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On Job Training Handbook

**INDOOR SIMULATED  
MARKSMANSHIP TRAINER  
AND INFANTRY SQUAD TRAINER**

Prepared By:  
FATS, Inc.

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# LIST OF EFFECTIVE PAGES

Insert latest changed pages, and destroy superseded pages.

## NOTE

The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the pages. Changes to illustrations are indicated by miniature pointing hands.

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Total number of pages in this Volume 1 is 235 consisting of the following:

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## PREFACE

The Indoor Simulated Marksmanship Trainer (ISMT) and the Infantry Squad Trainer (IST) On-Job-Training (OJT) Handbook is designed to aid personnel in becoming effective trainers with these systems. The OJT Handbook is bound in two volumes.

Volume I is unclassified and contains information, instructions, and exercises for trainees. Volume II is also unclassified and contains the information, instructions, exercises, answer sheets, and other pertinent information for the OJT Handbook Administrator. Together, these books provide the means for personnel to become effective trainers with the Indoor Simulated Marksmanship Trainer and Infantry Squad Trainer systems. These systems are used to train personnel in the use of eleven different weapons for basic through advanced marksmanship, combat marksmanship, and shoot/no-shoot training.

The ISMT/IST systems combine the latest developments in simulation technology with practical simplicity for ease of use. Once set up, these systems are operated easily without special instructions or prior computer experience. The components of the system are housed in rugged, portable cabinets.

The ISMT/IST systems offer unsurpassed realism. Applications are designed to subject the student to encounters where their judgement and marksmanship skills are realistically tested in a safe environment. Computerized scoring of students' accuracy, reactions, and judgements can be printed for individuals or for entire groups of students.

# BACKGROUND

**Introduction:** The Indoor Simulated Marksmanship Trainer (ISMT) and Infantry Squad Trainer (IST) are interactive training systems. Both systems use the latest technologies to provide the realism and accuracy needed for small arms training. Both systems provide realistic and accurate known distance and advanced marksmanship training for personnel using any of the eleven weapons modified for use with the systems. Some of the features of these systems are:

Centralized control of the systems by an instructor.

Separate monitoring of viewing screen displays and other training information for the instructor's use.

User-friendly keyboard access to the device, allowing the instructor to select the mode of operation and to enter data.

Hard copy printouts of trainee activity.

Program (training) scenarios provided on easy-to-install laser discs and Primary Simulation Computer (PSC) disks.

Clear visual displays of video images and computer-generated graphics for training scenarios.

Matching audio for visual displays of training scenarios.

Records of hits by the trainee-fired weapons on training scenario targets.

Modified weapons that look, feel, and function like their unmodified counterparts.

Simultaneous use of up to four modified weapons.

Instructor-selected combat scenarios to form a training exercise, or computer-selected combat scenarios.

System zeroing of the system weapons.

Ability for instructor to freeze or disable weapons on command.

Simulated target distances and weather effects on fired rounds.

**Organization of the OJT Handbook:** This OJT Handbook is organized into three major sections. The first section deals with hardware issues, including the setup of the system. The second section deals with the system database and reports. The third section deals with conducting training on the ISMT/IST systems. All sections contain Assignment Sheets, Work Sheets, and Tests covering all of the stated Learning Objectives.

**Guidelines and Instructions for Using the OJT Handbook:** The Handbook is laid out in a functional and logical sequence for learning the systems. You should go through each lesson as it is presented, and you should complete each lesson before starting the next. All Tests and Work Sheets should be done according to the directions. Following this sequence ensures that you know the material necessary to go to the next lesson. All Tests and completed Work Sheets should be turned into the Handbook Administrator as soon as they are completed. Any time that the lesson, Work Sheet, exercise, or other part of the Handbook becomes unclear, ask the Handbook Administrator for clarification.

**Outline of all Tasks or Duties to be Performed:** You will be required to unpack, set up, and start both the ISMT and IST, and to use these systems to train other personnel to use of any of the eleven weapons supported by these systems. You will be required to use the systems to generate student results, and you must be able to evaluate individual student scores and/or student team scores.

**Instructions Relating to the Assignment of Tasks:** All Work Sheets and exercises must be accomplished with more than one person present, both for safety and for practical reasons. The Handbook Administrator should set up all Work Sheets and/or other practical exercises so that there will not be any conflicts with the equipment used, configuration problems, etc. All Tests and Work Sheets must be evaluated by the Handbook Administrator. The Administrator's directions should always be followed to ensure that each student achieves the Learning Objectives.

**Prerequisites Required to Complete This OJT Handbook:** You must be familiar with all eleven types of weapons used with these systems, the characteristics of each weapon, and the tactics that require the employment of each. You also must be familiar with marksmanship training IAW applicable Fleet Marine Force Manuals (FMFMs).

# LEARNING OBJECTIVES

## Course Learning Objectives

Upon successful completion of the OJT Handbook you will be able to unpack, verify, set up and load software, and conduct effective training on any or all eleven different types of weapons used with the system in marksmanship, combat, forward observer, or shoot/no-shoot scenarios.

### Learning Objectives for Section 1

- 1-1. Describe the function of all major components of the system.
- 1-2. Demonstrate the ability to connect and assemble the system for four positions (ISMT).
- 1-3. Demonstrate the knowledge necessary to select a site for the ISMT and IST systems.
- 1-4. Demonstrate the ability to boot the ISMT system, isolate and correct hardware setup misalignments/faults, and restore system operability.
- 1-5. Demonstrate the ability to perform a Daily Operational Readiness Test on the ISMT.
- 1-6. Demonstrate the ability to use the system software setup to configure the ISMT.
- 1-7. Demonstrate the knowledge of how to configure the system software to use weapons compatible with the ISMT.

### Learning Objectives for Section 2

- 2-1. Demonstrate the ability to register a student on the system for training.
- 2-2. Demonstrate the ability to produce reports from the ISMT/IST for analysis of training.

### Learning Objectives for Section 3

- 3-1. Demonstrate the ability to conduct ITS training on the ISMT.
- 3-2. Demonstrate the ability to conduct ITS Training 2 on the ISMT.
- 3-3. Demonstrate the ability to conduct Collective training on the ISMT.
- 3-4. Demonstrate the ability to author an Individual Lane course for the ISMT.
- 3-5. Demonstrate the ability to author a One of Three Screens course for the ISMT.
- 3-6. Demonstrate the ability to administer a Forward Observer course on the ISMT.

### Learning Objectives for Section 4

- 4-1. Describe the function of all major components of the Mortar Simulation system.
- 4-2. Demonstrate the ability to set up and conduct training on a Mortar Simulation Course.
- 4-3. Demonstrate the ability to author a Graphics Mortar Course.

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Problem Sheet 1-2

Test Sheet 1-1

## WHAT IS AN ISMT AND IST?

### Introduction

This Assignment Sheet covers Learning Objective 1-1 (Describe the function of all major components of the system). By completing this Assignment Sheet, you will gain the knowledge necessary to recognize and describe the major components of the ISMT or IST systems.

### Overview

The Indoor Simulated Marksmanship Trainer (ISMT) and Infantry Squad Trainer (IST) are commercial, off-the-shelf, nondevelopmental item, classroom trainers. Each system consists of standard U.S. Marine Corps small arms and crew-served simulated weapons, a simulation unit, and an instructor station that allows control of all training and feedback. The ISMT/IST system provides marksmanship, combat, shoot/no-shoot, night vision, and forward observer training through interaction with targets projected on a Big Screen display.

The ISMT has 4 firing positions. The IST, which is made up of 3 ISMTs connected with an adapter kit, has 12 firing positions. The adapter kit that is used to combine 3 ISMTs to produce an IST is made up of a series of cables and connectors. Any ISMT Instructor Station can be used as an Instructor Station for an IST.

The ISMT is an integrated system made up of computer-controlled, modular components. The instructor starts and controls training situations by selecting a mode of operation, such as a marksmanship course or a tactical scenario, from the Instructor Station computer keyboard following instructions provided on the instructor's monitor or trainer screen. The ISMT/IST maintains aimed-weapon location, recognizes weapon operation, integrates all commands necessary to display the fired round, generates appropriate audio, records the hit data, stores data for future reference, and monitors student performance.

### Major Components

The ISMT consists of these major components:

#### Instructor Station (IS)

The Instructor Station includes the following:

**Instructor Station Computer (ISC)** - The Instructor Station Computer controls the system and displays all of the performance data gathered by the ISMT/IST. The maintenance programs are also controlled by the ISC.

The ISC has a floppy disk drive and a hard disk drive that have enough storage to copy, duplicate, locally edit, and record changes to the training system software. The main enclosure of the ISC contains the motherboard, power supply, disk drives, peripheral controller cards for the computer, and connectors for both serial and Com1 ports. The main enclosure is an off-the-shelf item that has been configured and tested for ISMT applications in the support of simulated systems. The ISC also includes a keyboard and a mouse. The keyboard is a standard PC-type, 101-key keyboard that makes maximum use of function keys. From the keyboard, the instructor can start and check all system functions. The mouse is a standard, off-the-shelf product. The ISC monitor is a high resolution, VGA color monitor. It is used to present text and graphics to monitor trainee performance, to begin training scenarios, and to perform maintenance and test functions. The monitor is a commercial off-the-shelf item that has been tested and approved for use in the ISMT.

## Assignment Sheet 1-1

**Primary Simulation Computer (PSC)** - The Primary Simulation Computer is a FATS-developed and protected product. Its primary function is to perform real-time imagery, hit detection, sound generation, and data collection. The PSC assembly is modular and contains a number of circuit card assemblies designed for specific purposes. Mechanically and electrically, the PSC circuit card assemblies conform to the VME Bus standard. The VME standard is an industry-wide computer packaging and interconnect standard for high-performance, industrial-grade computer equipment.

**Laser Disc Player (LDP)** - The Laser Disc Player and PSC enable the ISMT to use a variety of video discs. Video shows full motion targets and provides the most realistic threat presentations possible. Video disc technology provides a cost-effective means of creating the most realistic training available. The Laser Disc Player provides the synchronized audio.

**Printer** - The printer is a standard, commercial, off-the-shelf dot-matrix printer. The printer is activated by the instructor using the keyboard to select displays on the monitor. The printer provides easy tractor feed (for pin-fed paper) or friction feed (for cut-sheet paper).

**Primary Power Control** - The primary power control is a modified, commercial off-the-shelf power strip with circuit breaker, keyswitch, and lighted on-off switch.

**Storage Area** - The storage area is located on the right-hand side of the Instructor Station, just under the desk top, facing the seated instructor position. The storage space is divided so that disks, documentation, and hardware can be stored.

### Simulation Unit (SU)

The Simulation Unit includes the following:

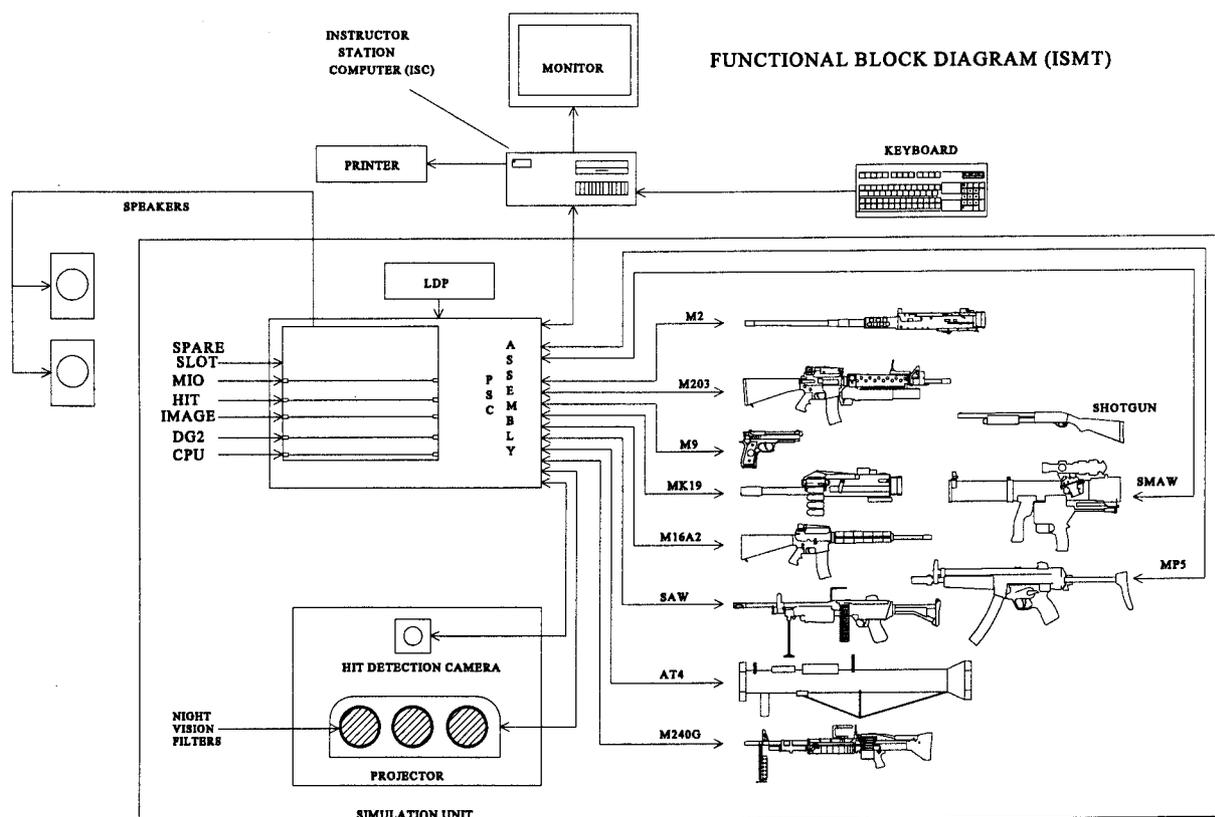
**Projector** - The projector displays the training imagery for either the four-lane or the full-screen training configuration. The projector has three monochrome (single color) CRT type lenses with dual line rate capability to handle video with both high and standard resolution line rates. The projector is an off-the-shelf item.

**Hit Detection Camera** - The off-the-shelf hit detection camera is a monochrome CCD video camera with an infrared (IR) filter used to detect pulses of laser energy fired from the training weapons.

**Night Vision Assembly** - This device alters the projected image so that standard night vision sights/devices currently used by the USMC can be used with simulated weapons to replicate night firing accurately on the ISMT/IST. Personnel not using image-enhancing devices cannot see the projected image when the night vision training mode is used. The Night Vision Assembly is a physical filter which easily fits over the lens of the projector.

**Screen** - The screen is a commercially available off-the-shelf item used universally for large-screen video projection. It is portable and assembles quickly and easily. The ISMT is delivered with a 7.5' H X 10' W screen. The IST adapter kit includes those components needed to reconfigure three ISMT screens into a single, large-screen display.

**Speakers** - The speakers are off-the-shelf items. The speakers are used to provide audio feedback to simulate scenarios more accurately.



### How Does It Work?

During training, the instructor initiates the mode of operation and courses of fire. The hit detection system tracks the position of a weapon's point of aim on the screen. When a weapon is fired, the hit coordinates are determined by the hit detection system. The audio system is signaled immediately to make the appropriate weapon report providing shot sound feedback. The main processor then computes the position of the shot based on appropriate adjustments for wind, ballistics, and dispersion. The final coordinates are displayed by the projector in the form of a spotter or other weapons effects to provide visual feedback to the trainee.

### What Weapons Can the ISMT/IST Use?

The training system includes the following training weapons:

M16A2 rifle, M136 AT-4, M2 .50 caliber machine gun, M9 pistol, M249 SAW, MK 153 SMAW, M240G machine gun (Fabrique Nationale MAG), HK MP5 submachine gun, MK 19 machine gun, M203 grenade launcher fitted to M16A2 training weapon, Service Shotgun 12 gauge.

The 4-trainee firing position (ISMT) and/or 12-trainee firing position (IST) accommodates any combination and firing position of the specified weapons. Simultaneous operation of all weapons does not cause any degradation of system performance. The firing positions are 20' from the large display screen. During exercises, the trainees are provided the freedom of movement to assume all normal firing positions.

# SITE SELECTION

## Introduction

This Assignment Sheet covers Learning Objective 1-3 (Demonstrate the knowledge necessary to select a site for the ISMT and IST systems). By completing this Assignment Sheet, you will gain the knowledge necessary to select a site capable of safely supporting the needs of an ISMT system.

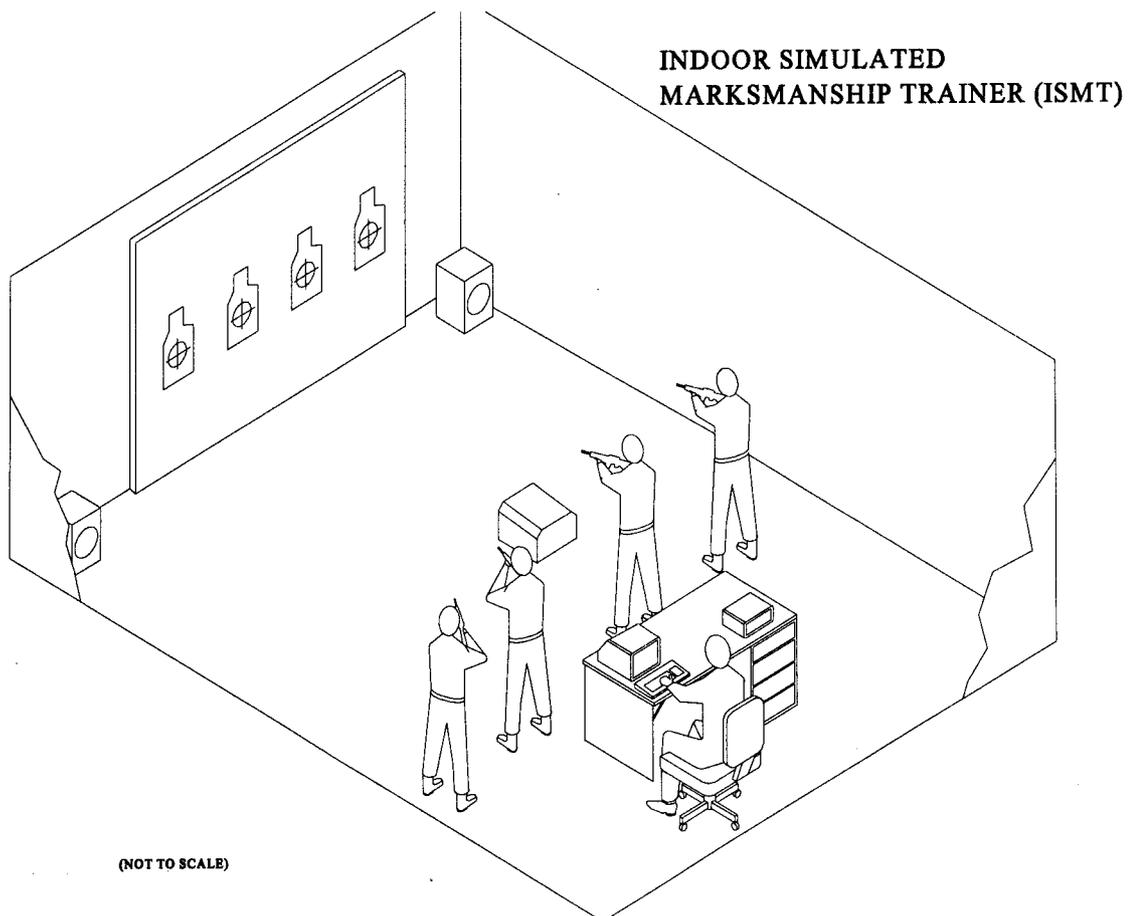
## Facility Requirements

The facility requirements of space, mounting, power, environment, and grounding for the safe and proper accommodation of the ISMT are outlined in the paragraphs that follow. All of these requirements are important in selecting a training site. If any of these requirements are not met, a more accommodating space should be located.

## Space Required

The ISMT (4-lane system) requires a minimum total floor space of 420 square feet (128 square meters) in a room 14 feet (4.26 meters) by 30 feet (9.14 meters). The IST (12-lane, 3-screen system) requires a minimum of 42 feet (12.78 meters) by 30 feet of space.

The ceiling height must be 7 feet 10 inches (2.39 meters) for proper clearance. Since this system does not exceed 300 pounds (136 kilograms) per square foot of floor loading, special decking is not required.



## Mounting

The ISMT system is free-standing. It requires no special mounting to facility structures. The screens may be mounted to a wall or bulkhead, as long as the designated wall or bulkhead and its surface are sturdy enough to support the weight of all three screens. If mounting the screens to a wall or bulkhead, make one set of brackets that can be fastened to the wall surface and that will securely hold the tops of the screen frames in place. Space the brackets so the top of each screen frame is supported near both ends. When hung on the wall, the bottom of each screen frame must be the same distance off the floor as when floor mounted. Make and install another set of brackets that can be fastened to the wall surface and that will securely hold the bottoms of the screen frames in place against the wall. Remove the support legs and hang the screens. Use the BARCO alignment cables to reposition the projectors as necessary and calibrate the system.

The system is capable of projecting images on a wall instead of the screens, but there are several important factors to consider. The screen surfaces have been specially selected to provide optimum image quality; the wall surface must be carefully selected and specially prepared to provide similar quality. With screens, the projectors are placed using the alignment cables, and all screen/projector relationships are set automatically for ideal image presentation. With a wall, all distances, angles, and screen/projector relationships must be measured and corrected manually.

The most important point to remember is that, during calibration, the system locates the four screen corners by activating the LEDs. Unless the positions of the LEDs are transferred exactly to the wall surface, and the LEDs themselves are then set into the surface and their wiring hidden from view, LED calibration will have to be bypassed. Although possible, the resulting calibration is not as accurate as that accomplished with LEDs.

FATS does not recommend using a wall instead of the screens.

## Power Requirements

For the ISMT system, a 115 VAC, 60 Hz, single phase source is required. The worst case load for this system could be as much as 11 Amps with an average load of approximately 8 Amps. The maximum power consumption for an ISMT system is 920 Watts with an average power consumption of 460 Watts. Whenever possible, the system should be plugged into a power source that is isolated from other equipment. Strong intermittent signals such as those from electric motors, generators, and air conditioning compressors may interfere with the proper operation of the ISMT system and cause it to register false detection feedback. The IST is essentially three ISTs; therefore, the power requirements are approximately three times that of the ISMT.

## Grounding Requirements

The chassis ground points of the system are connected to the trainer's facility ground through the grounding pin in a standard three-wire AC power cable plug. If the device is plugged into a non-grounded outlet, provisions must be made to ground the outlet frame, case, or housing to prevent personnel shock hazard.

## Environment and Safety Requirements

The safe operating temperature limits for the ISMT system are between +5 and +35 degrees Centigrade (+41 and +95 degrees Fahrenheit). The relative noncondensing humidity limits are 30 to 85 percent, although lower humidity in desert areas will not adversely affect operation of these systems. The system is designed to operate successfully in a wide variety of climates and conditions. Still, avoid dust-producing items (leaking sandbags, dirt floors, deteriorating camouflage materials, etc.), especially around the desks, projectors, and weapons. If the training site is a separate building, ensure that wind-blown dust and dirt does not enter the room via poorly sealed doors or windows. Moisture-producing items such as leaking or sweating pipes and damaged roofs must be repaired.

Local policies and procedures governing the use of electrical equipment, weapons (FATS weapons may be considered actual weapons by some agencies), and compressed gasses should always be followed. There are additional considerations.

Room lighting must be controllable. Temperature and humidity can be adjusted for individual comfort. Because the training room should be light-tight, air circulation will be below normal levels, and adequate auxiliary ventilation should be provided. This ventilation must not cause screens to move or ripple, as such movement can reduce overall system accuracy.

Tightly closed bottles will store CO<sub>2</sub> indefinitely, but regulators and weapon valves will vent small amounts of gas during use. Air circulation and ventilation for personal comfort will disperse this CO<sub>2</sub> and prevent its buildup. CO<sub>2</sub> is not a toxic gas and is not dangerous in normal use. Should a large amount of CO<sub>2</sub> be released in the room, open doors and windows (if any) to clear the air. Fully close bottle hand valves when not in use to conserve gas, and exercise caution when disconnecting weapon gas lines from regulators. Because CO<sub>2</sub> is delivered at 100 or 150 psi (depending on weapon type), ensure that regulators are positioned so that if a weapon's gas hose is inadvertently disconnected, it does not injure personnel or damage equipment.

Never transport or store CO<sub>2</sub> bottles on their sides.

The simulator operates off electricity, and components can generate and/or conduct lethal amounts of electrical charges if mishandled. Normal safety procedures exercised when working with any electrical devices should be employed at all times.

Any training event comes with certain restrictions. In general, avoid doing anything on or around the FATS trainer that you wouldn't normally do during similar training exercises elsewhere. Unsafe acts, uncontrolled smoking and drinking, horseplay, and unscheduled breaks would not be tolerated on a live fire range: Do not allow them on a simulated range.

## Assignment Sheet 1-2

Situate classroom or briefing areas so they do not interfere with training. Locate break areas well away from ongoing training, and never allow students to bring food or drinks of any kind near your system. Ensure that student canteens are tightly closed.

Never allow unsupervised or "play time" use of the system by students. Untrained operators will not run courses of fire according to your SOP (negative training), and scenarios played over and over again for fun lose much of their training value through sheer repetition.

System operators should do just that: Operate the system. They should not be tasked with supervising students, running the firing line, or conducting other training.

### Acoustic Considerations

The simulated firing audio system is fitted with a volume control to adjust the noise level. When training is being conducted, the noise simulating the firing of weapons must be loud to provide realism. Spaces around the site where the simulation systems are to be used must be considered, as the noise from the simulations may be heard outside the simulation site. The level of noise that escapes from the site depends upon the amount of sound isolation (dry wall, sound lagging, thickness of wall or bulkheads, etc.) of the structure in which the ISMT is located. Hearing protection devices should be worn by all personnel during training because the noise level may exceed safe unprotected levels if the volume is adjusted to simulate real firing accurately.

### Lighting

A common problem with most simulator training rooms is that they are either too dark or too bright. This comes from having little or no control over ambient (room) lighting. In the average training room, most if not all lights must be turned off in order for the projected images to be seen clearly. This puts the firing line in shadow and silhouettes the weapon sights against the bright screen images. The instructor has difficulty seeing the keyboard and is completely in the dark during some firing. Light switches are usually located near the doors, well away from personnel who must control them. Turning on enough lights to suit the students and instructor usually floods the projected images with light and washes them out.

Ideally, the area down range (from the projectors to the screens) should be kept in deep shadow. This allows the projected images to show as clear and bright as possible. The firing line should be lit with controlled fluorescent lighting that enables the students to easily read weapon sights and fill out score or note books. This firing line lighting should be adjustable, presenting the students with a variety of light conditions, from bright sun to total darkness. The instructor's station (on and around the desk) should be lit so that the user can see the keyboard and perform all necessary functions regardless of the light conditions in the rest of the room. All room lighting should be controlled by the instructor from the designated ICS desk.

The site selected must have provisions to block out all sunlight. If room lights are necessary, they should be fluorescent, because system operation is not normally affected by fluorescent lighting. These light sources can be located as necessary for effective and realistic training. However, incandescent light will interrupt normal system activities, such as causing the ISMT to register false hits. Such light sources must be strictly controlled and must not be allowed to shine down range or near the hit cameras. Sunlight is difficult to control and will also interrupt normal system activities. It should be completely omitted from the room at all times while the system is in use. A convenient means of switching off the room lights from the Instructor

## Assignment Sheet 1-2

Station is strongly recommended. Proper use of instructor-controlled lighting enables the screen images to remain sharp and clear while the students and instructor can see what they are doing.

Since most training will occur in dimly lighted spaces, all normal safety precautions pertaining to darkened spaces should be observed.

### RF Interference

The ISMT system generates and uses radio frequency energy. If not installed and used properly, in strict accordance with instructions, the system may cause interference with radio reception. If, when installed, this equipment causes interference with radio reception, the following steps may be taken to correct the interference:

1. Relocate the system with respect to the radio receiver antenna.
2. Use a dedicated power source for the ISMT or IST. If a dedicated power source cannot be obtained, connect the ISMT or IST to a power source that does not handle the radio equipment.

If the steps listed above do not resolve the interference problem, consult a certified technician for further measures to prevent radio interference.

### Making the FATS Training Room More Realistic

Live fire training does not take place in a vacuum; pre- and post- event activities lend meaning and credence to any exercise. Firing exercises incorporate lead-in actions, safety briefings, and reviews so that all participants are thoroughly aware of what to expect and what the day's training is to accomplish. Complete these same activities prior to using your FATS system.

All present must view simulator training as a dead-serious issue, not a day at the arcade. Schedule meaningful, relevant concurrent training for those students not on the trainer. The simulator should be an integral part of existing training and should incorporate normal equipment and procedures (helmets, web gear, hearing protection, range commands, etc.). Schedule outside tasks to complement the inside simulator training. At the end of the training day, conduct normal reviews, tests, and debriefings as appropriate. A day on the FATS simulator should resemble the real world training it supplements as closely as possible.

