you reach point D. Now move the reticle back to point A by first squeezing the palm switches, then turning the control handles to the left while at the same time pushing them away from your body. Stop when you reach point A. For practice, move the reticle from point A to point D and back to point A again.

To move the reticle along the diagonal path from point A to point E first squeeze the palm switches, then turn the control handles to the right while at the same time pushing them away from your body. Stop when you reach point E. On your own, return to point A. Now, move the reticle from point A to point E again and back for practice. Please back out of the sight now. Do you have any questions about how the gunner's control handles operate? [SLIDE 1]

The task you are about to perform involves using the gunner's control handles to move the reticle along the path of the road you will see in the sight picture. Your task is to keep the center of the reticle, the crosshair, on the road. If the center of the crosshair touches the road side lines or edges you have made an error. You should try to move the reticle along the path of the road as quickly as you can while trying not to make any errors. Both your errors and your speed will be measured, so make as few errors as possible while moving as quickly as possible. The instructor will place the reticle at a point on the road and give you a "ready" command. You should then place your forehead on the padded bar and your hands on the hand controls. The instructor will then indicate the direction in which you are to move the reticle along the road by saying, "Track, right," or "Track, left." When the instructor says, "Begin," you should move the reticle along the road in the direction you were told to follow. After you have moved the reticle all the way around the road in the direction which you were told to go, stop the reticle when you return to the point at which you started. Remove your forehead from the padded bar and wait for the instructor to give the next "Ready" command.

Do you have any questions?



Figure C.1. Diamond Tracking Scene

NAME: _____
 SSN: _____
 DATE/TIME: _____

TRACKING TASK SCORE SHEET
 (Remember: Counterbalance direction of track)

TRIAL NUMBER		TOTAL TIME	ERROR
1	R		
2	L		
3	R		
4	L		
5	R		
6	L		
7	R		
8	L		
9	R		
10	L		
11	R		
12	L		

Appendix D

Target Acquisition Task Materials

STATION 4

ADMINISTRATIVE PROCEDURES FOR TARGET ACQUISITION TASK

SET UP

1. Turn POWER on Willey to ON.
2. Set projector to Slide #1. Move power control handles so tank is at left of screen and tree at right.
3. Set MAIN GUN and EL/TRAV POWER to ON.
4. Ensure intro tape is rewound.
5. Ensure stopwatch is charged. (Run off electricity if not.)

CONDUCT

1. Seat soldier, Adjust chair, browpad, focus if necessary.
2. Put name, SSN, date, and time on scoresheet.
3. Turn off overhead lights.
4. Run tape. Advance slides as indicated on tape:
 - Slides 1,2,3 - easily identified tank, jeep, and APC, respectively.
 - Slides 4,5,6 - less easily identified tank, jeep, and APC, respectively.
 - Soldier should use power control handles to lay crosshair on each target.
 - Slide 7 - large plus mark, used as reference point.
Soldier should lay crosshair on center of plus mark ($\pm 1/8$ inch).
5. Stop tape.
6. Have soldier look into eyepiece, put hands on power control handles.
7. Say, "Ready? Begin." On "Begin," advance (toggle on lower right side of Willey) to the first target slide and begin timing simultaneously.
8. Soldier should use power control handles to locate target and lay crosshair on target. Stop timing when the soldier fires (red blip at center of crosshair).

NOTE: If soldier searches for over two minutes, say, "Locate what you believe to be the target and fire at it."

NOTE: Some soldiers will fire on the move, and the crosshair will then overrun the target. Tell soldier, "Lay the crosshair on the center of the target, then fire."

9. Advance to bullseye slide. Leave this slide on only long enough to confirm a target hit (crosshair at or near center of bullseye) then advance to the plus slide.

NOTE: If you need to leave the bullseye slide on for more than 1-2 seconds, have the soldier back out of the eyepiece.

NOTE: Not all targets will fall in the center of the bullseye. The center of the bullseye indicates the approximate target location only.

10. Advance to the plus sign slide. Record hit or miss and time while soldier places crosshair on center of plus.

NOTE: Small overruns from firing on the move should be counted as hits.

11. Continue with next target at step 5.

FINAL NOTES: Do not tell soldier when last target is being presented or how many targets remain. Do not return to previous trials and show soldier where targets are located.

Do not let soldier see his scoresheet, either during or after the test.

If the soldier asks how he's doing, say "We won't know how anyone did until everyone has been tested."

INSTRUCTIONS TO SOLDIERS FOR
TARGET ACQUISITION TASK

This task involves what Armor crewmen refer to as target acquisition. This simply means using the optical system or sights on the tank to locate targets. The targets you will be looking for are tanks (SLIDE 1) jeeps (SLIDE 2) and armored personnel carriers or APCs (SLIDE 3). During this task you will be shown a series of sight pictures which contain these target vehicles. However, each sight picture contains one and only one target vehicle. Locate one vehicle in each of the following slides, first slide, a tank (SLIDE 4), then a jeep (SLIDE 5), and finally an APC (SLIDE 6). Before each sight picture is presented there will be a slide containing a large "plus" mark (SLIDE 7). Use the gunner's control handles to place the reticle on the center of the plus mark each time it appears. Do this now. When the instructor says "begin" the actual sight picture will appear. Your task is to use the gunner's control handles to locate the target vehicle and then place the reticle cross-hair on the center of the target vehicle. After you locate the target or what you believe to be the target fire by simply squeezing the triggers which are under your left and right index fingers on the control handles. After you have fired, release the control handles. The instructor will determine whether or not you located the target and how long it took you to do so. As soon as the instructor presents the next "plus" mark, you should use the gunner's control handles to return the reticle to the center of that plus mark.

Do you have any questions?

TARGET LOCATIONS FOR
TARGET ACQUISITION TASK

1. JUST RT OF DUST/RETICLE
2. LEFT OF TREE AFTER DUST (SEE WHITE SHIRT)
3. RT SIDE OF RT ROAD
4. LEFT END OF LEFT ROAD (NOT TREE TOP ON RT) (UPPER LEFT)
5. RT END OF DUST ON ROAD
6. LEFT OF HOUSE ON UPPER LEFT OF ROAD (JUST ABOVE ROAD)
7. LEFT OF TURN ON RT ROAD (FROM BEHIND TREES)
8. LEFT END OF DUST
9. UPPER LEFT OF ROAD
10. DOT AT RIGHT TURN
11. UPPER LEFT OF RT ROAD (IN TREES)
12. UPPER LEFT OF RT ROAD (COMING OUT OF TREES)
13. BOTTOM RIGHT OF DUST
14. RT OF DUST (IN TREES)
15. BEHIND TREE AT RT OF DUST (SEE WHITE TUBE)
16. LEFT SIDE OF RT ROAD

NAME: _____

SSN: _____

DATE/TIME: _____

TARGET ACQUISITION TASK
SCORE SHEET

- 1) SEAT SUBJECT.
- 2) SET BROWPAD.
- 3) BEGIN INSTRUCTION TAPE.

SLIDE	HIT?		TIME?
1	Yes	No	
2	Yes	No	
3	Yes	No	
4	Yes	No	
5	Yes	No	
6	Yes	No	
7	Yes	No	
8	Yes	No	
9	Yes	No	
10	Yes	No	
11	Yes	No	
12	Yes	No	
13	Yes	No	
14	Yes	No	
15	Yes	No	
16	Yes	No	

Appendix E

Fire Control Computer Task Materials

ADMINISTRATIVE PROCEDURES FOR FIRE CONTROL COMPUTER TASK

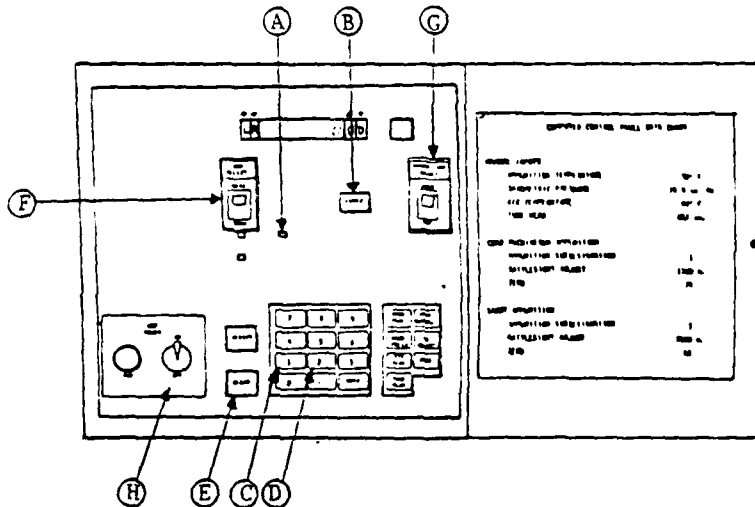
SET UP

Initial

1. Turn on computer (top back right).
2. Ensure tape is in Monroe 329 Player (on floor), side 1 up, rewind.
3. Press and latch READY on player.
4. Press JUMP (A), ENTER (B), and 1(C) on computer.
5. Press READ FROM TAPE on player. Tape will run for about 30 seconds.
6. Press 2 (D) on computer.
7. Press READ FROM TAPE on player. Tape will run for about 5 seconds.
8. Press STOP, then REWIND, then (when rewind) STOP on player.

Before Each Soldier

1. Press JUMP (A), ENTER (B), and ENTER (B) again.
2. Press CLEAR (E).
3. Set GUN SELECT (F) to COAX, AMMUNITION SELECT (G) to HEP, and CCP POWER (H) to OFF.
4. Close CCP door.
5. Close TM and place to left of computer.
6. Ensure intro tape is rewound.
7. Ensure stopwatch is charged. (If not, run off electricity.)

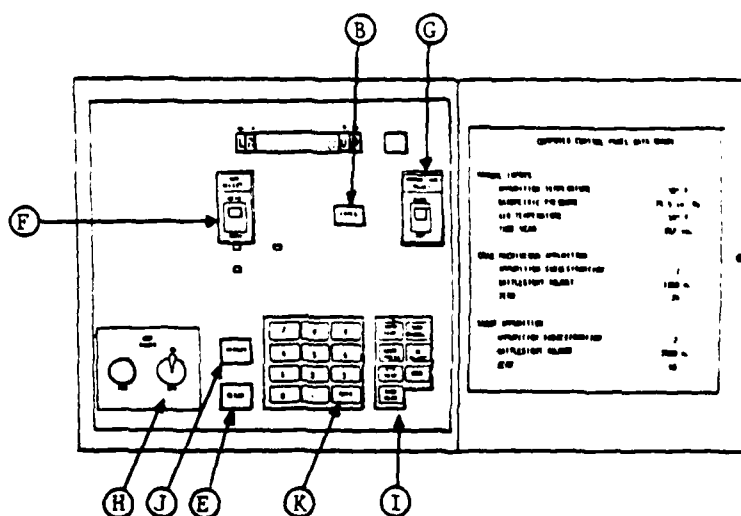


CONDUCT

1. Seat soldier.
2. Record name, SSN, date and time on scoresheet.
3. Play intro tape. Be sure soldier opens TM and computer door when instructed to do so on tape. Point out the data chart on the door, the seven data keys (I), the four control keys (B, E, J and K), the three switches (F, G and H) and the number keys when they are mentioned on the tape. Name the control keys, switches, and decimal.
4. When the tape is finished, stop the tape. If the soldier doesn't do anything, tell him to turn the page. Say "Follow the instructions in the TM (point). You may begin".
5. Start timing each procedure when the soldier presses a data key (I), and stop when he presses ENTER (B) the second time (when verifying).
6. Mark on the scoresheet when errors are made. If no errors are made, record only the time.
 - a. Numbers - if soldier presses the wrong numbers, mark the scoresheet.

NOTE: The correct numbers are on the scoresheet as well as on the computer door.

 - b. Functions - if soldier presses the wrong data or control keys, or presses additional data or control keys, or omits any data or control keys, mark the scoresheet.
 - c. Sequence - if soldier presses any sequence other than:
Data key - Numbers - ENTER - VERIFY - DATA - ENTER
mark the scoresheet.
 - d. Found Error - if soldier makes any error (Numbers, Functions, or Sequence) and does not discover it, mark the scoresheet.
(Also mark "Corrected".)

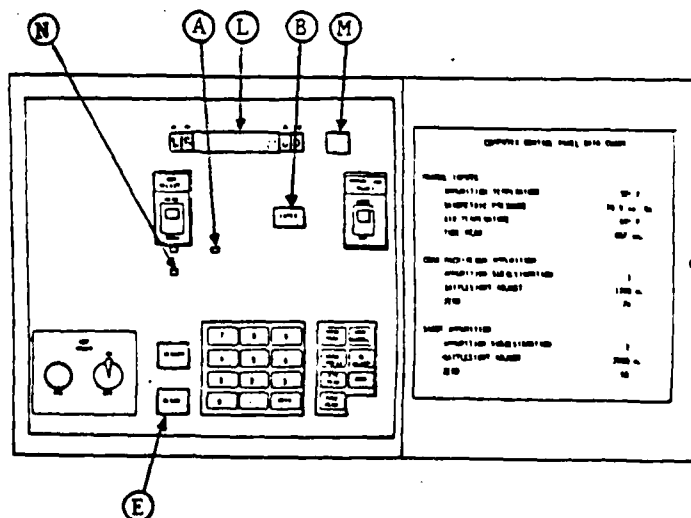


- NOTE: If the soldier asks how to correct the error, say "Error correction procedures are on the first page of the TM". Mark a "T" on the scoresheet (for "Told").
- f. Six performance measures require the soldier to set switches. Mark them only if the soldier does not set them.

If the soldier makes an error on the numbers, the display will first show "0" or "0.0" or "0.000", then behave as described above.

If the display shows "E-----", have the soldier wait while you press RESET (N), JUMP (A), the procedure number, and ENTER (B). Then tell him to begin again.

- FINAL NOTE: If the soldier asks how he's doing, say, "We won't know how well anyone has done until everyone has been tested."



INSTRUCTIONS TO SOLDIERS FOR
FIRE CONTROL COMPUTER TASK

The new M1 tank has on board a small computer which assists the gunner in engaging targets. Before the computer can work correctly, the gunner must enter information into the computer's memory. This information is available to the gunner from his commander, but the gunner is the only one responsible for entering it correctly into the computer. He uses a technical manual, or TM, to tell him how to operate the computer.

The task we would like you to try today involves reading a TM and entering information into the computer in front of you. We could not get an actual M1 computer to use here, so we have simulated the buttons and switches using available materials. We want you to work at your own pace and do your best.

The directions for each step of the task can be found in the book in front of you. Please open this book now.

The M1 gunner's computer panel requires the gunner to manually ENTER and VERIFY several pieces of DATA each time he prepares his station for operation. This information is required by the computer in order for the rounds fired to hit the target. Four pieces of information are entered the same for all kinds of weapons and ammunition. They are:

- Ammunition temperature,
- Barometric pressure,
- Air temperature, and
- Main gun tube wear.

Three pieces of information must be entered separately for the coax machinegun and for each type of main gun ammunition. They are:

- Ammunition subdesignation,
- Battlesight adjust numbers, and
- Zeroing numbers.

The gunner must take this information or DATA from the temperature gage, weather reports, operations reports, and the data chart inside the computer door, and enter it into the computer. This is always done in the same sequence or series of steps each time it is performed. The steps are:

- Number 1. find the correct data
- Number 2. enter it into the computer
- Number 3. verify or check to make sure it went into the computer correctly
- Number 4. if data did not enter the computer the way it should, then the gunner must correct it

The TM tells specifically how to enter, verify, and correct the data.

Open the computer panel door now. For the tasks you will perform today, all the data are on the data chart inside the computer door. The scorer will show you where the seven data keys, the four control keys, the three switches, and the number keys are located.

The following pages are like a TM. They will guide you in learning how to ENTER and VERIFY data in the M1 computer. When the scorer tells you to begin, you will follow the steps in the TM to ENTER the DATA from the computer door into the computer and VERIFY it. Pay close attention to the steps and do your best, but work at your own pace.

Once you begin the scorer will not be allowed to answer any questions. If you have a question please ask it now, before we begin.

TECHNICAL MANUAL
FIRE CONTROL COMPUTER

OPERATE COMPUTER

POWER UP COMPUTER

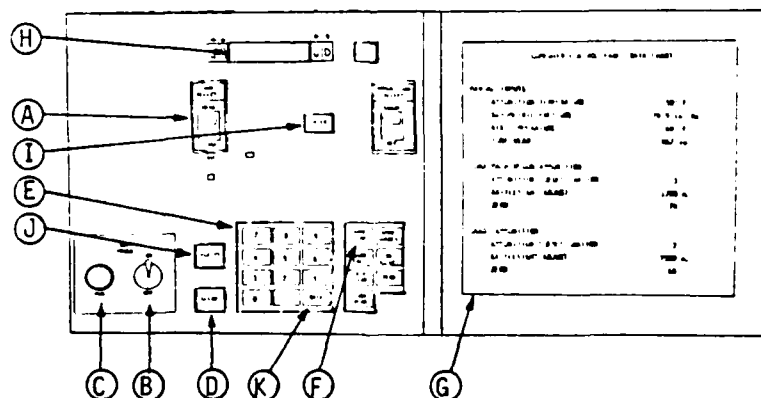
- A. Set GUN SELECT switch (A) to MAIN.
- B. Set computer control panel (CCP) power switch (B) to ON and check PWR light (C) comes on.

NOTE

If an error is made, press CLEAR key (D) and enter correct data using number keys (E).

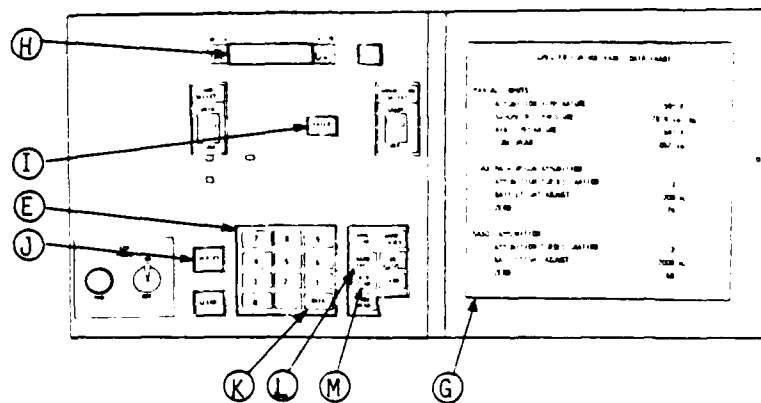
MANUAL INPUTS

- A. Ammunition Temperature.
 1. Press and release AMMO TEMP key (F).
 2. Enter ammunition temperature reading from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
 3. Press and release ENTER key (I).
 4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
 5. Enter ammunition temperature reading into computer by pressing ENTER key (I).