One of the most important factors in presenting meaningful simulation training is the perceived realism of the training room. A lot can be done to improve a bare facility. Dark flat colors on the floor, walls, and ceiling help to expand the training space visually. Camouflage netting or materials break up flat surfaces and right angle corners. Controllable lighting illuminates the instructor's station and firing line while the rest of the room is in shadow. Sandbags, logs, and MOUT-type accessories are used to build realistic weapon emplacements.

**NOTE:** System degradation and malfunction reports have been traced to the use of real sandbags, or other props or components which may produce a high volume of dust or dirt in the training room during a training exercise. To prevent system degradation and malfunctions:

1. Before using any training prop or component which may generate dust or other airborne particulate, ensure the material is properly protected from release into the training environment.

## Assignment Sheet 1-2

2. Any sandbag or other dust-generating training props or components should be packed in a plastic bag (at least 3 mils thick) and sealed prior to placement in a sandbag (burlap or other like material) to prevent the release of airborne particulate during training.
3. Whenever FATS training equipment or accessories have been exposed to high levels of dust or other airborne particulate, promptly clean the equipment following general cleaning instructions provided in the maintenance section in the associated operation and maintenance manuals.
4. High levels of airborne particulate should be avoided since this condition may result in:
  - (1) Clogging of air intake filters in electrical equipment, resulting in overheating of equipment, malfunction, shortened projector bulb life, etc. Overheating may also damage power supplies and trip internal circuit breakers, resulting in degradation or malfunctions.
  - (2) Corrupting hard disk, floppy disk, and laser disc drives resulting in degraded data or causing a system malfunction.
  - (3) Blurring of projector images on the screen.
  - (4) Interference with the Hit Detector Camera's ability to detect rounds fired.

Multiple-level, modular platforms allow over-projector firing and can be reconfigured for range or combat scenario training. Whenever possible, conceal all wiring, cables, and hoses beneath the platforms or camouflage materials, running them so they are not pinched or kinked. Future upgrades or troubleshooting may require access to cables, hoses, and/or wires. Always cover them with removable materials. Modular platforms or concealed panels can be removed to access the wiring below.

Always allow for ventilation around projectors and desks. Never cover system electrical components with solid materials that block air circulation (camouflage netting provides adequate ventilation and may be used to cover projectors and desks).

On a live fire range, the firing line has a certain look and feel. This look and feel can be recreated to a surprising degree with your system. Actual firing lines are usually level; each firing point is on line with the others; all points are clearly marked; and most have sandbags and/or vertical surfaces for supported positions. Well-defined range commands are used and are issued from behind the firers in a clear and concise manner. Safety is the primary concern and is stressed at all times. Movement on and off the firing line is strictly controlled, and conduct while on the range is serious and professional. These and other live fire range conditions and actions should be simulated on your system as exactly as possible for maximum positive training transfer.

Actual combat engagements are a different matter and have proven difficult or impossible to reproduce accurately on conventional live fire ranges. With your system, however, many realistic combat elements are simulated. Friendly and enemy troop movement occurs to your front; live targets are engaged and return fire; and squad/team leaders are tasked with reacting to and successfully completing offensive, defensive, or ambush exercises. In addition, the composition and location of individual fighting positions are limited only by cable lengths (which may be dramatically increased by using manifolds) and the extent of your imagination.

## SIMULATION UNIT SETUP

This Work Sheet covers Learning Objective 1-2 (Demonstrate the ability to connect and assemble the system for four positions [ISMT]). Trainees will learn how to set up the Simulation Unit (SU) with this Work Sheet. The SU contains all equipment and cables required for system operation. All components are identified by labels. Care should be exercised when removing the components.

Simulation Unit components include

1. Projector(s)
2. Hit Detect Camera
3. Night Vision Assembly
4. Screen(s)
5. Speakers and
6. Cables and Power Cords

### WARNING

**DO NOT CONNECT ANY SYSTEM COMPONENTS TO ANY EXTERNAL POWER SUPPLY UNTIL ALL ASSEMBLY HAS BEEN COMPLETED.**

### ASSEMBLY INSTRUCTIONS

Check the box after the step number or letter to indicate that you have completed the step.

1.  Position all shipping crates near, but not blocking access to, the training area.
2.  When initially receiving ISMT (or retrieving it from storage), unload all shipping crates from transportation or storage area. Check shipping list to ensure all system components are included. Ensure that all components are clearly identified with appropriate labels.

**NOTE:** Replace packing material in empty boxes and store in crates for future use. EMPTY packing crates may be stacked two high.

3.  Position inventoried equipment in approximate use locations according to functional block diagram and/or previous use of equipment/facilities.
4.  Lay out light emitting diode (LED) cables between screen and Instructor Station.
5.  Place now-rigid screen frame flat on floor with male half of snap fasteners facing up.
6.  Unfold screen and position atop screen frame with female half of snap fasteners facing down. If screen has a seam, ensure that this seam is positioned to run along the top of the screen frame. Top and bottom of screen frame, as viewed when upright, are marked "TOP" and "BOTTOM" along the outer edge of frame.
7.  Snap one corner of screen onto the screen frame, and then snap the opposite corner into place. Repeat the steps for the remaining two corners.

8.  Snap each of the four sides of the screen to screen frame.

**NOTE:** Room temperature will affect screen size; cold screens will be smaller and harder to stretch than warm ones. If opposite corners are too difficult to snap, start at one corner and proceed around perimeter of the screen frame. If it is not possible to do this, or to avoid difficulty, place screen material in warm (19-23 degrees centigrade) room for several hours prior to assembly.

9.  Stand screen frame upright, ensuring that "TOP" and "BOTTOM" are positioned correctly.
10.  Lean screen frame backwards until top frame rail is at eye level, and install two upper LEDs so that light will be emitted toward simulation unit (through screen).
11.  Connect upper LED interconnect cable end to upper LED, and secure cable to upper portion of screen frame.
12.  Stand screen frame upright and install support legs following the color code on legs.
13.  Install two lower LEDs so that light is emitted toward projection unit (through screen).
14.  Connect lower LED interconnect cable end to lower LED, and secure cable to remainder of screen frame.
15.  Connect long LED cable to upper and lower LEDs as marked.
16.  Position assembled screen in the desired location, preferably against a wall. The rear half of the support legs may be folded to allow the screen to stand very near a wall.
17.  Unfold and then lock screen frame and support legs into position.

**NOTE:** By removing support legs entirely, the screen may be mounted directly to the wall surface. If this is done, the screen must be mounted securely in a manner that does not interfere with operation of LEDs or place excessive strain upon LED cables.

18.  Position the front speakers one on either side of the screen. Make sure that they face the training area and that they are upright (black and red wire-securing buttons on rear of speakers should be below entry point of speaker wires).
19.  Lay out front speaker wires from front speakers to Instructor Control Station.
20.  Connect the left and right speaker wires to the speakers; connect black to black and red to red.
21.  Position CO<sub>2</sub> cylinder near the screen, ensuring that valve is closed. An open valve at this stage of assembly indicates an empty cylinder.

## Work Sheet 1-1

**NOTE:** Transportation and/or storage of CO<sub>2</sub> cylinders must be in accordance with prescribed safety instructions and procedures.

22.  Install appropriate pressure regulator on CO<sub>2</sub> cylinder, and open valve to test connection.
23.  Fully open CO<sub>2</sub> cylinder valve and check available pressure readout on regulator dial. Adjust, if necessary, until dial needle indicates the prescribed IAW pressure applicable to the weapons being attached to the system.
- NOTE:** Red flag on dial face indicates original factory-calibrated setting for appropriate PSI. This setting ensures delivery of correct pressure to the weapon and must not be exceeded.
24.  Fully close all CO<sub>2</sub> cylinder valves.
25.  Position projection unit in front of screen with projector lenses facing toward screen, approximately 15' from the screen.
26.  Align projector with alignment cables provided.
27.  Mount hit camera assembly on top of projector.
28.  Lay out projection unit cables between projection unit and Instructor Station.
29.  Connect cables to hit camera assembly.
30.  Ensure that projector is turned OFF. Then connect cables to front and rear of projection unit.
31.  Position Instructor Station so that it does not interfere with anticipated training events, and external cables can be run to enter Instructor Station from the bottom rear of the Station through the opening provided in rear panel.
32.  Route all external cables from components to Instructor Station so that cables lie flat along their full length and do not obstruct training area on and to the rear of the firing line.
33.  Complete Work Sheet 1-2.

## INSTRUCTOR STATION SETUP

This Work Sheet covers Learning Objective 1-2 (Demonstrate the ability to connect and assemble the system for four positions [ISMT]). Trainee will learn how to set up the Instructor Station (IS) with this Work Sheet. The IS is shipped as a single module. The module contains all equipment and cables required for system operation. All components are identified by labels. Care should be exercised when removing the components.

Instructor Station components include

1. Desk Top and Drop-leg Assembly
2. Security Door
3. Three (3) Stacking Modules
4. Cables and Power Cords

### WARNING

**DO NOT CONNECT ANY SYSTEM COMPONENTS TO ANY EXTERNAL POWER SUPPLY UNTIL ALL ASSEMBLY HAS BEEN COMPLETED.**

### ASSEMBLY INSTRUCTIONS

Check the box after the step number or letter to indicate that you have completed the step.

1.  Remove all components from shipping module and carefully place them on the floor. Check shipping list to ensure all system components are included. Ensure that all components are clearly identified with appropriate labels.
2.  Arrange all components on the floor so they can be identified easily.
3.  **Module One** is the bottom module. It has rubber feet and is used to house the Laser Disc Player (LDP). The LDP provides the generation of all video media stored on laser disc.
  - a.  Place Module One at the selected on-range position.
  - b.  Thread the following items through the back of Module One:
    - (1) Weapons Trunk Line
    - (2) RGB (Red, Green, Blue) Bundle (the Projector Hit Detect Cables)
    - (3) Speaker Cable(s)
    - (4) LED Cable (to screens and filter changer)
  - c.  Place the Laser Disc Player (LDP) into the module. Use the module interior straps to secure it carefully.
  - d.  Connect the right and left Audio Cables to the LDP. They will be threaded later into the next upper unit (Module Two) along the left side and then up into the PSC which is housed in Module Three.

## Work Sheet 1-2

- e.  Connect the Video Out Cable to the LDP. It will be threaded later into the next top unit (Module Two) along the right side and then up into the PSC in Module Three.
  - f.  Connect the LDP Control Cable to the LDP. Follow the same procedure as in item "e" above.
4.  **Module Two** is used to house the control computer (PC). The PC provides all computer control of the weapons, audio, and simulation functions. Module Two also contains the **switched/unswitched** power strip.
- a.  Place Module Two on top of Module One. Be sure it lines up and fits exactly into the indentions on top of the bottom module.
  - b.  Thread into the back of Module Two the following items:
    - (1) PC power cable
    - (2) Parallel printer cable
    - (3) Mouse cable
    - (4) Keyboard cable
    - (5) VGA cable
    - (6) VGA monitor power cord
  - c.  Place PC unit into the module. Secure it carefully with the module's interior straps.
  - d.  Thread remaining internal cables into Module Two from Module One.
  - e.  Plug PC power cable into **switched** section of the power strip.
  - f.  Plug LDP power cable into **switched** section of power strip.
  - g.  Connect Communications connectors: use only one on ISMT; use all three on IST. ISMT - connect to COM1. IST - Left System to COM1, Center System to COM2, and Right System to COM3.
  - h.  Plug Parallel printer cable into LPT-1 and coil cable behind the PC.
  - i.  Plug Mouse cable into PC, and for now put the mouse in rear of module.
  - j.  Plug Keyboard cable into PC after the desk is assembled.
  - k.  Connect VGA cable to PC. **NOTE:** The end connector with three rows of pins connects to the PC.
  - l.  Plug VGA Monitor power cable into **unswitched** section of power strip.
  - m.  Connect sound card cable to the sound card.

5.  Place **Module Three** on top of Module Two. Make sure it lines up and fits exactly into the indentions on top. Module Three contains the Primary Simulation Computer (PSC).
  - a.  Pull cables up from Module Two and into this module. Exercise caution as the cable connectors may get caught on the openings and their connectors may be damaged.
  - b.  Connect cables to the PSC exactly as marked.
  - c.  Connect Projector power cable to **unswitched** section of power strip.
  - d.  Connect PSC power cord to **switched** section of power strip.
6.  Slide in the left side panel, and carefully place the **Desk Top Assembly** on top of Module Three.
  - a.  Gently lift top up one inch and install Security Door assembly on the hinges; close door and return top to resting position. Ensure door is not locked prior to assembly.
  - b.  Lock all modules into position using side panel locking devices.
7.  Ensure that all Instructor Station internal cable connections are correct and secure. (Refer to Operator's Manual.)
8.  Connect all external cables to Instructor Station/PSC, ensuring that connections are correct and secure.
9.  Position instructor's chair near Instructor Station so that instructor has a good view of, yet is not obstructing, training area.
10.  Position the personal computer (PC), monitor, keyboard, and laser/software disc folder on Instructor Station.
11.  Position printer on Instructor Station.
12.  Connect power outlet strip to Instructor Station.
13.  Connect monitor and keyboard to PC.
14.  Ensure that the power strip is turned OFF. Connect printer power cord to power outlet strip (switched).

- 15.  Ensure that external power supply output conforms to expected norms, and then ensure that it is turned OFF.
- 16.  Ensure that projection unit, Instructor Station, PC, monitor, and printer power switches are turned OFF and PSC speaker volume control knob is set at the three o'clock position.
- 17.  Lay out Instructor Station power cord from Instructor Station to power source.
- 18.  Lay out weapons and magazines at designated firing points along firing line.
- 19.  Connect weapons trunk lines to appropriate CO<sub>2</sub> regulators.
- 20.  Connect appropriate weapons to trunkline electrical and CO<sub>2</sub> connections.
- 21.  Open CO<sub>2</sub> cylinder valve and recheck available pressure; readjust if necessary.

This completes this Work Sheet.

## IST/ISMT BOOT-UP

This Work Sheet covers Learning Objective 1-4 (Demonstrate the ability to boot the ISMT system, isolate and correct hardware setup misalignments/faults, and restore system operability). Upon completion of this Work Sheet, you will be familiar with the boot-up process and the troubleshooting table.

After initial setup and configuration, follow the procedure below to prepare the system for training. If system was properly shut down and the room was left in an orderly fashion after the previous training session, preparations for the next training period are straightforward.

Turn on all room lights and adjust heat, air conditioning, and ventilation as necessary. Visually inspect the system to ensure that all components are present and no one has tampered with, moved, or removed any equipment.

Prior to boot-up, check all hit camera filters and make sure they are set on "shoot." It is very important to set the filters on "shoot," as correct boot-up will not occur if they are set on "calibrate." On "shoot," a dark filter is positioned in front of the hit camera lens. This filter blocks out most ambient light while allowing the hit camera to detect the laser strikes of the weapons. On "calibrate," a less opaque filter is positioned in front of the lens. This admits a greater amount of light and is used during system calibration only.

During boot-up, the system will accept and buffer up input from the keyboard and other sources, one of which is the hit detect camera. When on "shoot," the dark filter prevents ambient light from entering the camera lens, and boot-up will proceed normally. If the filter is set on "calibrate" during boot-up, a large amount of ambient light is admitted through the lens. This light information is buffered up and the system will slow dramatically as it attempts to process the input. Boot-up and operation will not be as expected. If this occurs, set the filters on "shoot" and reboot the system.

Insert appropriate floppy disks (4-lane or 12-lane left/center/right) into Primary Simulation Computer (PSC) external drives. Two of the most common operator errors are using the wrong boot disk or inserting the correct disk into the wrong component. Either will prevent correct boot-up.

The PCs (personal computers) are the white or cream-colored components located in each desk; they closely resemble standard home or office PCs. The PSCs (primary simulation computers) are the grey-colored components located in each desk and are manufactured by FATS. A PC displays all monitor information, handles database functions, and controls the operation of one or more PSCs. The PSCs display all Big Screen information and run the courses of fire and scenarios.

Boot disks are never needed in any PC in either 4- or 12-lane configurations. Floppy disks inserted in PCs during system boot-up may cause problems and can cause the system to boot incorrectly or not at all. Never use boot disks in any PC.

The floppy disk marked "USMC ISMT 4-LANE BOOT DISK" is used in any PSC for single screen, 4-lane individual marksmanship training.

The floppy disk marked "USMC IST BOOT DISK (LEFT)" is used in the left PSC for 3-screen, 12-lane individual marksmanship or squad video scenario training. It is used in conjunction with floppy disks marked "USMC IST BOOT DISK (CENTER)" for the center PSC and "USMC IST BOOT DISK (RIGHT)" for the right PSC.

## Work Sheet 1-3

In 4-lane configuration, ensure that the communications cable running from the upper right of the front of the PSC ("PC J9") to the back of the PC is connected to the PC "com 1" communications port. In 12-lane configuration, ensure that left PSC is connected to ICS PC at "com 1" port, center PSC at "com 2" port, and right PSC at "com 3" port.

**NOTE:** A 4-lane configuration is always controlled via the PC "com 1" port, regardless of which desk is used. A 12-lane configuration is always controlled using left PSC to "com1," center PSC to "com 2," and right PSC to "com 3," regardless of which desk is used as the ICS.

Securely connect desired weapons to the appropriate PSCs and CO<sub>2</sub> regulators. Fully open hand valves on the CO<sub>2</sub> bottles in use, and listen for possible gas leaks at all connections and at each weapon. If necessary, plug the system into appropriate electrical outlet(s).

When ready, power up the system. In 4-lane configuration, use the lighted rocker switch on the front of the power distribution module located to the right of the PC in the desk you are using. In 12-lane configuration, use the lighted rocker switches on the power distribution modules located to the right of the PCs in all three desks, including the one you are using as the ICS.

If necessary, open the LDP(s), insert appropriate video disc(s), and close the LDP(s). If the LDP(s) are opened/closed, power down the system, wait 30 seconds, and power up again. Rapid power down/power up can cause a partial or complete loss of CMOS settings in the PC. Even a partial loss will disrupt normal PC boot-up procedures. This stems from the PC/PSC interaction and does not necessarily indicate a malfunctioning component. Waiting 30 seconds between power down and power up virtually eliminates the possibility of partial or complete loss of PC CMOS settings.

Two common operator errors are using the wrong laser disc in a laser disc player (LDP) and inserting the disc upside down.

To present a three-screen, panoramic video picture, the three projectors each display a portion of the overall image. The left projector displays the left portion of the image, the center displays the center portion, and the right displays the right. If one or more laser discs are loaded into the wrong LDP, the resulting image will be scrambled (left side in the center, right side on the left, etc.).

The left LDP should contain one of the two SETS left laser discs. The first disc is marked with one of three titles:

**SQUAD DISC I (LEFT)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM I (LEFT)**  
**SETS I (LEFT)**

Regardless of slight differences in labeling, they are all the same disc. The second disc is marked with one of three titles:

**SQUAD DISC II (LEFT)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM II (LEFT)**  
**SETS II (LEFT)**

Again, they are all the same disc.

## Work Sheet 1-3

The center LDP should contain one of the two SETS center laser discs. The first disc is marked with one of three titles:

**SQUAD DISC I (CENTER)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM I (CENTER)**  
**SETS I (CENTER)**

Regardless of slight differences in labeling, they are all the same disc. The second disc is marked with one of three titles:

**SQUAD DISC II (CENTER)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM II (CENTER)**  
**SETS II (CENTER)**

Again, they are all the same disc.

The right LDP should contain one of the two SETS right laser discs. The first disc is marked with one of three titles:

**SQUAD DISC I (RIGHT)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM I (RIGHT)**  
**SETS I (RIGHT)**

Regardless of slight differences in labeling, they are all the same disc. The second disc is marked with one of three titles:

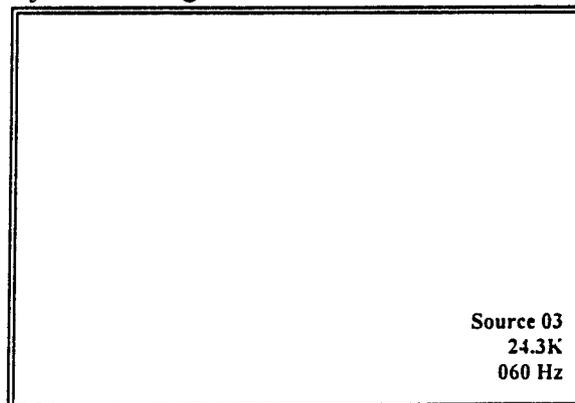
**SQUAD DISC II (RIGHT)**  
**SQUAD ENGAGEMENT TRAINING SYSTEM II (RIGHT)**  
**SETS II (RIGHT)**

Again, they are all the same disc.

There are two groups of laser discs that each produce different panoramic images. For correctly matched images in SETS I scenarios, use SETS I left, center, and right discs together. For correctly matched images in SETS II scenarios, use SETS II left, center, and right discs together.

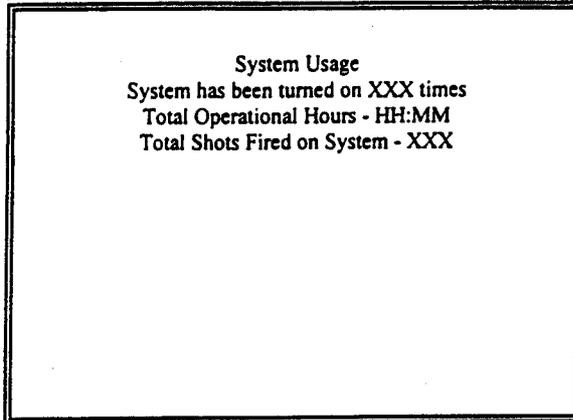
An upside down laser disc will show no useable images and may not even allow the system to boot up normally. Each laser disc must be inserted into its appropriate LDP in the correct manner; read the disc label carefully to determine which side should be up. Some disc labels indicate "This side up" or "This side down." If no clear directions are present, insert laser disc with title up. If disc is placed upside down, no image will be shown; or with some discs, a visual reminder that the disc is upside down may be seen on the screen. Observe the messages on the Big Screen and PC display during boot-up. If boot-up is correct, the messages will be as follows:

The Big Screen will display a projector setting readout which will then fade from view:



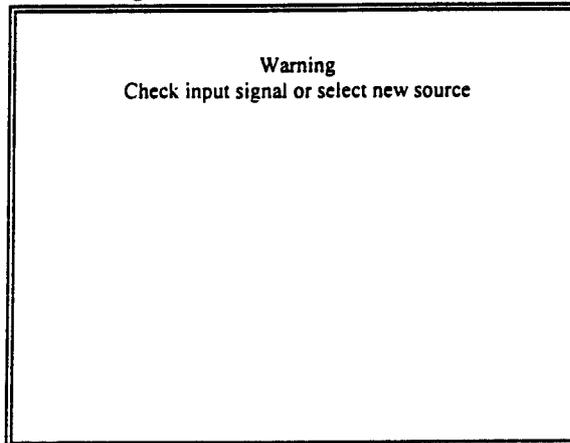
If this display fails to appear, press the Text On button on the projector remote.

Another Big Screen message (System Usage menu) appears and then fades from view:

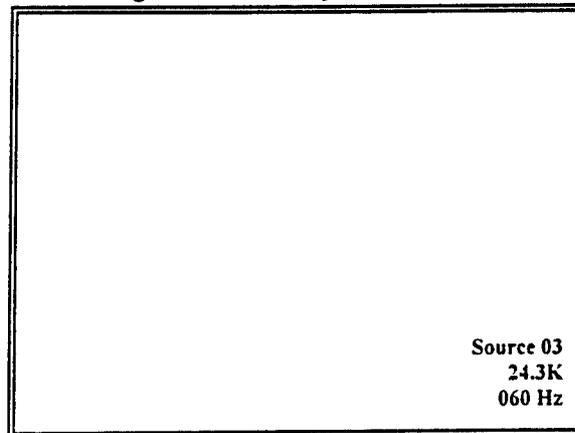


This menu reports total number of shots fired on each PSC to date, how many times each PSC has been turned on, and how many total hours each has been in use. Manually record these numbers to track system usage and total training time/shots fired. Counts are automatically updated when system Main Menu appears: Always return to the Main Menu before powering down the system. The next boot-up will then display current and correct totals.

The following message appears on the Big Screen briefly and then fades from view:

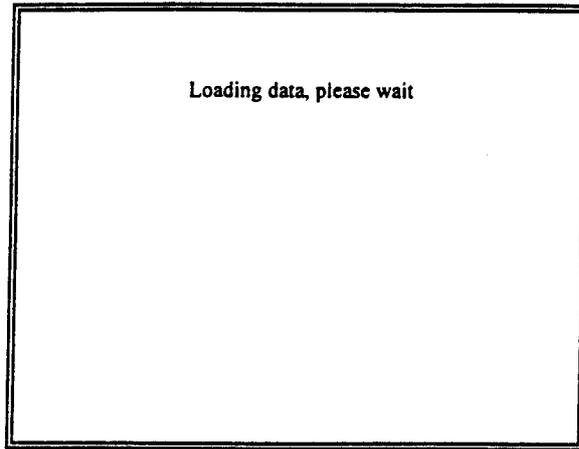


The following message appears on the Big Screen briefly and then fades from view:

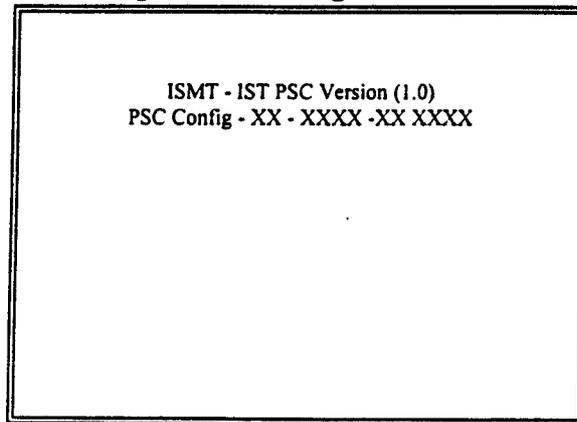


# Work Sheet 1-3

The following message appears on the Big Screen and, after a few minutes, fades from view:

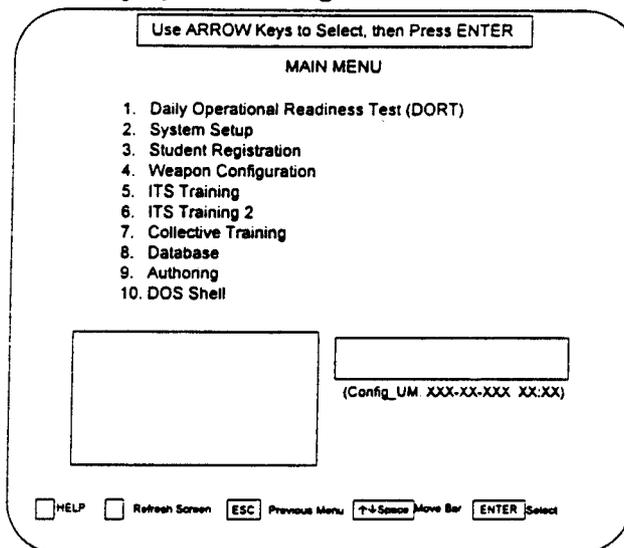


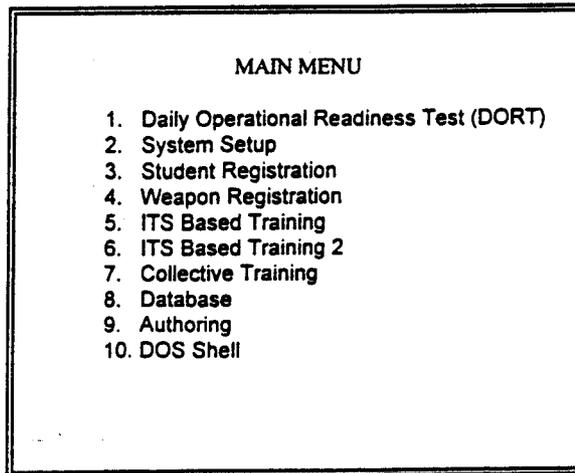
The following message appears on the Big Screen and signifies that the data load is complete:



**NOTE:** This Date/Time data is used to confirm the proper version of software in the system. Any software update to the system is reflected by a change in this information.

The Main Menu appears on the PC display and the Big Screen as follows:





During boot-up, the PC and PSC(s) synchronize as a timer at the top of the monitor counts off elapsed time. This sync up is displayed in the rectangular box in the lower left corner of the monitor. In 4-lane configuration, sync is established between the PC and a single PSC. When the PSC completes its boot-up process, the Big Screen displays the Main Menu as shown above. When sync occurs, the monitor timer is automatically reset to zero and begins a new elapsed time count. During this time, the PC is waiting for sync messages from other PSCs. Because there are no other PSCs in a 4-lane configuration, when this new count reaches 60 seconds without receiving additional sync signals, the PC rightly assumes the system is in a 4-lane configuration and displays the Main Menu on the monitor. When the monitor displays the Main Menu, the system is ready for operation.