B. Barometric Pressure.

1. Press and release BARO PRESS key (L).
2. Enter barometric pressure reading from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter barometric pressure reading into computer by pressing ENTER key (I).

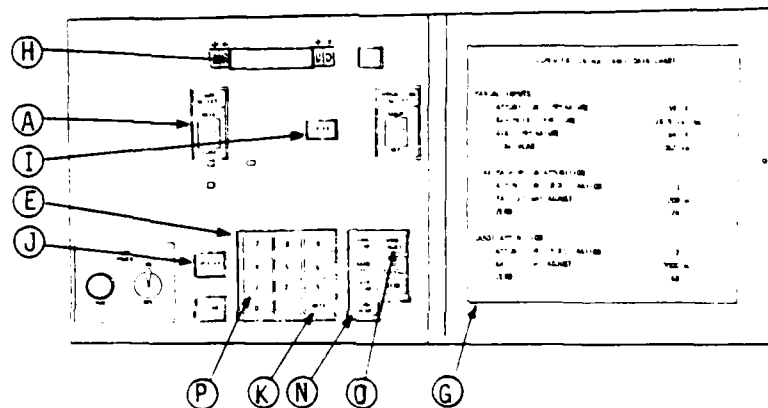


C. Air Temperature.

1. Press and release AIR TEMP key (M).
2. Enter air temperature reading from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter air temperature reading into computer by pressing ENTER key (I).

D. Tube Wear.

1. Press and release TUBE WEAR key (N).
2. Enter last tube wear numbers from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter tube wear into computer by pressing ENTER key (I).

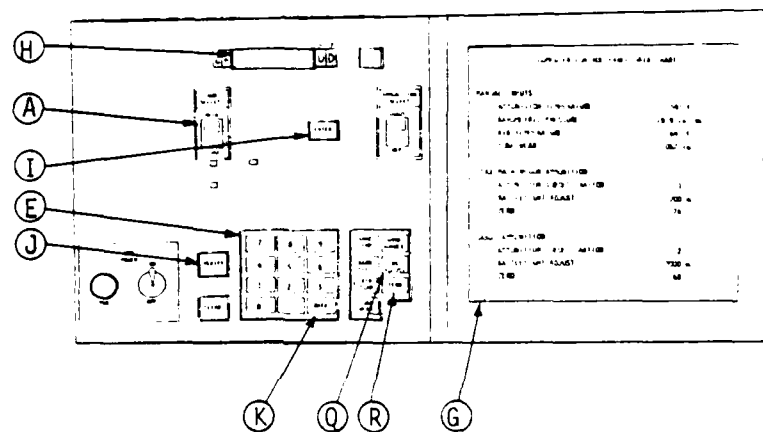


COAX MACHINEGUN DATA

- A. Set GUN SELECT switch (A) to COAX.
- B. Coax Ammunition Subdesignation.
 1. Press and release AMMO SUBDES key (O).
 2. Press "1" key (P). Number will appear on display (H).
 3. Press and release ENTER key (I).
 4. Press and release VERIFY key (J) and DATA key (K).
Check that display (H) reads same as number entered.
 5. Enter coax ammo subdesignation into computer by pressing ENTER key (I).

C. Coax Battlesight Numbers.

1. Press and release BS ADJUST key (Q).
2. Enter correct coax machinegun battlesight numbers from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter coax battlesight numbers into computer by pressing ENTER key (I).

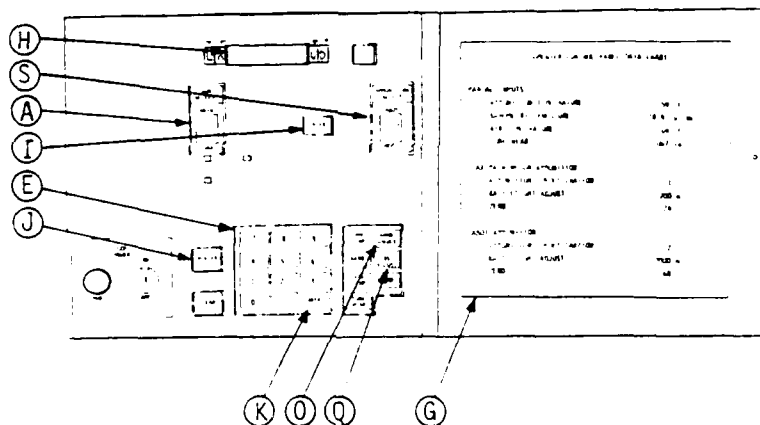


D. Coax Zeroing Numbers.

1. Press and release ZERO key (R).
2. Enter coax machinegun zeroing numbers from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter coax machinegun zeroing numbers into computer by pressing ENTER key (I).

MAIN GUN AMMUNITION DATA

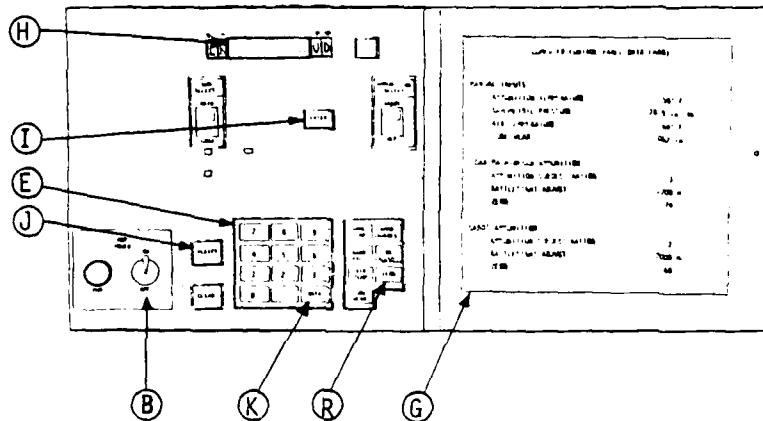
- A. Set GUN SELECT switch (A) to MAIN.
- B. Set AMMUNITION SELECT switch (S) to SABOT.
- C. Sabot Ammunition Subdesignation.
 1. Press and release AMMO SUBDES key (O).
 2. Enter correct sabot ammunition subdesignation from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
 3. Press and release ENTER key (I).
 4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
 5. Enter sabot ammunition subdesignation into computer by pressing ENTER key (I).



- D. Sabot Ammunition Battlesight Numbers.
 1. Press and release BS ADJUST key (Q).
 2. Enter correct sabot ammunition battlesight numbers from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
 3. Press and release ENTER key (I).
 4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
 5. Enter sabot ammunition battlesight numbers into computer by pressing ENTER key (I).

E. Sabot Ammunition Zeroing Numbers.

1. Press and release ZERO key (R).
2. Enter correct sabot ammunition zeroing numbers from data chart on computer panel door (G) into computer by pressing appropriate number keys (E). Numbers will appear on display (H) as keys (E) are pressed.
3. Press and release ENTER key (I).
4. Press and release VERIFY key (J) and DATA key (K). Check that display (H) reads same as numbers entered.
5. Enter sabot ammunition zeroing numbers into computer by pressing ENTER key (I).



F. Turn power switch (B) to OFF.

FIRE CONTROL COMPUTER - NO. 1000000000

N.B. Check line only for error!

PROCEDURE

Set GUN SELECT to MAIN

Set CCP POWER to ON

NAME: _____

SN: _____

DATE/TIME: _____

(ENTER) AMMO TEMP (59)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
2. BARO PRESS (28.9)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
3. AIR TEMP (64)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
4. TUBE WEAR (.067)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
Set GUN SELECT to COAX		
5. AMMO SUBDES (1)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
6. BS ADJUST (1200)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
7. ZERO (74)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
Set GUN SELECT to MAIN		
Set AMMO SELECT to SABOT		
8. AMMO SUBDES (2)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
9. BS ADJUST (2000)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		
0. ZERO (65) (68)	Numbers _____ Controls _____ Sequence _____	If checked: Found error _____ Corrected _____
(1-5) Time: _____		

Appendix F

Technical Manual Task Materials

STATION 5

ADMINISTRATIVE MATERIALS FOR TECHNICAL TASK

CONDUCT

NOTE: One soldier will be tested at the beginning of each test period. The other three soldiers will be tested when they have completed Stations 1 through 4.

1. Seat soldier at work area (desk). If more than one soldier is tested at a time, be sure soldiers are outside each other's field of view.
2. Give each soldier a TM. If only one soldier is being tested, use TM-A, for the M1 Abrams tank.
3. Read the instructions.
4. Hand out pencils. Hand out tests, being sure to match test version and TM version. Have soldiers check to verify match.
5. Have soldiers enter names on tests.
6. Monitor station at all times any soldier(s) is (are) being tested: no talking, no moving around, no looking around.
7. After 20 minutes, stop the test.

INSTRUCTIONS TO SOLDIERS FOR THE TECHNICAL MANUAL TASK

Much of the information which the M1 tank crewman needs is found in a technical manual, or TM. The TM presents information on the tank's equipment and how to operate it, on maintenance, and on ammunition.

Reading a TM and finding the information that you need in it is different from most reading tasks because the content is more technical. The task we want you to perform here involves finding specific information in the TM. The information you must find is asked for on performance sheets which the monitor will give you. Your performance will be evaluated on correct answers, so work carefully.

Before you begin, check to make sure that the letter (A, B, or C) on your performance sheets is the same as the letter on your TM.

When you are finished, give your performance sheets to the monitor.
Do you have any questions?

A

Name _____
SSN _____
Date _____

USE OF THE
TECHNICAL MANUAL (TM) 9-2350-255-10
(APRIL 1981)
FOR THE M1 (GENERAL ABRAMS) TANK

I. USE OF THE INDEX

The Index for the TM is in the back of the book. Use the Index to find the page number or page numbers where the following topics are covered.

EXAMPLE: Muzzle reference system (MRS) update: 2-207

This means that the MRS update is found on page 207 of Chapter 2.

1. Hydraulic system accumulator pressure check: _____
2. Transferring fuel: _____
3. Crew compartment automatic fire extinguisher: _____

II. READING THE TM (A)

The laser rangefinder (LRF) is described on page 1-36 of the TM.

4. How close can a target be for the LRF to be able to range to it? _____
5. How far away can a target be for the LRF to be able to range to it? _____

The procedure for starting the engine in extreme cold is described on page 2-320 of the TM.

6. If the engine does not start in extreme cold after the first attempt, how long must you wait before trying again? _____
7. How many attempts (total) can you make? _____

The procedure for immediate action for loss of engine power is described on page 2-387 of the TM.

8. Without engine power, how should you stop the tank when moving less than 3 mph? _____

A

III. READING THE TM (B)

The Performance Data specifications begin on page 1-16 of the TM.

9. What is the M1's maximum forward speed? _____
10. How many rounds of main gun ammunition does the M1 tank carry? _____

The Preventive Maintenance Checks and Services Table begins on page 2-35 of the TM.

11. How often should you check the transmission oil level? _____
12. How often should you check the driver's gas particulate filter equipment? _____

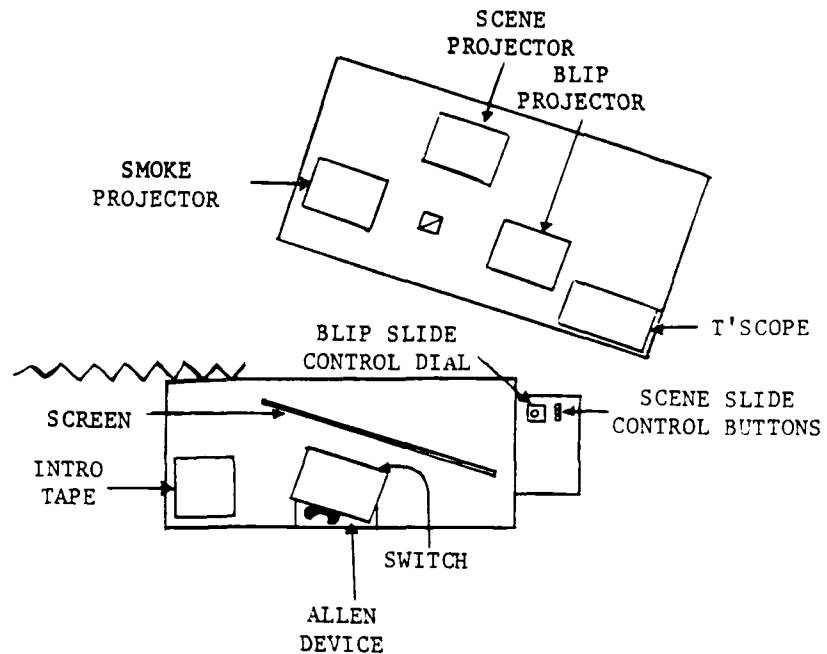
The Pre/Post Firing Maintenance Checks and Services Table begins on page 2-63 of the TM.

13. When checking the commander's GPS extension, what indicates that the equipment is not ready? _____

Appendix G
Round Sensing Task Materials

STATION 3
ADMINISTRATIVE PROCEDURES FOR ROUND SENSING TASK

Set-Up
Initial



1. Turn SMOKE Projector on to LAMP.
2. Turn SCENE Projector on to LOW.
3. Turn TIMER on BLIP Slide Control Dial to ON.
4. Turn ON T'scope toggle (lower right).

Before each Soldier

1. Set SCENE Projector to slide #1.
2. Set BLIP Slide Control Dial to 2 (red light on).
3. Set Intro. to slide #1 and rewind tape.

CONDUCT

1. Seat soldier. Adjust chair and browpad if necessary.
2. Put name, SSN, date, and time on scoresheet.
3. Run tape: turn POWER switch ON, press PLAY. (When done, press STOP.) Make sure soldier sees power control handles, trigger (left), and spotlight control handle (right) when they're mentioned on the tape. If he has questions, play tape again.
4. Turn off overhead light (middle switch). Turn on spotlight (toward screen) in Allen Device. Have soldier look into eyepiece.
5. Point to target area, as diagrammed on scoresheet. (Say "This is the target area.") Do not touch screen!
6. Press button on dial (red light off). Tell soldier "Fire when ready."
7. If necessary, tell him to move spotlight onto where red blip was. Wait for him to say "On" or "Lost."
8. If he says "On" (make sure he lets go of spotlight handle):
 - a. Press OPEN button on T-scope (lower left).
 - b. Lower the grid overlay. Make sure it touches screen.
 - c. Count squares from red; do left (-) or right (+) first, then down (-) or up (+).
 - d. Record on scoresheet.
 - e. Raise grid.
 - f. Turn T-score toggle off (lower right) for 2-3 seconds, then on again.

NOTE: Listen for click from smoke projector when T-scope toggle is turned on. If you don't hear the click, repeat step f, being sure to wait at least 3 seconds.
 - g. Turn dial to next number (as on scoresheet). Red light comes on.

NOTE: Be sure T-scope toggle is on before turning dial to next slide.
 - h. If next scene required (as indicated on scoresheet), press left gray button (below dial). Point out new target area.
9. If he says, "Lost," mark "LOST" on the scoresheet and go to next round, step 8g above. If the first round is Lost, show blip to soldier (step 8a above) and continue at step 8f above.
10. Have subject lower spotlight to bottom of scene. Go to step 6.

FINAL NOTE: If the soldier asks how he's doing, say "We won't know how well anyone has done until everyone has been tested."

INSTRUCTIONS TO SOLDIERS FOR THE ROUND SENSING TASK

[Slide 1] This equipment is designed to simulate the firing of a round of ammunition from an M1 Abrams tank. Your task will be to locate where the round hits in relation to the target. To do this, you must learn how this equipment operates. [Slide 2] Listen carefully to the following instructions and observe the slides being presented.

When you begin you will place your head on the headrest [Slide 3] and look into the sight. [Slide 4] (If you prefer to use your left eye please tell the instructor now.) [Slide 5] When you look through the sight you will see a tank range containing several targets. [Slide 6] Targets are square panels. Some are white, while others are black. Do you see the targets in this tank range slide? The instructor will show you the proper target area. Next, you will place your left hand on the gunner's control handles. [Slide 7] When you are told to "Fire" you will squeeze the left trigger on the gunner's control handles using your left index finger. [Slide 8]

After you squeeze the trigger, you will see smoke in the sight picture and then a small red dot will flash. [Slide 9] This red dot simulates the impact of the round, that is, it appears like the round has hit the target or some nearby object. Do you see the red dot on this range slide? Remember it will flash on and then go off very quickly so you must pay close attention to the location where you saw it hit.

Continue to focus your eye on the spot where you saw the round hit. Place your right hand on the spotlight control handle. [Slide 10] Move the spotlight slowly up until it is centered exactly over the spot where you saw the round hit. Release the spotlight handle. Make sure the spotlight remained where you placed it. If it did not, adjust it until it does, then release the spotlight handle and tell the instructor you have located the spot by saying "On." Once you have released the spotlight handle and said "On", remove your head from the headrest. Do not touch the spotlight handle or gunner's control handles until the instructor has recorded your score.

If for any round you do not see the red blip after you fire, say "Lost." If you think you saw the red blip, but you aren't sure, you should lay the spotlight where you think you saw it. Your performance on this task will not be timed.

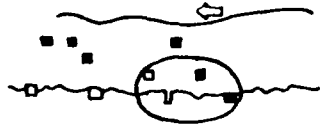
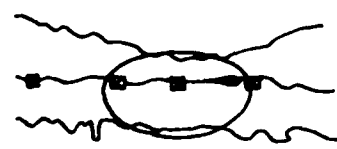
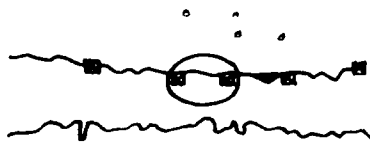
When the instructor says "Ready", return the spotlight handle to its bottom position, [Slide 11] place your head on the headrest, [Slide 12] locate the target area in the sight picture [Slide 13] then place your left hand on the gunner's control handle [Slide 14] and your right hand on the spotlight control handle. [Slide 15] Do not fire the next round until the instructor gives you the "Fire" command. Do you have any questions?