In 12-lane configuration, sync is established between the controlling PC and the three PSCs. As each PSC completes its boot-up process, the corresponding Big Screen displays the Main Menu. When the first PSC sync signal arrives at the PC, it is displayed in the lower left corner box and the monitor timer is automatically reset to zero and begins a new elapsed time count. During this time, the PC is waiting for sync messages from the remaining two PSCs. When the second PSC sync signal arrives, it is also displayed in the box. When the third and final PSC sync signal arrives, it is displayed briefly in the box just prior to the monitor display of the Main Menu. When the monitor displays the Main Menu, the system is ready for operation.

In 12-lane configuration, if the PC final elapsed time count reaches 60 seconds without receiving any additional PSC sync signals, the PC wrongly assumes the system is in a 4-lane configuration and displays the Main Menu on the monitor. If the PC final elapsed time count reaches 60 seconds before it receives the third and final PSC sync signal, the PC wrongly assumes the system is in a non-existent 8-lane configuration and displays the Main Menu on the monitor. In each of these cases (receiving only one or two out of three PSC sync signals), the system will not operate as expected and must be powered down. Troubleshooting should then be carried out to determine the cause of the missing sync signals (loose cables, missing boot disks, etc.). When the problem is found and corrected, the system may be powered up again.

In 12-lane configuration, watch the monitor during boot-up to ensure that left, center, and right systems sync up with the controlling PC. Regardless of configuration, do not attempt to use the system until all screens and monitors in use display the Main Menu. If any of the boot-up process is incorrect, refer to the troubleshooting table, Table 1-1, for procedures to correct problems.

The system is now ready for use.

## SYSTEM SOFTWARE SETUP

### Introduction

This Assignment Sheet covers Learning Objectives 1-5 through 1-7 which apply to the system software start-up and configuration of the ISMT. By completing this Assignment Sheet and the associated Work Sheets and Problem Sheet, you will gain the knowledge necessary for the proper system software start-up and configuration of the ISMT, and knowledge of the IST system software setup.

### Need for System Software Setup

The ISMT is a sophisticated, computer-controlled, interactive training system. The system has numerous pieces of equipment which must communicate with each other. If everything is not correct the trainer may not be usable. Every portion must not only accurately communicate with other pieces of equipment in the system but must also be calibrated for the correct set of conditions in which it is to function. This means that the system must be checked and set up to work correctly. If everything is checked and set up properly, the ISMT can deliver accurate and effective training.

### Starting the System

The process of starting the system is called the boot-up or booting. This is when the computers communicate with other pieces of the system and each other so they know what is there and how to talk to it. The instructions for the PC are read off the PC's internal Read Only Memory (ROM), and the PSC reads its instructions in much the same way. The whole process takes up to five minutes and will display numerous messages on both the PC display and the Big Screen. Work Sheet 1-3 takes you through a boot-up process; you should become familiar with the different actions and displays. Often the first indication of a problem is displayed in the boot-up. If the system boots up properly, the next step is to check out the parts of the system not checked in the booting. This is done with the Daily Operational Readiness Test.

### Daily Operational Readiness Test

The Daily Operational Readiness Test is a built-in self test for the system to detect and in many cases correct faults. When the system is booted for the first time each day, the Daily Operational Readiness Test (DORT) should be run. It may also be run if you suspect that there is a problem. The process of conducting a Daily Operational Readiness Test is covered in Work Sheet 1-4. The Daily Operational Readiness Test checks the Laser Disc Player, Hit Detection Camera, Floppy Disk Drive, Audio System, Video System, Graphics System, Projector Communications, and the VME Interrupts. After the system passes the Daily Operational Readiness Test, the next step is to tell the system what to do and how to do it. This is done with the System Setup function.

### System Setup

The System Setup function is used to set up the displayed images and adjust the projector for proper alignment. The System Setup has an Automatic Setup function which aligns the system without your input. This is the fastest way to ensure an alignment, but if there is an unsatisfactory result from this function, you can adjust the system manually with the Projector Adjustment function. There are also High Resolution Camera and Low Resolution Camera tests to ensure that the projection and detection systems are aligned. You will perform a System Setup using Work Sheet 1-5. When you are finished with this process, the final part of the Software System Setup is the Weapons Configuration.

## Assignment Sheet 1-3

### Weapons Configuration

As the ISMT may use many different weapons, you need to tell the system what weapon is at what station. You will also need to ensure that the weapons are correctly aligned (the laser and sights are correctly adjusted) by using the Weapons Configuration function. Work Sheet 1-6 will take you through the steps to configure the weapons to the system. This Work Sheet will not talk specifically about any particular weapon, as the specifics of the weapons and their CO<sub>2</sub> requirements are covered in their respective manuals.

### Performing the System Setup

There are a few important things to remember when performing the System Setup. First, read the directions, and understand what you are going to do before you do it. Second, follow the directions closely, as it is easy to get lost in a procedure if you press the ESC key instead of the Q key or if you hit a Key three times instead of once, etc. The figure sheets which accompany the Work Sheets are not drawn to scale or completely accurate. This was done to keep the drawings as simple as possible and prevent confusion. There are basically four types of figures you will see in the Work Sheets throughout the OJT Handbook:

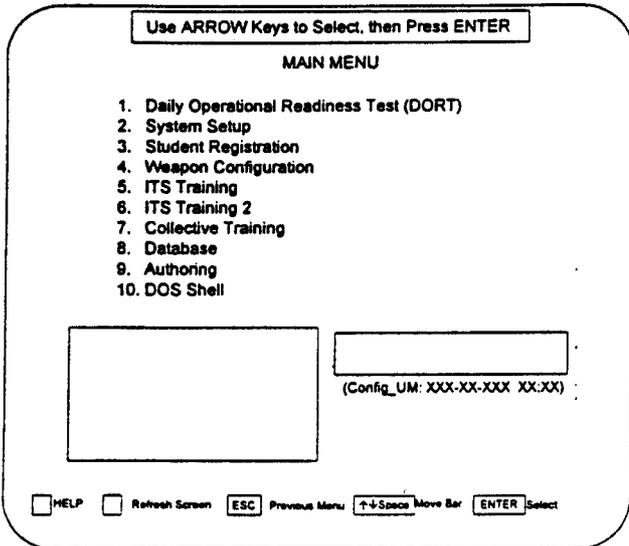
1. A single box with rounded corners represents the PC display.
2. A double line box represents the Big Screen.
3. A small single line box represents a menu on the Big Screen.
4. A large single line drawing represents a more detailed look at the PC display.

If you encounter a problem, first examine what you have done and what should be displayed. Often a simple step will be overlooked, and the problem may be easily corrected by tracing your actions back to where the step was missed. If you are unsure of what is meant in a step, reexamine the text and figures until you better understand what is being done. When all else fails, ask the Handbook Administrator for help.

## DAILY OPERATIONAL READINESS TEST

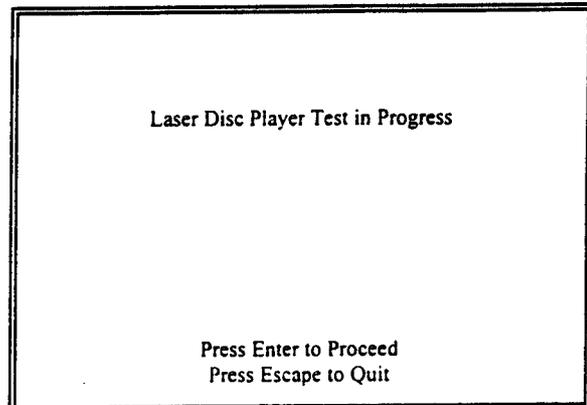
This Work Sheet covers Learning Objective 1-5 (Demonstrate the ability to perform a Daily Operational Readiness Test on the ISMT). Upon completion of this Work Sheet, you will be familiar with the operational test procedures used to ensure that the ISMT is operational. Prior to beginning any training, a system-wide check of all components should be made. This is done via the Daily Operational Readiness Test from the Main Menu. Always make a printout of the Daily Operational Readiness Test. Turn on the printer, and set the volume control knob at the mid-range position to ensure that shots fired during the sound test will be audible.

### ACTIONS

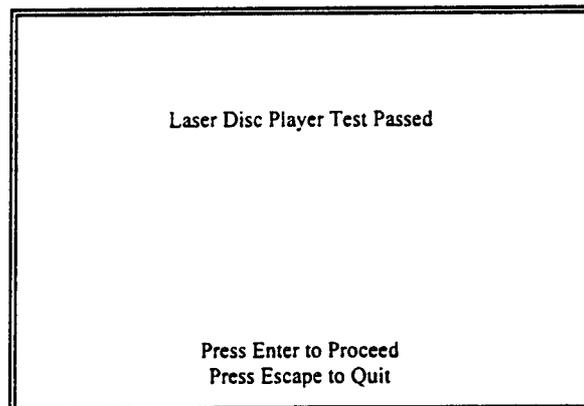


From the Main Menu PC display, use the ↑ or ↓ arrow keys to highlight **Daily Operational Readiness Test**, and then press the **ENTER** key.

### RESULTS AND COMMENTS



The Big Screen looks like the figure above. This is the beginning of the Laser Disc Player Test.



The Big Screen indicates that the Laser Disc Player test passed.

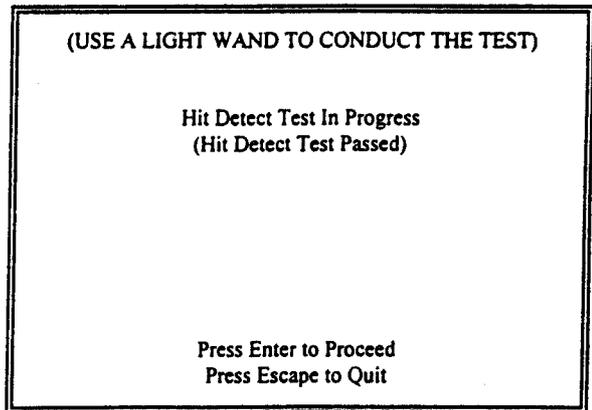
Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.

**NOTE:** In the absence of a light wand, connect a weapon to the PSC. Load and fire it at the screen. If this test is successful, the Big Screen will indicate: "Hit Detect Test Passed."

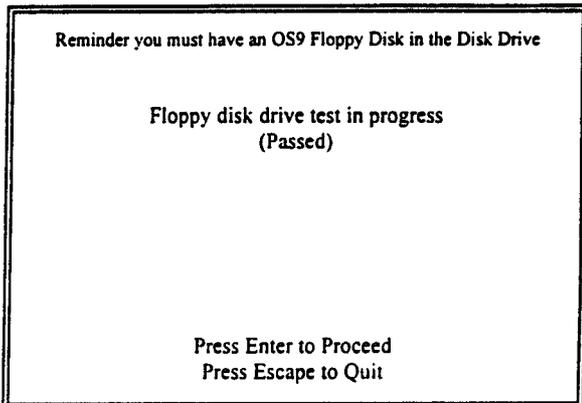
Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.

**NOTE:** You must have the floppy disk in the PSC floppy disk drive.

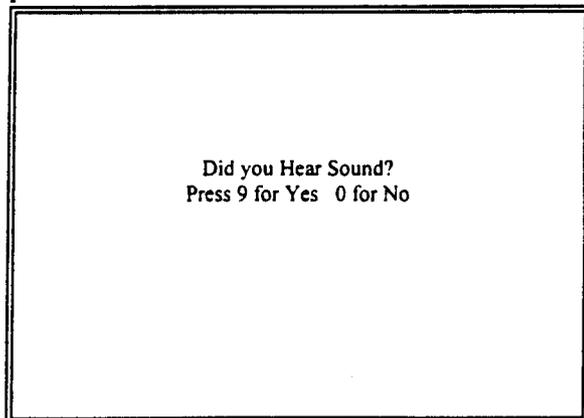
Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.



The Big Screen looks like the figure above. Go to the Big Screen, and place the light wand against the screen while clicking the wand on and off. After you have successfully conducted the test with the light wand, the Big Screen will indicate: "Hit Detect Test Passed."



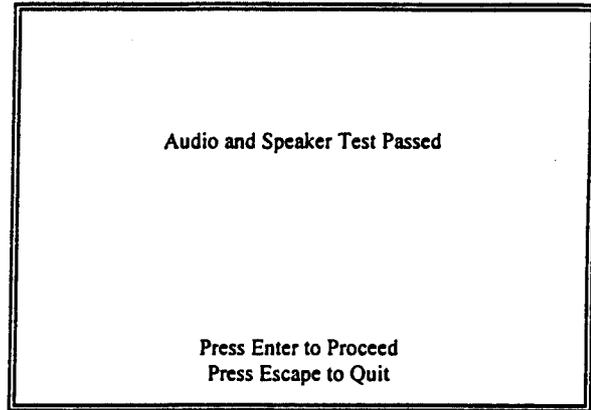
The Big Screen looks like the figure above. This is the beginning of the Floppy Disk Drive Test. If successful, the Big Screen will indicate that the Floppy Disk Drive Test passed.



The Big Screen looks like the figure above and asks the question: "Did you Hear Sound?"

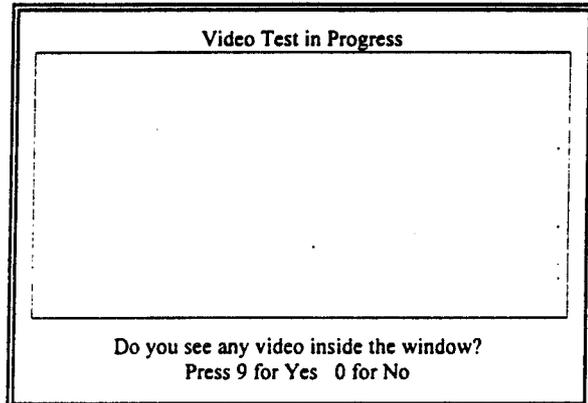
**Work Sheet 1-4**

Press 9 for YES; press 0 for NO.



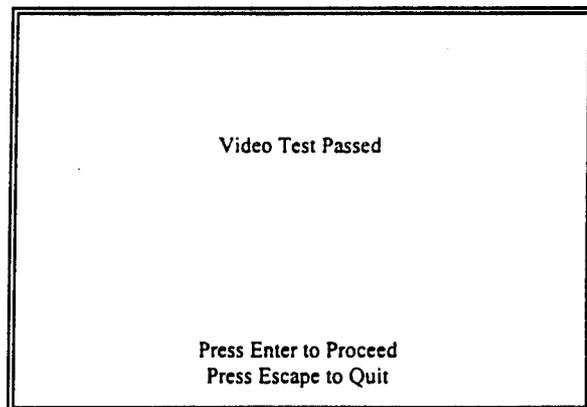
If this test is successful, the Big Screen will look like the figure above and will indicate: "Audio and Speaker Test Passed."

Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.



The Big Screen looks like the figure above and indicates: "Video Test in Progress. Do you see any video inside the window?"

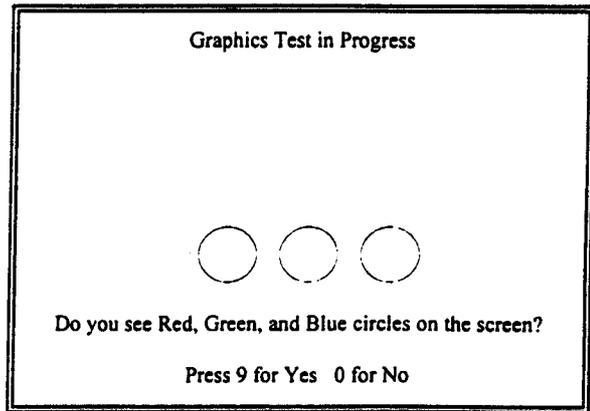
Press 9 for YES; press 0 for NO.



The Big Screen looks like the figure above and indicates: "Video Test Passed."

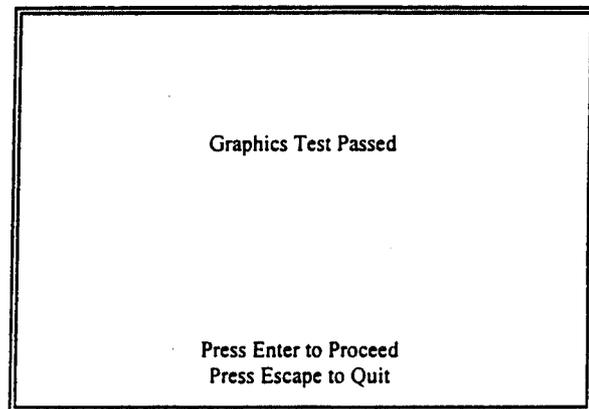
**Work Sheet 1-4**

Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.



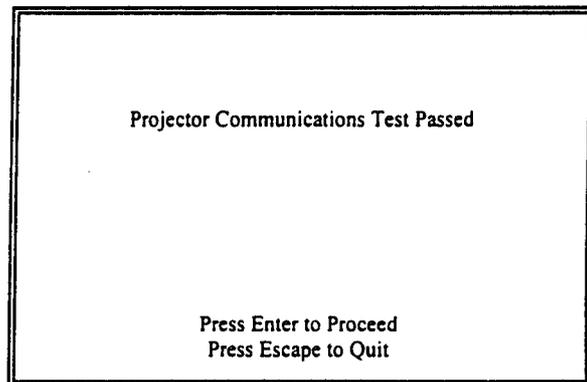
The Big Screen looks like the figure above and indicates: "Graphic Test in Progress. Do you see Red, Green, and Blue circles on the screen?"

Press 9 for YES; press 0 for NO.



If this test is successful, the Big Screen will look like the figure above and will indicate: "Graphics Test Passed."

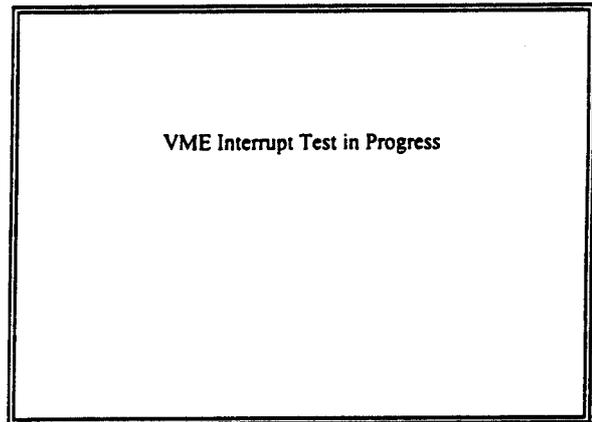
Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.



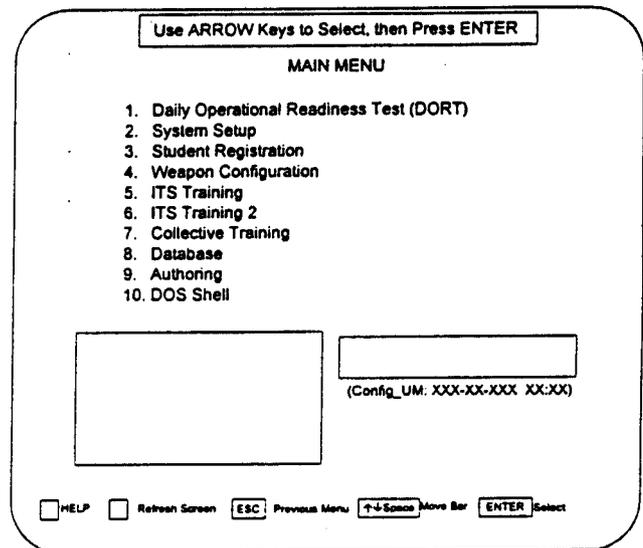
If this test is successful, the Big Screen will look like the figure above and will indicate: "Projector Communications Test" and a few seconds later "Projector Communications Test Passed."

## Work Sheet 1-4

Press the **ENTER** key to Proceed, or press the **ESCAPE** key to Quit.



The Big Screen looks like the figure above and indicates: "VME Interrupt Test in Progress." After a few seconds, the Big Screen becomes blank. If the test is successful, the PC display will return to the Main Menu as shown in the figure below.



If all of these screens and tests are satisfactory, then the Daily Operational Readiness Test is good and you may continue with the System Setup. If one or more tests fail, then use the troubleshooting table (Table 1-1) to isolate and correct the fault. This completes Work Sheet 1-4.

Table 1-1

## Troubleshooting

| PROBLEM   | POSSIBLE CAUSE   | SOLUTION   |
|---|--|--|
| System does not power up.   | <p>System not connected to external power supply.</p> <p>System not receiving correct type or level of external power.</p> <p>Transformer/UPS not providing correct type or level of power (if applicable).</p> <p>System power supply module circuit breaker tripped.</p> <p>PSC main circuit breaker tripped.</p> <p>PSC power cable loose, disconnected.</p>  | <p>Securely connect system power cable to external power supply.</p> <p>Consult operator's manual; ensure that required type and level of electrical power is supplied system by external power supply.</p> <p>Ensure that transformer/UPS provides correct type or level of power.</p> <p>Fully depress power supply circuit breaker near the system on/off switch.</p> <p>Fully depress main circuit breaker on left side of PSC.</p> <p>Securely connect power cable on left side of PSC to power source.</p> |
| System does not boot up program.                                    | <p>Missing/incorrect boot disk or disk inserted into incorrect PSC floppy drive (multiple PSC systems).</p> <p>Boot disk damaged or corrupted.</p> <p>No laser disc in laser disc player.</p> <p>LDP SYNC and/or SETS IN/OUT cables incorrectly connected, loose, or disconnected (if applicable).</p> <p>PSC not powered up (PSC normally powers up with system but does have separate power switch).</p> | <p>Fully insert correct boot disk into correct PSC floppy drive.</p> <p>Exchange suspect boot disk with known (spare) disk.</p> <p>Power up system, load laser disc(s), power down system, reboot as normal.</p> <p>Securely connect LDP SYNC and/or SETS IN/OUT cables to correct LDP/PSC ports.</p> <p>Power up component using PSC power switch located on left side or rear of PSC.</p>  |
| Multiple PSCs do not sync up or stay in sync with each other or PC. | <p>SETS IN/OUT cables incorrectly connected, loose, or disconnected.</p> <p>LDP SYNC cables incorrectly connected, loose, or disconnected.</p> <p>PC COM cable(s) incorrectly connected, loose, or disconnected.</p>   | <p>Securely connect SETS IN/OUT cables to proper PSC ports.</p> <p>Securely connect LDP SYNC cables to proper LDP/PSC ports.</p> <p>Securely connect PC COM cable(s) to proper ports at both PSC(s) and PC.</p>  |
| PSC cooling fan(s) not operational.                                 | <p>System not powered up.</p> <p>PSC not powered up (PSC normally powers up with system but does have separate power switch).</p> <p>Problem internal to PSC.</p>  | <p>Power up system.</p> <p>Power up component using PSC power switch located on left side or rear of PSC.</p> <p>Contact FATS Customer Service Department.</p>   |
| PC does not power up.   | <p>PC power cord loose or disconnected.</p>  | <p>Securely connect cord to PC and power supply.</p>   |
| PC does not boot up program.  | <p>Missing/incorrect boot disk in PC floppy drive.</p> <p>Boot disk damaged or corrupted.</p>  | <p>Fully insert correct boot disk into PC floppy drive.</p> <p>Exchange suspect boot disk with known (spare) disk.</p>   |

**Table 1-1**

| PROBLEM  | POSSIBLE CAUSE  | SOLUTION   |
|--|---|--|
| PC monitor does not display image or image is geometrically distorted. | Monitor powered down.<br>Monitor power cord loose or disconnected.<br>Brightness/contrast settings too low.<br>Image geometry settings incorrect. | Power up monitor.<br>Securely connect power cord to power supply.<br>Set brightness/contrast settings to desired levels.<br>Adjust settings until image is correct.  |
| PC does not accept keyboard input.                                     | Keyboard is disconnected from PC.<br>PC locking feature in use (keyboard is locked out)   | Reconnect keyboard to PC.<br>Unlock PC with key provided.  |
| PC does not communicate with PSC(s).                                   | PC/PSC COM cable(s) incorrectly connected, loose, or disconnected.<br>PC out of sync with PSC(s).   | Securely connect COM cables to correct PC/PSC ports.<br>Some programs allow for PC/PSC resync while running; others require system reboot. Consult system manual.  |
| Mouse inoperative.   | Mouse is disconnected from PC.<br>Mouse not activated.  | Reconnect mouse to PC.<br>Some programs require manual activation of mouse. Consult manual for specific instructions.  |
| Printer(s) do not print.   | Printer unplugged.<br>Print cable incorrectly connected, loose, or disconnected.<br>Printer out of paper.<br>Printer incorrectly set up.          | Securely connect printer power cord to power source.<br>Securely connect print cable to proper components at each end of cable.<br>Load paper into printer.<br>Set up printer according to manual.                           |
| Printer paper does not feed properly.                                  | Paper crooked.<br>Debris fouling feeding mechanism.<br>Fan fold paper under tension.<br>Feed options incorrectly set.                             | Remove and properly refeed paper.<br>Remove paper, check for/clear debris, refeed paper.<br>Ensure fan fold paper feeds freely into printer.<br>Set feed option switch to correctly reflect tractor/single sheet feed.       |
| Printed information garbled/misaligned.                                | Printer incorrectly set up.<br>Paper misaligned.  | Set up printer according to manual.<br>Align paper so that information is centered horizontally and printing begins near top of first sheet (automatic paper loading procedures should ensure correct positioning of paper). |
| Printed information light/difficult to read.                           | Printer ribbon cartridge needs replacing.<br>Printer contrast setting too low.  | Replace with compatible new cartridge.<br>Increase contrast level (consult manual).  |

**Table 1-1**

| PROBLEM                                       | POSSIBLE CAUSE  | SOLUTION  |
|---|---|---|
| Projector does not show an image on screen.   | <p>Image-producing selection not designated.</p> <p>Projector lost power.</p> <p>Lens covers in place.</p> <p>Night vision in place.</p> <p>Projector cables loose or disconnected.</p> <p>Projector on PAUSE.</p> <p>Projector on STANDBY.</p> <p>Projector lost source.</p> <p>Brightness and/or contrast adjustments zeroed out.</p> | <p>Select scenario, course of fire that will produce image.</p> <p>Securely connect power cable to projector, power outlet; power up projector.</p> <p>Remove all lens covers.</p> <p>Remove night vision.</p> <p>Securely connect cables to correct terminals on projector, PSC.</p> <p>Press PAUSE button on remote.</p> <p>If LED on projector is red, press STANDBY on remote; LED should turn green. If not, power down, unplug projector (2 min), plug back in, power up.</p> <p>Use remote to select source 3 (BARCO 701).</p> <p>Consult system operator's manual for correct settings; use BRIGHTNESS and/or CONTRAST buttons on remote to adjust.</p> |
| Projected image not centered on screen.       | <p>Projector not aligned with screen.</p> <p>Projector not level.</p> <p>Image location not properly adjusted.</p>  | <p>Use projector alignment kit or tape measure to align.</p> <p>Adjust projector feet until filter changer assembly bubble is centered in level.</p> <p>Consult BARCO adjustment info.; use remote to adjust image location.</p>  |
| Projected image discolored.                   | <p>One or two lens covers in place.</p> <p>One or more color cables loose or disconnected.</p> <p>One or two CRTs inoperative.</p> <p>Color adjustments not properly set.</p>   | <p>Remove all lens covers.</p> <p>Securely connect cables to terminals on projector, PSC.</p> <p>Call FATS Customer Service Department.</p> <p>Call FATS Customer Service Department.</p>   |
| Projected image too bright or dark.           | <p>Brightness/contrast adjustments not properly set.</p>  | <p>Consult manual for correct settings; use BRIGHTNESS/CONTRAST buttons on remote to adjust.</p>  |
| Projected image out of focus.                 | <p>Projector not aligned with screen.</p> <p>One or more CRTs out of focus.</p>   | <p>Use projector alignment kit/tape measure to align.</p> <p>Consult BARCO adjustment info.; focus CRT(s).</p>  |
| Projected image geometrically distorted.      | <p>Projector not aligned with screen.</p> <p>Image geometry not properly adjusted.</p>  | <p>Use projector alignment kit/tape measure to align.</p> <p>Consult BARCO adjustment info.; use remote to adjust.</p>  |
| Projected image displays multi-colored edges. | <p>Convergence of colors is misaligned.</p>   | <p>Consult BARCO adjustment info.; use remote to adjust.</p>  |