ROUND SENSING SCORE SHEET

NAME: _____

SSN: _____

DATE/TIME: _____

TARGET AREA	TARGET SLIDES	ROUND	DEFLECTION	
			HORIZ	VERT
	1	2		
		3		
		4		
		5		
		6		
			7	
8				
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			

Appendix H

OSUT GATE Tests and Tasks

Table H.1

GATE Tests And Tasks
OSUT I

GATE II

CLEAR M240 MACHINEGUN

PERFORM OPERATOR'S MAINTENANCE ON AN M240 MACHINEGUN

Disassemble M240

Assemble M240

Perform Function Check

TROUBLESHOOT DRIVER'S CONTROL PANEL (Written Test)*

Identify Table

Master Warning Lights

Parking/Service Brake Lights

Cable Disconnect Light

PERFORM FUEL TRANSFER PROCEDURES*

EXTINGUISH A FIRE ON AN M1 (3 Versions)*

PREPARE DRIVER'S STATION FOR OPERATION*

Prepare Driver's Station

Operate Personnel Heater

START AND STOP THE ENGINE OF AN M1 TANK*

Start Engine

Stop Engine

OPERATE GAS PARTICULATE FILTER UNIT ON M1 TANK*

Don Protective Mask

Operate Gas Particulate Filter Unit

SECURE DRIVER'S STATION*

GATE III

CLEAR CAL .50 M2 MACHINEGUN

MAINTAIN CAL .50 M2 MACHINEGUN

Disassemble M2

Assemble M2

Perform Function Check

SET HEADSPACE AND TIMING ON M2 MACHINEGUN

*Tested using the TM.

Appendix H

OSUT GATE Tests and Tasks

Table H.1 (Cont'd.)

PREPARE LOADER'S STATION FOR OPERATION*

- Erect Crosswind Sensor
- Install Loader's Machinegun
- Enter Loader's Station
- Power Up Loader's Station
- Adjust Loader's Seat and Platform
- Operate Loader's Hatch
- Position Loader's Guards for Firing

SECURE LOADER'S STATION*

- Stow Loader's Guards
- Power Down Loader's Station
- Remove Loader's Machinegun
- Secure Crosswind Sensor
- Secure Antenna
- Secure Loader's Hatch

LOAD/UNLOAD 105MM MAIN GUN ON M1 TANK*

- Load Main Gun
- Clear Main Gun

LOAD/UNLOAD M250 GRENADE LAUNCHER ON M1 TANK*

- Load Grenade Launcher
- Unload Grenade Launcher

PREPARE GUNNER'S STATION FOR OPERATION ON M1 TANK*

- Version A: Enter Station, Operate Domelight and Intercom
 - Install Coax Machinegun
 - Adjust Gunner's Seat, Browpad, and Chestrest
 - Power Up Gunner's Station
- Version B: Perform GPS Check
 - Adjust GPS
 - Perform Computer Self-Test
 - Perform Computer Data Check
 - Perform GAS Adjustment
- Version C: Perform TIS Checkout
 - Perform Lead System Check
 - Perform Firing Circuits Check
 - Perform Crosswind Sensor Check

SECURE GUNNER'S STATION ON M1 TANK*

- Power Down Gunner's Station
- Secure Gunner's Station

PERFORM PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON M1 TANK*

- Version A: Perform Before Operations PMCS (Items 2-9)
- Version B: Perform During Operations PMCS (Items 10-12)
- Version C: Perform After Operations PMCS (Items 32-35)

*Tested using the TM.

Table H.2

GATE Tests And Tasks
OSUT II

GATE II

CLEAR M240 MACHINEGUN

PERFORM OPERATOR'S MAINTENANCE ON AN M240 MACHINEGUN

- Disassemble M240
- Assemble M240
- Perform Function Check
- Load M240

TROUBLESHOOT DRIVER'S CONTROL PANEL*

- Identify Table
- Master Warning Lights
- Parking/Service Brake Lights
- Cable Disconnect Light

EXTINGUISH A FIRE ON AN M1 (3 Versions)*

PREPARE DRIVER'S STATION FOR OPERATION*

OPERATE GAS PARTICULATE FILTER UNIT ON M1 TANK*

SECURE DRIVER'S STATION*

PERFORM PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON M1 TANK*

- Version A: Perform Before and During Operations PMCS (Items 14-23)
- Version B: Perform After and During Operations PMCS (Items 1-7)

GATE III

PREPARE LOADER'S STATION FOR OPERATION*

- Erect Crosswind Sensor
- Install Loader's Machinegun
- Enter Loader's Station
- Power Up Loader's Station
- Adjust Loader's Seat and Platform
- Operate Loader's Hatch
- Position Loader's Guards for Firing

SECURE LOADER'S STATION*

- Stow Loader's Guards
- Power Down Loader's Station
- Remove Loader's Machinegun
- Secure Crosswind Sensor
- Secure Antenna
- Secure Loader's Hatch

*Tested using the TM.

Table H.2 (Cont'd.)

LOAD/UNLOAD 105MM MAIN GUN ON M1 TANK*

Load Main Gun
Clear Main Gun

LOAD/UNLOAD M250 GRENADE LAUNCHER ON M1 TANK*

Load Grenade Launcher
Unload Grenade Launcher

PREPARE GUNNER'S STATION FOR OPERATION ON M1 TANK*

Perform GPS Check
Adjust GPS
Perform Computer Self-Test
Perform Computer Data Check
Perform GAS Adjustment

SECURE GUNNER'S STATION ON M1 TANK*

Power Down Gunner's Station
Secure Gunner's Station

*Tested using the TM.

Appendix I

Instructions to Drill Sergeants and
Tank Commanders for Soldier Ratings

Instructions to Drill Sergeants and
Tank Commanders for Soldier Ratings

HERE ARE THREE STACKS OF CARDS. EACH STACK CONTAINS THE NAMES OF THE MEN IN ONE OF THE THREE PLATOONS THAT JUST FINISHED M-1 OSUT. BASED ON YOUR KNOWLEDGE OF THESE MEN, PLEASE ARRANGE THE NAMES IN EACH STACK IN THE ORDER THAT YOU WOULD SELECT THE MEN AS MEMBERS OF YOUR OWN M-1 CREW. THOSE THAT YOU WOULD MOST LIKE TO HAVE IN YOUR CREW SHOULD BE AT THE TOP OF THE STACK, WHILE THOSE THAT YOU WOULD LEAST LIKE TO HAVE IN YOUR CREW SHOULD BE AT THE BOTTOM. DO YOU HAVE ANY QUESTIONS?

Appendix J

Means and Standard Deviations
of Predictors and OSUT Criteria

Table J.1
Descriptive Statistics for ASVAB Subtests

Subtest	OSUT I (N=88)		OSUT II (N=58)		Total (N=146)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
General Science (GS)	50.72	8.85	51.84	6.81	51.16	8.12
Arithmetic Reasoning (AR)	51.22	9.26	48.15	9.05	50.00	9.30 a
Word Knowledge (WK)	51.91	8.12	50.90	7.94	51.51	8.06
Paragraph Comprehension (PC)	52.64	7.19	49.83	8.54	51.52	7.88 b
Numerical Operations (NO)	51.36	8.58	52.26	8.37	51.72	8.51 c
Coding Speed (CS)	53.89	7.27	53.69	6.35	53.81	6.92 d
Automotive/Shop Information (AS)	53.39	8.27	50.62	7.56	52.29	8.11 e, f
Mathematics Knowledge (MK)	50.47	9.76	47.28	7.40	49.20	9.03 g
Mechanical Comprehension (MC)	52.66	8.53	53.17	7.68	52.86	8.21 h
Electronics Information (EI)	51.76	9.03	50.02	7.46	51.07	8.49

NOTE: Tests of the differences between OSUT I and OSUT II means, and between OSUT subtest means and the subtest scaled mean of 50 (standard deviation of 10) were performed using two-tailed t tests.

^aOSUT I - OSUT II = 3.07, $t = 1.971$, $p < .05$

^bOSUT I - OSUT II = 2.81, $t = 2.143$, $p < .05$

^cOSUT - Subtest scale = 1.72, $t = 2.077$, $p < .05$

^dOSUT - Subtest scale = 3.81, $t = 4.602$, $p < .01$

^eOSUT I - OSUT II = 2.77, $t = 2.048$, $p < .05$

^fOSUT - Subtest scale = 2.29, $t = 2.764$, $p < .01$

^gOSUT I - OSUT II = 3.19, $t = 2.119$, $p < .05$

^hOSUT - Subtest scale = 2.86, $t = 3.459$, $p < .01$

Table J.2

Descriptive Statistics for
ASVAB Composites (CO, GT, and AFQT)

Composite	OSUT I (N = 88)		OSUT II (N=58)		Total (N = 146)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
CO (Army Standard)	105.40	16.00	101.88	12.89	104.00	14.84
GT (Army Standard)	102.83	17.68	97.21	16.54	100.60	17.45
AFQT (Percentile)	51.95	25.02	46.67	21.52	49.85	23.85

NOTE: A sample of 7735 soldiers in June of 1980 had a mean CO of 98.9, standard deviation of 14.4, and a mean GT of 99.0, standard deviation of 15.8. A sample of 84 Cavalry Scouts (19D) had a mean CO of 102.7, standard deviation of 13.6, and a mean GT of 101.4, standard deviation 15.2.

Table J.3

Descriptive Statistics for
Reading Ability and Biographic Variables

Variables		OSUT I (N=88)		OSUT II (N=60)	
		Mean	Standard Deviation	Mean	Standard Deviation
ABLE		37.15	5.30	37.30	9.58
Years of High School		3.58	.84	3.00	1.17
Age		20.05	2.58	20.	2.88
		Frequency	Percent	Frequency	Percent
Dominant	Right	66	89%		85%
Hand	Left	8	11%		15%
	N	74		5	
Glasses	No	68	77%	51	88%
	Yes	20	23%	7	12%
	N	88		58	

Table J.4
Descriptive Statistics for
Job Sample Test Variables

<u>Variable</u>	<u>OSUT I (N = 88)</u>		<u>OSUT II (N=60)</u>	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
TRKSPEED	.435	.154 ^a	.449	.159
TRKACCY	.630	.142 ^a	.682	.121 b
TRKSPAC	.017	.007 ^a	.019	.007
ACQTIME	36.68	16.71	32.06	14.05
ACQHITS	5.47	2.75	6.93	3.22 c
COMPTIME	51.12	22.06	58.99	20.45 d
COMPACCY	.730	.217	.680	.194
TMPERCNT	61.01	23.23	64.36	24.20
RSENSE	9.60	3.29	7.47	3.58 e

^aOne missing observation, N = 87.

^bOSUT I - OSUT II = -.052, $t = -2.315$, $p < .05$.

^cOSUT I - OSUT II = -1.46, $t = -2.924$, $p < .01$.

^dOSUT I - OSUT II = -7.87, $t = -2.195$, $p < .05$.

^eOSUT I - OSUT II = 2.13, $t = 3.742$, $p < .01$.

Table J.5

Descriptive Statistics for OSUT Criteria

Criteria	OSUT I			OSUT II		
	Mean	Standard Deviation	N	Mean	Standard Deviation	N
GATE Scores	.876	.084	88	.904	.105	60
Firing Hits	.657	.263	82	.796	.176	60 a
Instructor Rankings	25.21	9.49	88	25.54	9.26	60

^aOSUT I - OSUT II = -.139, $t = -3.552$, $p < .01$.

Table J.6

Interrater Reliabilities on Instructor Rankings

<u>OSUT I</u>	<u>Number of Soldiers</u>	<u>Number of Instructors(R)</u>	<u>Average R Per Soldier</u>	<u>Interrater Reliability</u>
1st Platoon	28	9	8.25	.759
2nd Platoon	31	9	7.23	.777
3rd Platoon	29	9	7.69	.824

<u>OSUT II</u>	<u>Number of Soldiers</u>	<u>Number of Instructors(R)</u>	<u>Average R Per Soldier</u>	<u>Interrater Reliability</u>
1st Platoon	20	10	9.25	.836
2nd Platoon	18	10	9.33	.908
3rd Platoon	22	10	8.77	.756

Appendix K

Intercorrelations Among Variables

NOTE: Correlations are printed in serial string format, with associated number of cases and two-tailed significance level. First are printed all the nonredundant coefficients from what would have been the first row in the full matrix, then all nonredundant coefficients from the second row, etc. The variable code names assigned to variables, and the order in which they appear, are:

<u>ASVAB Subtests</u>		<u>ASVAB Composites</u>	<u>Job Sample Tests</u>
GS	} see Table 1	COMBAT - Combat Operations (CO)	TRKSPEED
AR		GTECH - General Technical (GT)	TRKACCY
WK		AFQT - Armed Forces Qualification Test	TRKSPAC
PC		COMBAT M1 - Combat Operations, M1 (CO-M1)	ACQTIME
NO			ACQHITS
CS			COMPTIME
AS			COMPACCY
MK			TMPERCNT
MC	}	<u>Background Data</u>	RSENSE
EI		ABLE - Reading ability	
		HSY - Years of high school	
		AGE - Age	
		HAND - Dominant hand	
		GLASSES - Whether soldier wears glasses	
			<u>Criteria</u>
			GATE - GATE scores
			HITS - Firing Hits
			RANKINGS - Instructor rankings
			GATERANK - Combined GATE-Rankings
			GTHITRNC - Combined GATE-Hits-Rankings

Table K.1
Intercorrelations Among Variables for OSUT I Soldiers

Variable Pair		Variable Pair		Variable Pair		Variable Pair		Variable Pair		Variable Pair	
GS with AR	0.5749 N(88) Sig .000	GS with MK	0.7485 N(88) Sig .000	GS with PC	0.6109 N(88) Sig .000	GS with NO	0.3064 N(88) Sig .004	GS with CS	0.3252 N(88) Sig .002	GS with AS	0.4898 N(88) Sig .000
GS with MK	0.6155 N(88) Sig .000	GS with MC	0.4647 N(88) Sig .000	GS with EI	0.6979 N(88) Sig .000	GS with COMBAT	0.6350 N(88) Sig .000	GS with GTECH	0.7372 N(88) Sig .000	GS with AFBT	0.7365 N(88) Sig .000
GS with COMBATMI	0.6535 N(88) Sig .000	GS with ABLE	0.7207 N(88) Sig .000	GS with MSY	0.1598 N(88) Sig .137	GS with AGE	0.2848 N(88) Sig .005	GS with HAND	0.0102 N(74) Sig .931	GS with GLASSES	0.2362 N(88) Sig .027
GS with TRKSPEED	0.3321 N(87) Sig .002	GS with TRKACCY	0.1675 N(87) Sig .121	GS with TRKSPAC	0.3931 N(87) Sig .000	GS with ACOTIME	-0.2183 N(88) Sig .041	GS with ACCHITS	0.0313 N(88) Sig .772	GS with COMPTIME	-0.5462 N(88) Sig .000
GS with COMPACCY	0.2171 N(88) Sig .042	GS with IMPERCNT	0.4588 N(88) Sig .000	GS with RSENSE	0.2237 N(88) Sig .036	GS with GATES	0.2086 N(88) Sig .050	GS with HITS	0.0763 N(82) Sig .488	GS with RANKINGS	0.2508 N(88) Sig .018
GS with GATERANK	0.2791 N(88) Sig .008	GS with GTHITRANK	0.2687 N(82) Sig .015	AR with MK	0.5750 N(88) Sig .000	AR with PC	0.4888 N(88) Sig .000	AR with NO	0.4412 N(88) Sig .000	AR with CS	0.3254 N(88) Sig .002
AR with AS	0.4988 N(88) Sig .000	AR with MK	0.7818 N(88) Sig .000	AR with MC	0.6156 N(88) Sig .000	AR with EI	0.4751 N(88) Sig .000	AR with COMBAT	0.8494 N(88) Sig .000	AR with GTECH	0.8096 N(88) Sig .000
AR with AFBT	0.8517 N(88) Sig .000	AR with COMBATMI	0.6203 N(88) Sig .000	AR with ABLE	0.6443 N(88) Sig .000	AR with MSY	0.1186 N(88) Sig .267	AR with AGE	0.1894 N(88) Sig .062	AR with HAND	0.0332 N(74) Sig .779
AR with GLASSES	0.1757 N(88) Sig .101	AR with TRKSPEED	0.2843 N(87) Sig .008	AR with TRKACCY	0.2765 N(87) Sig .010	AR with TRKSPAC	0.4207 N(87) Sig .000	AR with ACOTIME	-0.2355 N(88) Sig .027	AR with ACCHITS	0.0986 N(88) Sig .381
AR with COMPTIME	-0.4768 N(88) Sig .000	AR with COMPACCY	0.3990 N(88) Sig .000	AR with IMPEKNT	0.4443 N(88) Sig .000	AR with RSENSE	0.1789 N(88) Sig .085	AR with GATES	0.2183 N(88) Sig .041	AR with HITS	0.1167 N(82) Sig .297

Table K.1 (OSUT I - Cont'd.)