**Table 1-1**

| PROBLEM  | POSSIBLE CAUSE   | SOLUTION  |
|--|--|---|
| Projector does not respond to commands from ICS.           | <p>Projector control cable loose or disconnected.</p> <p>Projector using incorrect source.</p>   | <p>Securely connect cable to terminals on projector, PSC.</p> <p>Use remote to select source 3 (BARCO 701).</p>   |
| Projector does not respond to commands from remote.        | <p>Weak, dead, or missing battery in remote.</p> <p>Front/rear projector infrared sensors obscured/ blocked.</p> <p>Remote infrared transmitter obscured or line of sight path to projector sensors blocked.</p> <p>Projector using incorrect source.</p> <p>Remote address incorrect.</p>   | <p>Replace battery.</p> <p>Free sensors of all obstructions.</p> <p>Clear line of sight between transmitter and sensors of all obstructions.</p> <p>Use remote to select source 3 (BARCO 701).</p> <p>Press address button on remote, then 000.</p>   |
| System does not see one or more LEDs during calibration.   | <p>Manual filter changer lens was not changed to clear.</p> <p>LED cables loose or disconnected.</p> <p>One or more LEDs inoperative.</p> <p>Projector and hit camera not aligned with screen.</p> <p>Hit camera inoperative.</p>  | <p>Manually move changer to align clear lens with hit detect camera.</p> <p>Securely connect LED cables to correct terminals on all LEDs, filter changer assembly, and PSC.</p> <p>Call FATS Customer Service Department. NOTE: Operation of LEDs may be seen by using night vision devices during calibration.</p> <p>Use projector alignment kit/tape measure to align.</p> <p>From camera calibration test screen, use light wand to check for hit detection. If no response, call FATS Customer Service Department.</p>       |
| System does not see 9- and/or 81-dot calibration displays. | <p>Brightness/contrast settings too low.</p> <p>Projector and hit camera not aligned with screen.</p>  | <p>Although system will automatically adjust settings, brightness/contrast may also be adjusted with remote.</p> <p>Use projector alignment kit/tape measure to align.</p>  |
| System does not calibrate.                                 | <p>Bad calibration data (automatic calibration).</p> <p>Ambient light too bright (automatic calibration).</p> <p>Ambient light too bright (manual calibration).</p> <p>Hit camera line of sight to screen obscured or blocked (manual calibration).</p> <p>Hit detect cables loose or disconnected (manual calibration).</p> <p>Hit camera incorrectly adjusted or inoperative (manual calibration).</p> | <p>Recalibrate system. If not successful, call FATS Customer Service.</p> <p>Reduce level of room lights (system should indicate if these lights are too bright).</p> <p>Reduce level of room lights until hit detect camera can see light wand.</p> <p>Clear obstructions from hit camera/screen path.</p> <p>Securely connect cables to correct terminals on hit camera, PSC.</p> <p>From camera calibration test screen, use light wand to check for hit detection. If no response, call FATS Customer Service Department.</p> |

**Table 1-1**

| PROBLEM  | POSSIBLE CAUSE  | SOLUTION  |
|--|---|---|
| System does not detect shots from any weapon.        | <p>Weapons not initialized.</p> <p>Hit camera or weapon line of sight to screen obscured or blocked.</p> <p>Hit detect cables loose or disconnected.</p> <p>Filter changer was not returned to dark lens after last calibration (manual changer).</p> <p>Bad calibration data.</p> <p>Hit camera incorrectly adjusted or inoperative.</p> | <p>Initialize all weapons.</p> <p>Clear paths from weapon to screen and hit camera to screen of all obstructions.</p> <p>Securely connect cables to terminals on filter changer assembly, PSC.</p> <p>Manually move changer to align dark lens with hit detect camera.</p> <p>Recalibrate system.</p> <p>From camera calibration test screen, use light wand to check for hit detection. If no response, call FATS Customer Service Department.</p>   |
| System does not detect shots from a single weapon.   | <p>Weapon not initialized.</p> <p>Weapon line of sight obscured or blocked.</p> <p>Faulty weapon.</p>   | <p>Initialize weapon.</p> <p>Remove any obstructions, clear path to screen.</p> <p>Aim and fire suspect weapon at center of screen. If dot does not appear for each trigger pull, weapon is faulty.</p>   |
| Weapon does not fire.                                | <p>Weapon not initialized.</p> <p>Weapons trunkline/weapon electrical connector loose or incorrectly connected.</p> <p>Faulty weapon.</p> <p>Faulty weapons trunkline/PSC weapons port.</p>   | <p>Initialize weapon.</p> <p>Disconnect and reconnect trunkline electrical connector to PSC weapons port. Disconnect and reconnect weapon electrical connector to trunkline/PSC weapons port.</p> <p>Change out suspect weapon with known weapon. If known weapon functions correctly, suspect weapon is at fault.</p> <p>Connect suspect trunkline electrical connector to different PSC weapons port: If weapon will not fire, trunkline is faulty. If weapon will fire, original PSC weapons port is faulty.</p> |
| System panels or doors do not fit or close properly. | <p>Cables or other objects obstructing proper alignment.</p> <p>Panel/door warped/misaligned.</p> <p>Panel fasteners or door latches jammed/damaged.</p>  | <p>Reroute cables, remove objects, and attempt to refit panel/close door again.</p> <p>Call FATS Customer Service Department.</p> <p>Clear jammed mechanisms, or call FATS Customer Service Department.</p>   |

**Table 1-1**

| PROBLEM  | POSSIBLE CAUSE   | SOLUTION  |
|--|--|---|
| <p>Weapon does not recoil.</p>                           | <p>Weapons trunkline/weapon electrical connector loose or incorrectly connected.</p> <p>CO<sub>2</sub> gas not supplied at correct pressure or at all.</p> <p>Faulty trunkline/weapon.</p>               | <p>Disconnect and reconnect trunkline electrical connector to correct PSC weapons port. Disconnect and reconnect weapon electrical connector to trunkline or PSC weapons port.</p> <p>Fit CO<sub>2</sub> bottle with pressure regulator, fully open hand valve, and ensure pressure gauge is set to deliver gas at correct pressure. Connect trunkline/weapon CO<sub>2</sub> hose to regulator and check hose for pinches and kinks. Exchange suspected low/empty CO<sub>2</sub> bottles for known full ones.</p> <p>If weapon CO<sub>2</sub> hose is connected to weapons trunkline, disconnect and attach directly to pressure regulator on CO<sub>2</sub> bottle. If weapon now recoils properly, trunkline is faulty. If not, weapon is faulty. If weapon is already connected directly to CO<sub>2</sub> bottle, weapon is faulty.</p> |
| <p>Weapon fires and recoils but will not initialize.</p> | <p>Weapons trunkline/weapon electrical connector loose or connected to weapons port on incorrect PSC (multiple PSC systems).</p> <p>Faulty weapon.</p> <p>Faulty weapons trunkline/PSC weapons port.</p> | <p>Disconnect and reconnect trunkline electrical connector to PSC weapons port. Disconnect and reconnect weapon electrical connector to trunkline or PSC weapons port.</p> <p>Change out suspect weapon with known weapon. If known weapon functions correctly, suspect weapon is faulty.</p> <p>Connect suspect trunkline electrical connector to different PSC weapons port. If weapon will not initialize, trunkline is faulty. If weapon will initialize, original PSC weapons port is faulty.</p>  |
| <p>No sound from one or more speakers.</p>               | <p>Volume adjusted too low.</p> <p>Speaker cables connected to incorrect PSC (in multiple PSC systems), loose, or disconnected.</p> <p>Audio module circuit breaker tripped.</p>                         | <p>Increase volume setting using volume control knob.</p> <p>Securely connect cables to correct PSC.</p> <p>Fully depress circuit breaker on left side of PSC.</p>  |
| <p>No sound from laser disc player (LDP).</p>            | <p>Audio cables from LDP to PSC incorrectly connected, loose, or disconnected.</p>   | <p>Securely connect audio cables running from rear of LDP to PSC to correct ports.</p>  |
| <p>No sound from PSC (shots/explosions).</p>             | <p>Some programs allow for separate adjustment of shot sounds via software. If so, sound levels set too low.</p>   | <p>This option is usually located in system options menu. Adjust to desired level.</p>  |
| <p>System volume too low or too high.</p>                | <p>Volume adjustment incorrect.</p> <p>Some programs allow for sound level adjustment via software. If so, sound level is too low.</p>   | <p>Adjust volume to desired level using volume control.</p> <p>This option is usually located in system options menu. Adjust to desired level.</p>  |

# ISMT SYSTEM

## Introduction

This Problem Sheet covers Learning Objectives 1-1 through 1-5. By completing this Problem Sheet, you will gain a better understanding of what is required to prepare the system for operation. You may use your notes, Assignment Sheets, and Works Sheets to help solve the problems presented here. However, you may **not** use other persons (for example, technicians, trainees, Administrator) to help you solve these problems; this work must be your own.

After completing this Problem Sheet, take it to your Administrator for grading. If the Administrator finds your work acceptable, go on to complete the rest of Section 1.

## Instructions

The following problems present realistic situations which you may encounter with the ISMT system. From your knowledge of the system and the material provided in this Handbook, you should be able to find solutions for each of the problems presented. Word your answers so that the Administrator will readily understand how you would solve the problem. If you are unsure of your answers, then you may go back through the Work Sheets and again read the Assignment Sheets. There is no time limit for this Problem Sheet. You should not attempt to answer the problems without first completing the associated Assignment Sheets and Work Sheets.

## Problems

### Problem 1

Why must the ISMT be regularly checked for proper alignment and correct hardware set up?

### Problem 2

Describe the Daily Operational Readiness Test of the ISMT in terms of why it is used and what it checks.

### Problem 3

What is the Troubleshooting Table used for?

## **Problem Sheet 1-1**

### **Problem 4**

How many different weapons can be used on the ISMT system? List them.

### **Problem 5**

The printer(s) do not print. What may cause this problem?

### **Problem 6**

There is no sound coming out of one or more speakers. What may cause this problem?

### **Problem 7**

PC monitor does not display image.

### **Problem 8**

The ISMT requires a minimum total floor space of \_\_\_\_\_ with a ceiling height of at least \_\_\_\_\_.

### **Problem 9**

List the steps to be taken if the ISMT causes RF interference.

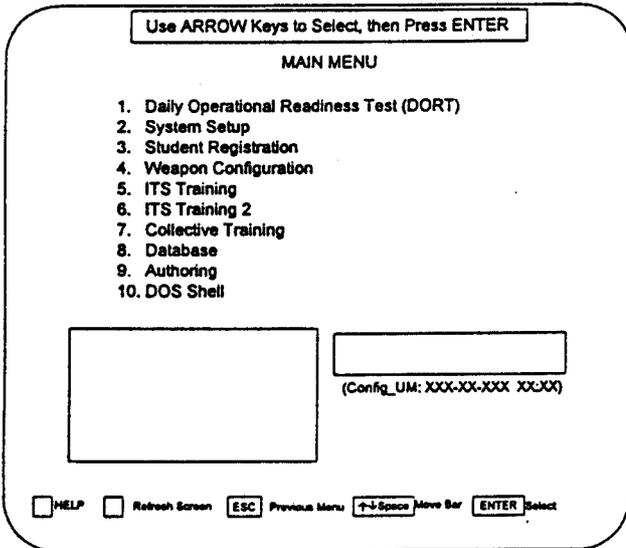
After completing this Problem Sheet, take it to the OJT Handbook Administrator.

# SYSTEM SETUP

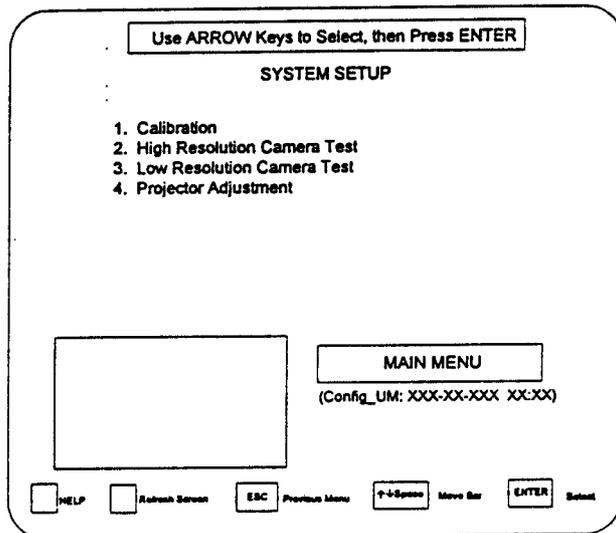
This Work Sheet covers Learning Objective 1-6 (Demonstrate the ability to use the system software setup to configure the ISMT). Upon completion of this Work Sheet, you will be familiar with the setup options and procedures for the ISMT system.

## ACTIONS

## RESULTS AND COMMENTS

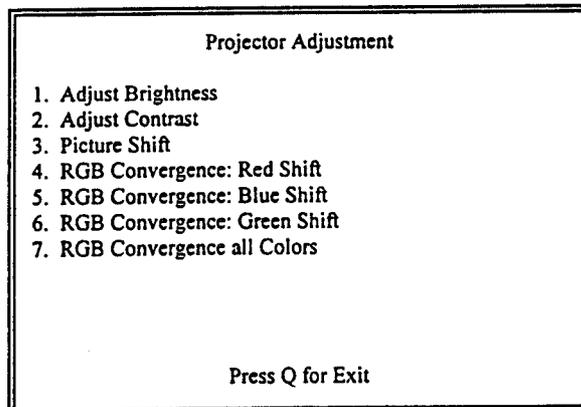


From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight System Setup, then press the ENTER key.



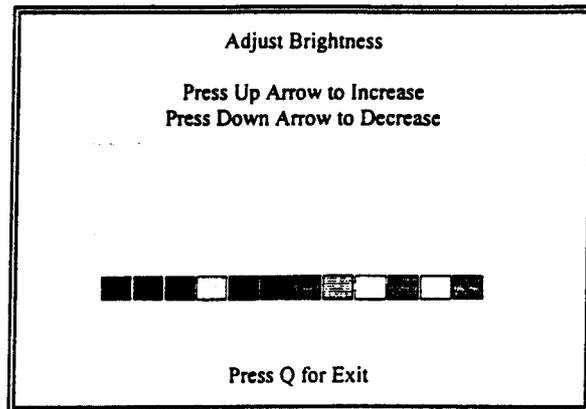
This action brings up the System Setup menu on the PC.

From the System Setup menu, use the ↑ and ↓ arrow keys to highlight Projector Adjustment, then press the ENTER key.



This action displays "Projector Adjustment" on the PC display and the Projector Adjustment menu on the Big Screen.

Press the 1 key, Adjust Brightness.



The Big Screen display looks like the figure above. The color bar strip with 12 vertical bars of various hues is used to judge the brightness needed for training.

Press the ↑ arrow key.

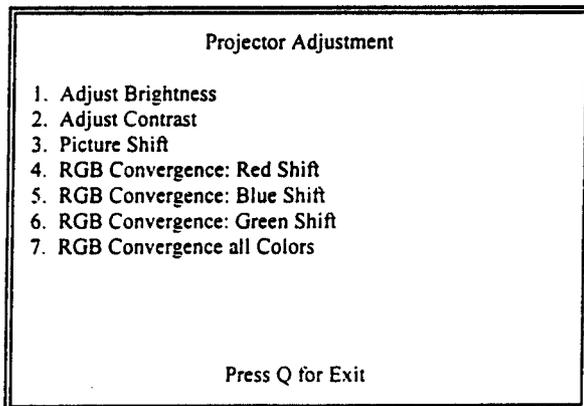
This action increases the display Brightness.

Press the ↓ arrow key.

This action decreases the display Brightness.

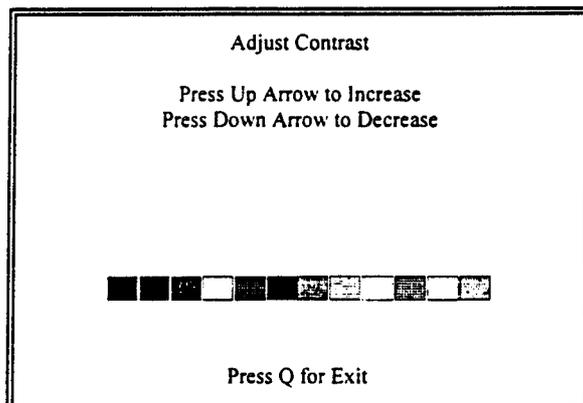
Use the arrow keys to adjust for ambient light and for viewing comfort. Once the desired level of brightness is attained, perform the next step.

Press the Q key.



This action returns you to the Big Screen display as shown in the figure above.

Press the 2 key, Adjust Contrast.



The Big Screen displays the color strip bar. The 12 vertical bars of various hues are used to judge the Contrast needed.

Press the ↑ arrow key.

Press the ↓ arrow key.

Press the Q key.

Press the 3 key, Picture Shift.

Press the ← arrow key.

Press the → arrow key.

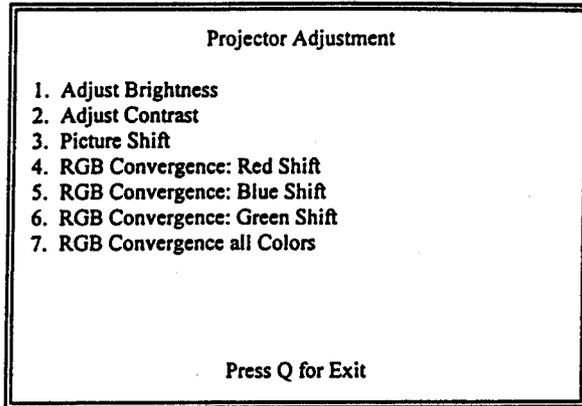
Press the ↑ arrow key.

Press the ↓ arrow key.

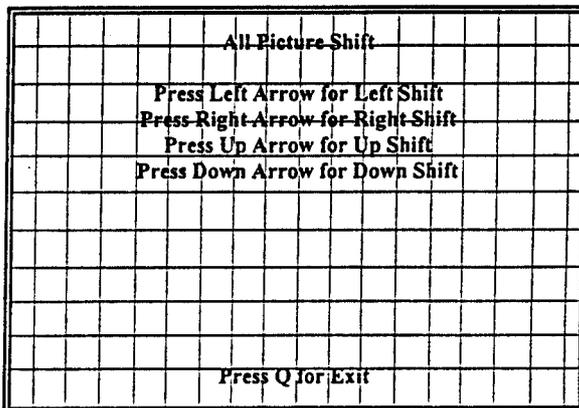
This action increases the display Contrast.

This action decreases the display Contrast.

Use the arrow keys to adjust for the different levels of ambient light and for viewing comfort. Once the desired level of contrast is attained, perform the next step.



This action takes you back to the Big Screen display as shown in the figure above.



Use this adjustment to ensure that the projected image fills the screen properly. The grid image should just fill the screen and have straight lines that do not bend up or down at the edges.

This action shifts the entire image left.

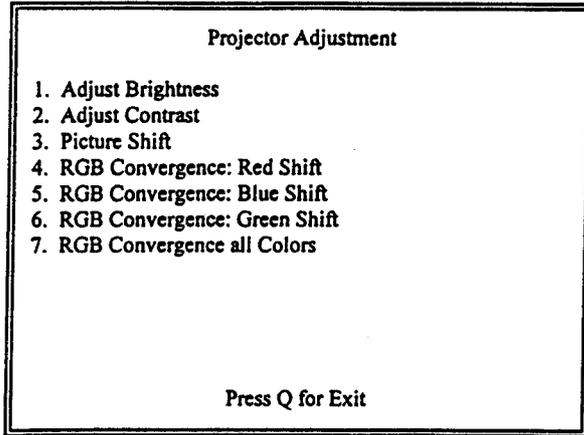
This action shifts the entire image right.

This action shifts the entire image up.

This action shifts the entire image down.

If the image is not straight or if the image bends at the edges of the screen, an in-depth camera alignment must be performed in accordance with the Operator's Manual.

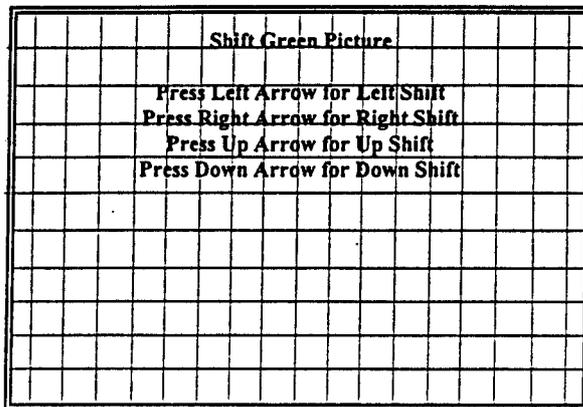
Press the Q key.



This step returns you to the Big Screen display as shown in the figure above.

Press the 6 key, RGB Convergence: Green Shift.

**NOTE:** The green shift must always be adjusted first because green is the reference for the other colors.



The Big Screen display is shown in the figure above. Use this adjustment to ensure that the projected green portion of the image is properly displayed on the screen.

Press the ← arrow key.

This action shifts the green lines left.

Press the → arrow key.

This action shifts the green lines right.

Press the ↑ arrow key.

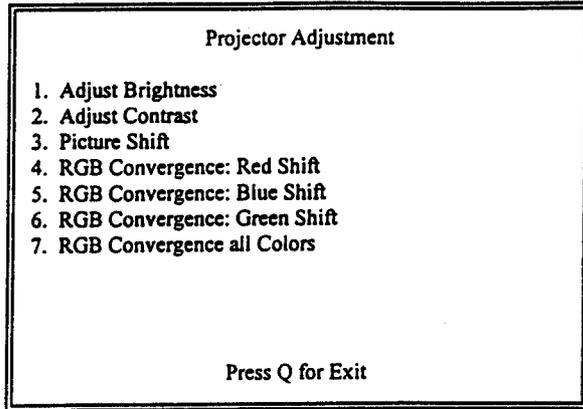
This action shifts the green lines up.

Press the ↓ arrow key.

This action shifts the green lines down.

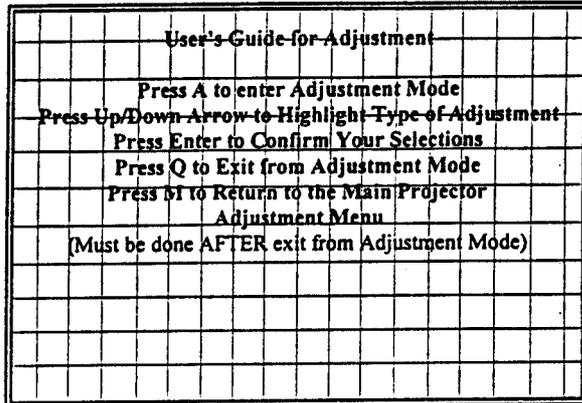
After adjusting the green lines, the red and blue lines may also need to be adjusted. If they do, select RGB Convergence: Red Shift, or RGB Convergence: Blue shift. Once the colors have been properly aligned, perform the next step.

Press the Q key.



This step returns you to the Big Screen display as shown in the figure above.

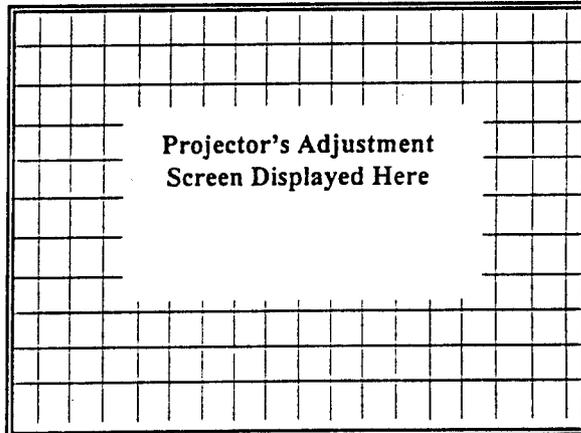
Press the 7 key, RGB Convergence for All Colors.



This adjustment mode uses the projector menus and should be used only in accordance with the Operator's Manual for alignments not corrected by the other camera adjustments.

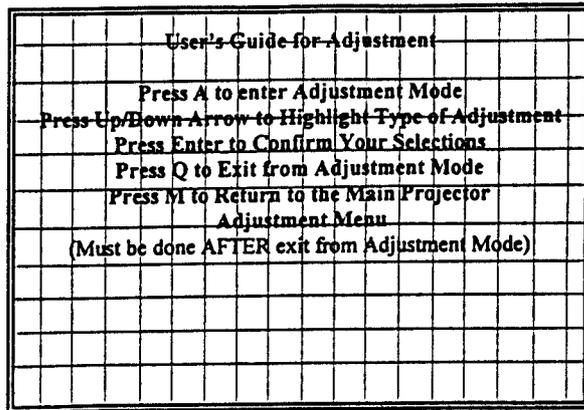
Press the A key.

**NOTE:** You should not use this adjustment until you are familiar with the system and have reviewed the Operator's Manual.



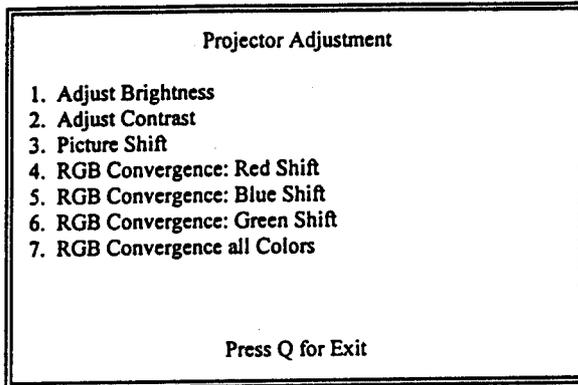
This action takes you to the internal projector's adjustments. The Big Screen looks like the figure above.

Press the A key.



This action returns you to the Big Screen display as shown in the figure above.

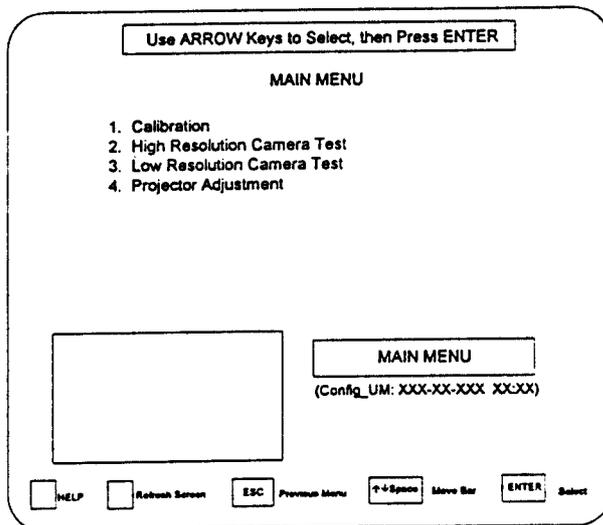
Press the M key.



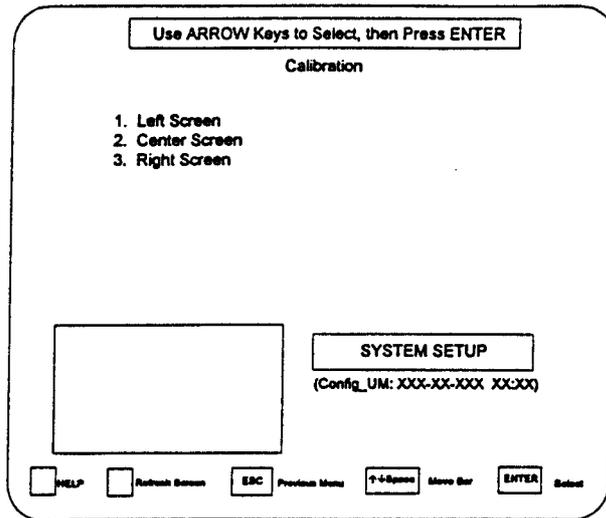
This action returns you to the Big Screen display as shown in the figure above.

Press the Q key.

This action returns you to the PC display as shown above.



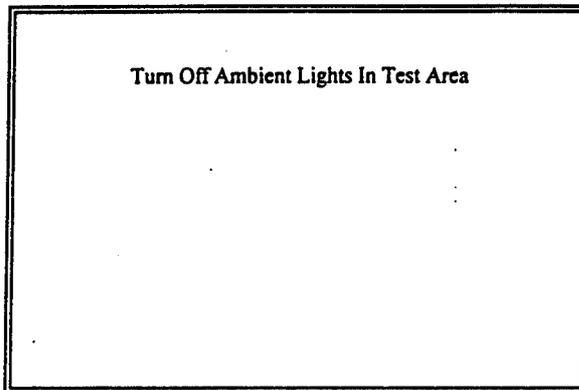
From the System Setup menu, use the ↑ and ↓ arrow keys to highlight **Calibration**, then press the ENTER key.



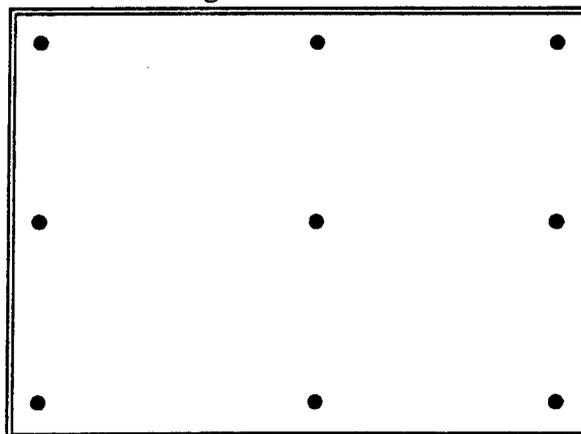
The PC displays the Calibration menu.

Press 1 to perform the Left Screen Automatic Calibration routine for the ISMT.