AR with N(88) RANKINGS Sim .014	AR with N(88) GATERANK Sim .006	AR with N(82) GTHITRANK Sim .004	0.2602 N(88) Sim .000	0.2899 N(88) Sim .000	0.3132 N(82) Sim .004	0.7484 N(88) Sim .000	0.5605 N(88) Sim .001	0.3910 N(88) Sim .000
0.4126 N(88) Sim .000	0.5742 N(88) Sim .000	0.4028 N(88) Sim .000	0.6173 N(88) Sim .000	0.6073 N(88) Sim .000	0.8486 N(88) Sim .000	0.7484 N(88) Sim .000	0.5605 N(88) Sim .001	0.3910 N(88) Sim .000
0.8313 N(88) Sim .000	0.6355 N(88) Sim .000	0.7922 N(88) Sim .000	0.1890 N(87) Sim .080	0.3535 N(87) Sim .001	0.1522 N(88) Sim .157	0.2881 N(88) Sim .006	0.0843 N(88) Sim .552	0.0843 N(88) Sim .552
0.4398 N(88) Sim .000	0.4334 N(88) Sim .000	0.5587 N(88) Sim .000	0.2327 N(82) Sim .035	0.4398 N(88) Sim .000	0.4051 N(88) Sim .000	0.4298 N(88) Sim .000	0.7463 N(88) Sim .000	0.7463 N(88) Sim .000
0.6523 N(88) Sim .000	0.6569 N(88) Sim .000	0.1760 N(88) Sim .101	0.3425 N(87) Sim .001	0.2471 N(88) Sim .020	0.1581 N(74) Sim .184	0.2741 N(88) Sim .010	0.7463 N(88) Sim .000	0.7463 N(88) Sim .000
0.2781 N(87) Sim .009	0.1738 N(87) Sim .107	0.3425 N(87) Sim .001	0.3425 N(87) Sim .001	0.2589 N(88) Sim .016	0.1117 N(88) Sim .300	0.3418 N(88) Sim .001	0.7463 N(88) Sim .000	0.7463 N(88) Sim .000
0.2768 N(88) Sim .008	0.3132 N(88) Sim .003	0.0135 N(88) Sim .901	0.6217 N(88) Sim .000	0.2587 N(88) Sim .013	0.0778 N(82) Sim .486	0.3418 N(88) Sim .001	0.7463 N(88) Sim .000	0.7463 N(88) Sim .000
0.3663 N(88) Sim .000	0.3204 N(82) Sim .003	0.6217 N(88) Sim .000	0.6217 N(88) Sim .000	0.2587 N(88) Sim .013	0.0778 N(82) Sim .486	0.3418 N(88) Sim .001	0.7463 N(88) Sim .000	0.7463 N(88) Sim .000

Table K.1 (OSUT I - Cont'd.)

NO with EI	0.1984 N(88) Sim .064	NO with COMBAT	0.4861 N(88) Sim .000	NO with GTECH	0.4751 N(88) Sim .000	NO with AFGT	0.6700 N(88) Sim .000	NO with COMBATM1	0.7251 N(88) Sim .000	NO with ABLE	0.4525 N(88) Sim .000
NO with HSY	0.0709 N(88) Sim .512	NO with AGE	0.2285 N(88) Sim .032	NO with HAND	-0.2023 N(74) Sim .084	NO with GLASSES	0.1453 N(88) Sim .177	NO with TRKSPEED	0.3686 N(87) Sim .000	NO with TRKACCY	0.0414 N(87) Sim .703
NO with TRKSPAC	0.3155 N(87) Sim .003	NO with ACQTIME	-0.2525 N(88) Sim .018	NO with ACQHITS	-0.0043 N(88) Sim .968	NO with COMPTIME	-0.4436 N(88) Sim .000	NO with COMPACCY	0.1914 N(88) Sim .074	NO with IMPERCNT	0.4006 N(88) Sim .000
NO with RSENSE	0.0827 N(88) Sim .444	NO with GATES	0.1807 N(88) Sim .052	NO with HITS	0.2785 N(82) Sim .011	NO with RANKINGS	0.2699 N(88) Sim .011	NO with GATERANK	0.2730 N(88) Sim .010	NO with GTHITRANK	0.3853 N(82) Sim .000
CS with AS	0.1097 N(88) Sim .309	CS with MK	0.4033 N(88) Sim .000	CS with MC	0.0570 N(88) Sim .598	CS with EI	0.2325 N(88) Sim .029	CS with COMBAT	0.4721 N(88) Sim .000	CS with GTECH	0.4138 N(88) Sim .000
CS with AFGT	0.5271 N(88) Sim .000	CS with COMBATM1	0.6646 N(88) Sim .000	CS with ABLE	0.4669 N(88) Sim .000	CS with HSY	0.0674 N(88) Sim .533	CS with AGE	0.1679 N(88) Sim .118	CS with HAND	-0.1522 N(74) Sim .167
CS with GLASSES	0.2488 N(88) Sim .019	CS with TRKSPEED	0.3331 N(87) Sim .002	CS with TRKACCY	0.0663 N(87) Sim .542	CS with TRKSPAC	0.3279 N(87) Sim .002	CS with ACQTIME	-0.3376 N(88) Sim .001	CS with ACQHITS	0.0867 N(88) Sim .422
CS with COMPTIME	-0.4394 N(88) Sim .000	CS with COMPACCY	0.0051 N(88) Sim .962	CS with IMPERCNT	0.3333 N(88) Sim .002	CS with RSENSE	0.1223 N(88) Sim .256	CS with GATES	0.2369 N(88) Sim .026	CS with HITS	0.1217 N(82) Sim .278
CS with RANKINGS	0.2970 N(88) Sim .005	CS with GATERANK	0.3236 N(88) Sim .002	CS with GTHITRANK	0.3235 N(82) Sim .003	AS with MK	0.3990 N(88) Sim .000	AS with MC	0.6653 N(88) Sim .000	AS with EI	0.5779 N(88) Sim .000
AS with COMBAT	0.7831 N(88) Sim .000	AS with GTECH	0.5339 N(88) Sim .000	AS with AFGT	0.5195 N(88) Sim .000	AS with COMBATM1	0.7030 N(88) Sim .000	AS with ABLE	0.3489 N(88) Sim .001	AS with HSY	0.1675 N(88) Sim .119
AS with AGE	0.2596 N(88) Sim .015	AS with HAND	0.0335 N(74) Sim .777	AS with GLASSES	0.1295 N(88) Sim .229	AS with TRKSPEED	0.2192 N(87) Sim .041	AS with TRKACCY	0.2654 N(87) Sim .013	AS with TRKSPAC	0.3664 N(87) Sim .000

Table K.1 (OSUT I - Cont'd.)

AS with ACGTIME	-0.1567 N(88) Sig .145	AS with ACOHITS	-0.0075 N(88) Sig .945	AS with COMPTIME	-0.3442 N(88) Sig .001	AS with COMPACCY	0.2384 N(88) Sig .025	AS with THPERCNT	0.3406 N(88) Sig .001	AS with RSENSE	0.1165 N(88) Sig .280
AS with GATES	0.3880 N(88) Sig .000	AS with HITS	-0.0660 N(82) Sig .556	AS with RANKINGS	0.3185 N(88) Sig .002	AS with GATERANK	0.4281 N(88) Sig .000	AS with GTHITRANK	0.3268 N(82) Sig .003	MC with MC	0.4918 N(88) Sig .000
MC with EI	0.4139 N(88) Sig .000	MC with COMBAT	0.7145 N(88) Sig .000	MC with GTECH	0.7670 N(88) Sig .000	MC with AFGT	0.7850 N(88) Sig .000	MC with COMBATMI	0.6066 N(88) Sig .000	MC with ABLE	0.6501 N(88) Sig .000
MC with HSY	0.2106 N(88) Sig .049	MC with AGE	0.2295 N(88) Sig .031	MC with HAND	-0.0268 N(74) Sig .822	MC with GLASSES	0.3596 N(88) Sig .001	MC with TRKSPEED	0.3322 N(87) Sig .002	MC with TRKACCY	0.2373 N(87) Sig .027
MC with TRKSPAC	0.4357 N(87) Sig .000	MC with ACGTIME	-0.2316 N(88) Sig .030	MC with ACOHITS	0.0462 N(88) Sig .668	MC with COMPTIME	-0.5036 N(88) Sig .000	MC with COMPACCY	0.3080 N(88) Sig .003	MC with THPERCNT	0.4671 N(88) Sig .000
MC with RSENSE	0.2288 N(88) Sig .032	MC with GATES	0.2338 N(88) Sig .028	MC with HITS	0.1065 N(82) Sig .341	MC with RANKINGS	0.3723 N(88) Sig .000	MC with GATERANK	0.3673 N(88) Sig .000	MC with GTHITRANK	0.3558 N(82) Sig .001
MC with EI	0.5408 N(88) Sig .000	MC with COMBAT	0.8149 N(88) Sig .000	MC with GTECH	0.6057 N(88) Sig .000	MC with AFGT	0.5187 N(88) Sig .000	MC with COMBATMI	0.5147 N(88) Sig .000	MC with ABLE	0.3758 N(88) Sig .000
MC with HSY	0.1561 N(88) Sig .146	MC with AGE	0.0807 N(88) Sig .455	MC with HAND	-0.0461 N(74) Sig .697	MC with GLASSES	0.0634 N(88) Sig .558	MC with TRKSPEED	0.1973 N(87) Sig .067	MC with TRKACCY	0.2844 N(87) Sig .008
MC with TRKSPAC	0.3697 N(87) Sig .000	MC with ACGTIME	-0.2346 N(88) Sig .028	MC with ACOHITS	0.1466 N(88) Sig .173	MC with COMPTIME	-0.2743 N(88) Sig .010	MC with COMPACCY	0.2003 N(88) Sig .061	MC with THPERCNT	0.2195 N(88) Sig .040
MC with RSENSE	0.2834 N(88) Sig .007	MC with GATES	0.3760 N(88) Sig .000	MC with HITS	0.0309 N(82) Sig .783	MC with RANKINGS	0.2879 N(88) Sig .007	MC with GATERANK	0.4023 N(88) Sig .000	MC with GTHITRANK	0.3593 N(82) Sig .001
EI with COMBAT	0.6262 N(88) Sig .000	EI with GTECH	0.6187 N(88) Sig .000	EI with AFGT	0.5832 N(88) Sig .000	EI with COMBATMI	0.7326 N(88) Sig .000	EI with ABLE	0.5868 N(88) Sig .000	EI with HSY	0.1380 N(88) Sig .200

Table K.1 (OSUT I - Cont'd.)

EI with AGE	0.1945 N(88) Sim .069	EI with HAND	-0.1026 N(74) Sim .384	EI with GLASSES	0.2499 N(88) Sim .019	EI with TRKSPEED	0.2954 N(87) Sim .005	EI with TRKACCY	0.2988 N(87) Sim .005	EI with TRKSPAC	0.4057 N(87) Sim .000
EI with ACOTIME	-0.3000 N(88) Sim .005	EI with ACGHITS	0.1864 N(88) Sim .082	EI with COMPTIME	-0.3738 N(88) Sim .000	EI with COMPACCY	0.1641 N(88) Sim .127	EI with TMPERCNT	0.3832 N(88) Sim .000	EI with MSENSE	0.1578 N(88) Sim .142
EI with GATES	0.2969 N(88) Sim .005	EI with HITS	-0.0227 N(82) Sim .839	EI with RANKINGS	0.1984 N(88) Sim .064	EI with GATERANK	0.3001 N(88) Sim .004	EI with GTHITRANK	0.2438 N(82) Sim .027	COMBAT with GTECH	0.8488 N(88) Sim .000
COMBAT with AFBT	0.8266 N(88) Sim .000	COMBAT with COMBATMI	0.8404 N(88) Sim .000	COMBAT with ABLE	0.8253 N(88) Sim .000	COMBAT with HSY	0.1745 N(88) Sim .104	COMBAT with AGE	0.2387 N(88) Sim .025	COMBAT with HAND	-0.0421 N(74) Sim .722
COMBAT with GLASSES	0.2041 N(88) Sim .056	COMBAT with TRKSPEED	0.3467 N(87) Sim .001	COMBAT with TRKACCY	0.3095 N(87) Sim .004	COMBAT with TRKSPAC	0.5045 N(87) Sim .000	COMBAT with ACOTIME	-0.3207 N(88) Sim .002	COMBAT with ACGHITS	0.1105 N(88) Sim .305
COMBAT with COMPTIME	-0.5175 N(88) Sim .000	COMBAT with COMPACCY	0.2998 N(88) Sim .005	COMBAT with TMPERCNT	0.4540 N(88) Sim .000	COMBAT with RSENSE	0.2357 N(88) Sim .024	COMBAT with GATES	0.4108 N(88) Sim .000	COMBAT with HITS	0.0664 N(82) Sim .353
COMBAT with RANKINGS	0.3906 N(88) Sim .000	COMBAT with GATERANK	0.4857 N(88) Sim .000	COMBAT with GTHITRANK	0.4396 N(82) Sim .000	GTECH with AFBT	0.8555 N(88) Sim .000	GTECH with COMBATMI	0.7276 N(88) Sim .000	GTECH with ABLE	0.8009 N(88) Sim .000
GTECH with HSY	0.1816 N(88) Sim .090	GTECH with AGE	0.2665 N(88) Sim .012	GTECH with HAND	-0.0287 N(74) Sim .808	GTECH with GLASSES	0.2432 N(88) Sim .022	GTECH with TRKSPEED	0.3320 N(87) Sim .002	GTECH with TRKACCY	0.2721 N(87) Sim .011
GTECH with TRKSPAC	0.4486 N(87) Sim .000	GTECH with ACOTIME	-0.2408 N(88) Sim .024	GTECH with ACGHITS	0.0898 N(88) Sim .355	GTECH with COMPTIME	-0.6282 N(88) Sim .000	GTECH with COMPACCY	0.3985 N(88) Sim .000	GTECH with TMPERCNT	0.4781 N(88) Sim .000
GTECH with RSENSE	0.1487 N(88) Sim .167	GTECH with GATES	0.2367 N(88) Sim .026	GTECH with HITS	0.1292 N(82) Sim .247	GTECH with RANKINGS	0.2962 N(88) Sim .005	GTECH with GATERANK	0.3230 N(88) Sim .002	GTECH with GTHITRANK	0.3320 N(82) Sim .002
AFBT with COMBATMI	0.8152 N(88) Sim .000	AFBT with ABLE	0.7929 N(88) Sim .000	AFBT with HSY	0.1888 N(88) Sim .078	AFBT with AGE	0.3270 N(88) Sim .002	AFBT with HAND	-0.0681 N(74) Sim .564	AFBT with GLASSES	0.2594 N(88) Sim .015

Table K.1 (OSUT I - Cont'd.)

AFGT with TRANSPAC SIS .000	0.3729 N(87)	AFGT with TRANSPAC SIS .027	0.2366 N(87)	AFGT with TRANSPAC SIS .000	0.4499 N(87)	AFGT with TRANSPAC SIS .018	-0.2510 N(88)	AFGT with TRANSPAC SIS .496	0.0736 N(88)	AFGT with TRANSPAC SIS .000	-0.6211 N(88)
AFGT with TRANSPAC SIS .001	0.3557 N(88)	AFGT with TRANSPAC SIS .000	0.5175 N(88)	AFGT with TRANSPAC SIS .000	0.1663 N(88)	AFGT with TRANSPAC SIS .031	0.2303 N(88)	AFGT with TRANSPAC SIS .104	0.1808 N(82)	AFGT with TRANSPAC SIS .001	0.3373 N(88)
AFGT with TRANSPAC SIS .001	0.3440 N(88)	AFGT with TRANSPAC SIS .001	0.3756 N(82)	AFGT with TRANSPAC SIS .001	0.6588 N(88)	AFGT with TRANSPAC SIS .139	0.1598 N(88)	AFGT with TRANSPAC SIS .004	0.3017 N(88)	AFGT with TRANSPAC SIS .197	-0.1518 N(88)
COMBATM1 with TRANSPAC SIS .010	0.2718 N(88)	COMBATM1 with TRANSPAC SIS .000	0.4252 N(87)	COMBATM1 with TRANSPAC SIS .000	0.2398 N(87)	COMBATM1 with TRANSPAC SIS .025	0.1698 N(88)	COMBATM1 with TRANSPAC SIS .000	0.3902 N(88)	COMBATM1 with TRANSPAC SIS .000	0.0943 N(88)
COMBATM1 with TRANSPAC SIS .000	-0.5631 N(88)	COMBATM1 with TRANSPAC SIS .041	0.2186 N(88)	COMBATM1 with TRANSPAC SIS .000	0.5169 N(88)	COMBATM1 with TRANSPAC SIS .114	0.1698 N(88)	COMBATM1 with TRANSPAC SIS .000	0.3902 N(88)	COMBATM1 with TRANSPAC SIS .350	0.1045 N(82)
COMBATM1 with TRANSPAC SIS .000	0.3790 N(88)	COMBATM1 with TRANSPAC SIS .000	0.4661 N(88)	COMBATM1 with TRANSPAC SIS .000	0.4444 N(82)	COMBATM1 with TRANSPAC SIS .000	0.1251 N(88)	COMBATM1 with TRANSPAC SIS .015	0.2580 N(88)	COMBATM1 with TRANSPAC SIS .324	-0.0753 N(88)
ABLE with TRANSPAC SIS .026	0.2371 N(88)	ABLE with TRANSPAC SIS .000	0.3695 N(87)	ABLE with TRANSPAC SIS .000	0.2429 N(87)	ABLE with TRANSPAC SIS .023	0.4554 N(87)	ABLE with TRANSPAC SIS .044	-0.2153 N(88)	ABLE with TRANSPAC SIS .305	0.1107 N(88)
ABLE with TRANSPAC SIS .000	-0.6843 N(88)	ABLE with TRANSPAC SIS .005	0.2946 N(88)	ABLE with TRANSPAC SIS .000	0.4985 N(88)	ABLE with TRANSPAC SIS .000	0.1672 N(88)	ABLE with TRANSPAC SIS .035	0.2246 N(88)	ABLE with TRANSPAC SIS .267	0.1240 N(82)
ABLE with TRANSPAC SIS .049	0.2102 N(88)	ABLE with TRANSPAC SIS .013	0.2635 N(88)	ABLE with TRANSPAC SIS .010	0.2832 N(82)	ABLE with TRANSPAC SIS .010	0.3810 N(88)	ABLE with TRANSPAC SIS .927	-0.0108 N(88)	ABLE with TRANSPAC SIS .102	0.1755 N(88)
HSY with TRANSPAC SIS .332	-0.1053 N(87)	HSY with TRANSPAC SIS .118	0.1690 N(87)	HSY with TRANSPAC SIS .822	0.0244 N(87)	HSY with TRANSPAC SIS .636	0.0511 N(88)	HSY with TRANSPAC SIS .959	0.0055 N(88)	HSY with TRANSPAC SIS .887	-0.0154 N(88)
HSY with TRANSPAC SIS .671	0.0459 N(88)	HSY with TRANSPAC SIS .884	0.0157 N(88)	HSY with TRANSPAC SIS .212	0.1344 N(88)	HSY with TRANSPAC SIS .049	0.2109 N(88)	HSY with TRANSPAC SIS .554	0.0663 N(82)	HSY with TRANSPAC SIS .045	0.2140 N(88)

Table K.1 (OSUT I - Cont'd.)