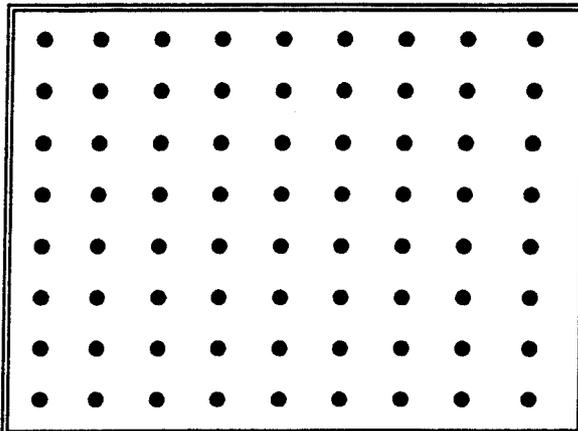
**NOTE:** You must manually change the lens filter on the hit detection camera by moving the handle to the calibrate position.



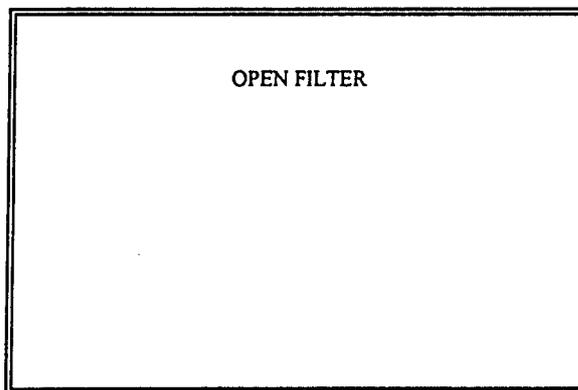
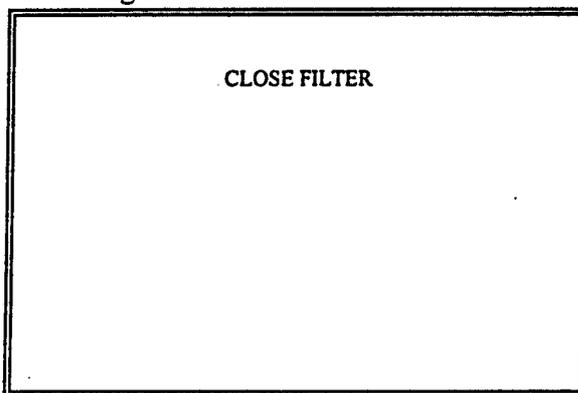
The Big Screen looks like the figure above. The system checks itself by trying to detect the four corner LEDs of the big screen. If the system detects them, it automatically continues the test by projecting 9 dots on the screen as shown in the figure below.



The Big Screen automatically changes to display 81 dots on the screen as approximated in the figure below.



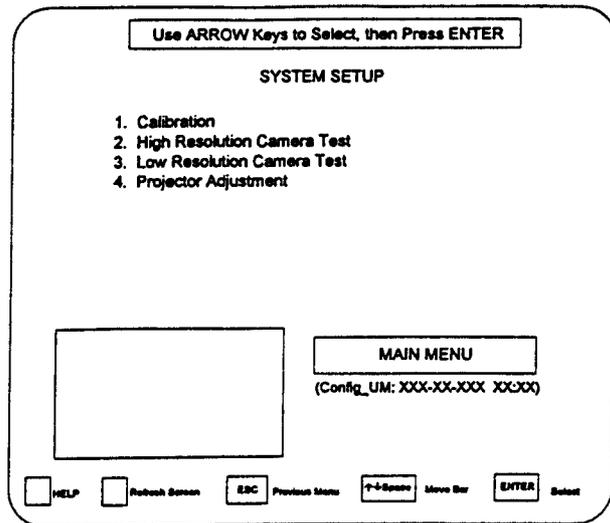
If the test is successful, the system will display the following screen.



The 9- and 81-dot test is performed again for the lo-res system setting, then the screen goes blank, and the System Setup menu reappears on the PC display.

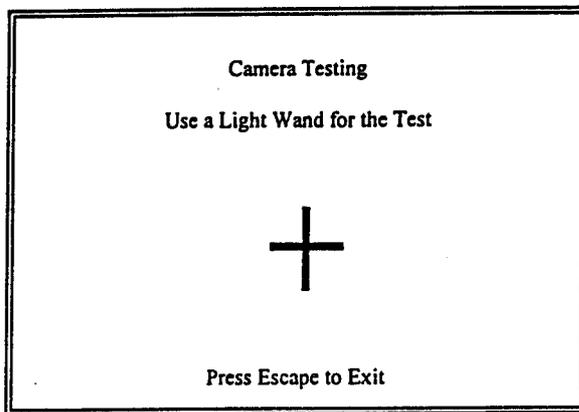
Press the ESC key.

**NOTE:** You must manually change the lens filter on the hit camera by returning the filter to the shoot position.



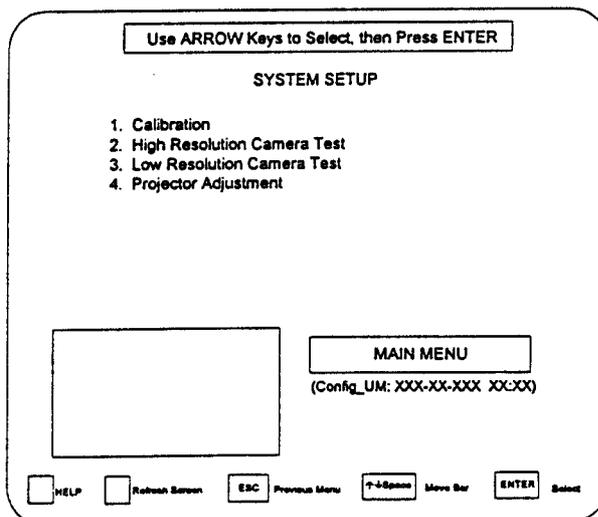
This action brings up the System Setup menu.

From the System Setup menu, use the ↑ and ↓ arrow keys to highlight **High Resolution Camera Test**, then press the ENTER key.



The Big Screen should look like the figure above. Using the light wand, trace the cross and observe the red dotted line displayed by the projector. If the red dotted line is within an inch or so of the line you traced with the light wand, the test is good. Perform the next step.

Press the ESC key.



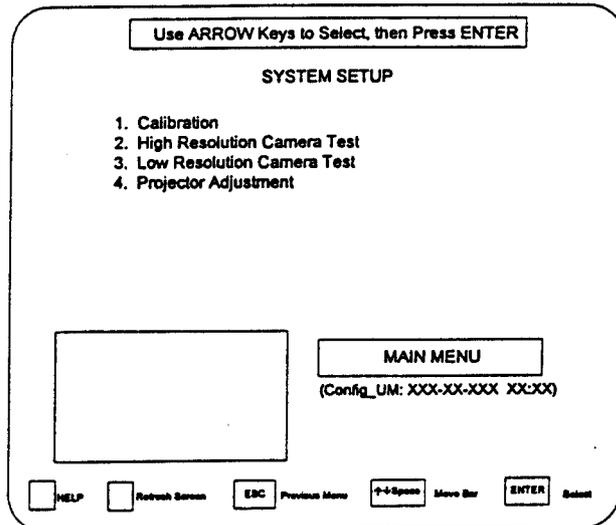
This action returns you to the System Setup menu.

## Work Sheet 1-5

From the System Setup menu, use the ↑ and ↓ arrow keys to highlight **Low Resolution Camera Test**, then press the ENTER key.

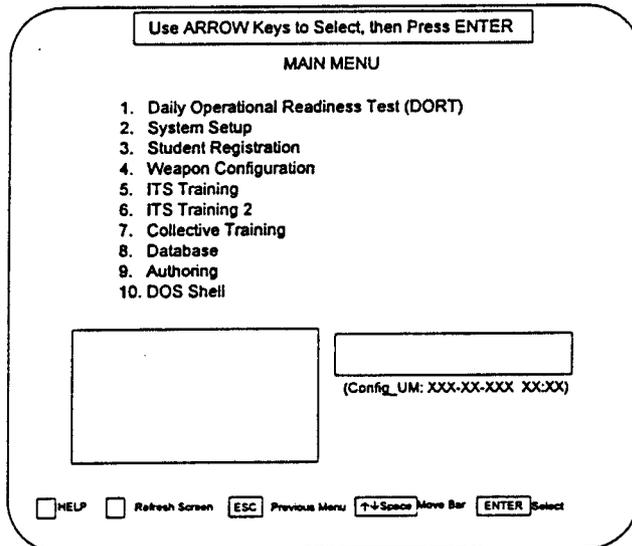
The Big Screen looks like the figure in the High Resolution Camera Test. Using the light wand, trace the cross and observe the red dotted line displayed by the projector. If the red line is within an inch or so of the line you traced with the light wand, the test is good. Perform the next step.

Press the ESC key.



This action returns you to the System Setup menu as shown in the figure above.

Press the ESC key.



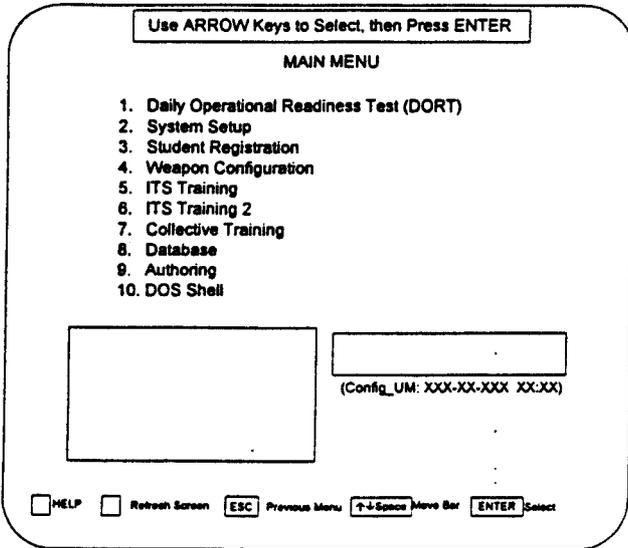
This action returns you to the Main Menu PC display as shown in the figure above. This completes Work Sheet 1-5.

# WEAPONS CONFIGURATION

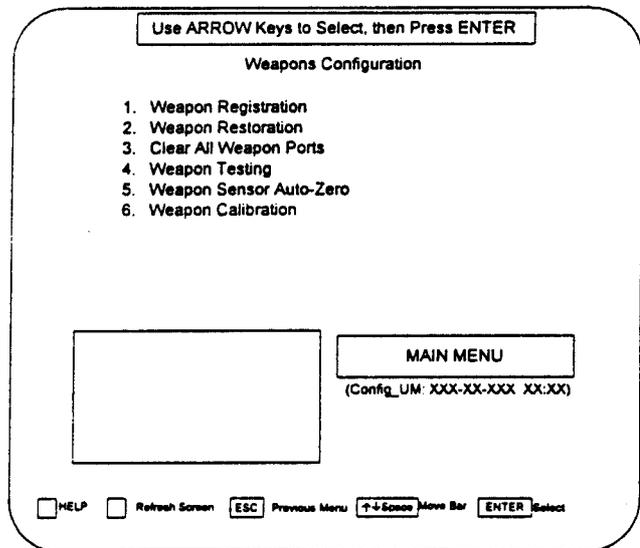
This Work Sheet covers Learning Objective 1-7 (Demonstrate the knowledge of how to configure the system software to use weapons compatible with the ISMT). Upon completion of this Work Sheet, you will be familiar with the options for configuring the system to use all of the system-compatible weapons.

## ACTIONS

## RESULTS AND COMMENTS



From the Main Menu PC display, use the ↑ or ↓ arrow keys to highlight **Weapon Configuration**, then press the **ENTER** key.

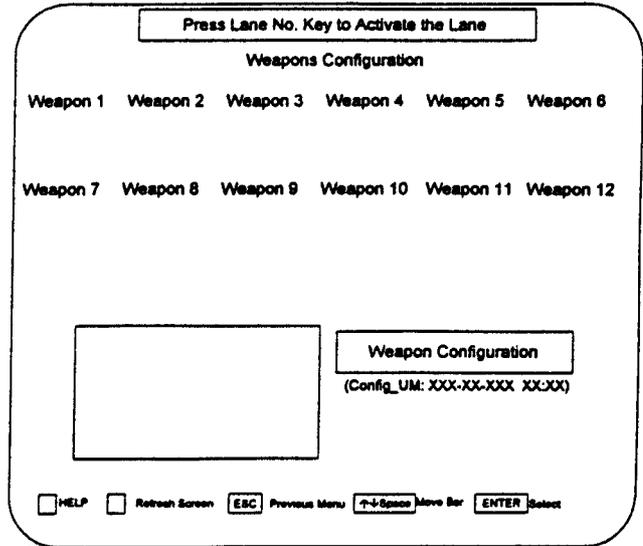


The PC display looks like the figure above.

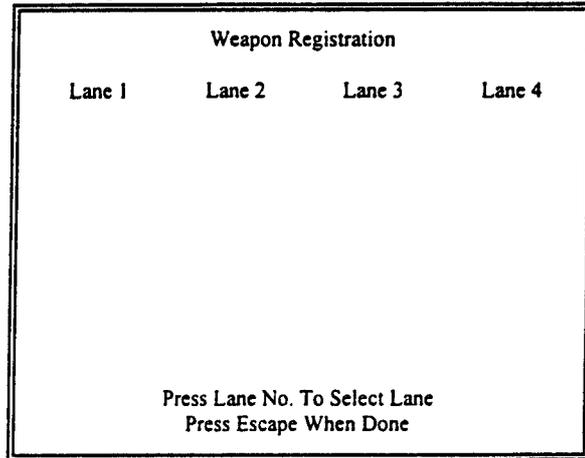
## Work Sheet 1-6

Use the ↑ or ↓ arrow keys to highlight 1 **Weapon Registration**, then press the **ENTER** key.

**NOTE:** Normally prior to registering weapons, the # 3 menu option Clear All Weapon Ports would be used.



The PC display looks like the figure above. The Big Screen looks like the figure below.

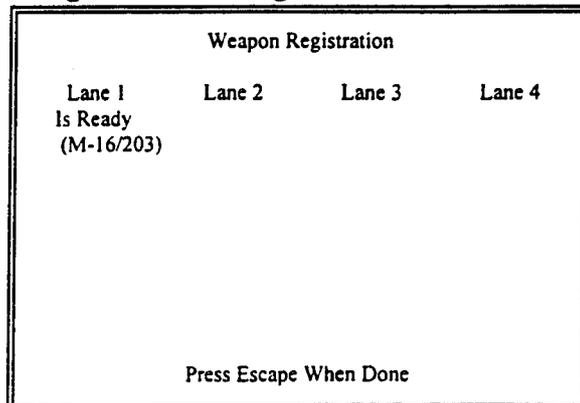


Press the # key of the Lane in which you want to register a weapon. Press the 1 key.

Fire a system-configured M-16A2/M203 at the screen.

This action sets up a weapon to be registered in Lane 1. Lane 1 will turn red and the word "fire" will appear below Lane 1.

This action registers the M-16A2 in Lane 1. The box in the lower left corner of the PC display will indicate the weapon is registered. The Big Screen looks like the figure below.



## Work Sheet 1-6

Press the # key to select another lane, or press the ESC key when done.

Use the ↑ or ↓ arrow keys to highlight 2 **Weapon Restoration** to restore the previous settings of the system.

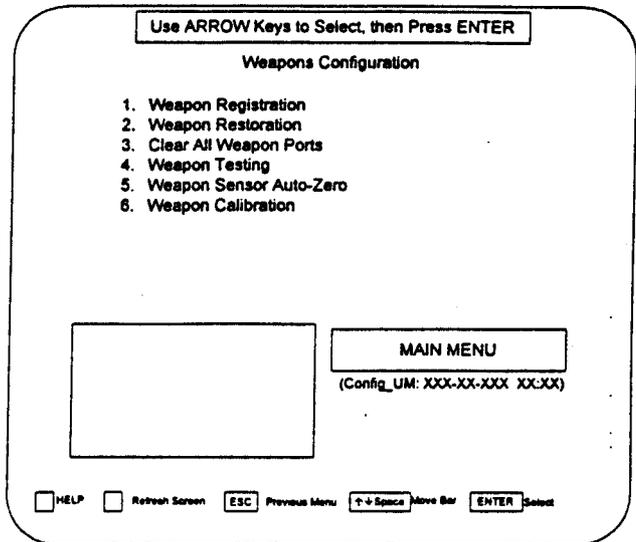
Press the ESC key to Exit.

**NOTE:** Perform **Clear All Weapon Ports** only when changing weapons. If this step is performed, you will have to reregister all weapons. You must also reregister all weapons if any weapons have been disconnected since last operation.

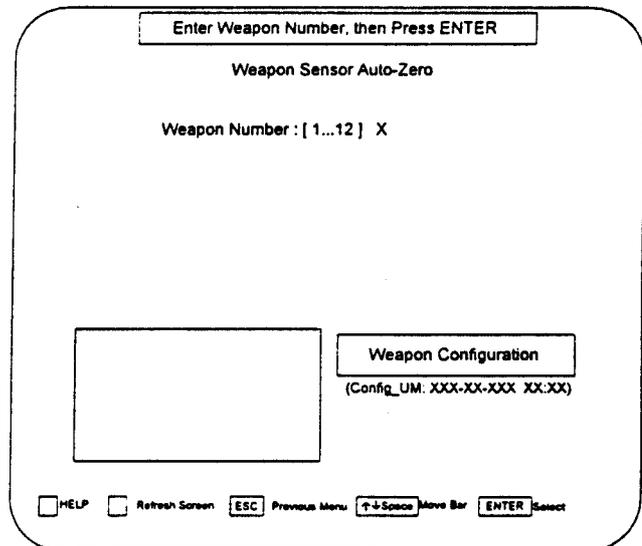
Use the ↑ or ↓ arrow keys to highlight 3 **Clear All Weapon Ports**, then press the ENTER key.

The process is the same for different weapons and different lanes. After pressing the ESC key, the PC display returns to the Weapons Configuration menu.

The system will display the previous settings for registered weapons on the PC and Big Screen display, except this time recoils are displayed below the weapon type in each lane.

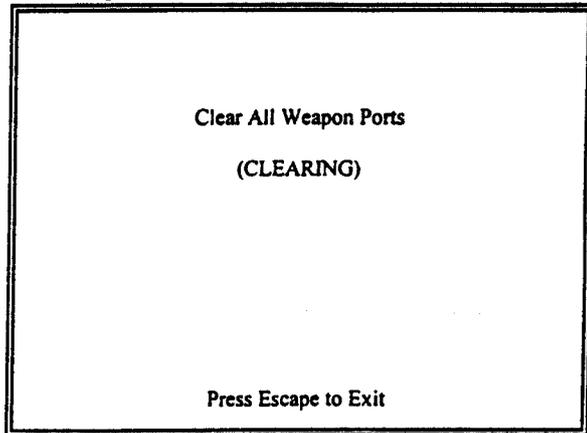


The PC display returns to the Weapons Configuration screen as shown above.

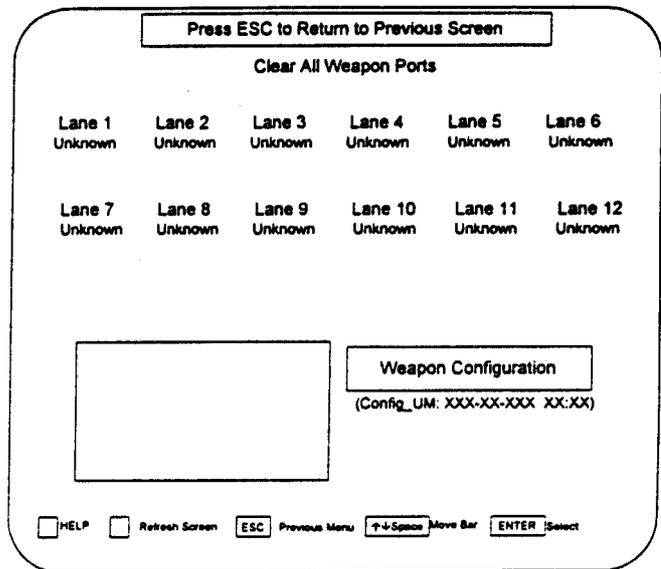


The PC display looks like the figure above.

The Big Screen looks like the figure below.



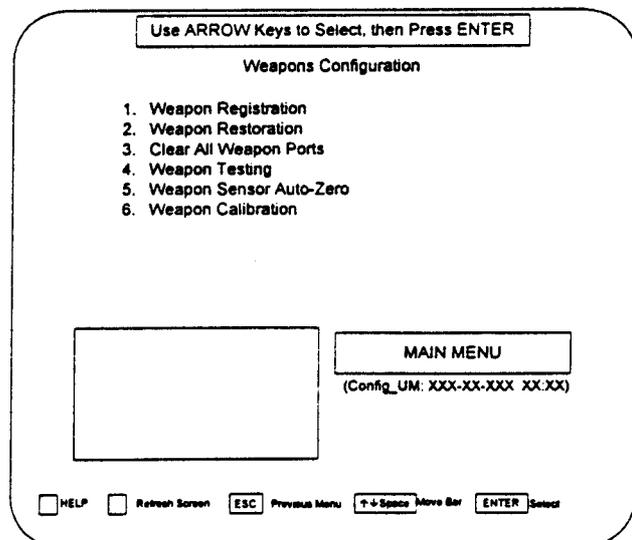
The PC display indicates: "All lanes are now unknown."



Press the ESC key to continue.

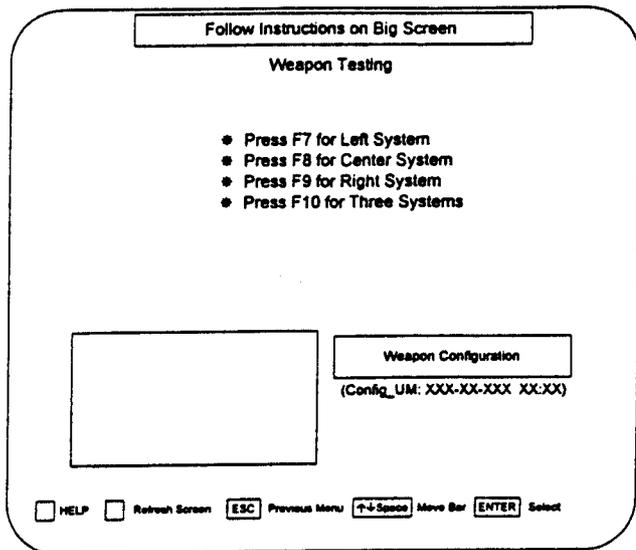
**NOTE:** If you performed **Clear All Weapon Ports**, you will have to register the M-16A2/M203 again before continuing with this Work Sheet.

The PC display returns to the Weapons Configuration menu.

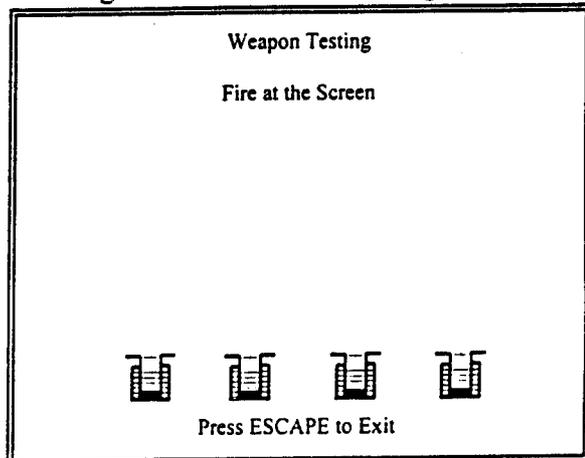


## Work Sheet 1-6

Use the ↑ or ↓ arrow keys to highlight 4  
**Weapon Testing**, then press the ENTER  
key.



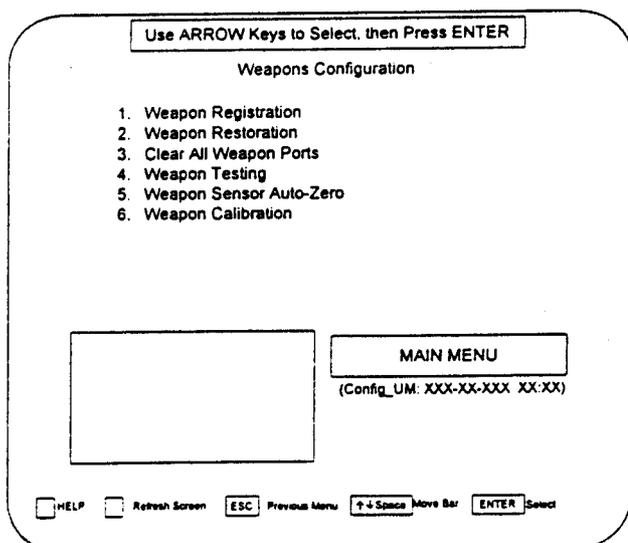
The PC display looks like the figure above.  
The Big Screen looks like the figure below.



Fire the weapons to ensure that all shots are registered and  
that the weapon is aligned to the system (zeroed).

Press the ESC key.

**NOTE:** Menu selections 5 and 6 under  
Weapons Configuration apply only to the  
M203 Grenade Launcher.

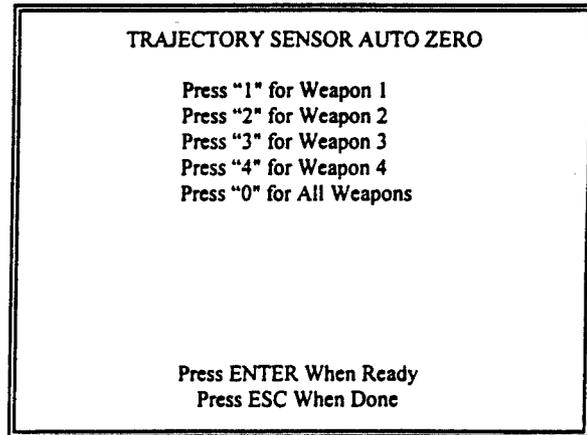


The PC displays the Weapons Configuration screen.

## Work Sheet 1-6

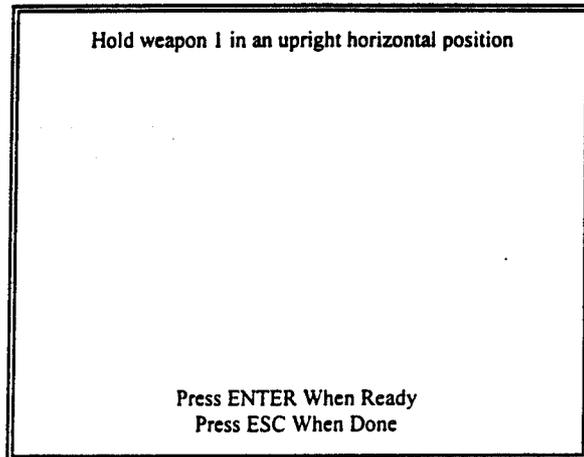
Use the ↑ or ↓ arrow keys to highlight 5  
**Weapon Sensor Auto-Zero.**

**NOTE:** This option is only for fully  
sensored weapons. This exercise assumes  
the use of an M203 in Lane 1.



The PC and Big Screen display the Auto-Zero screens.

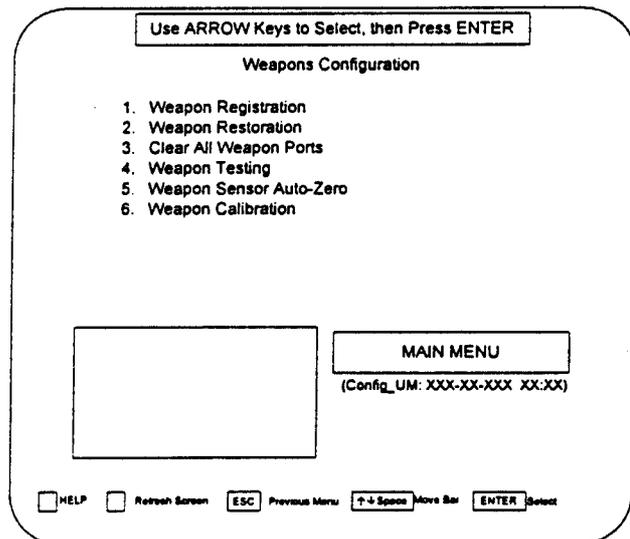
Press the 1 key to select the M203 registered  
on Lane 1.



The Big Screen displays the Auto-Zeroing screen.

Press the ENTER key.

This action automatically zeros the weapon sensors for the  
M203 on Lane 1.



The Weapons Configuration screen displays on the PC.

## Work Sheet 1-6

Use the ↑ or ↓ arrow keys to highlight **6 Weapon Calibration**, then press the **ENTER** key.

**NOTE:** This option is only for fully sensed weapons.

Enter Weapon Number, then Press ENTER

Weapon Calibration

Weapon Number : [ 1...12 ] X

Weapon Configuration  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen

The Weapon Calibration screen displays on the PC. The Big Screen looks like the figure below.

TRAJECTORY SENSOR CALIBRATION

Press "1" for Weapon 1  
Press "2" for Weapon 2  
Press "3" for Weapon 3  
Press "4" for Weapon 4  
Press "0" for All Weapons

Press ENTER When Ready  
Press ESC When Done

Press the **1** key to select the M203 registered on Lane 1.