MSY with GATERANK	0.2575 N(88) Sim .015	MSY with GTHITRANK	0.2173 N(82) Sim .050	AGE with HAND	-0.0788 N(74) Sim .505	AGE with GLASSES	0.0750 N(88) Sim .487	AGE with TRKSPEED	-0.1176 N(87) Sim .278	AGE with TRKACCY	0.0800 N(87) Sim .461
AGE with TRKSPAC	-0.0689 N(87) Sim .526	AGE with ACOTIME	-0.1171 N(88) Sim .277	AGE with ACOHITS	0.1254 N(88) Sim .244	AGE with COMPTIME	-0.1509 N(88) Sim .134	AGE with COMPACCY	0.0334 N(88) Sim .757	AGE with TMPERCNT	0.3048 N(88) Sim .004
AGE with RSENSE	0.0958 N(88) Sim .374	AGE with GATES	0.0573 N(88) Sim .596	AGE with HITS	0.1763 N(82) Sim .113	AGE with RANKINGS	0.3131 N(88) Sim .003	AGE with GATERANK	0.2245 N(88) Sim .035	AGE with GTHITRANK	0.2811 N(82) Sim .008
HAND with GLASSES	0.0055 N(74) Sim .863	HAND with TRKSPEED	-0.0780 N(73) Sim .506	HAND with TRKACCY	-0.2607 N(73) Sim .026	HAND with TRKSPAC	-0.2442 N(73) Sim .037	HAND with ACOTIME	0.4048 N(74) Sim .000	HAND with ACOHITS	-0.1778 N(74) Sim .129
HAND with COMPTIME	0.2777 N(74) Sim .017	HAND with COMPACCY	0.0449 N(74) Sim .704	HAND with TMPERCNT	-0.1464 N(74) Sim .213	HAND with RSENSE	0.0248 N(74) Sim .833	HAND with GATES	-0.1583 N(74) Sim .178	HAND with HITS	-0.0480 N(68) Sim .691
HAND with RANKINGS	-0.1767 N(74) Sim .132	HAND with GATERANK	-0.2037 N(74) Sim .082	HAND with GTHITRANK	-0.2181 N(68) Sim .073	GLASSES with TRKSPEED	0.1870 N(87) Sim .067	GLASSES with TRKACCY	0.0788 N(87) Sim .463	GLASSES with TRKSPAC	0.1825 N(87) Sim .074
GLASSES with ACOTIME	-0.1908 N(88) Sim .075	GLASSES with ACOHITS	0.1583 N(88) Sim .141	GLASSES with COMPTIME	-0.1890 N(88) Sim .078	GLASSES with COMPACCY	0.1078 N(88) Sim .318	GLASSES with TMPERCNT	0.2581 N(88) Sim .016	GLASSES with RSENSE	-0.0688 N(88) Sim .536
GLASSES with GATES	0.0047 N(88) Sim .966	GLASSES with HITS	-0.0289 N(82) Sim .790	GLASSES with RANKINGS	0.1198 N(88) Sim .286	GLASSES with GATERANK	0.0755 N(88) Sim .485	GLASSES with GTHITRANK	0.0292 N(82) Sim .795	TRKSPEED with TRKACCY	-0.1300 N(87) Sim .230
TRKSPEED with TRKSPAC	0.7691 N(87) Sim .000	TRKSPEED with ACOTIME	-0.3280 N(87) Sim .002	TRKSPEED with ACOHITS	-0.0117 N(87) Sim .914	TRKSPEED with COMPTIME	-0.2952 N(87) Sim .006	TRKSPEED with COMPACCY	0.1454 N(87) Sim .179	TRKSPEED with TMPERCNT	0.2501 N(87) Sim .019
TRKSPEED with RSENSE	0.1973 N(87) Sim .067	TRKSPEED with GATES	0.1808 N(87) Sim .094	TRKSPEED with HITS	0.0479 N(81) Sim .671	TRKSPEED with RANKINGS	0.0828 N(87) Sim .563	TRKSPEED with GATERANK	0.1470 N(87) Sim .174	TRKSPEED with GTHITRANK	0.1828 N(81) Sim .102
TRKACCY with TRKSPAC	0.4834 N(87) Sim .000	TRKACCY with ACOTIME	-0.1814 N(87) Sim .076	TRKACCY with ACOHITS	0.1142 N(87) Sim .292	TRKACCY with COMPTIME	-0.1775 N(87) Sim .100	TRKACCY with COMPACCY	-0.0011 N(87) Sim .992	TRKACCY with TMPERCNT	0.1355 N(87) Sim .211

Table K.1 (OSUT I - Cont'd.)

TRKACY with RSENSE	0.1331 N(87) Sis .219	TRKACY with GATES	0.3125 N(87) Sis .003	TRKACY with HITS	0.0658 N(81) Sis .558	TRKACY with RANKINGS	0.2256 N(87) Sis .036	TRKACY with GATERANK	0.3262 N(87) Sis .002	TRKACY with GTHITRANK	0.2908 N(81) Sis .008
TRKSPAC with ACQTIME	-0.3831 N(87) Sis .000	TRKSPAC with ACQHITS	0.0827 N(87) Sis .446	TRKSPAC with COMPTIME	-0.3646 N(87) Sis .001	TRKSPAC with COMPTIME	0.1036 N(87) Sis .340	TRKSPAC with TMPERCNT	0.2606 N(87) Sis .015	TRKSPAC with RSENSE	0.2765 N(87) Sis .010
TRKSPAC with GATES	0.3388 N(87) Sis .001	TRKSPAC with HITS	0.0815 N(87) Sis .469	TRKSPAC with RANKINGS	0.1795 N(87) Sis .096	TRKSPAC with GATERANK	0.3136 N(87) Sis .003	TRKSPAC with GTHITRANK	0.3171 N(81) Sis .004	TRKSPAC with ACQHITS	-0.2659 N(88) Sis .012
ACQTIME with COMPTIME	0.3389 N(88) Sis .001	ACQTIME with COMPTIME	0.0238 N(88) Sis .826	ACQTIME with TMPERCNT	-0.1346 N(88) Sis .211	ACQTIME with RSENSE	-0.1212 N(88) Sis .261	ACQTIME with GATES	-0.1659 N(88) Sis .120	ACQTIME with HITS	-0.0735 N(82) Sis .512
ACQTIME with RANKINGS	-0.3019 N(88) Sis .004	ACQTIME with GATERANK	-0.2841 N(88) Sis .007	ACQTIME with GTHITRANK	-0.3027 N(82) Sis .006	ACQHITS with COMPTIME	-0.0200 N(88) Sis .853	ACQHITS with COMPTIME	-0.0094 N(88) Sis .931	ACQHITS with TMPERCNT	0.0745 N(88) Sis .490
ACQHITS with RSENSE	0.1885 N(88) Sis .079	ACQHITS with GATES	-0.0317 N(88) Sis .769	ACQHITS with HITS	0.1038 N(82) Sis .354	ACQHITS with RANKINGS	0.1237 N(88) Sis .251	ACQHITS with GATERANK	0.0557 N(88) Sis .606	ACQHITS with GTHITRANK	0.0373 N(82) Sis .609
COMPTIME with COMPTIME	-0.4681 N(88) Sis .000	COMPTIME with TMPERCNT	-0.4253 N(88) Sis .000	COMPTIME with RSENSE	-0.0840 N(88) Sis .437	COMPTIME with GATES	-0.2187 N(88) Sis .041	COMPTIME with HITS	-0.1653 N(82) Sis .138	COMPTIME with RANKINGS	-0.2303 N(88) Sis .031
COMPTIME with GATERANK	-0.2721 N(88) Sis .010	COMPTIME with GTHITRANK	-0.3139 N(82) Sis .004	COMPTIME with HITS	0.2625 N(88) Sis .013	COMPTIME with RANKINGS	0.0289 N(88) Sis .789	COMPTIME with GATES	0.0071 N(88) Sis .948	COMPTIME with HITS	-0.0652 N(82) Sis .561
COMPTIME with RANKINGS	-0.1315 N(88) Sis .222	COMPTIME with GATERANK	-0.0755 N(88) Sis .485	COMPTIME with GTHITRANK	-0.0937 N(82) Sis .402	COMPTIME with HITS	0.1050 N(88) Sis .330	COMPTIME with RANKINGS	0.2004 N(88) Sis .061	COMPTIME with HITS	0.2039 N(82) Sis .066
COMPTIME with RANKINGS	0.0574 N(88) Sis .595	COMPTIME with GATERANK	0.1562 N(88) Sis .146	COMPTIME with GTHITRANK	0.2536 N(82) Sis .022	COMPTIME with HITS	0.2204 N(88) Sis .039	COMPTIME with RANKINGS	0.1147 N(82) Sis .305	COMPTIME with RANKINGS	0.1208 N(88) Sis .262
COMPTIME with GATERANK	0.2068 N(88) Sis .053	COMPTIME with GTHITRANK	0.2244 N(82) Sis .043	COMPTIME with HITS	0.0201 N(82) Sis .858	COMPTIME with RANKINGS	0.3815 N(88) Sis .001	COMPTIME with GATES	0.8250 N(83) Sis .000	COMPTIME with GTHITRANK	0.6982 N(82) Sis .000
COMPTIME with HITS	0.0575 N(82) Sis .608	COMPTIME with GATERANK	0.0467 N(82) Sis .677	COMPTIME with GTHITRANK	0.5483 N(82) Sis .000	COMPTIME with HITS	0.8252 N(88) Sis .000	COMPTIME with GATERANK	0.7174 N(82) Sis .000	COMPTIME with GTHITRANK	0.8609 N(82) Sis .000

Table K.2

[illegible]

Table K.2 (OSUT II - Cont'd.)

AR with N(58) RANKINGS Sis .613	AR with N(58) GATERANK Sis .293	AR with N(58) GTHITRANK Sis .135	WK with N(58) PC	0.6838 N(58) Sis .000	WK with N(58) NO	-0.0218 N(58) Sis .871	WK with N(58) CS	0.0770 N(58) Sis .566
WK with N(58) AS	WK with N(58) MC	WK with N(58) EI	WK with N(58) HSY	0.7147 N(58) Sis .000	WK with N(58) COMBAT	0.5586 N(58) Sis .000	WK with N(58) GTECH	0.7370 N(58) Sis .000
WK with N(58) AFBT	WK with N(58) ABLE	WK with N(58) RSENSE	WK with N(58) TRKSPAC	0.0510 N(58) Sis .704	WK with N(58) AGE	0.4076 N(58) Sis .001	WK with N(58) HAND	0.0728 N(58) Sis .591
WK with N(58) GLASSES	WK with N(58) TRKSPAC	WK with N(58) TRKACCY	WK with N(58) RSENSE	0.3796 N(58) Sis .003	WK with N(58) ACOTIME	-0.2507 N(58) Sis .058	WK with N(58) ACGHITS	0.2104 N(58) Sis .113
WK with N(58) COMPTIME	WK with N(58) COMPTIME	WK with N(58) COMPTIME	WK with N(58) COMPTIME	-0.0432 N(58) Sis .748	WK with N(58) GATES	0.2244 N(58) Sis .090	WK with N(58) HITS	0.0458 N(58) Sis .733
WK with N(58) RANKINGS	WK with N(58) GATERANK	WK with N(58) GTHITRANK	WK with N(58) GTHITRANK	-0.0303 N(58) Sis .821	PC with N(58) CS	0.0394 N(58) Sis .769	PC with N(58) AS	0.3002 N(58) Sis .022
PC with N(58) MK	PC with N(58) MC	PC with N(58) EI	PC with N(58) COMBAT	0.4626 N(58) Sis .000	PC with N(58) GTECH	0.7370 N(58) Sis .000	PC with N(58) AFBT	0.6368 N(58) Sis .000
PC with N(58) COMBAT	PC with N(58) ABLE	PC with N(58) HSY	PC with N(58) AGE	0.3674 N(58) Sis .005	PC with N(58) HAND	-0.0275 N(58) Sis .839	PC with N(58) GLASSES	-0.1300 N(58) Sis .331
PC with N(58) TRKSPAC	PC with N(58) TRKACCY	PC with N(58) TRKSPAC	PC with N(58) TRKACCY	-0.0417 N(58) Sis .756	PC with N(58) ACGHITS	0.0570 N(58) Sis .671	PC with N(58) COMPTIME	-0.3031 N(58) Sis .021
PC with N(58) COMPTIME	PC with N(58) TRKACCY	PC with N(58) RSENSE	PC with N(58) GATES	0.1756 N(58) Sis .187	PC with N(58) HITS	0.0855 N(58) Sis .523	PC with N(58) RANKINGS	0.0815 N(58) Sis .847
PC with N(58) GATERANK	PC with N(58) GTHITRANK	PC with N(58) GTHITRANK	PC with N(58) GTHITRANK	0.4078 N(58) Sis .001	NO with N(58) AS	0.2242 N(58) Sis .091	NO with N(58) MC	-0.0190 N(58) Sis .888

Table K.2 (OSUT II - Cont'd.)

NO with EI	0.1437 N(58) Sim .282	NO with COMBAT	0.3342 N(58) Sim .010	NO with GTECH	0.1884 N(58) Sim .157	NO with AFGT	0.4375 N(58) Sim .001	NO with COMBATMI	0.6750 N(58) Sim .000	NO with ABLE	0.1483 N(58) Sim .287
NO with HSY	0.1540 N(58) Sim .248	NO with AGE	0.1576 N(58) Sim .237	NO with HAND	-0.1508 N(57) Sim .283	NO with GLASSES	0.1733 N(58) Sim .193	NO with TRKSPEED	-0.0446 N(58) Sim .740	NO with TRKACCY	-0.1318 N(58) Sim .324
NO with TRKSPAC	-0.1056 N(58) Sim .430	NO with ACQTIME	-0.0809 N(58) Sim .546	NO with ACQHITS	-0.2313 N(58) Sim .081	NO with COMPTIME	0.0301 N(58) Sim .823	NO with COMPACCY	-0.0891 N(58) Sim .306	NO with TAPERENT	0.1111 N(58) Sim .407
NO with RSENSE	0.0389 N(58) Sim .560	NO with GATES	0.2145 N(58) Sim .106	NO with HITS	-0.0553 N(58) Sim .680	NO with RANKINGS	0.4417 N(58) Sim .001	NO with GATERANK	0.3874 N(58) Sim .002	NO with GTHITRANK	0.3356 N(58) Sim .010
CS with AS	0.1180 N(58) Sim .378	CS with MK	0.3311 N(58) Sim .011	CS with MC	0.0806 N(58) Sim .548	CS with EJ	0.1612 N(58) Sim .227	CS with COMBAT	0.4315 N(58) Sim .001	CS with GTECH	0.1155 N(58) Sim .388
CS with AFGT	0.2868 N(58) Sim .029	CS with COMBATMI	0.5803 N(58) Sim .000	CS with ABLE	0.0841 N(58) Sim .482	CS with HSY	0.1062 N(58) Sim .427	CS with AGE	0.2601 N(58) Sim .049	CS with HAND	-0.1488 N(57) Sim .269
CS with GLASSES	0.2704 N(58) Sim .040	CS with TRKSPEED	0.0338 N(58) Sim .801	CS with TRKACCY	-0.0880 N(58) Sim .511	CS with TRKSPAC	0.0011 N(58) Sim .994	CS with ACQTIME	-0.0780 N(58) Sim .561	CS with ACQHITS	-0.1113 N(58) Sim .406
CS with COMPTIME	-0.1359 N(58) Sim .309	CS with COMPACCY	0.0661 N(58) Sim .622	CS with TAPERENT	0.1600 N(58) Sim .230	CS with RSENSE	-0.0483 N(58) Sim .719	CS with GATES	0.0634 N(58) Sim .636	CS with HITS	0.0723 N(58) Sim .590
CS with RANKINGS	0.3471 N(58) Sim .008	CS with GATERANK	0.2491 N(58) Sim .059	CS with GTHITRANK	0.2703 N(58) Sim .040	AS with MK	0.2414 N(58) Sim .069	AS with MC	0.4867 N(58) Sim .000	AS with EI	0.6826 N(58) Sim .000
AS with COMBAT	0.7448 N(58) Sim .000	AS with GTECH	0.4866 N(58) Sim .000	AS with AFGT	0.4834 N(58) Sim .000	AS with COMBATMI	0.7512 N(58) Sim .000	AS with ABLE	0.4580 N(58) Sim .000	AS with HSY	0.1804 N(58) Sim .175
AS with AGE	0.3618 N(58) Sim .005	AS with HAND	0.0043 N(57) Sim .975	AS with GLASSES	0.1599 N(58) Sim .231	AS with TRKSPEED	0.2042 N(58) Sim .124	AS with TRKACCY	-0.0351 N(58) Sim .794	AS with TRKSPAC	0.1834 N(58) Sim .168

Table K.2 (OSUT II - Cont'd.)

AS with ACOTIME	-0.2971 N(58) Sig .024	AS with ACOHITS	0.0712 N(58) Sig .595	AS with COMPTIME	-0.2338 N(58) Sig .077	AS with COMPACCY	0.1455 N(58) Sig .276	AS with TRPERCENT	0.4353 N(58) Sig .001	AS with RSENSE	-0.0897 N(58) Sig .457
AS with GATES	0.3575 N(58) Sig .006	AS with HITS	0.0051 N(58) Sig .970	AS with RANKINGS	0.2805 N(58) Sig .033	AS with GATERANK	0.3854 N(58) Sig .003	AS with GTHITRANK	0.3584 N(58) Sig .006	MC with MC	0.2724 N(58) Sig .038
MC with EI	0.3614 N(58) Sig .005	MC with COMBAT	0.5234 N(58) Sig .000	MC with GTECH	0.5131 N(58) Sig .000	MC with AFGT	0.4899 N(58) Sig .000	MC with COMBATNI	0.4160 N(58) Sig .001	MC with ABLE	0.4316 N(58) Sig .001
MC with HSY	0.1865 N(58) Sig .161	MC with AGE	0.1792 N(58) Sig .178	MC with HAND	0.1218 N(57) Sig .367	MC with GLASSES	-0.0139 N(58) Sig .917	MC with TRANSPED	-0.0242 N(58) Sig .857	MC with TRKACCY	0.1411 N(58) Sig .291
MC with TRKSPAC	0.1544 N(58) Sig .247	MC with ACOTIME	-0.2645 N(58) Sig .045	MC with ACOHITS	-0.0170 N(58) Sig .899	MC with COMPTIME	-0.2216 N(58) Sig .095	MC with COMPACCY	0.0935 N(58) Sig .485	MC with TRPERCENT	0.3748 N(58) Sig .004
MC with RSENSE	-0.1259 N(58) Sig .346	MC with GATES	0.2644 N(58) Sig .045	MC with HITS	0.1022 N(58) Sig .445	MC with RANKINGS	0.2918 N(58) Sig .026	MC with GATERANK	0.3362 N(58) Sig .010	MC with GTHITRANK	0.3674 N(58) Sig .005
MC with EI	0.5527 N(58) Sig .000	MC with COMBAT	0.7166 N(58) Sig .000	MC with GTECH	0.5210 N(58) Sig .000	MC with AFGT	0.4632 N(58) Sig .000	MC with COMBATNI	0.3991 N(58) Sig .002	MC with ABLE	0.3843 N(58) Sig .002
MC with HSY	0.0864 N(58) Sig .620	MC with AGE	0.2362 N(58) Sig .074	MC with HAND	-0.1559 N(57) Sig .215	MC with GLASSES	0.0820 N(58) Sig .541	MC with TRANSPED	0.2618 N(58) Sig .047	MC with TRKACCY	0.0961 N(58) Sig .473
MC with TRKSPAC	0.3451 N(58) Sig .008	MC with ACOTIME	-0.2116 N(58) Sig .111	MC with ACOHITS	0.2360 N(58) Sig .075	MC with COMPTIME	-0.3943 N(58) Sig .002	MC with COMPACCY	0.2658 N(58) Sig .044	MC with TRPERCENT	0.4662 N(58) Sig .000
MC with RSENSE	0.0295 N(58) Sig .826	MC with GATES	0.1394 N(58) Sig .297	MC with HITS	0.1310 N(58) Sig .258	MC with RANKINGS	0.0542 N(58) Sig .686	MC with GATERANK	0.1167 N(58) Sig .383	MC with GTHITRANK	0.1822 N(58) Sig .148
EI with COMBAT	0.6729 N(58) Sig .000	EI with GTECH	0.5188 N(58) Sig .000	EI with AFGT	0.5847 N(58) Sig .000	EI with COMBATNI	0.7265 N(58) Sig .000	EI with ABLE	0.5569 N(58) Sig .000	EI with HSY	0.1749 N(58) Sig .189

Table K.2 (OSUT II - Cont'd.)

EI with AGE	0.3642 N(58) Sig .005	EI with HAND	0.0560 N(57) Sig .679	EI with GLASSES	0.1495 N(58) Sig .263	EI with TRKSPEED	0.2775 N(58) Sig .035	EI with TRKACCY	0.0973 N(58) Sig .468	EI with TRKSPAC	0.3493 N(58) Sig .007
EI with ACQTIME	-0.3867 N(58) Sig .003	EI with ACQHITS	0.2535 N(58) Sig .055	EI with COMPTIME	-0.3964 N(58) Sig .002	EI with COMPACCY	0.1448 N(58) Sig .278	EI with TMPERCNT	0.4476 N(58) Sig .000	EI with RSENSE	-0.1725 N(58) Sig .195
EI with GATES	0.3564 N(58) Sig .006	EI with HITS	-0.0997 N(58) Sig .437	EI with RANKINGS	0.3113 N(58) Sig .017	EI with GATERANK	0.4034 N(58) Sig .002	EI with GTHITRANK	0.3163 N(58) Sig .016	COMBAT with GTECH	0.7838 N(58) Sig .000
COMBAT with AFQT	0.7853 N(58) Sig .000	COMBAT with COMBATM1	0.7922 N(58) Sig .000	COMBAT with ABLE	0.6288 N(58) Sig .000	COMBAT with HSY	0.2188 N(58) Sig .099	COMBAT with AGE	0.3790 N(58) Sig .003	COMBAT with HAND	-0.1074 N(57) Sig .426
COMBAT with GLASSES	0.1843 N(58) Sig .166	COMBAT with TRKSPEED	0.1624 N(58) Sig .223	COMBAT with TRKACCY	0.0191 N(58) Sig .887	COMBAT with TRKSPAC	0.2002 N(58) Sig .132	COMBAT with ACQTIME	-0.3004 N(58) Sig .022	COMBAT with ACQHITS	0.0453 N(58) Sig .730
COMBAT with COMPTIME	-0.4238 N(58) Sig .001	COMBAT with COMPACCY	0.2518 N(58) Sig .057	COMBAT with TMPERCNT	0.6240 N(58) Sig .000	COMBAT with RSENSE	-0.0703 N(58) Sig .600	COMBAT with GATES	0.2784 N(58) Sig .034	COMBAT with HITS	0.1435 N(58) Sig .283
COMBAT with RANKINGS	0.2557 N(58) Sig .053	COMBAT with GATERANK	0.3227 N(58) Sig .013	COMBAT with GTHITRANK	0.3781 N(58) Sig .003	GTECH with AFQT	0.8953 N(58) Sig .000	GTECH with COMBATM1	0.5190 N(58) Sig .000	GTECH with ABLE	0.7685 N(58) Sig .000
GTECH with HSY	0.1480 N(58) Sig .268	GTECH with AGE	0.3565 N(58) Sig .006	GTECH with HAND	0.0332 N(57) Sig .806	GTECH with GLASSES	0.0801 N(58) Sig .550	GTECH with TRKSPEED	0.1212 N(58) Sig .365	GTECH with TRKACCY	0.1421 N(58) Sig .287
GTECH with TRKSPAC	0.2282 N(58) Sig .085	GTECH with ACQTIME	-0.2280 N(58) Sig .085	GTECH with ACQHITS	0.0241 N(58) Sig .858	GTECH with COMPTIME	-0.4901 N(58) Sig .000	GTECH with COMPACCY	0.2547 N(58) Sig .054	GTECH with TMPERCNT	0.6261 N(58) Sig .000
GTECH with RSENSE	-0.1081 N(58) Sig .419	GTECH with GATES	0.2313 N(58) Sig .081	GTECH with HITS	0.1278 N(58) Sig .339	GTECH with RANKINGS	0.1195 N(58) Sig .372	GTECH with GATERANK	0.2116 N(58) Sig .111	GTECH with GTHITRANK	0.2688 N(58) Sig .043
AFQT with COMBATM1	0.6606 N(58) Sig .000	AFQT with ABLE	0.6500 N(58) Sig .000	AFQT with HSY	0.2251 N(58) Sig .089	AFQT with AGE	0.4603 N(58) Sig .000	AFQT with HAND	0.0035 N(57) Sig .980	AFQT with GLASSES	0.1149 N(58) Sig .391

Table K.2 (OSUT II - Cont'd.)

AFGT with N(58) TRKSPEED Sls .362	AFGT with N(58) TRKACCY Sls .439	AFGT with N(58) TRKSPAC Sls .120	AFGT with N(58) ACGTIME Sls .131	AFGT with N(58) ACGHITS Sls .771	AFGT with N(58) COMPTIME Sls .008	-0.3475 N(58) COMPTIME Sls .008
AFGT with N(58) COMPACCY Sls .129	AFGT with N(58) TMPERCNT Sls .000	AFGT with N(58) RSENSE Sls .445	AFGT with N(58) GATES Sls .013	AFGT with N(58) HITS Sls .563	AFGT with N(58) RANKINGS Sls .031	0.2828 N(58) RANKINGS Sls .031
AFGT with N(58) GATERANK Sls .005	AFGT with N(58) GTHITRNC Sls .003	AFGT with N(58) ABLE Sls .000	AFGT with N(58) HSY Sls .087	AFGT with N(58) AGE Sls .001	AFGT with N(58) HAND Sls .510	-0.0892 N(58) HAND Sls .510
COMBATM1 with N(58) GLASSES Sls .041	COMBATM1 with N(58) TRKSPEED Sls .205	COMBATM1 with N(58) TRKACCY Sls .661	COMBATM1 with N(58) TRKSPAC Sls .253	COMBATM1 with N(58) ACGTIME Sls .019	COMBATM1 with N(58) ACGHITS Sls .938	-0.0105 N(58) ACGHITS Sls .938
COMBATM1 with N(58) COMPTIME Sls .048	COMBATM1 with N(58) COMPACCY Sls .498	COMBATM1 with N(58) TMPERCNT Sls .001	COMBATM1 with N(58) RSENSE Sls .498	COMBATM1 with N(58) GATES Sls .004	COMBATM1 with N(58) HITS Sls .786	-0.0347 N(58) HITS Sls .786
COMBATM1 with N(58) RANKINGS Sls .000	COMBATM1 with N(58) GATERANK Sls .000	COMBATM1 with N(58) GTHITRNC Sls .000	ABLE with N(58) HSY Sls .304	ABLE with N(58) AGE Sls .028	ABLE with N(58) HAND Sls .955	-0.0075 N(58) HAND Sls .955
ABLE with N(58) GLASSES Sls .844	ABLE with N(58) TRKSPEED Sls .566	ABLE with N(58) TRKACCY Sls .492	ABLE with N(58) TRKSPAC Sls .364	ABLE with N(58) ACGTIME Sls .660	ABLE with N(58) ACGHITS Sls .422	-0.1058 N(58) ACGHITS Sls .422
ABLE with N(58) COMPTIME Sls .077	ABLE with N(58) COMPACCY Sls .488	ABLE with N(58) TMPERCNT Sls .234	ABLE with N(58) RSENSE Sls .127	ABLE with N(58) GATES Sls .108	ABLE with N(58) HITS Sls .967	-0.0055 N(58) HITS Sls .967
ABLE with N(58) RANKINGS Sls .884	ABLE with N(58) GATERANK Sls .290	ABLE with N(58) GTHITRNC Sls .341	HSY with N(58) AGE Sls .000	HSY with N(58) HAND Sls .180	HSY with N(58) GLASSES Sls .496	0.0913 N(58) GLASSES Sls .496
HSY with N(58) TRKSPEED Sls .825	HSY with N(58) TRKACCY Sls .440	HSY with N(58) TRKSPAC Sls .936	HSY with N(58) ACGTIME Sls .089	HSY with N(58) ACGHITS Sls .681	HSY with N(58) COMPTIME Sls .879	0.0204 N(58) COMPTIME Sls .879
HSY with N(58) COMPACCY Sls .484	HSY with N(58) TMPERCNT Sls .137	HSY with N(58) RSENSE Sls .777	HSY with N(58) GATES Sls .222	HSY with N(58) HITS Sls .851	HSY with N(58) RANKINGS Sls .015	0.3194 N(58) RANKINGS Sls .015

Table K.2 (OSUT II - Cont'd.)

HSY with GATERANK	0.2919 N(58) Sis .026	HSY with GTHITRANK	0.2835 N(58) Sis .031	AGE with HAND	0.0935 N(57) Sis .488	AGE with GLASSES	0.0534 N(58) Sis .691	AGE with TRKSPEED	0.0660 N(58) Sis .622	AGE with TRKACCY	-0.0877 N(58) Sis .513
AGE with TRKSPAC	0.0119 N(58) Sis .930	AGE with ACQTIME	0.0911 N(58) Sis .497	AGE with ACQHTS	0.0187 N(58) Sis .889	AGE with COMPTIME	-0.0614 N(58) Sis .647	AGE with COMPACCY	0.0706 N(58) Sis .599	AGE with TAPERENT	0.0502 N(58) Sis .708
AGE with RSENSE	-0.2358 N(58) Sis .075	AGE with GATES	0.3073 N(58) Sis .019	AGE with HITS	-0.0011 N(58) Sis .994	AGE with RANKINGS	0.3428 N(58) Sis .008	AGE with GATERANK	0.3931 N(58) Sis .002	AGE with GTHITRANK	0.3620 N(58) Sis .003
HAND with GLASSES	-0.1512 N(57) Sis .282	HAND with TRKSPEED	0.0165 N(59) Sis .501	HAND with TRKACCY	-0.0797 N(59) Sis .548	HAND with TRKSPAC	0.0228 N(59) Sis .863	HAND with ACQTIME	-0.2104 N(59) Sis .110	HAND with ACQHTS	0.1553 N(59) Sis .240
HAND with COMPTIME	-0.0785 N(59) Sis .554	HAND with COMPACCY	0.1442 N(59) Sis .276	HAND with TAPERENT	-0.0265 N(59) Sis .842	HAND with RSENSE	0.0244 N(58) Sis .855	HAND with GATES	0.1728 N(59) Sis .190	HAND with HITS	0.0100 N(59) Sis .940
HAND with RANKINGS	0.0610 N(59) Sis .646	HAND with GATERANK	0.1435 N(59) Sis .278	HAND with GTHITRANK	0.1378 N(59) Sis .298	GLASSES with TRKSPEED	0.2189 N(58) Sis .089	GLASSES with TRKACCY	-0.1618 N(58) Sis .225	GLASSES with TRKSPAC	0.0747 N(58) Sis .577
GLASSES with ACQTIME	-0.0897 N(58) Sis .503	GLASSES with ACQHTS	-0.1432 N(58) Sis .284	GLASSES with COMPTIME	-0.0935 N(58) Sis .485	GLASSES with COMPACCY	-0.0049 N(58) Sis .871	GLASSES with TAPERENT	-0.0586 N(58) Sis .662	GLASSES with RSENSE	0.1789 N(58) Sis .184
GLASSES with GATES	-0.0081 N(58) Sis .952	GLASSES with HITS	0.0052 N(58) Sis .969	GLASSES with RANKINGS	0.0502 N(58) Sis .708	GLASSES with GATERANK	0.0297 N(58) Sis .848	GLASSES with GTHITRANK	0.0266 N(58) Sis .843	TRKSPEED with TRKACCY	-0.3107 N(50) Sis .016
TRKSPEED with TRKSPAC	0.7983 N(60) Sis .000	TRKSPEED with ACQTIME	-0.4122 N(60) Sis .001	TRKSPEED with ACQHTS	-0.1391 N(60) Sis .289	TRKSPEED with COMPTIME	-0.2264 N(60) Sis .082	TRKSPEED with COMPACCY	-0.0158 N(60) Sis .905	TRKSPEED with TAPERENT	0.1552 N(60) Sis .236
TRKSPEED with RSENSE	0.1315 N(60) Sis .317	TRKSPEED with GATES	0.1414 N(60) Sis .281	TRKSPEED with HITS	-0.1352 N(60) Sis .303	TRKSPEED with RANKINGS	0.2981 N(60) Sis .021	TRKSPEED with GATERANK	0.2664 N(60) Sis .040	TRKSPEED with GTHITRANK	0.1706 N(60) Sis .193
TRKACCY with TRKSPAC	0.2717 N(60) Sis .036	TRKACCY with ACQTIME	0.0110 N(60) Sis .934	TRKACCY with ACQHTS	0.2334 N(60) Sis .073	TRKACCY with COMPTIME	0.0932 N(60) Sis .478	TRKACCY with COMPACCY	0.0864 N(60) Sis .464	TRKACCY with TAPERENT	0.1533 N(60) Sis .236

Table K.2 (OSUT II - Cont'd.)

TRKACCY	-0.0141	TRKACCY	-0.0535	TRKACCY	0.0858	TRKACCY	-0.0714	TRKACCY	-0.0757	TRKACCY	-0.0164
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RSENSE	Sis .915	GATES	Sis .685	HITS	Sis .466	RANKINGS	Sis .588	GATERANK	Sis .565	GTHITRANK	Sis .901
TRKSPAC	-0.4345	TRKSPAC	0.0371	TRKSPAC	-0.2208	TRKSPAC	0.0528	TRKSPAC	0.2952	TRKSPAC	0.1208
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
ACQTIME	Sis .001	ACQHITS	Sis .778	COMPTIME	Sis .080	COMPACCY	Sis .689	TMPERCNT	Sis .022	RSENSE	Sis .357
TRKSPAC	0.1583	TRKSPAC	-0.0327	TRKSPAC	0.2835	TRKSPAC	0.2678	TRKSPAC	0.2291	ACQTIME	-0.0469
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
GATES	Sis .227	HITS	Sis .804	RANKINGS	Sis .028	GATERANK	Sis .038	GTHITRANK	Sis .078	ACQHITS	Sis .722
ACQTIME	0.2796	ACQTIME	0.0134	ACQTIME	-0.3285	ACQTIME	-0.0878	ACQTIME	-0.2180	ACQTIME	0.0720
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
COMPTIME	Sis .030	COMPACCY	Sis .919	TMPERCNT	Sis .010	RSENSE	Sis .457	GATES	Sis .093	HITS	Sis .585
ACQTIME	-0.3477	ACQTIME	-0.3435	ACQTIME	-0.2771	ACQHITS	-0.1550	ACQHITS	0.1749	ACQHITS	0.1664
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RANKINGS	Sis .006	GATERANK	Sis .007	GTHITRANK	Sis .032	COMPTIME	Sis .237	COMPACCY	Sis .181	TMPERCNT	Sis .204
ACQHITS	0.1378	ACQHITS	0.0701	ACQHITS	-0.0541	ACQHITS	0.0594	ACQHITS	0.0785	ACQHITS	0.0423
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RSENSE	Sis .293	GATES	Sis .594	HITS	Sis .581	RANKINGS	Sis .652	GATERANK	Sis .551	GTHITRANK	Sis .748
COMPTIME	-0.3167	COMPTIME	-0.4368	COMPTIME	0.0741	COMPTIME	-0.0246	COMPTIME	0.0208	COMPTIME	-0.2074
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
COMPACCY	Sis .014	TMPERCNT	Sis .000	RSENSE	Sis .574	GATES	Sis .852	HITS	Sis .875	RANKINGS	Sis .112
COMPTIME	-0.1406	COMPTIME	-0.1182	COMPTIME	0.2387	COMPACCY	-0.1282	COMPACCY	-0.1648	COMPACCY	-0.0611
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
GATERANK	Sis .284	GTHITRANK	Sis .368	TMPERCNT	Sis .066	RSENSE	Sis .329	GATES	Sis .208	HITS	Sis .643
COMPACCY	-0.0305	COMPACCY	-0.1184	COMPACCY	-0.1435	COMPACCY	-0.0982	TMPERCNT	0.1344	TMPERCNT	0.0856
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RANKINGS	Sis .817	GATERANK	Sis .368	GTHITRANK	Sis .274	RSENSE	Sis .456	GATES	Sis .306	HITS	Sis .516
TMPERCNT	0.1851	TMPERCNT	0.1937	TMPERCNT	0.2267	RSENSE	-0.0875	RSENSE	0.3252	RSENSE	0.0832
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RANKINGS	Sis .157	GATERANK	Sis .138	GTHITRANK	Sis .082	GATES	Sis .506	HITS	Sis .011	RANKINGS	Sis .527
RSENSE	-0.0026	RSENSE	0.1792	GATES	-0.0749	GATES	0.3607	GATES	0.8249	GATES	0.7202
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
GATERANK	Sis .984	GTHITRANK	Sis .171	HITS	Sis .570	RANKINGS	Sis .005	GATERANK	Sis .000	GTHITRANK	Sis .000
HITS	-0.1894	HITS	-0.1602	HITS	0.4106	RANKINGS	0.8247	RANKINGS	0.6360	GATERANK	0.8342
with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)	with	N(60)
RANKINGS	Sis .147	GATERANK	Sis .221	GTHITRANK	Sis .001	GATERANK	Sis .000	GTHITRANK	Sis .000	GTHITRANK	Sis .000