Trajectory Sensor Calibration

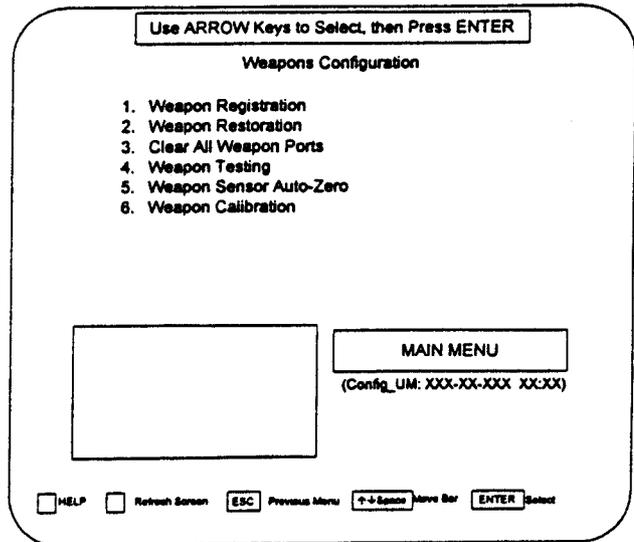
Set trajectory fixture of weapon 1 at 0 degree position

Press Enter When Ready  
Press ESC When Done

The Big Screen looks like the figure above.

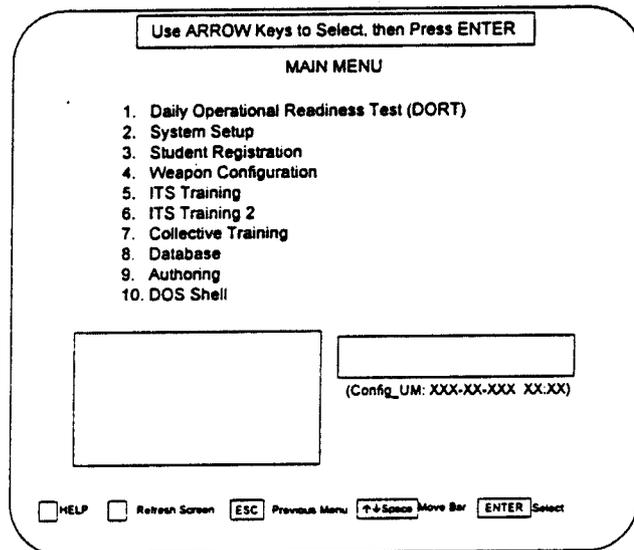
## Work Sheet 1-6

Set the degree position, then press the **ENTER** key.



The Weapons Configuration screen displays on the PC.

Press the **ESC** key.



The PC display returns to the Main Menu. This completes Work Sheet 1-6.

## **SYSTEM AND WEAPON SETUP**

### **Introduction**

This Problem Sheet covers Learning Objectives 1-4, 1-6, and 1-7. By completing this Problem Sheet, you will gain a better understanding of what is required to prepare the system for operation. You may use your notes, Assignment Sheets, and Work Sheets to help solve the problems presented here. However, you may **not** use other persons (for example, technicians, trainees, Instructor) to help you solve these problems; this work must be your own.

After completing this Problem Sheet, take it to your Instructor for grading. If the Instructor finds your work acceptable, go on to complete Test Sheet 1-1.

### **Instructions**

The following problems present realistic situations which you may encounter with the ISMT system. From your knowledge of the system and the material provided in this Handbook, you should be able to find solutions for each of the problems presented. Word your answers so that the Instructor will readily understand how you would solve the problem. If you are unsure of your answers, then you may go back through the Work Sheets and again read the Assignment Sheets. There is no time limit for this Problem Sheet. You should not attempt to answer the problems without first completing the associated Assignment Sheets and Work Sheets.

### **Problems**

#### **Problem 1**

What System Setup Option do you use to check the system's video projection?

#### **Problem 2**

Colors from the Center projector are not aligned. What System Setup option do you use to align the projector? What color do you adjust first?

#### **Problem 3**

To register only one system-controlled weapon which is physically hooked up to the system, describe the correct selections, sequence of events, and buttons you would use.

**Problem 4**

The system does not detect shots from any weapon. What could cause this?

**Problem 5**

Weapon does not fire. What could cause this?

**Problem 6**

To perform a weapon test, after selecting Weapon Registration and Weapon Test, the next step is to \_\_\_\_\_?

**Problem 7**

A trainee using the M16-M203 complains that the M203 will not shoot. The M16 does work, but even after reloading the M203 there are no shots registered on the system. What could cause this?

**Problem 8**

The ISMT does not detect shots from a single weapon while others are working. What could cause this?

**Problem 9**

A weapon fires and recoils but will not register. What could cause this?

After completing this Problem Sheet, take it to the OJT Handbook Administrator.

## ISMt SETUP

### Have you?

Yes    No

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Read Assignment Sheets 1-1 and 1-2?                         |
| <input type="checkbox"/> | <input type="checkbox"/> | Performed or reviewed step-by-step Work Sheets 1-1 and 1-2? |
| <input type="checkbox"/> | <input type="checkbox"/> | Completed Work Sheets 1-3, 1-4, 1-5, and 1-6?               |
| <input type="checkbox"/> | <input type="checkbox"/> | Completed Problem Sheets 1-1 and 1-2?                       |
| <input type="checkbox"/> | <input type="checkbox"/> | Reviewed all the material covered in Section 1?             |

If the answer to all of the above is YES, then see your OJT Handbook Administrator for Test Sheet 1-1.

# SECTION 2

Contains:

Assignment Sheet 2-1

Work Sheet 2-1

Work Sheet 2-2

Problem Sheet 2-1

Test Sheet 2-1

# DATABASE

## Introduction

This Assignment Sheet covers Learning Objectives 2-1 (Demonstrate the ability to add a new student to the database) and 2-2 (Demonstrate the ability to print reports from the database). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to manage the IST and ISMT database effectively.

## Capabilities

The IST and ISMT is capable of tracking trainees throughout all phases and types of training available on the IST and ISMT. In order for trainees to be tracked you must be able to administer the data used by the system database. Proper administration of the data used by the system database functions ensures that the training conducted on the IST and ISMT is effective. The system is capable of tracking trainee progress and printing out reports to improve the use of the IST and ISMT by

1. Showing trends of a trainee
2. Showing the weapons with which a trainee is effective/not proficient
3. Showing the types of courses and environments in which a trainee is proficient/not proficient

The database must be used correctly and kept up to date for the system's capabilities to be fully realized.

## Using the Database

With the proper use of the tools available with the database, you should be able to conduct training that will ensure trainees become proficient in marksmanship with any of the different weapons available for use in any of the modes on the IST and ISMT. To understand and use the system's capabilities fully, you must continually update the system database to accurately reflect the current status of trainees. If the system's database is not maintained, the information printed in reports will be of little to no value. The associated Work Sheet will walk you through the functions needed to maintain the database, but in order to use the system most effectively, you will have to develop your skills at interpreting the information printed in reports and determining the how to use information the system gives you.

The information in the database may be viewed in different formats and may contain any of the information stored in the system's database, including:

- Student Names
- Course Names
- Course Dates
- Course Times
- Scores

If any of the information is incorrect, it must be corrected as soon as possible. This will prevent the data stored from being corrupted by inaccurate information.

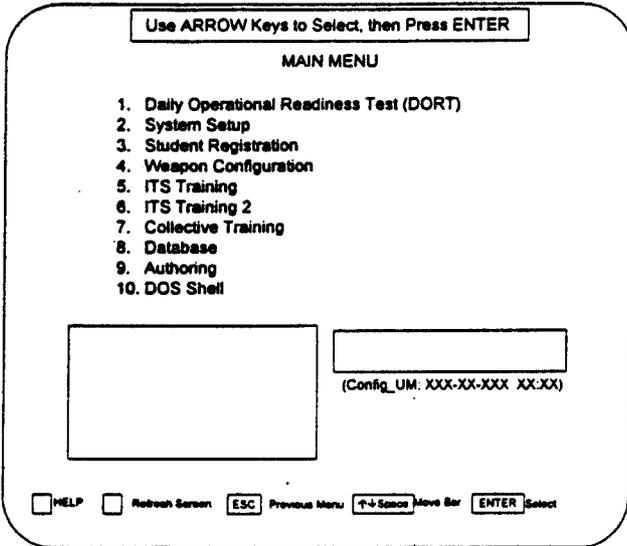
## **Using the Reports**

Reports generated by the system reflect the information in the database. This information, either entered by you or the system, is only useful if accurate. If the database is accurate and up to date (the system will only enter accurate, up-to-date information), the printed reports will be useful. The reports may be printed in different formats, but they contain the same information. Once printed on paper, the report may be analyzed and evaluated by you and/or the trainee to determine if there is a problem or area of concern that needs more work. Using the reports is also an effective way to reinforce the trainees' performance.

# STUDENT REGISTRATION

This Work Sheet covers Learning Objective 2-1 (Demonstrate the ability to register a student on the system for training). Upon completion of this Work Sheet, you will be familiar with the registration options and procedures for the IST and ISMT systems.

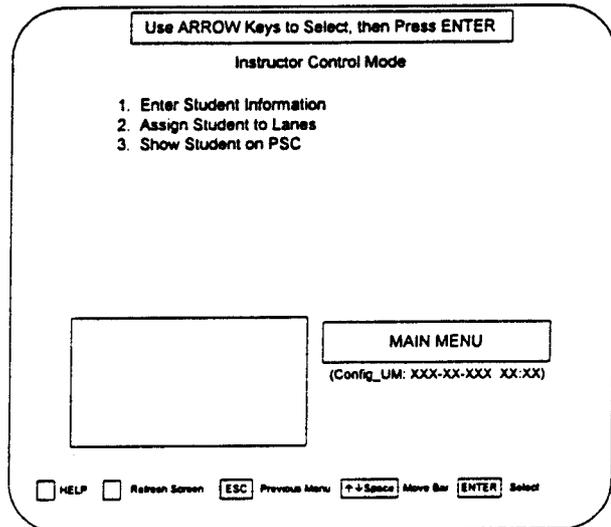
## ACTIONS



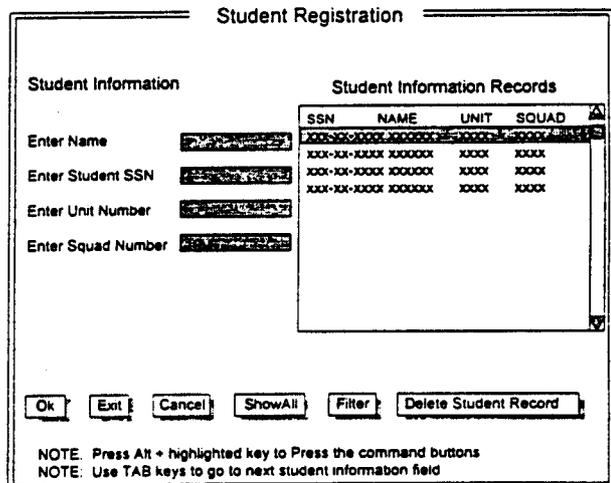
From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Student Registration**, then press the **ENTER** key.

To modify student information or to add a new student to the database, from the **Instructor Control Menu**, use the ↑ and ↓ arrow keys to highlight **Enter Student Information**, then press the **ENTER** key.

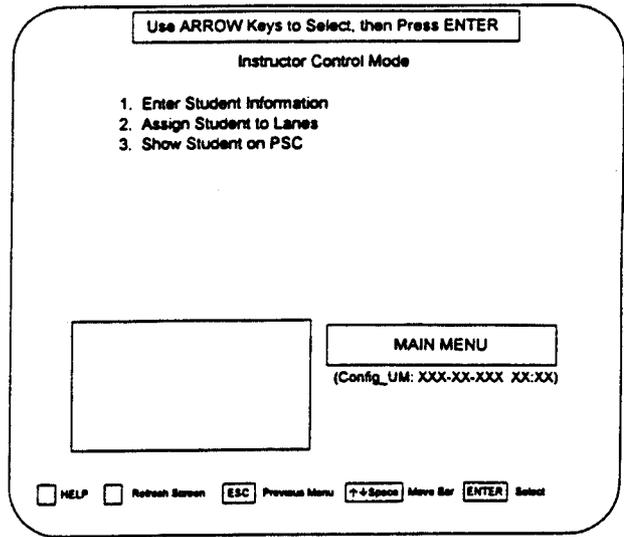
## RESULTS AND COMMENTS



The Instructor Control Mode screen is displayed.



The Student Registration screen displays on the PC.



The Instructor Control Mode screen is displayed.

To find a record in the database, click on the **ShowAll** box to list all student records in the Student Information Records box and use the ↑ and ↓ arrow keys to scroll through the entries, or use the **Filter** box to bring up a window for entering a name, SSN, unit, or Squad to search the database. The results of the search will be the only records displayed in the Student Information Records box.

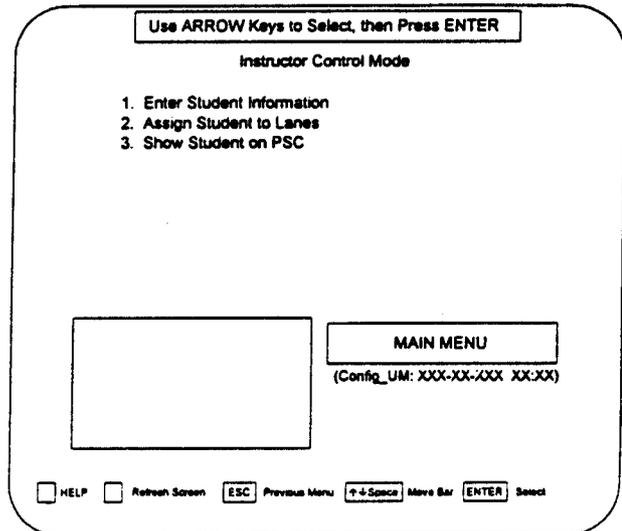
To modify student information already in the database, use the tab key to highlight the **Student Information** box, and then use the ↑ and ↓ arrow keys to highlight the student record to modify. Use the **tab** key to highlight the field you want to modify. Type in the new data, and click on the **OK** box to update the student record with the new information.

To remove a student record from the database, select the student you want to remove in the **Student Information** box, and then click on the **Delete Student Record** box.

## Work Sheet 2-1

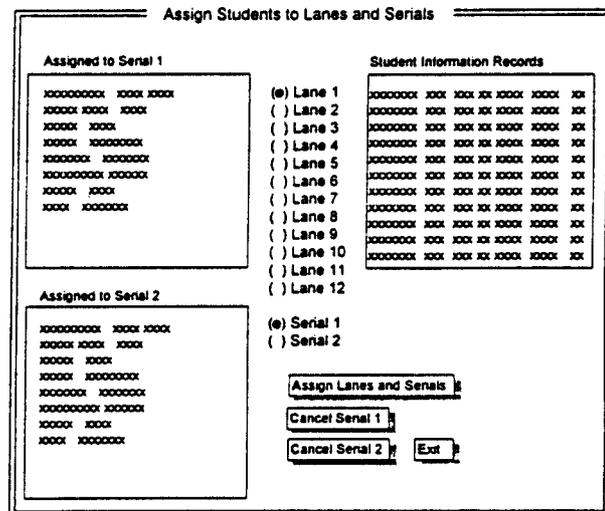
To add a new record, use the **tab** key to highlight the **Student Information** box, and then use the **↑** and **↓** arrow keys to select a blank record. Use the **tab** key to highlight the **Enter Name** box, and type in the new student's name. Press the **tab** key again to change to the next entry field. Complete the entries for the new student, and click on the **OK** box to update the database with the new student record.

Click on the **Exit** box to return to the Student Registration screen.



The Student Registration screen displays on the PC.

To assign student records in the database to firing lanes for training, from the Instructor Control Mode menu, use the **↑** and **↓** arrow keys to highlight **Assign Students to Lanes**, then press the **ENTER** key.



The Assign Students to Lanes and Serials screen displays on the PC.

The first step in assigning students to lanes is to select which serial you want. Select **Serial 1** or **Serial 2** by clicking in the parens next to them. Only one serial may be selected at a time.

## Work Sheet 2-1

Next, select the lane of the serial you wish to assign by clicking in the parens next to the **Lane #**.

The third step is to assign a student from the **Student Information Records** box to the lane and serial selected. Click on the student to assign. The student record will be highlighted and the student name will appear in the selected serial.

After all students are assigned to the selected serial(s), click on the **Assign Lanes and Serials** box to update the system.

To cancel assignments to a serial (before clicking on the **Assign Lanes and Serials** box), click on either the **Cancel Serial 1** or the **Cancel Serial 2** box.

When finished setting up the serial and lane assignments, click on the **Exit** box to return to the Student Registration screen.

To show the Lane assignments on the Big Screen, use the ↑ and ↓ arrow keys to highlight **Show Student on PSC**, then press the **ENTER** key.

Use ARROW Keys to Select, then Press ENTER

Instructor Control Mode

1. Enter Student information
2. Assign Student to Lanes
3. Show Student on PSC

MAIN MENU  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP Refresh Screen ESC Previous Menu F4 Space Move Bar ENTER Select

The Student Registration screen displays on the PC.

| Course Name                       | Course Name                       | Course Name                       | Course Name                       |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Press GO to enter<br>Student Name |
| Weapon Registered                 | Weapon Registered                 | Weapon Registered                 | Weapon Registered                 |
| Lane 1                            | Lane 2                            | Lane 3                            | Lane 4                            |

The Big Screen displays the assignments with the student's names in the lanes. The PC display remains unchanged.

## Work Sheet 2-1

To return to the Main Menu screen, press the ESC key.

Use ARROW Keys to Select, then Press ENTER

MAIN MENU

1. Daily Operational Readiness Test (DORT)
2. System Setup
3. Student Registration
4. Weapon Configuration
5. ITS Training
6. ITS Training 2
7. Collective Training
8. Database
9. Authoring
10. DOS Shell

[Empty Box] [Empty Box]  
(Config\_UM. XXX-XX-XXXX XX:XX)

HELP    Refresh Screen   **ESC** Previous Menu   **↑↓Space** Move Bar   **ENTER** Select

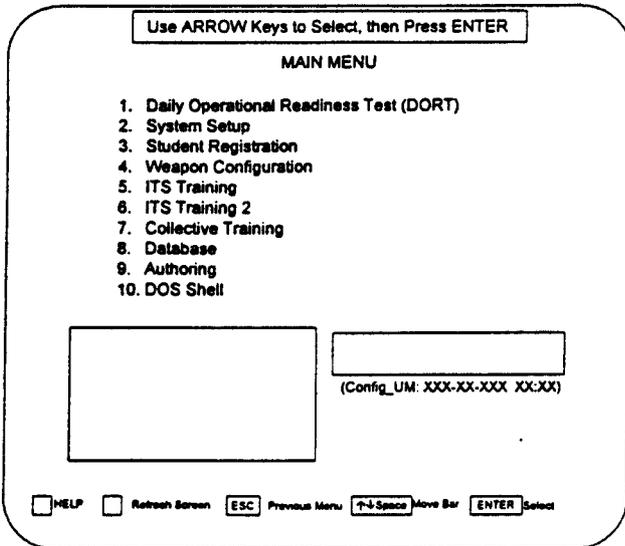
The PC display returns to the Main Menu. This completes Work Sheet 2-1.

# DATABASE

This Work Sheet covers Learning Objective 2-2 (Demonstrate the ability to produce reports from the ISMT/IST for analysis of training). Upon completion of this Work Sheet, you will be familiar with the different report options and procedures for producing these reports from the IST and ISMT system.

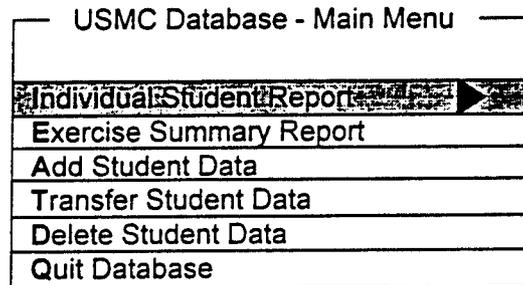
## ACTIONS

## RESULTS AND COMMENTS

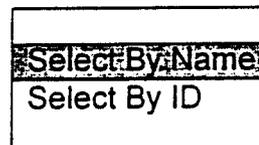


From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight Database, then press the ENTER key.

To produce an individual student's information report, from the Database Main Menu, use the ↑ and ↓ arrow keys to highlight Individual Student Report, then press the ENTER key.

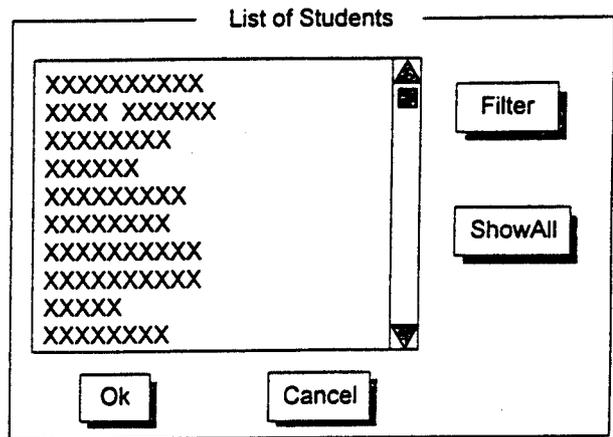


The USMC Database Main Menu screen displays on the PC.



The Select By request box displays.

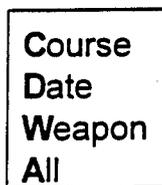
Use the ↑ and ↓ arrow keys to highlight **Select By Name**, then press the ENTER key.



The List of Students box displays.

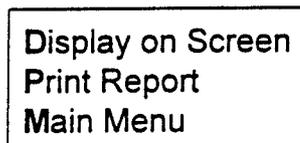
Click on the up or down arrowheads of the scroll bar to display the student name for which you wish to create a report, or click on the **Filter** box to bring up the filter request box. Type in the name you wish. The filter will then disappear, and only the requested names will appear in the list of students. Click on the student name to highlight it, and then click on the **Ok** box.

Press the W key to select **Weapon**.

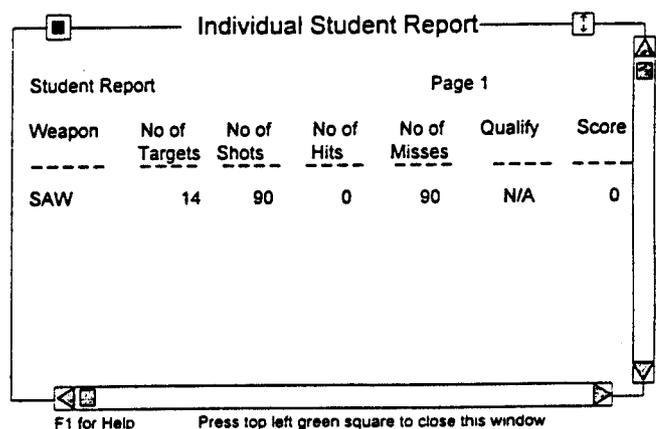


The content of report box displays.

Press the D key to select **Display on Screen**.

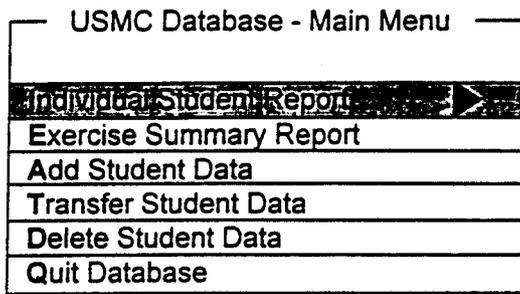


The report destination box displays.



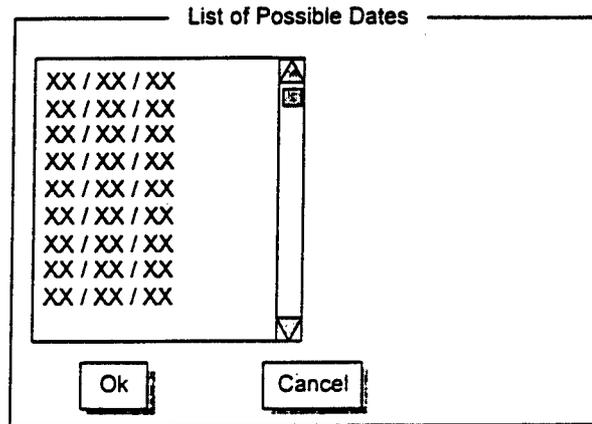
The Report displays on the PC.

To return to the Database Main Menu, click on the small box in the upper left frame of the on-screen report.



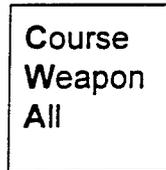
The USMC Database Main Menu displays.

To generate a report of training exercises conducted, from the Database Main Menu, use the ↑ and ↓ arrow keys to highlight **Exercise Summary Report**, then press the **ENTER** key.



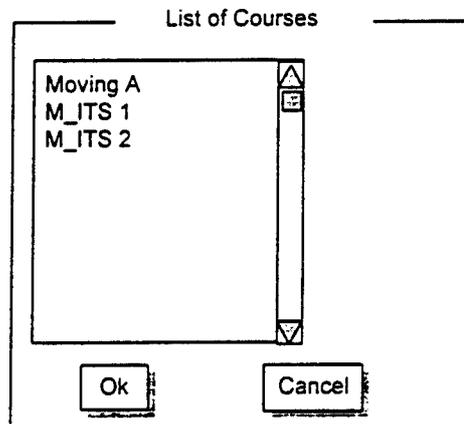
The List of Possible Dates screen displays on the PC.

Click on the up or down arrowheads of the scroll bar to display the training date for which you wish to create a report. Then select the date by clicking on it to highlight it. Click on the **Ok** box.



The content of report box displays.

Press the **C** key to select **Course**.



The List of Courses screen displays on the PC.

## Work Sheet 2-2

Click on the up or down arrowheads of the scroll bar to display the training course for which you wish to create a report. Click on the **Ok** box.

Press the **P** key to send the report to the printer. Make sure the printer is ready and on-line.

To transfer a student's data to a floppy disk so that it may be loaded on a different system or stored separate from the system's database, from the Database Main Menu, use the **↑** and **↓** arrow keys to highlight **Transfer Student Data**, then press the **ENTER** key.

Click on the up or down arrowheads of the scroll bar to display the student you wish to transfer. Select the student by clicking on the name to highlight it. Click on the **Ok** box.

Display on Screen  
Print Report  
Main Menu

The report destination box displays.

| USMC Database - Main Menu |   |
|---------------------------|---|
| Individual Student Report | ▶ |
| Exercise Summary Report   |   |
| Add Student Data          |   |
| Transfer Student Data     |   |
| Delete Student Data       |   |
| Quit Database             |   |

The report prints out on the printer, and the USMC Database Main Menu displays on the PC.

Select the Student to Transfer

|            |   |
|------------|---|
| XXXXXX     | ▶ |
| XXXXX      |   |
| XXXXXXXXXX |   |
| XXXXXX     |   |
| XXXXXX     |   |
| XXXXX      |   |
| XXXXXXXXXX |   |
| XXXXXX     |   |

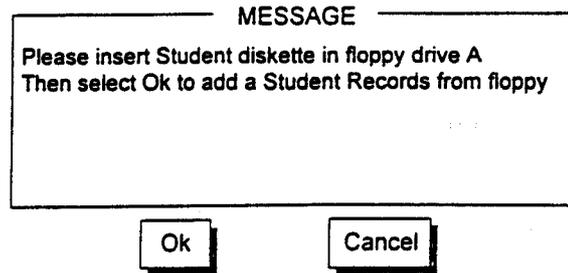
Ok Cancel

The Select the Student to Transfer screen displays on the PC.

| USMC Database - Main Menu |   |
|---------------------------|---|
| Individual Student Report | ▶ |
| Exercise Summary Report   |   |
| Add Student Data          |   |
| Transfer Student Data     |   |
| Delete Student Data       |   |
| Quit Database             |   |

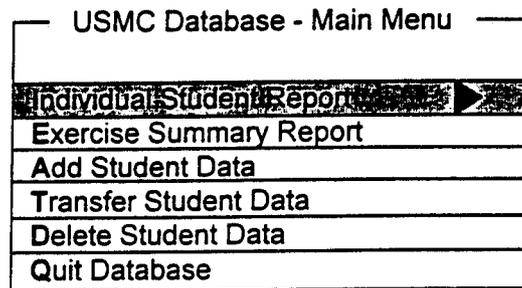
The student's data files are copied onto the diskette, and the USMC Database Main Menu screen displays.

To load a student's data from a floppy disk into the system, from the Database Main Menu, use the ↑ and ↓ arrow keys to highlight **Add Student Data**, then press the **ENTER** key.



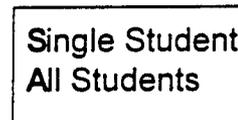
The Message screen displays.

Place a formatted 3½" diskette in the drive A bay, and click on the **Ok** box.



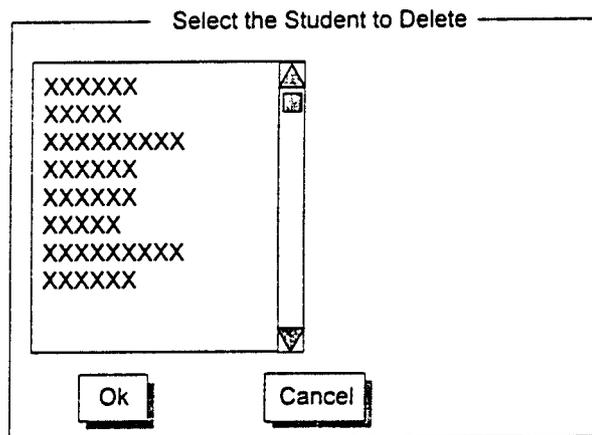
The student's data files are copied from the diskette into the system's database, and the USMC Database Main Menu screen displays on the PC.

To remove a student's data from the system's database, from the Database Main Menu, use the ↑ and ↓ arrow keys to highlight **Delete Student Data**, then press the **ENTER** key.



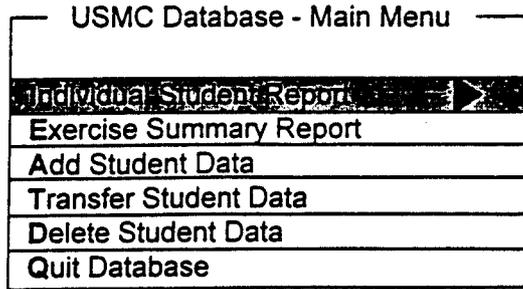
The option box displays.

Press the **S** key to select **Single Student**.



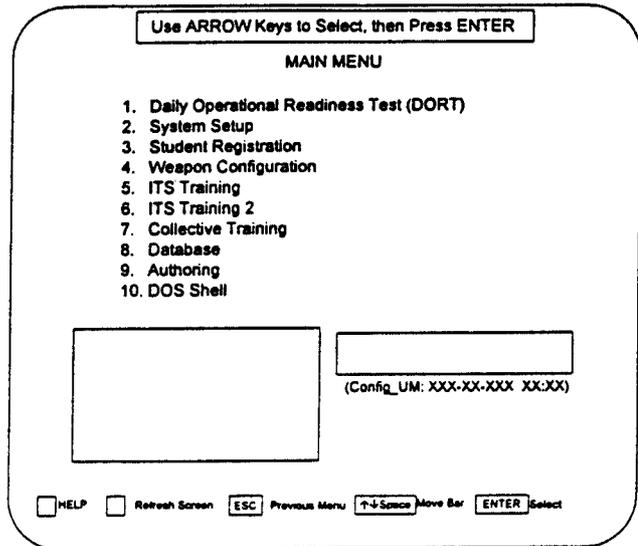
The Select the Student to Delete screen displays on the PC.

Click on the up or down arrowheads of the scroll bar to display the student you wish to transfer. Select the student by clicking on the name to highlight it. Click on the Ok box.



The student's data is erased from the system, and the USMC Database Main Menu displays on the PC.

Press the ESC key.



The Main Menu displays on the PC. This completes Work Sheet 2-2.

# DATABASE

## Introduction

This Problem Sheet covers Learning Objective 2-1 (Demonstrate the ability to register a student on the system for training) and 2-2 (Demonstrate the ability to produce reports from the ISMT/IST for analysis of training.) By completing this Problem Sheet, you will gain a better understanding of the database functions of the ISMT. You may use your notes, Assignment Sheets, and Works Sheets to help solve the problems presented here. However, you may **not** use other persons (for example, technicians, trainees, Instructor) to help you solve these problems; this work must be your own.

After completing this Problem Sheet, take it to your Instructor for grading. If the Instructor finds your work acceptable, go on to complete the rest of Section 2.

## Instructions

The following problems present realistic situations which you may encounter with the ISMT system. From your knowledge of the system and the material provided in this Handbook, you should be able to find solutions for each of the problems presented. Word your answers so that the Instructor will readily understand how you would solve the problem. If you are unsure of your answers, then you may go back through the Work Sheets and read the Assignment Sheets again. There is no time limit for this Problem Sheet. You should not attempt to answer the problems without first completing the associated Assignment Sheets and Work Sheets.

## Problems

### Problem 1

What are the three uses of printed reports from the ISMT database?

### Problem 2

The information in the database contains \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_?

### Problem 3

To add a new trainee to the database, the first step is to \_\_\_\_\_.

**Problem 4**

Of the options available on the Student Registration Instructor Control Mode menu screen, which one do you use to show the students which lane to fire at?

**Problem 5**

When entering data into the Student Registration screen you should not press the \_\_\_\_\_ until all data is filled in.

**Problem 6**

If you want a report of everyone who has used a certain course, you would select the \_\_\_\_\_ option on the USMC Database Main Menu.

**Problem 7**

Before printing a report, you want to verify that the information you want will be properly placed on the report. What function would you use to ensure that the printed report will be what you want?

After completing this Problem Sheet, take it to the OJT Handbook Administrator.

# DATABASE

## Have you?

Yes    No

       Read Assignment Sheet 2-1?

       Completed Work Sheets 2-1 and 2-2?

       Completed Problem Sheet 2-1?

       Reviewed all the material covered in Section 2?

If the answer to all of the above is YES, then see your OJT Handbook Administrator for Test Sheet 2-1.

# SECTION 3

Contains:

Assignment Sheet 3-1

Table 3-1

Work Sheet 3-1

Assignment Sheet 3-2

Work Sheet 3-2

Work Sheet 3-3

Problem Sheet 3-1

Assignment Sheet 3-3

Work Sheet 3-4

Assignment Sheet 3-4

Work Sheet 3-5

Assignment Sheet 3-5

Work Sheet 3-6

Test Sheet 3-1

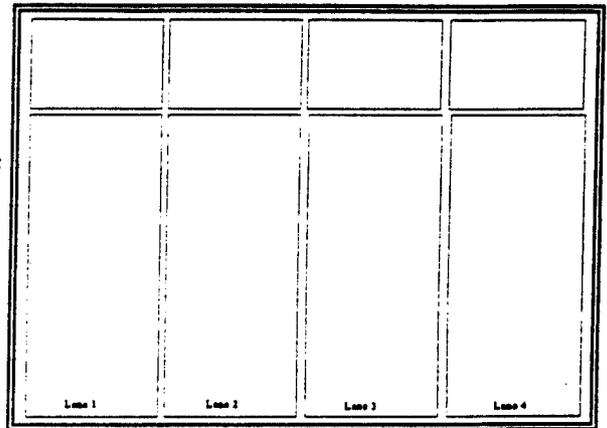
# ITS TRAINING

## Introduction

This Assignment Sheet covers Learning Objective 3-1 (Demonstrate the ability to conduct ITS training on the ISMT). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to conduct effective ITS training on the ISMT.

## Capabilities

ITS operation is defined as Marksmanship Training, which is often referred to as lane training because the Big Screen is divided into four separate firing lanes. These firing lanes are completely independent of each other. In ITS, any or all of the four firing positions of the ISMT can be enabled. This capability allows one to four trainees to use the ISMT independently or all at the same time. In ITS training, the capability of selecting different environments is available to simulate real life conditions accurately.



Some of the factors which are controlled by the instructor are

1. Wind (simulated from 0mph to 30mph in increments of 5mph)
2. Fog
3. Dusk/Dawn lighting

The computer calculates the wind condition effect on fired rounds and displays the fired rounds accordingly. Further, you can select the wind direction. Again, the computer automatically calculates the effects on the fired rounds. Targets displayed under ITS Training are scaled according to their simulated distance. This means that a target at 200 meters on the ISMT will appear to be the same size of the same real life target if it were 200 meters away. Targets are made up of computer-generated graphics or video projections. Feedback may be provided for the trainee at the top of the Big Screen lane in which he/she is firing.

As the instructor, you can enable or disable firing positions by using the "A" key for all positions and the 1, 2, 3, and 4 keys to toggle on/off the # 1 lane, # 2 lane, # 3 lane, and the # 4 lane.

Notice the Lane control portion at the bottom left of the ITS PC screen. This particular example shows that the # 1 lane is enabled and the # 2, # 3, and # 4 lanes are disabled. More about the operation and controls are covered in Work Sheet 2-2. The marksmanship courses available using the ISMT/IST are listed in Table 3-1.

| HELP                 | Weapon Status | Target | Course Status     | Zoom Up | Trace |
|----------------------|---------------|--------|-------------------|---------|-------|
| 1                    | M 16          |        | 2                 | Unknown |       |
| 3                    | Unknown       |        | 4                 | Unknown |       |
| LANE CONTROL 1 2 3 4 |               |        | ESC Previous Menu |         |       |

**NOTE:** For a 12-lane system the screen will appear a little different (12 lanes instead of 4), but all the functionality is the same.

|   |               |              |               |               |               |       |  |
|---|---------------|--------------|---------------|---------------|---------------|-------|--|
| HELP  | Weapon Status |              | Target        | Course Status | Zoom Up       | Trace |  |
| 1<br>M 16   | 2<br>Unknown  | 3<br>Unknown | 4<br>Unknown  | 5<br>Unknown  | 6<br>Unknown  |       |  |
| 7<br>Unknown  | 8<br>Unknown  | 9<br>Unknown | 10<br>Unknown | 11<br>Unknown | 12<br>Unknown |       |  |
| LANE CONTROL 1 2 3 4 5 6 7 8 9 10 11 12 ESC Previous Menu |               |              |               |               |               |       |  |

### Realism

Realistic training can be conducted for one to four trainees at a time with ITS. Factors controlled by the computer and instructor allow for jammed weapons, weather effects, poor to excellent lighting, night vision scenarios, and other elements which affect the trainees' marksmanship abilities. By accurately simulating many different types of actual ranges and the conditions on these ranges, the trainee may be exposed to different marksmanship factors in a shorter period of time to improve his/her marksmanship abilities.

### Conducting the Training

With the proper use of the tools available with ITS, a trainee should be able to become proficient in marksmanship with any of the eleven different weapons available on the system. To fully understand and use the system's capabilities, you must practice, practice, practice. The associated Work Sheet will walk you through a simple training session, but in order to challenge trainees, you will have to develop your skills at administering ITS training. For a complete listing of courses see Table 3-1.

## Courses Available for ITS Training

## Entry Level Rifle

| Course/<br>Practice | Range   | Firing<br>Position  | Target     | #Mags/<br>#Rds    | #Exp/<br>Time                                | Method                              |
|---------------------|---------|---|------------|-------------------|--|-------------------------------------|
| Bsight/All          | 36 yds  | Prone   | Cross hair | 1/3               | 1/None                                       | Slow fire                           |
| ITS 3/All           | 36 yds  | Prone   | BZO        | 1/5               | 1/None                                       | Slow fire                           |
| ITS 4/1&2           | 300 yds | Prone   | D          | 1/3               | 3/None                                       | Slow fire                           |
| ITS 4/3             | 300 yds | Prone   | D          | 1/4               | 4/None                                       | Slow fire                           |
| ITS 5/1             | 200 yds | Sitting<br>Kneeling<br>Standing   | A          | 1/5<br>1/5<br>1/5 | 5 exp<br>5 exp<br>5 exp                      | Slow fire<br>20 min<br>total time   |
| ITS 5/2             | 200 yds | St to Si  | D          | 1/10              | 1/60 sec                                     | Rapid fire                          |
| ITS 5/3             | 300 yds | Sit or Kn   | A          | 1/5               | 5/5 min                                      | Slow fire                           |
| ITS 5/4             | 300 yds | St to Pr  | D          | 1/10              | 1/70 sec                                     | Rapid fire                          |
| ITS 5/5             | 500 yds | Prone   | B Mod      | 1/10              | 10/10 min                                    | Slow fire                           |
| ITS 6/1             | 25 yds  | Standing<br>St to Kn St to Pr<br>St to Pr<br>St to Pr<br>St to Pr<br>StandingStanding | E          | 1/16              | None   | 2 rds/exp                           |
| ITS 6/2             | 50 yds  | Standing<br>St to Kn St to Pr<br>St to Pr<br>St to Pr<br>St to Pr<br>StandingStanding | E          | 1/16              | None   | 2 rds/exp                           |
| ITS 6/3             | 100 yds | Standing<br>St to Kn<br>St to Si<br>St to Pr  | D          | 1/8               | 1/10 sec<br>1/10 sec<br>1/10 sec<br>1/10 sec | 2 rds/exp                           |
| ITS 6/4             | 200 yds | St to Kn<br>St to Si<br>St to K&P   | E          | 1/8               | 1/10 sec<br>1/10 sec<br>1/15 sec             | 2 rds/exp<br>2 rds/exp<br>2 rds/pos |
| ITS 6/5             | 300 yds | St to Pr<br>St to Pr  | E          | 1/8               | 1/10 sec<br>1/10 sec                         | 2 rds/exp                           |
| ITS 6/6             | 300 yds | St to Pr<br>St to Pr  | E          | 1/4               | 1/10 sec<br>1/10 sec                         | 2 rds/exp                           |
| ITS 6/7             | 200 yds | St to Kn<br>St to Si<br>St to K&P   | E          | 1/8               | 1/10 sec<br>1/10 sec<br>1/15 sec             | 2 rds/exp<br>2 rds/exp<br>2 rds/pos |

| Course/<br>Practice | Range   | Firing<br>Position                           | Target            | #Mags/<br>#Rds | #Exp/<br>Time                                | Method   |
|---------------------|---------|--|-------------------|----------------|--|--|
| ITS 6/8             | 100 yds | Standing<br>St to Kn<br>St to Si<br>St to Pr | D                 | 1/8            | 1/10 sec<br>1/10 sec<br>1/10 sec<br>1/10 sec | 2 rds/exp  |
| ITS 7/1             | 50 yds  | Standing<br>St to Kn<br>St to Pr<br>St & Pr  | E                 | 1/10           | None   | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos |
| ITS 7/2             | 100 yds | St to Pr                                     | E                 | 1/10           | None   | Slow fire  |
| ITS 7/3             | 100 yds | St to Pr                                     | E                 | 1/10           | None   | Slow fire  |
| ITS 7/4             | 100 yds | St to Pr                                     | E                 | 1/10           | None   | Slow fire  |
| ITS 7/5             | 100 yds | St to Pr                                     | E                 | 1/10           | None   | Slow fire  |
| ITS 7/6             | 50 yds  | Standing<br>St to Kn<br>St to Pr<br>St & Pr  | E                 | 1/10           | None   | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos |
| ITS 8/1             | 100 yds | Standing<br>St to Kn<br>St to Pr             | E                 | 1/6            | 1/20 sec<br>1/20 sec<br>1/20 sec             | 2 rds/exp  |
| ITS 8/2             | 200 yds | St to Kn<br>St to K&P                        | E                 | 1/6            | 1/20 sec<br>1/30 sec                         | 2 rds/exp<br>2 rds/pos                           |
| ITS 8/3             | 200 yds | St to Kn<br>St to K&P                        | E                 | 1/6            | 1/20 sec<br>1/30 sec                         | 2 rds/exp<br>2 rds/pos                           |
| ITS 8/4             | 100 yds | Standing<br>St to Kn<br>St to Pr             | E                 | 1/6            | 1/20 sec<br>1/20 sec<br>1/20 sec             | 2 rds/exp  |
| ITS 9/1             | 50 yds  | Standing<br>St to Kn<br>St to Pr             | Ex2<br>Dx2<br>Dx2 | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |
| ITS 9/2             | 100 yds | Standing<br>St to Kn<br>St to Pr             | Ex2<br>Dx2<br>Dx2 | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |
| ITS 9/3             | 200 yds | St to Kn<br>St to Pr                         | Ex2<br>Ex2        | 1/8            | 1/15 sec<br>1/15 sec                         | 2 rds/tgt  |
| ITS 9/4             | 200 yds | St to Kn<br>St to Pr                         | Ex2<br>Ex2        | 1/8            | 1/15 sec<br>1/15 sec                         | 2 rds/tgt  |
| ITS 9/5             | 100 yds | Standing<br>St to Kn<br>St to Pr             | Ex2<br>Dx2<br>Dx2 | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |
| ITS 9/6             | 50 yds  | Standing<br>St to Kn<br>St to Pr             | Ex2<br>Dx2<br>Dx2 | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |

Table 3-1

| Course/<br>Practice | Range                         | Firing<br>Position | Target   | #Mags/<br>#Rds | #Exp/<br>Time                                | Method   |
|---------------------|-------------------------------|--------------------|--|----------------|--|--|
| ITS 10/1            | 50 yds                        | Standing           | E/left-rt<br>E/rt-left<br>E/left-rt<br>E/rt-left | 1/6            | 1/10 sec<br>1/10 sec<br>1/10 sec<br>1/10 sec | 1 rd/tgt<br>1 rd/tgt<br>2 rds/tgt<br>2 rds/tgt |
| ITS 10/2            | 100 yds                       | Kneeling           | E/left-rt<br>E/rt-left                           | 1/4            | 1/10 sec<br>1/10 sec                         | 2 rds/tgt                                      |
| ITS 10/3            | 300 yds                       | Prone              | E/left-rt<br>E/rt-left                           | 1/4            | 1/15 sec<br>1/15 sec                         | 2 rds/tgt                                      |
| ITS 10/4            | 300 yds                       | Prone              | E/left-rt<br>E/rt-left                           | 1/4            | 1/15 sec<br>1/15 sec                         | 2 rds/tgt                                      |
| ITS 10/5            | 100 yds                       | Kneeling           | E/left-rt<br>E/rt-left                           | 1/4            | 1/10 sec<br>1/10 sec                         | 2 rds/tgt                                      |
| ITS 10/6            | 50 yds                        | Standing           | E/left-rt<br>E/rt-left                           | 1/4            | 1/10 sec<br>1/10 sec                         | 2 rds/tgt                                      |
| ITS 11/1            | 300 yds<br>400 yds<br>200 yds | Optional           | E  | 1/16           | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/2            | 300 yds<br>350 yds<br>200 yds | Optional           | E  | From<br>ITS 1  | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/3            | 500 yds<br>300 yds<br>150 yds | Optional           | E  | From<br>ITS 1  | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/4            | 350 yds<br>250 yds<br>300 yds | Optional           | E  | From<br>ITS 1  | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/5            | 300 yds<br>400 yds<br>200 yds | Optional           | E  | 1/16           | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/6            | 300 yds<br>350 yds<br>200 yds | Optional           | E  | From<br>P1     | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/7            | 500 yds<br>300 yds<br>150 yds | Optional           | E  | From<br>P1     | 1<br>1<br>1<br>2 min tot                     | Fall   |

Table 3-1

| Course/<br>Practice | Range                         | Firing<br>Position | Target | #Mags/<br>#Rds | #Exp/<br>Time            | Method |
|---------------------|-------------------------------|--------------------|--------|----------------|--------------------------|--------|
| ITS 11/8            | 350 yds<br>250 yds<br>300 yds | Optional           | E      | From<br>P1     | 1<br>1<br>1<br>2 min tot | Fall   |

Sustainment Level Rifle

| Course/<br>Practice | Range                         | Firing<br>Position               | Target        | #Mags/<br>#Rds    | #Exp/<br>Time                    | Method                              |
|---------------------|-------------------------------|----------------------------------|---------------|-------------------|----------------------------------|-------------------------------------|
| Bsight/All          | 36 yds                        | Prone                            | Cross<br>hair | 1/3               | 1/None                           | Slow fire                           |
| ITS 3/All           | 36 yds                        | Prone                            | BZO           | 1/5               | 1/None                           | Slow fire                           |
| ITS 4/All           | 36 yds                        | Prone                            | BZO           | 1/5               | 1/None                           | Slow fire                           |
| ITS 5/1             | 36 yds                        | Prone                            | BZO           | 1/3               | 1/None                           | Slow fire                           |
| ITS 5/2             | 36 yds                        | Prone                            | BZO           | 1/3               | 1/None                           | Slow fire                           |
| ITS 5/3             | 36 yds                        | Prone                            | BZO           | 1/4               | 1/None                           | Slow fire                           |
| ITS 5/4             | 36 yds                        | Prone                            | BZO           | 1/5               | 1/None                           | Slow fire                           |
| ITS 5/5             | 200 yds<br>200 yds            | Prone<br>Prone                   | D Mod         | 1/10              | 1/2.5 min<br>1/2.5 min           | 5 rds/exp                           |
| ITS 5/6             | 200 yds<br>200 yds            | Kneeling<br>Kneeling             | D Mod         | 1/10              | 1/2.5 min<br>1/2.5 min           | 5 rds/exp                           |
| ITS 5/7             | 200 yds<br>200 yds            | Standing<br>Standing             | D Mod         | 1/10              | 1/5 min<br>1/5 min               | 5 rds/exp                           |
| ITS 5/8             | 200 yds<br>200 yds<br>200 yds | Sitting<br>Kneeling<br>Standing  | D Mod         | 1/15              | 1<br>1<br>1<br>20 min tot        | 5 rds/exp                           |
| ITS 5/9             | 200 yds<br>200 yds<br>200 yds | Kneeling<br>St to Kn<br>St to Kn | D Mod         | 2/3<br>2/3<br>2/5 | 1/50 sec<br>1/50 sec<br>1/70 sec | 6 rds/exp<br>6 rds/exp<br>10 rds/ex |
| ITS 5/10            | 300 yds                       | Kneeling                         | D Mod         | 1/5               | 1/5 min                          | Slow fire                           |
| ITS 5/11            | 300 yds<br>300 yds<br>300 yds | Prone<br>St to Pr<br>St to Pr    | D Mod         | 2/3<br>2/3<br>2/5 | 1/40 sec<br>1/40 sec<br>1/60 sec | 6 rds/exp<br>6 rds/exp<br>10 rds/ex |
| ITS 5/12            | 500 yds                       | Prone                            | E             | 1/10              | 1/10 min                         | Slow fire                           |
| ITS 5/13            | 200 yds<br>200 yds<br>200 yds | Sitting<br>Kneeling<br>Standing  | D Mod         | 1/15              | 1<br>1<br>1<br>20 min tot        | 5 rds/exp                           |
| ITS 5/14            | 200 yds                       | St to Kn                         | D Mod         | 2/5               | 1/70 sec                         | 10 rds/ex                           |

Table 3-1

| Course/<br>Practice | Range                         | Firing<br>Position  | Target | #Mags/<br>#Rds | #Exp/<br>Time  | Method  |
|---------------------|-------------------------------|---|--------|----------------|--|---|
| ITS 5/15            | 300 yds                       | Kneeling  | D Mod  | 1/5            | 1/5 min  | Slow fire   |
| ITS 5/16            | 300 yds                       | St to Pr  | D Mod  | 2/5            | 1/60 sec   | 10 rds/ex   |
| ITS 5/17            | 500 yds                       | Prone   | E      | 1/10           | 1/10 min   | Slow fire   |
| ITS 5/18            | 200 yds<br>200 yds<br>200 yds | Sitting<br>Kneeling<br>Standing   | D Mod  | 1/15           | 1<br>1<br>1<br>20 min tot                                | 5 rds/exp   |
| ITS 5/19            | 200 yds                       | St to Kn  | D Mod  | 2/5            | 1/70 sec   | 10 rds/ex   |
| ITS 5/20            | 300 yds                       | Kneeling  | D Mod  | 1/5            | 1/5 min  | Slow fire   |
| ITS 5/21            | 300 yds                       | St to Pr  | D Mod  | 2/5            | 1/60 sec   | 10 rds/ex   |
| ITS 5/22            | 500 yds                       | Prone   | E      | 1/10           | 1/10 min   | Slow fire   |
| ITS 6/1             | 25 yds                        | Standing<br>St to Kn St to Pr<br>St to Pr<br>St to Pr<br>St to Pr<br>StandingStanding | E      | 1/16           | None   | 2 rds/exp   |
| ITS 6/2             | 50 yds                        | Standing<br>St to Kn St to Pr<br>St to Pr<br>St to Pr<br>St to Pr<br>StandingStanding | E      | 1/16           | None   | 2 rds/exp   |
| ITS 6/3             | 300 yds                       | St to Kn St to Pr<br>St to K&P  | E      | 1/8            | 1/10 sec<br>1/10 sec<br>1/15 sec                         | 2 rds/exp<br>2 rds/exp<br>2 rds/pos                           |
| ITS 6/4             | 200 yds                       | Standing<br>St to Kn St to Si<br>St to Pr<br>St to K&P                                | D      | 1/12           | 1/10 sec<br>1/10 sec<br>1/10 sec<br>1/10 sec<br>1/15 sec | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos |
| ITS 7/1             | 100 yds                       | St to Pr  | E      | 1/10           | None   | Slow fire   |
| ITS 7/2             | 100 yds                       | St to Pr  | E      | 1/10           | None   | Slow fire   |
| ITS 7/3             | 100 yds                       | Standing<br>St to Kn St to Pr<br>St to K&P  | E      | 1/10           | None   | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos              |
| ITS 8/1             | 300 yds                       | Prone   | E      | 1/6            | 2/30 sec   | 3 rds/exp   |
| ITS 8/2             | 300 yds                       | Prone   | E      | 1/4            | 2/20 sec   | 2 rds/exp   |

Table 3-1

| Course/<br>Practice | Range                         | Firing<br>Position                          | Target   | #Mags/<br>#Rds | #Exp/<br>Time                                | Method   |
|---------------------|-------------------------------|---|--|----------------|--|--|
| ITS 8/3             | 200 yds                       | Standing<br>St to Kn<br>St to Pr<br>St & Kn | E  | 1/10           | 1/20 sec<br>1/20 sec<br>1/20 sec<br>1/30 sec | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos |
| ITS 9/1             | 300 yds                       | St to Pr                                    | Ex2  | 1/8            | 2/15 sec                                     | 2 rds/tgt  |
| ITS 9/2             | 200 yds                       | Standing<br>St to Kn<br>St to Pr            | Ex2<br>Dx2<br>Dx2                                | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |
| ITS 9/3             | 200 yds                       | Standing<br>St to Kn<br>St to Pr            | Ex2<br>Dx2<br>Dx2                                | 1/12           | 1/15 sec<br>1/15 sec<br>1/15 sec             | 2 rds/tgt  |
| ITS 10/1            | 200 yds                       | Prone                                       | E/left-rt<br>E/rt-left                           | 1/4            | 1/15 sec<br>1/15 sec                         | 2 rds/tgt  |
| ITS 10/2            | 100 yds                       | Kneeling<br><br>Standing                    | E/left-rt<br>E/rt-left<br>E/left-rt<br>E/rt-left | 1/8            | 1/10 sec<br>1/10 sec<br>1/10 sec<br>1/10 sec | 2 rds/tgt  |
| ITS 11/1            | 300 yds<br>400 yds<br>200 yds | Optional                                    | E  | 1/16           | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/2            | 300 yds<br>350 yds<br>200 yds | Optional                                    | E  | From<br>P1     | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/3            | 500 yds<br>300 yds<br>150 yds | Optional                                    | E  | From<br>P1     | 1<br>1<br>1<br>2 min tot                     | Fall   |
| ITS 11/4            | 350 yds<br>250 yds<br>300 yds | Optional                                    | E  | From<br>P1     | 1<br>1<br>1<br>2 min tot                     | Fall   |

Table 3-1

## Pistol Exercises

| Course/<br>Practice | Range  | Firing<br>Position | Target        | #Mags/<br>#Rds | #Exp/<br>Time | Method    |
|---------------------|--------|--------------------|---------------|----------------|---------------|-----------|
| Bsight/All          | 36 yds | Prone              | Cross<br>hair | 1/3            | 1/None        | Slow fire |
| ITS 3A/1            | 7 yds  | Standing           | E-SA          | 1/5            | 1/5 min       | Slow fire |
| ITS 3A/2            | 15 yds | Standing           | E-SA          | 1/5            | 1/5 min       | Slow fire |
| ITS 3A/3            | 25 yds | Standing           | E-SA          | 1/5            | 1/5 min       | Slow fire |
| ITS 3A/4            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3A/5            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3A/6            | 7 yds  | Standing           | E-SA          | 1/8            | 4/4 sec       | 2 rds/exp |
| ITS 3A/7            | 15 yds | Standing           | E-SA          | 6/1            | 3/10 sec      | 2 rds/exp |
| ITS 3A/8            | 15 yds | Standing           | E-SA          | 1/6            | 1/20 sec      | Sust fire |
| ITS 3B/1            | 25 yds | Standing           | E-SA          | 1/15           | 1/10 min      | Slow fire |
| ITS 3B/2            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3B/3            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3B/4            | 7 yds  | Standing           | E-SA          | 1/8            | 4/4 sec       | 2 rds/exp |
| ITS 3B/5            | 15 yds | Standing           | E-SA          | 6/1            | 3/10 sec      | 2 rds/exp |
| ITS 3B/6            | 15 yds | Standing           | E-SA          | 1/6            | 1/20 sec      | Sust fire |
| ITS 3C/1            | 25 yds | Standing           | E-SA          | 1/15           | 1/10 min      | Slow fire |
| ITS 3C/2            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3C/3            | 7 yds  | Standing           | E-SA          | 1/8            | 4/4 sec       | 2 rds/exp |
| ITS 3C/4            | 15 yds | Standing           | E-SA          | 4/3            | 2/20 sec      | 6 rds/exp |
| ITS 3D/1            | 25 yds | Standing           | E-SA          | 1/15           | 1/10 min      | Slow fire |
| ITS 3D/2            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3D/3            | 7 yds  | Standing           | E-SA          | 1/8            | 4/4 sec       | 2 rds/exp |
| ITS 3D/4            | 15 yds | Standing           | E-SA          | 4/3            | 2/20 sec      | 6 rds/exp |
| ITS 3E/1            | 25 yds | Standing           | E-SA          | 1/15           | 1/10 min      | Slow fire |
| ITS 3E/2            | 7 yds  | Standing           | E-SA          | 1/5            | 5/3 sec       | 1 rd/exp  |
| ITS 3E/3            | 7 yds  | Standing           | E-SA          | 1/8            | 4/4 sec       | 2 rds/exp |
| ITS 3E/4            | 15 yds | Standing           | E-SA          | 4/3            | 2/20 sec      | 6 rds/exp |