Table K.3

Intercorrelations Among Variables for Combined OSUT

Variable Pair	Variable Pair	Variable Pair	Variable Pair	Variable Pair	Variable Pair	Variable Pair					
GS with AR Sig .000	0.4942 N(146) Sig .000	GS with MK Sig .000	0.6964 N(146) Sig .000	GS with PC Sig .000	0.5343 N(146) Sig .000	GS with ND Sig .032	0.1780 N(146) Sig .032	GS with CS Sig .001	0.2776 N(146) Sig .001	GS with AS Sig .000	0.4532 N(146) Sig .000
GS with MK Sig .000	0.5316 N(146) Sig .000	GS with MC Sig .000	0.4543 N(146) Sig .000	GS with EI Sig .000	0.6674 N(146) Sig .000	GS with COMBAT Sig .000	0.5980 N(146) Sig .000	GS with GTECH Sig .000	0.5648 N(146) Sig .000	GS with AFBT Sig .000	0.6590 N(146) Sig .000
GS with COMBAT Sig .000	0.5703 N(146) Sig .000	GS with ABLE Sig .000	0.6635 N(146) Sig .000	GS with HSY Sig .000	0.1815 N(146) Sig .028	GS with AGE Sig .000	0.3721 N(146) Sig .000	GS with HAND Sig .000	0.0057 N(146) Sig .946	GS with GLASSES Sig .033	0.1761 N(146) Sig .033
GS with TRKSPEED Sig .000	0.2957 N(145) Sig .000	GS with TRKACCY Sig .040	0.1704 N(145) Sig .040	GS with TRKSPAC Sig .000	0.3635 N(145) Sig .000	GS with ACBTIME Sig .006	-0.2272 N(146) Sig .006	GS with ACCHITS Sig .283	0.0894 N(146) Sig .460	GS with COMPTIME Sig .000	-0.4481 N(146) Sig .000
GS with COMPACCY Sig .022	0.1899 N(146) Sig .022	GS with IMPERCNT Sig .000	0.4218 N(146) Sig .000	GS with RSENSE Sig .000	0.0901 N(146) Sig .278	GS with GATES Sig .003	0.2426 N(148) Sig .003	GS with HITS Sig .460	0.0829 N(140) Sig .460	GS with RANKINGS Sig .003	0.2328 N(146) Sig .003
GS with GATERANK Sig .001	0.2821 N(146) Sig .001	GS with GITHTRNK Sig .002	0.2617 N(140) Sig .002	AR with MK Sig .000	0.4800 N(146) Sig .000	AR with PC Sig .000	0.4712 N(146) Sig .000	AR with NO Sig .000	0.3708 N(146) Sig .000	AR with CS Sig .003	0.2480 N(146) Sig .003
AR with AS Sig .000	0.4618 N(146) Sig .000	AR with MK Sig .000	0.7043 N(146) Sig .000	AR with MC Sig .000	0.5032 N(146) Sig .000	AR with EI Sig .000	0.4534 N(146) Sig .000	AR with COMBAT Sig .000	0.8103 N(146) Sig .000	AR with GTECH Sig .000	0.8833 N(146) Sig .000
AR with AFBT Sig .000	0.8331 N(146) Sig .000	AR with COMBAT Sig .000	0.5564 N(146) Sig .000	AR with ABLE Sig .000	0.6507 N(146) Sig .000	AR with HSY Sig .000	0.1989 N(146) Sig .016	AR with AGE Sig .000	0.1846 N(146) Sig .019	AR with HAND Sig .804	0.0208 N(146) Sig .804
AR with GLASSES Sig .077	0.1470 N(146) Sig .077	AR with TRKSPEED Sig .064	0.1544 N(145) Sig .064	AR with TRKACCY Sig .062	0.1556 N(145) Sig .062	AR with TRKSPAC Sig .003	0.2441 N(145) Sig .003	AR with ACBTIME Sig .020	-0.1923 N(146) Sig .020	AR with ACCHITS Sig .814	-0.0186 N(146) Sig .814
AR with COMPTIME Sig .000	-0.4458 N(146) Sig .000	AR with COMPACCY Sig .000	0.3344 N(146) Sig .000	AR with IMPERCNT Sig .000	0.4671 N(146) Sig .000	AR with RSENSE Sig .200	0.1067 N(146) Sig .200	AR with GATES Sig .043	0.1678 N(146) Sig .043	AR with HITS Sig .432	0.0670 N(140) Sig .432

Table K.3 (Combined OSUT - Cont'd.)

AR with RANKINGS	0.1801 (146) Sis .030	AR with GATERANK	0.2297 (146) Sis .005	AR with GTHITRANK	0.2675 (140) Sis .001	WK with PC	0.7155 (146) Sis .000	WK with NO	0.2095 (146) Sis .011	WK with CS	0.2782 (146) Sis .001
WK with AS	0.4565 (146) Sis .000	WK with MC	0.4754 (146) Sis .000	WK with PC	0.4600 (146) Sis .000	WK with EI	0.6506 (146) Sis .000	WK with COMBAT	0.5811 (146) Sis .000	WK with GTECH	0.8045 (146) Sis .000
WK with AFGT	0.7585 (146) Sis .000	WK with COMBATM1	0.5773 (146) Sis .000	WK with ABLE	0.7230 (146) Sis .000	WK with HSY	0.1387 (146) Sis .093	WK with AGE	0.3369 (146) Sis .000	WK with HAND	0.0427 (146) Sis .609
WK with GLASSES	0.2365 (146) Sis .004	WK with TRNSPEED	0.2872 (145) Sis .000	WK with TRKACCY	0.1654 (145) Sis .047	WK with TRKSPAC	0.3548 (145) Sis .000	WK with ACBTIME	-0.1698 (146) Sis .040	WK with ACBHITS	0.1080 (146) Sis .194
WK with COMPTIME	-0.6001 (146) Sis .000	WK with COMPPCCY	0.2745 (146) Sis .001	WK with TAPERCT	0.4343 (146) Sis .000	WK with RSENSE	0.0578 (146) Sis .488	WK with GATES	0.1731 (146) Sis .037	WK with HITS	0.0748 (140) Sis .379
WK with RANKINGS	0.2044 (146) Sis .013	WK with GATERANK	0.2340 (146) Sis .004	WK with GTHITRANK	0.2418 (140) Sis .004	PC with NO	0.2227 (146) Sis .007	PC with CS	0.2527 (146) Sis .002	PC with AS	0.3913 (146) Sis .000
PC with MK	0.4169 (146) Sis .000	PC with MC	0.4155 (146) Sis .000	PC with EI	0.5224 (146) Sis .000	PC with COMBAT	0.5433 (146) Sis .000	PC with GTECH	0.7447 (146) Sis .000	PC with AFGT	0.6980 (146) Sis .000
PC with COMBATM1	0.5022 (146) Sis .000	PC with ABLE	0.6293 (146) Sis .000	PC with HSY	0.1381 (146) Sis .096	PC with AGE	0.2991 (146) Sis .000	PC with HAND	0.0844 (146) Sis .440	PC with GLASSES	0.1397 (146) Sis .093
PC with TRNSPEED	0.2023 (145) Sis .015	PC with TRKACCY	0.1867 (145) Sis .025	PC with TRKSPAC	0.3019 (145) Sis .000	PC with ACBTIME	-0.1394 (146) Sis .093	PC with ACBHITS	0.0395 (146) Sis .636	PC with COMPTIME	-0.4728 (146) Sis .000
PC with COMPCACCY	0.2873 (146) Sis .000	PC with TAPERCT	0.3561 (146) Sis .000	PC with RSENSE	-0.0231 (146) Sis .782	PC with GATES	0.1914 (146) Sis .021	PC with HITS	0.0213 (140) Sis .802	PC with RANKINGS	0.2124 (146) Sis .010
PC with GATERANK	0.2647 (146) Sis .001	PC with GTHITRANK	0.2538 (140) Sis .002	NO with CS	0.5427 (146) Sis .000	NO with AS	0.2365 (146) Sis .004	NO with MK	0.3503 (146) Sis .000	NO with MC	0.0894 (146) Sis .283

Table K.3 (Combined OSUT - Cont'd.)

NO with EI	0.1725 N(146) Sig .037	NO with COMBAT	0.4228 N(146) Sig .000	NO with GTECH	0.3541 N(146) Sig .000	NO with AFBT	0.5763 N(146) Sig .000	NO with COMBATM1	0.6884 N(146) Sig .000	NO with ABLE	0.3291 N(146) Sig .000
NO with HSY	0.0894 N(146) Sig .283	NO with AGE	0.1980 N(146) Sig .017	NO with HAND	-0.1113 N(146) Sig .181	NO with GLASSES	0.1432 N(146) Sig .080	NO with TRKSPEED	0.2026 N(146) Sig .013	NO with TRKACCY	-0.0086 N(146) Sig .818
NO with TRKSPAC	0.1538 N(146) Sig .085	NO with ACQTIME	-0.1866 N(146) Sig .017	NO with ACDHITS	-0.0863 N(146) Sig .301	NO with COMPTIME	-0.2519 N(146) Sig .002	NO with COMPACCY	0.0816 N(146) Sig .328	NO with TMPERCNT	0.2880 N(146) Sig .000
NO with RSENSE	0.0554 N(146) Sig .506	NO with GATES	0.1990 N(146) Sig .016	NO with HITS	0.1802 N(146) Sig .033	NO with RANKINGS	0.3369 N(146) Sig .000	NO with GATERANK	0.3209 N(146) Sig .000	NO with GTHITRANK	0.3648 N(146) Sig .000
CS with AS	0.1133 N(146) Sig .173	CS with MK	0.3772 N(146) Sig .000	CS with MC	0.0646 N(146) Sig .439	CS with EI	0.2098 N(146) Sig .011	CS with COMBAT	0.4575 N(146) Sig .000	CS with GTECH	0.3076 N(146) Sig .000
CS with AFBT	0.4466 N(146) Sig .000	CS with COMBATM1	0.6354 N(146) Sig .000	CS with ABLE	0.3323 N(146) Sig .000	CS with HSY	0.0830 N(146) Sig .319	CS with AGE	0.2025 N(146) Sig .014	CS with HAND	-0.0276 N(146) Sig .741
CS with GLASSES	0.2546 N(146) Sig .002	CS with TRKSPEED	0.2198 N(146) Sig .008	CS with TRKACCY	0.0117 N(146) Sig .889	CS with TRKSPAC	0.2038 N(146) Sig .014	CS with ACQTIME	-0.2476 N(146) Sig .003	CS with ACDHITS	0.0029 N(146) Sig .873
CS with COMPTIME	-0.3302 N(146) Sig .000	CS with COMPACCY	0.0274 N(146) Sig .742	CS with TMPERCNT	0.2668 N(146) Sig .001	CS with RSENSE	0.0584 N(146) Sig .484	CS with GATES	0.1585 N(146) Sig .056	CS with HITS	0.1007 N(146) Sig .236
CS with RANKINGS	0.3142 N(146) Sig .000	CS with GATERANK	0.2956 N(146) Sig .000	CS with GTHITRANK	0.3038 N(146) Sig .000	AS with MK	0.3675 N(146) Sig .000	AS with MC	0.5887 N(146) Sig .000	AS with EI	0.6171 N(146) Sig .000
AS with COMBAT	0.7728 N(146) Sig .000	AS with GTECH	0.5300 N(146) Sig .000	AS with AFBT	0.5151 N(146) Sig .000	AS with COMBATM1	0.7207 N(146) Sig .000	AS with ABLE	0.3972 N(146) Sig .000	AS with HSY	0.2074 N(146) Sig .012
AS with AGE	0.2958 N(146) Sig .000	AS with HAND	0.1618 N(146) Sig .051	AS with GLASSES	0.1581 N(146) Sig .057	AS with TRKSPEED	0.2042 N(146) Sig .014	AS with TRKACCY	0.1186 N(146) Sig .156	AS with TRKSPAC	0.2693 N(146) Sig .001

Table K.3 (Combined OSUT - Cont'd.)

AS with ACQTIME	-0.1753 N(146) Sig .034	AS with ACOHITS	-0.0163 N(146) Sig .845	AS with COMPTIME	-0.3257 N(146) Sig .000	AS with COMPACCY	0.2217 N(146) Sig .007	AS with TMPERCNT	0.3588 N(146) Sig .000	AS with RSENSE	0.0765 N(146) Sig .359
AS with GATES	0.3402 N(146) Sig .000	AS with HITS	-0.0899 N(140) Sig .291	AS with RANKINGS	0.2867 N(146) Sig .000	AS with GATERANK	0.4074 N(146) Sig .000	AS with GTHITRANK	0.3350 N(140) Sig .000	MC with MC	0.4108 N(146) Sig .000
MC with EI	0.4079 N(146) Sig .000	MC with COMBAT	0.6632 N(146) Sig .000	MC with GTECH	0.5921 N(146) Sig .000	MC with AFGT	0.6988 N(146) Sig .000	MC with COMBATM1	0.5523 N(146) Sig .000	MC with ABLE	0.5785 N(146) Sig .000
MC with HSY	0.2301 N(146) Sig .005	MC with AGE	0.2037 N(146) Sig .013	MC with HAND	-0.0728 N(146) Sig .382	MC with GLASSES	0.2725 N(146) Sig .001	MC with TRKSPEED	0.2001 N(146) Sig .016	MC with TRKACCY	0.1677 N(146) Sig .044
MC with TRKSPAC	0.3127 N(145) Sig .000	MC with ACQTIME	-0.2102 N(146) Sig .011	MC with ACOHITS	-0.0205 N(146) Sig .806	MC with COMPTIME	-0.4307 N(146) Sig .000	MC with COMPACCY	0.2571 N(146) Sig .002	MC with TMPERCNT	0.4123 N(146) Sig .000
MC with RSENSE	0.1462 N(146) Sig .078	MC with GATES	0.2101 N(146) Sig .011	MC with HITS	0.0498 N(140) Sig .559	MC with RANKINGS	0.3346 N(146) Sig .000	MC with GATERANK	0.3500 N(146) Sig .000	MC with GTHITRANK	0.3542 N(140) Sig .000
MC with EI	0.5381 N(146) Sig .000	MC with COMBAT	0.7731 N(146) Sig .000	MC with GTECH	0.5627 N(146) Sig .000	MC with AFGT	0.4933 N(146) Sig .000	MC with COMBATM1	0.4708 N(146) Sig .000	MC with ABLE	0.3780 N(146) Sig .000
MC with HSY	0.0999 N(146) Sig .230	MC with AGE	0.1415 N(146) Sig .089	MC with HAND	-0.0351 N(146) Sig .674	MC with GLASSES	0.0643 N(146) Sig .441	MC with TRKSPEED	0.2221 N(146) Sig .007	MC with TRKACCY	0.2187 N(146) Sig .008
MC with TRKSPAC	0.3600 N(145) Sig .000	MC with ACQTIME	-0.2288 N(146) Sig .005	MC with ACOHITS	0.1837 N(146) Sig .026	MC with COMPTIME	-0.3059 N(146) Sig .000	MC with COMPACCY	0.2176 N(146) Sig .008	MC with TMPERCNT	0.3132 N(146) Sig .000
MC with RSENSE	0.1678 N(146) Sig .043	MC with GATES	0.2731 N(146) Sig .001	MC with HITS	0.0718 N(140) Sig .399	MC with RANKINGS	0.2020 N(146) Sig .014	MC with GATERANK	0.2946 N(146) Sig .000	MC with GTHITRANK	0.2572 N(140) Sig .000
EI with COMBAT	0.6448 N(146) Sig .000	EI with GTECH	0.6228 N(146) Sig .000	EI with AFGT	0.5882 N(146) Sig .000	EI with COMBATM1	0.7326 N(146) Sig .000	EI with ABLE	0.5782 N(146) Sig .000	EI with HSY	0.1705 N(146) Sig .040

Table K.3 (Combined OSUT - Cont'd.)

EI with AGE	0.2549 N(146) Sim .002	EI with HAND	0.1041 N(146) Sim .211	EI with GLASSES	0.2305 N(146) Sim .005	EI with TRKSPEED	0.2818 N(145) Sim .001	EI with TRKACCY	0.2033 N(145) Sim .014	EI with TRKSPAC	0.3662 N(145) Sim .000
EI with ACOTIME	-0.3079 N(146) Sim .000	EI with ACGHITS	0.1779 N(146) Sim .032	EI with COMPTIME	-0.3909 N(146) Sim .000	EI with COMPACCY	0.1878 N(145) Sim .043	EI with THPERCNT	0.3943 N(146) Sim .000	EI with RSENSE	0.0622 N(146) Sim .455
EI with GATES	0.2969 N(146) Sim .000	EI with HITS	-0.0721 N(140) Sim .397	EI with RANKINGS	0.2338 N(146) Sim .005	EI with GATERANK	0.3344 N(145) Sim .000	EI with GTHITRNC	0.2677 N(140) Sim .001	COMBAT with GTECH	0.8285 N(146) Sim .000
COMBAT with AFGT	0.8156 N(146) Sim .000	COMBAT with COMBATM1	0.8260 N(146) Sim .000	COMBAT with ABLE	0.6281 N(146) Sim .000	COMBAT with HSY	0.2108 N(146) Sim .011	COMBAT with AGE	0.2878 N(146) Sim .000	COMBAT with HAND	0.0430 N(146) Sim .607
COMBAT with GLASSES	0.2102 N(146) Sim .011	COMBAT with TRKSPEED	0.2721 N(145) Sim .001	COMBAT with TRKACCY	0.1852 N(145) Sim .026	COMBAT with TRKSPAC	0.3746 N(145) Sim .000	COMBAT with ACOTIME	-0.2930 N(146) Sim .000	COMBAT with ACGHITS	0.0538 N(146) Sim .518
COMBAT with COMPTIME	-0.4944 N(146) Sim .000	COMBAT with COMPACCY	0.2935 N(146) Sim .000	COMBAT with THPERCNT	0.5009 N(146) Sim .000	COMBAT with RSENSE	0.1491 N(146) Sim .072	COMBAT with GATES	0.3300 N(146) Sim .000	COMBAT with HITS	0.0529 N(140) Sim .535
COMBAT with RANKINGS	0.3378 N(146) Sim .000	COMBAT with GATERANK	0.4242 N(146) Sim .000	COMBAT with GTHITRNC	0.4160 N(140) Sim .000	GTECH with AFGT	0.9339 N(145) Sim .000	GTECH with COMBATM1	0.6573 N(146) Sim .000	GTECH with ABLE	0.7892 N(146) Sim .000
GTECH with HSY	0.1994 N(146) Sim .016	GTECH with AGE	0.2988 N(146) Sim .000	GTECH with HAND	0.0407 N(146) Sim .625	GTECH with GLASSES	0.2074 N(146) Sim .012	GTECH with TRKSPEED	0.2416 N(145) Sim .003	GTECH with TRKACCY	0.1877 N(145) Sim .024
GTECH with TRKSPAC	0.3394 N(145) Sim .000	GTECH with ACOTIME	-0.2077 N(146) Sim .012	GTECH with ACGHITS	0.0258 N(146) Sim .757	GTECH with COMPTIME	-0.5907 N(146) Sim .000	GTECH with COMPACCY	0.3597 N(146) Sim .000	GTECH with THPERCNT	0.5165 N(146) Sim .000
GTECH with RSENSE	0.0888 N(146) Sim .286	GTECH with GATES	0.2059 N(146) Sim .013	GTECH with HITS	0.0763 N(140) Sim .370	GTECH with RANKINGS	0.2234 N(146) Sim .007	GTECH with GATERANK	0.2781 N(146) Sim .001	GTECH with GTHITRNC	0.3052 N(140) Sim .000
AFGT with COMBATM1	0.7662 N(146) Sim .000	AFGT with ABLE	0.3959 N(148) Sim .000	AFGT with HSY	0.0508 N(148) Sim .539	AFGT with AGE	0.4301 N(148) Sim .000	AFGT with HAND	0.0139 N(148) Sim .867	AFGT with GLASSES	-0.1444 N(148) Sim .080

Table K.3 (Combined OSUT - Cont'd.)

AFQT with N(147) TRKSPEED Sls .004	0.2382	AFQT with N(147) TRKACCY Sls .038	0.1712	AFQT with N(147) TRKSPAC Sls .000	0.3149	AFQT with N(148) ACGTIME Sls .013	-0.2041	AFQT with N(148) ACGHITS Sls .986	0.0015	AFQT with N(148) COMPTIME Sls .000	-0.5159
AFQT with N(148) COMPAACY Sls .000	0.3011	AFQT with N(148) TMPERCNT Sls .000	0.4816	AFQT with N(148) RSENSE Sls .119	0.1288	AFQT with N(148) HITS Sls .013	0.2039	AFQT with N(142) RANKINGS Sls .000	0.1085	AFQT with N(148) RANKINGS Sls .000	0.3044
AFQT with N(148) GATERANK Sls .000	0.3247	AFQT with N(142) GTHITRANK Sls .000	0.3557	COMBATM1 with N(146) ABLE Sls .000	0.5905	COMBATM1 with N(148) AGE Sls .016	0.1993	COMBATM1 with N(146) HAND Sls .571	0.3414	COMBATM1 with N(146) HAND Sls .571	0.0473
COMBATM1 with N(146) GLASSES Sls .001	0.2784	COMBATM1 with N(145) TRKSPEED Sls .000	0.3237	COMBATM1 with N(145) TRKACCY Sls .156	0.1185	COMBATM1 with N(145) ACGTIME Sls .000	0.3549	COMBATM1 with N(146) ACGHITS Sls .723	-0.3313	COMBATM1 with N(146) ACGHITS Sls .723	0.0296
COMBATM1 with N(146) COMPTIME Sls .000	-0.4637	COMBATM1 with N(146) COMPAACY Sls .027	0.1833	COMBATM1 with N(146) TMPERCNT Sls .000	0.4710	COMBATM1 with N(146) RSENSE Sls .278	0.0904	COMBATM1 with N(140) HITS Sls .654	0.3602	COMBATM1 with N(140) HITS Sls .654	0.0383
COMBATM1 with N(146) RANKINGS Sls .000	0.4210	COMBATM1 with N(146) GATERANK Sls .000	0.4873	COMBATM1 with N(140) GTHITRANK Sls .000	0.4524	ABLE with N(148) HSY Sls .000	0.3483	ABLE with N(148) HAND Sls .499	-0.1839	ABLE with N(148) HAND Sls .499	-0.0560
ABLE with N(148) GLASSES Sls .000	0.5101	ABLE with N(147) TRKSPEED Sls .016	0.1977	ABLE with N(147) TRKACCY Sls .084	0.1532	ABLE with N(147) TRKSPAC Sls .002	0.2578	ABLE with N(148) ACGHITS Sls .205	-0.1262	ABLE with N(148) ACGHITS Sls .205	0.1047
ABLE with N(148) COMPTIME Sls .000	-0.4107	ABLE with N(148) COMPAACY Sls .034	0.1747	ABLE with N(148) TMPERCNT Sls .000	0.2953	ABLE with N(148) RSENSE Sls .609	-0.0424	ABLE with N(148) HITS Sls .495	0.2113	ABLE with N(142) HITS Sls .495	0.0377
ABLE with N(148) RANKINGS Sls .219	0.1015	ABLE with N(148) GATERANK Sls .023	0.1866	ABLE with N(142) GTHITRANK Sls .026	0.1874	HSY with N(148) AGE Sls .307	-0.0845	HSY with N(148) GLASSES Sls .000	-0.0285	HSY with N(148) GLASSES Sls .000	0.5565
HSY with N(147) TRKSPEED Sls .789	0.0223	HSY with N(147) TRKACCY Sls .724	-0.0294	HSY with N(147) TRKSPAC Sls .784	0.0228	HSY with N(148) ACGTIME Sls .697	-0.0323	HSY with N(148) ACGHITS Sls .689	-0.0331	HSY with N(148) COMPTIME Sls .578	-0.0481
HSY with N(148) COMPAACY Sls .295	0.0866	HSY with N(148) TMPERCNT Sls .305	0.0848	HSY with N(148) RSENSE Sls .666	0.0358	HSY with N(148) HITS Sls .019	0.1933	HSY with N(142) RANKINGS Sls .013	-0.0256	HSY with N(148) RANKINGS Sls .013	0.2039

Table K.3 (Combined OSUT - Cont'd.)

HSY with GATERANK	0.2539 N(148) Sig .002	HSY with GTHITRANK	0.2174 N(142) Sig .009	AGE with HAND	0.0312 N(148) Sig .706	AGE with GLASSES	-0.5953 N(148) Sig .000	AGE with TRKSPEED	-0.1014 N(147) Sig .222	AGE with TRKACCY	0.0357 N(147) Sig .668
AGE with TRKSPAC	-0.0766 N(147) Sig .356	AGE with ACQTIME	-0.0130 N(148) Sig .876	AGE with ACQHITS	0.0563 N(148) Sig .497	AGE with COMPTIME	-0.0843 N(148) Sig .309	AGE with COMPACCY	0.0298 N(148) Sig .719	AGE with TMPERCNT	0.1226 N(148) Sig .138
AGE with RSENSE	0.0782 N(148) Sig .345	AGE with GATES	0.0377 N(148) Sig .649	AGE with HITS	0.0665 N(142) Sig .432	AGE with RANKINGS	0.2468 N(148) Sig .002	AGE with GATERANK	0.1821 N(148) Sig .027	AGE with GTHITRANK	0.2124 N(142) Sig .011
HAND with GLASSES	-0.0396 N(148) Sig .632	HAND with TRKSPEED	-0.0003 N(147) Sig .997	HAND with TRKACCY	-0.2986 N(147) Sig .000	HAND with TRKSPAC	-0.1306 N(147) Sig .115	HAND with ACQTIME	0.1193 N(148) Sig .149	HAND with ACQHITS	-0.0361 N(148) Sig .663
HAND with COMPTIME	-0.0431 N(148) Sig .603	HAND with COMPACCY	0.0764 N(148) Sig .356	HAND with TMPERCNT	-0.0577 N(148) Sig .486	HAND with RSENSE	0.0375 N(148) Sig .631	HAND with GATES	-0.1314 N(148) Sig .111	HAND with HITS	-0.2100 N(142) Sig .012
HAND with RANKINGS	-0.0572 N(148) Sig .490	HAND with GATERANK	-0.1026 N(148) Sig .215	HAND with GTHITRANK	-0.1692 N(142) Sig .044	GLASSES with TRKSPEED	0.1729 N(147) Sig .036	GLASSES with TRKACCY	-0.0441 N(147) Sig .596	GLASSES with TRKSPAC	0.1194 N(147) Sig .150
GLASSES with ACQTIME	-0.0685 N(148) Sig .408	GLASSES with ACQHITS	0.0009 N(148) Sig .991	GLASSES with COMPTIME	-0.0708 N(148) Sig .394	GLASSES with COMPACCY	0.0402 N(148) Sig .627	GLASSES with TMPERCNT	0.0794 N(148) Sig .337	GLASSES with RSENSE	-0.1421 N(148) Sig .085
GLASSES with GATES	0.1263 N(148) Sig .126	GLASSES with HITS	-0.0031 N(142) Sig .971	GLASSES with RANKINGS	0.0302 N(148) Sig .716	GLASSES with GATERANK	0.0790 N(148) Sig .340	GLASSES with GTHITRANK	0.0462 N(142) Sig .585	TRKSPEED with TRKACCY	-0.1851 N(147) Sig .025
TRKSPEED with TRKSPAC	0.7801 N(147) Sig .000	TRKSPEED with ACQTIME	-0.3596 N(147) Sig .000	TRKSPEED with ACQHITS	-0.0574 N(147) Sig .490	TRKSPEED with COMPTIME	-0.2553 N(147) Sig .002	TRKSPEED with COMPACCY	0.0772 N(147) Sig .352	TRKSPEED with TMPERCNT	0.2120 N(147) Sig .010
TRKSPEED with RSENSE	0.1476 N(147) Sig .074	TRKSPEED with GATES	0.1653 N(147) Sig .045	TRKSPEED with HITS	0.0044 N(141) Sig .959	TRKSPEED with RANKINGS	0.1591 N(147) Sig .054	TRKSPEED with GATERANK	0.1962 N(147) Sig .017	TRKSPEED with GTHITRANK	0.1767 N(141) Sig .036
TRKACCY with TRKSPAC	0.4166 N(147) Sig .000	TRKACCY with ACQTIME	-0.1486 N(147) Sig .073	TRKACCY with ACQHITS	0.1975 N(147) Sig .016	TRKACCY with COMPTIME	-0.0481 N(147) Sig .580	TRKACCY with COMPACCY	0.0094 N(147) Sig .910	TRKACCY with TMPERCNT	0.1517 N(147) Sig .067

Table K.3 (Combined OSUT - Cont'd.)

TRKACCY with N(147) RSENSE Sis .869	0.0137 N(147) Sis .869	TRKACCY with N(147) GATES Sis .035	0.1741 N(147) Sis .035	TRKACCY with N(141) HITS Sis .144	0.1236 N(141) Sis .144	TRKACCY with N(147) RANKINGS Sis .155	0.1180 N(147) Sis .155	TRKACCY with N(147) GATERANK Sis .039	0.1705 N(147) Sis .039	TRKACCY with N(141) GTHITRANK Sis .039	0.1737 N(141) Sis .039
TRKSPAC with N(147) ACQTIME Sis .000	-0.4103 N(147) Sis .000	TRKSPAC with N(147) ACQHITS Sis .291	0.0877 N(147) Sis .291	TRKSPAC with N(141) COMPTIME Sis .001	-0.2808 N(141) Sis .001	TRKSPAC with N(147) COMPTIME Sis .403	0.0695 N(147) Sis .403	TRKSPAC with N(147) TMPERCNT Sis .001	0.2802 N(147) Sis .001	TRKSPAC with N(141) RSENSE Sis .048	0.1635 N(141) Sis .048
TRKSPAC with N(147) GATES Sis .001	0.2645 N(147) Sis .001	TRKSPAC with N(141) HITS Sis .361	0.0776 N(141) Sis .361	TRKSPAC with N(147) RANKINGS Sis .007	0.2208 N(147) Sis .007	TRKSPAC with N(147) GATERANK Sis .000	0.2913 N(147) Sis .000	TRKSPAC with N(141) GTHITRANK Sis .001	0.2785 N(141) Sis .001	ACQTIME with N(148) ACQHITS Sis .013	-0.2032 N(148) Sis .013
ACQTIME with N(148) COMPTIME Sis .000	0.2840 N(148) Sis .000	ACQTIME with N(148) COMPTIME Sis .656	0.0369 N(148) Sis .656	ACQTIME with N(148) TMPERCNT Sis .009	-0.2131 N(148) Sis .009	ACQTIME with N(148) RSENSE Sis .449	-0.0627 N(148) Sis .449	ACQTIME with N(148) GATES Sis .014	-0.2022 N(148) Sis .014	ACQTIME with N(142) HITS Sis .371	-0.0756 N(142) Sis .371
ACQTIME with N(148) RANKINGS Sis .000	-0.3167 N(148) Sis .000	ACQTIME with N(148) GATERANK Sis .000	-0.3013 N(148) Sis .000	ACQTIME with N(142) GTHITRANK Sis .000	-0.2892 N(142) Sis .000	ACQHITS with N(148) COMPTIME Sis .708	-0.0310 N(148) Sis .708	ACQHITS with N(148) COMPTIME Sis .663	0.0361 N(148) Sis .663	ACQHITS with N(148) TMPERCNT Sis .118	0.1289 N(148) Sis .118
ACQHITS with N(148) RSENSE Sis .316	0.0829 N(148) Sis .316	ACQHITS with N(148) GATES Sis .521	0.0532 N(148) Sis .521	ACQHITS with N(142) HITS Sis .199	0.1084 N(142) Sis .199	ACQHITS with N(148) RANKINGS Sis .242	0.0967 N(148) Sis .242	ACQHITS with N(148) GATERANK Sis .443	0.0635 N(148) Sis .443	ACQHITS with N(142) GTHITRANK Sis .568	0.0484 N(142) Sis .568
COMPTIME with N(148) COMPTIME Sis .000	-0.4253 N(148) Sis .000	COMPTIME with N(148) TMPERCNT Sis .000	-0.4088 N(148) Sis .000	COMPTIME with N(148) RSENSE Sis .389	-0.0715 N(148) Sis .389	COMPTIME with N(148) GATES Sis .218	-0.1018 N(148) Sis .218	COMPTIME with N(142) HITS Sis .543	-0.0515 N(142) Sis .543	COMPTIME with N(148) RANKINGS Sis .009	-0.2148 N(148) Sis .009
COMPTIME with N(148) GATERANK Sis .008	-0.2179 N(148) Sis .008	COMPTIME with N(142) GTHITRANK Sis .005	-0.2368 N(142) Sis .005	COMPTIME with N(148) TMPERCNT Sis .003	0.2419 N(148) Sis .003	COMPTIME with N(148) RSENSE Sis .968	0.0034 N(148) Sis .968	COMPTIME with N(148) GATES Sis .319	-0.0825 N(148) Sis .319	COMPTIME with N(142) HITS Sis .290	-0.0894 N(142) Sis .290
COMPTIME with N(148) RANKINGS Sis .249	-0.0953 N(148) Sis .249	COMPTIME with N(148) GATERANK Sis .273	-0.0907 N(148) Sis .273	COMPTIME with N(142) GTHITRANK Sis .188	-0.1112 N(142) Sis .188	COMPTIME with N(148) RSENSE Sis .553	-0.0049 N(148) Sis .553	COMPTIME with N(148) GATES Sis .032	0.1767 N(148) Sis .032	COMPTIME with N(142) HITS Sis .036	0.1760 N(142) Sis .036
COMPTIME with N(148) RANKINGS Sis .182	0.1104 N(148) Sis .182	COMPTIME with N(148) GATERANK Sis .037	0.1712 N(148) Sis .037	COMPTIME with N(142) GTHITRANK Sis .004	0.2411 N(142) Sis .004	COMPTIME with N(148) RSENSE Sis .767	0.0245 N(148) Sis .767	COMPTIME with N(148) GATES Sis .345	0.0798 N(148) Sis .345	COMPTIME with N(142) HITS Sis .251	0.0950 N(142) Sis .251
RSENSE with N(148) GATERANK Sis .173	0.1127 N(148) Sis .173	RSENSE with N(142) GTHITRANK Sis .020	0.1953 N(142) Sis .020	RSENSE with N(148) HITS Sis .766	0.0252 N(148) Sis .766	RSENSE with N(148) RANKINGS Sis .000	0.3569 N(148) Sis .000	RSENSE with N(148) GATERANK Sis .000	0.8106 N(148) Sis .000	RSENSE with N(142) GTHITRANK Sis .000	0.6936 N(142) Sis .000
HITS with N(142) RANKINGS Sis .794	-0.0221 N(142) Sis .794	HITS with N(142) GATERANK Sis .765	-0.0253 N(142) Sis .765	HITS with N(142) GTHITRANK Sis .000	0.4791 N(142) Sis .000	HITS with N(148) GATERANK Sis .000	0.8248 N(148) Sis .000	HITS with N(142) GTHITRANK Sis .000	0.6924 N(142) Sis .000	HITS with N(142) GTHITRANK Sis .000	0.8493 N(142) Sis .000