Table 3-1

| Course/<br>Practice | Range  | Firing<br>Position   | Target | #Mags/<br>#Rds | #Exp/<br>Time  | Method  |
|---------------------|--------|--|--------|----------------|--|---|
| ITS 3F/1            | 7 yds  | Standing<br>Standing<br>Standing<br>Kneeling<br>Kneeling<br>St & Kn<br>St & Kn | E      | 1/18           | 1/None<br>1/None<br>1/None<br>1/None<br>1/None<br>1/None<br>1/None | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos<br>2 rds/pos |
| ITS 3F/2            | 15 yds | Kneeling<br>Prone<br>Prone<br>St & Pr<br>St & Pr                               | E      | 1/14           | 1/None<br>1/None<br>1/None<br>1/None<br>1/None                     | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos<br>2 rds/pos                           |
| ITS 4/1             | 15 yds | Kneeling<br>Prone<br>Prone<br>St & Pr<br>St & Pr                               | E      | 1/14           | 1/None<br>1/None<br>1/None<br>1/None<br>1/None                     | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos<br>2 rds/pos                           |
| ITS 4/2             | 7 yds  | Standing<br>Standing<br>Standing<br>Kneeling<br>Kneeling<br>St & Kn<br>St & Kn | E      | 1/18           | 1/None<br>1/None<br>1/None<br>1/None<br>1/None<br>1/None<br>1/None | 2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/exp<br>2 rds/pos<br>2 rds/pos |

Table 3-1

## SAW Exercises

| Course/<br>Practice | Range                               | Firing<br>Position | Target             | #Mags/<br>#Rds | #Exp/<br>Time   | Method    |
|---------------------|-------------------------------------|--------------------|--------------------|----------------|---|-----------|
| Bsight/All          | 36 yds                              | Prone              | Cross<br>hair      | 1/3            | 1/None  | Slow fire |
| ITS 1/1             | 10 m                                | Prone              | Paster A           | 3/1            | 1/None  | Slow fire |
| ITS 1/2             | 10 m                                | Prone              | Paster B           | 3/1            | 1/None  | Slow fire |
| ITS 2/1             | 10 m                                | Prone              | Pstrs 5-6          | 1/15           | 1/20 sec  | Sust fire |
| ITS 2/2             | 10 m                                | Prone              | Pstrs 7-8          | 1/24           | 1/25 sec  | Sust fire |
| ITS 3/1             | Unknown                             | Prone              | E                  | 3/24           | 1/5 sec<br>1/10 sec<br>2/10 sec<br>2/15 sec<br>3/20 sec | Fall      |
| ITS 3/2             | 300 m<br>200 m<br>300 m<br>100/200m | Prone              | E<br>E<br>E<br>Ex2 | 1/12           | None<br>1/5 sec<br>1/10 sec<br>1/10 sec                 | Fall      |
| ITS 3/3             | 100/200m<br>1/2/300m                | Prone              | Ex2<br>Ex3         | 1/15           | 1/10 sec<br>1/20 sec                                    | Fall      |
| ITS 3/4             | 300 m<br>200/300m<br>200 m          | Prone              | E<br>Ex2<br>E      | 1/12           | 1/10 sec<br>1/15 sec<br>1/5 sec                         | Fall      |
| ITS 3/5             | 200/300m<br>300 m<br>100/300m       | Prone              | Ex2<br>E<br>Ex2    | 1/15           | 1/15 sec<br>1/10 sec<br>1/15 sec                        | Fall      |
| ITS 3/6             | 400 m<br>800 m<br>400/600m<br>400 m | Prone              | E<br>E<br>Ex2<br>E | 1/91           | 1/15 sec<br>1/30 sec<br>1/30 sec<br>1/15 sec            | Fall      |
| ITS 3/7             | 400 m<br>600/400m<br>400 m          | Prone              | E<br>Ex2<br>E      | 1/50           | 1/15 sec<br>1/30 sec<br>1/15 sec                        | Fall      |
| ITS 5/1             | Unknown                             | St/hip             | E                  | 1/30           | 1/None  | Fall      |
| ITS 5/2             | Unknown                             | St/sho             | E                  | 1/40           | 1/None  | Fall      |
| ITS 5/3             | Unknown                             | St/undar           | E                  | 1/30           | 1/None  | Fall      |
| ITS 6/1             | 300 m                               | Prone              | E                  | 1/50           | 1/None  | Fall      |

**Table 3-1**

| Course/<br>Practice | Range                               | Firing<br>Position | Target             | #Mags/<br>#Rds | #Exp/<br>Time   | Method |
|---------------------|-------------------------------------|--------------------|--------------------|----------------|---|--------|
| ITS 7/1             | Unknown                             | Prone              | E                  | 3/24           | 1/5 sec<br>1/10 sec<br>2/10 sec<br>2/15 sec<br>3/20 sec | Fall   |
| ITS 7/2             | 300 m<br>200 m<br>300 m<br>100/200m | Prone              | E<br>E<br>E<br>Ex2 | 1/12           | None<br>1/5 sec<br>1/10 sec<br>1/10 sec                 | Fall   |
| ITS 7/3             | 100/200m<br>1/2/300m                | Prone              | Ex2<br>Ex3         | 1/15           | 1/10 sec<br>1/20 sec                                    | Fall   |
| ITS 7/4             | 300 m<br>200/300m<br>200 m          | Prone              | E<br>Ex2<br>E      | 1/12           | 1/10 sec<br>1/15 sec<br>1/5 sec                         | Fall   |
| ITS 7/5             | 200/300m<br>300 m<br>100/300m       | Prone              | Ex2<br>E<br>Ex2    | 1/15           | 1/15 sec<br>1/10 sec<br>1/15 sec                        | Fall   |
| ITS 7/6             | 400 m<br>800 m<br>400/600m<br>400 m | Prone              | E<br>E<br>Ex2<br>E | 1/91           | 1/15 sec<br>1/30 sec<br>1/30 sec<br>1/15 sec            | Fall   |
| ITS 7/7             | 400 m<br>600/400m<br>400 m          | Prone              | E<br>Ex2<br>E      | 1/50           | 1/15 sec<br>1/30 sec<br>1/15 sec                        | Fall   |

**M203 Grenade Launcher Exercises**

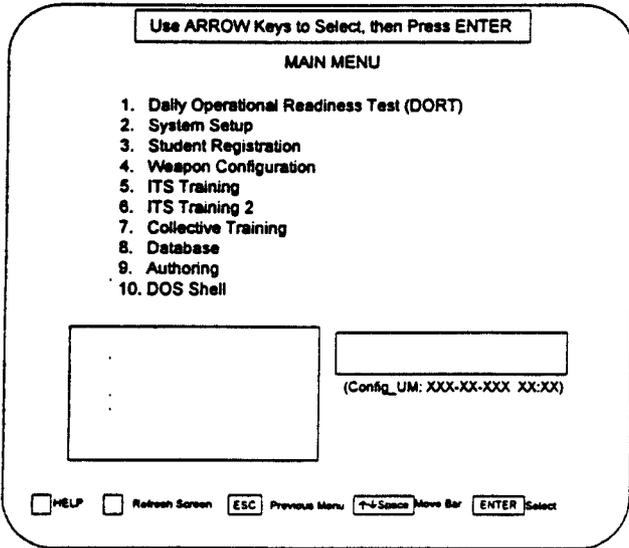
| Course/<br>Practice | Range | Firing<br>Position | Target  | #Rds    | #Exp/<br>Time | Method    |
|---------------------|-------|--------------------|---------|---------|---------------|-----------|
| ITS 1/All           | 200 m | Prone              | Z panel | 5       | 1/None        | Slow fire |
| ITS 2/1             | 100 m | Prone              | Window  | 7       | 1/None        | Slow fire |
| ITS 2/2             | 150 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |
| ITS 2/3             | 275 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |
| ITS 2/4             | 350 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |
| ITS 3/All           | 200 m | Prone              | Z panel | 5       | 1/None        | Slow fire |
| ITS 4/1             | 100 m | Prone              | Window  | 7       | 1/None        | Slow fire |
| ITS 4/2             | 150 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |
| ITS 4/3             | 275 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |
| ITS 4/4             | 350 m | Prone              | Bunker  | From P1 | 1/None        | Slow fire |

# ITS TRAINING

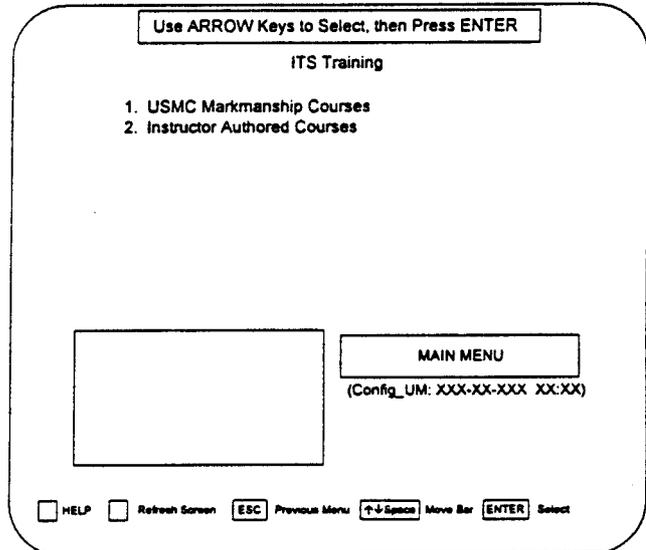
This Work Sheet covers Learning Objective 3-1 (Demonstrate the ability to conduct ITS training on the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available while conducting ITS training. Before beginning this Work Sheet, you must have already performed Work Sheets 1-3, 1-4, 1-5, 1-6, 2-1, and 2-2. For the purpose of this Work Sheet, you need only a single M-16 registered. To conduct all types of ITS training, all types of weapons can be registered.

## ACTION

## RESULTS AND COMMENTS



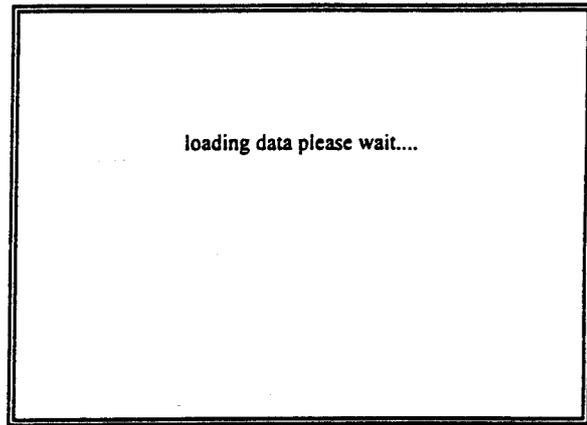
From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight ITS Training, then press the ENTER key.



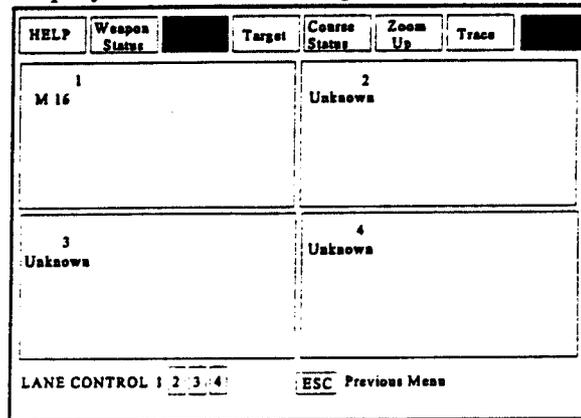
This action brings up the ITS Training menu on the PC display as shown in the figure above.

## Work Sheet 3-1

Use the ↑ and ↓ arrow keys to highlight 1 USMC Marksmanship Courses, then press the ENTER key.

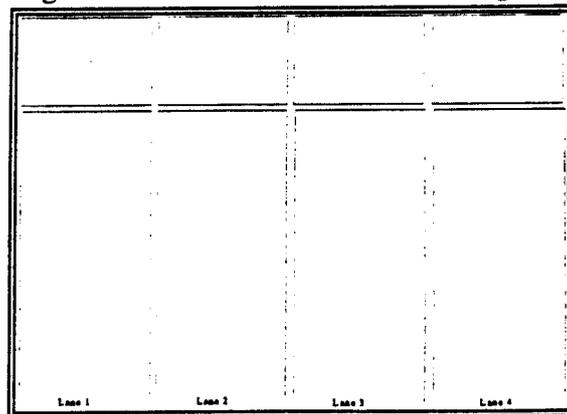


This action brings up the loading data screen on the Big Screen as shown in the figure above and changes the PC display to look like the figure below.



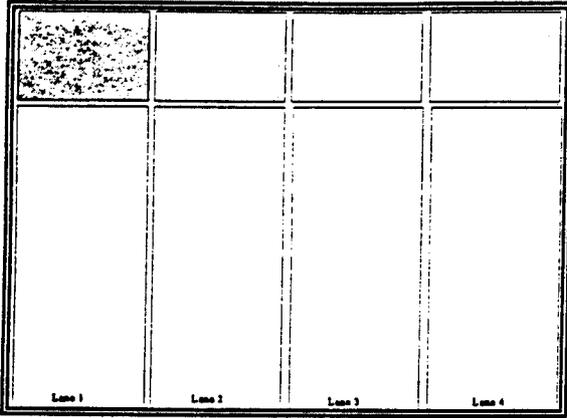
**NOTE:** A 4-lane system is shown for clarification. If a 12-lane system is being used there would be 12 lane boxes and 1-12 listed for lane control. The 12-lane system works the same, except that the PC displays show all 12 lanes.

Notice that two of the option buttons on the top of the PC display are shaded. This is because these options are not available. They may be added in the future, but at this time you cannot access these options. After a few minutes, the Big Screen loads and looks like the figure below.

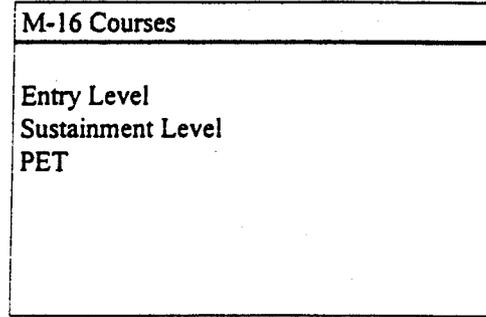


Although each lane has an area for a menu, this exercise is limited to lane 1. All the lanes work the same way.

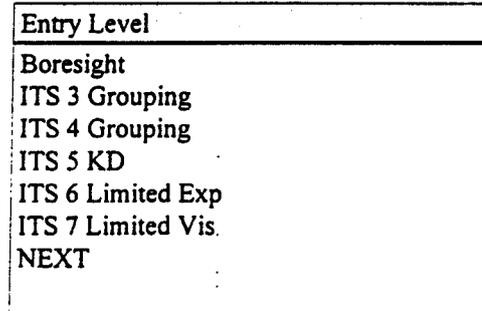
# Work Sheet 3-1



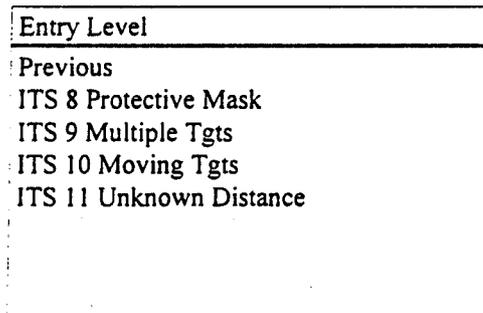
Use the ↑ and ↓ arrow keys to highlight **Entry Level**, then press the **ENTER** key.



This action brings up the Entry Level Training Select Menu on the Big Screen as shown in the figure below.

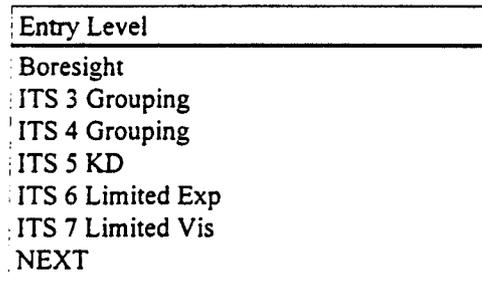


Use the ↑ and ↓ arrow keys to highlight **NEXT**, then press the **ENTER** key.



This action brings up the second Entry Level Training Select Menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Previous**, then press the **ENTER** key.



This action returns you to the first Entry Level Training Select Menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Boresight**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Feedback**, then use the ← and → keys to scroll through the selections.

Use the ↑ and ↓ arrow keys to highlight **Wind Strength**, then use the ← and → keys to scroll through the selections.

Use the ↑ and ↓ arrow keys to highlight **Wind Direction**, then use the ← and → keys to scroll through the selections.

Use the ↑ and ↓ arrow keys to highlight **Dispersion**, then use the ← and → keys to scroll through the selections.

Use the ↑ and ↓ arrow keys to highlight **Ballistics**, then use the ← and → keys to scroll through the selections.

Use the ↑ and ↓ arrow keys to highlight **Practice**, then press the **ENTER** key.

|                |
|----------------|
| <b>Setup</b>   |
| Feedback       |
| Wind Strength  |
| Wind Direction |
| Dispersion     |
| Ballistics     |
| Practice       |

The Setup menu displays on the Big Screen.

The options are **On** or **Off**. Select **On** for this exercise. With **Feedback** set to the **On** position, the target will be displayed at the top of the lane so that the shooter can see where he/she is hitting.

This option allows you to indicate wind strength (how hard the wind is blowing) to the computer. The choices are **0mph, 5mph, 10mph, 15mph, 20mph, 25mph, or 30mph**. For this exercise, use the ← and → keys to display **0mph** (do not press **ENTER**), then go to the next step.

The selections for Wind Speed are >>> or <<<. Since you selected **0mph** for wind speed, it does not make any difference which direction you select for wind direction. If wind speed were other than **0mph**, then you would have to select either <<< or >>> to tell the computer how to calculate the wind effect.

The only options are **On** or **Off**. Dispersion is automatically calculated by the computer if the selection is **On**.

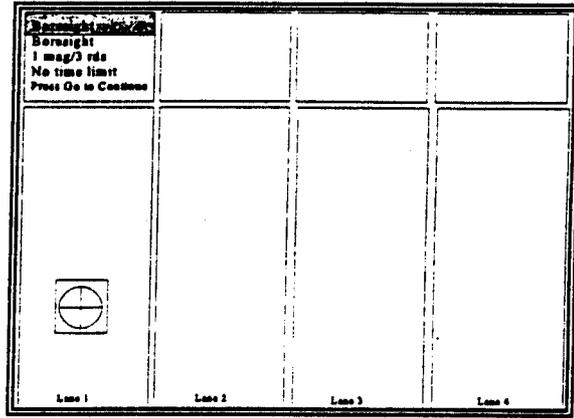
The options are **On** or **Off**. The ballistics are automatically calculated by the computer if the selection is **On**.

|                         |
|-------------------------|
| <b>Practice</b>         |
| (-->) Next Practice     |
| (<--) Previous Practice |
| (Quit) Exit             |
| (Go) Continue           |

|            |
|------------|
| Practice 1 |
|------------|

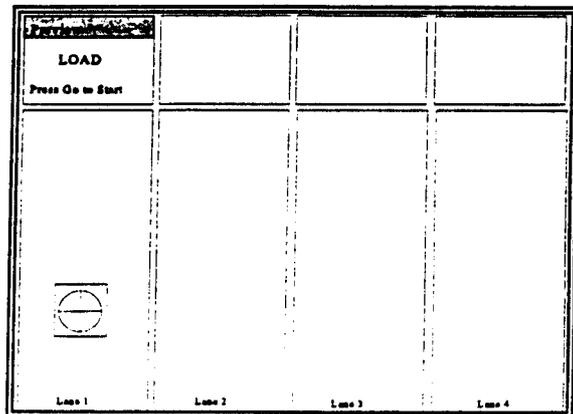
## Work Sheet 3-1

Use the → and ← arrow keys to scroll through the available selections of practice courses. The selected course is displayed in the box below the selection options. With Practice 1 displayed in the box, press the G key to load the course.



The course displays with the course description in the command box.

Have the trainee load the weapon.



The LOAD reminder displays in the command box.

After the shooter has put the magazine in, pulled the slide back and released it, you will start the training. Press the G key to run the course.

This action starts the ITS training. As the instructor, you can perform certain options at the PC.

Use the mouse to move the pointer on the PC display over the box which says **Zoom UP**, and click the right mouse button.

This action initiates the zoom function.

Use the mouse to move the pointer over the Lane 1 display and click the right mouse button.

This action zooms in on the number one lane so that the target appears larger as shown in the figure below. This feature allows you to see the hits more clearly.

Use the mouse to move the pointer on the PC display over the box which says **Target**, and click the right mouse button.

This action returns you to the normal size target display.



## Work Sheet 3-1

Press the G key.

**NOTE:** The course automatically replays when the course is completed. When the replay is complete, the Results menu displays.

|               |
|---------------|
| Results       |
| Replay        |
| Analysis      |
| Continue      |
| Repeat        |
| Select course |
| Print         |
| Auto zero     |
| Manual zero   |

On the Results menu, use the ↑ and ↓ arrow keys to highlight **Replay**, then press the **ENTER** key.

This action replays the course just fired showing the shots on a closeup view located at the bottom of the screen. This feature is useful in showing the shooter where each shot hit in the order it was fired. After the course is complete, the Result Menu will be active again.

Use the ↑ and ↓ arrow keys to highlight **Analysis**, then press the **ENTER** key.

This action brings up the Analysis menu on the Big Screen as shown in the figure below.

|                   |
|-------------------|
| Analysis          |
| Trace             |
| Profile           |
| Group             |
| MPI               |
| Drop Shots        |
| Add Shots         |
| Trace Print       |
| Enter to Continue |

Use the ↑ and ↓ arrow keys to highlight **Trace**, then press the **ENTER** key.

This action brings up the Shot # menu as shown in the figure below.

|                 |
|-----------------|
| Trace           |
| (-->) Next Shot |
| (<--) Prev Shot |
| (Quit) Exit     |
| (Go) Start      |
| Shot #          |

Use the - key to scroll through the shot selections.

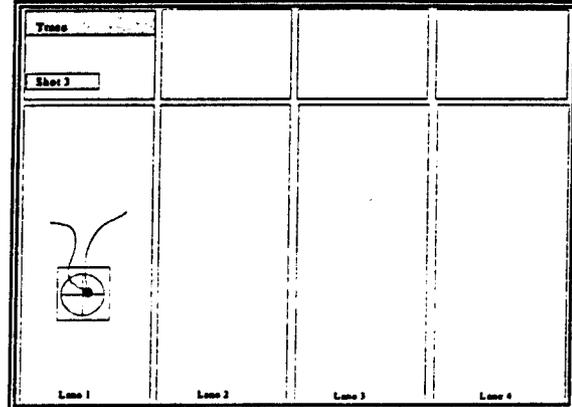
Leave shot 3 displayed in the Shot # box.

**Work Sheet 3-1**

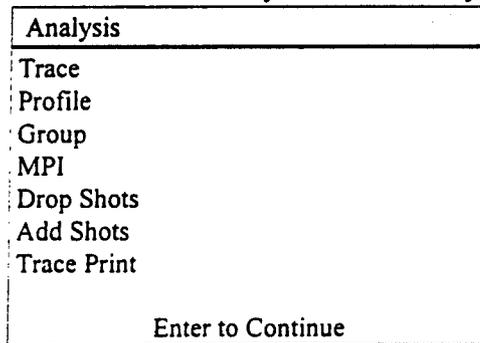
Press the G key.

A line is drawn on the screen in three colors. This line shows where the Trainee was aiming before and just after the third shot. The three line colors are green for the 5 seconds before the shot, purple from the shot until .2 seconds after the shot, and blue for .2 until 1.8 seconds after the shot. A red cross displays where the shot is. These lines are useful in determining if there is a problem that the Trainee should correct. Review any or all of the shots, then perform the next step.

Press the Q key.

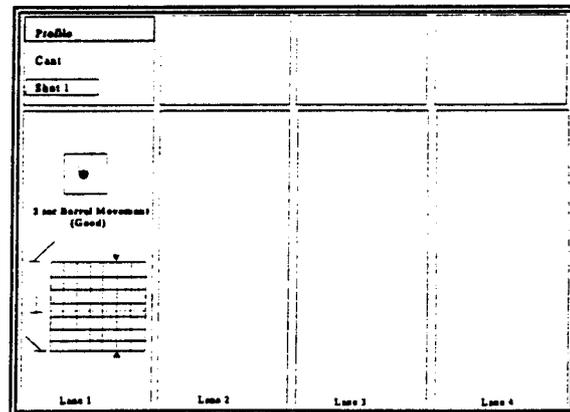


This action returns you to the Analysis menu.



Use the ↑ and ↓ arrow keys to highlight Profile, then press the ENTER key.

**NOTE:** This information is only available for weapons equipped with sensors to detect cant.



The Cant screen displays on the big screen for the shot selected.

Press the Q key.

This action returns you to the Analysis menu.

|                   |
|-------------------|
| <b>Analysis</b>   |
| Trace             |
| Profile           |
| Group             |
| MPI               |
| Drop Shots        |
| Add Shots         |
| Trace Print       |
| Enter to Continue |

Use the ↑ and ↓ arrow keys to highlight **Group**, then press the ENTER key.

|                    |
|--------------------|
| <b>Group</b>       |
| (Up) Circles on    |
| (Down) Circles off |
| (Go) Start         |
| Group Size         |

Use the ↑ and ↓ arrow keys to turn on and off the shot circles on the display.

Press the G key to display the shot group.

|   |        |        |        |  |
|---|--------|--------|--------|--|
| <b>Group</b>  |        |        |        |  |
| (Up) Circles on   |        |        |        |  |
| (Down) Circles off  |        |        |        |  |
| (Go) Start  |        |        |        |  |
| <b>Group Size</b>   |        |        |        |  |
|  |        |        |        |  |
| Group Size X.X cm   |        |        |        |  |
| Lane 1  | Lane 2 | Lane 3 | Lane 4 |  |

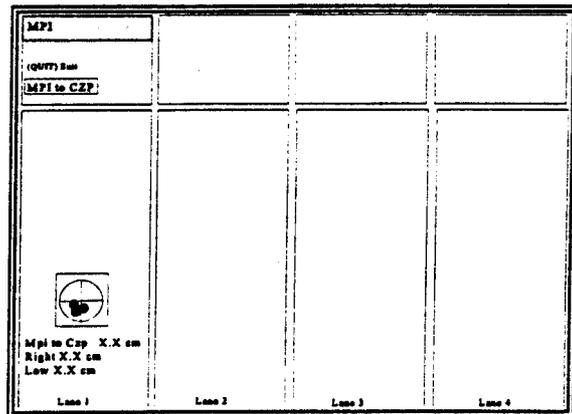
Press the Q key.

|                   |
|-------------------|
| <b>Analysis</b>   |
| Trace             |
| Profile           |
| Group             |
| MPI               |
| Drop Shots        |
| Add Shots         |
| Trace Print       |
| Enter to Continue |

This action returns you to the Analysis menu.

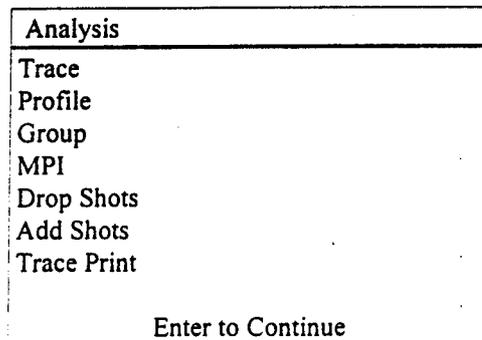
## Work Sheet 3-1

Use the ↑ and ↓ arrow keys to highlight MPI, then press the ENTER key.



Use the information displayed to correct Main Point of Impact (MPI) to the Correct Zero Point (CZP).

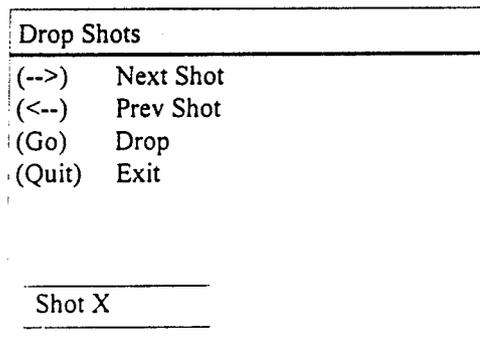
Press the Q key.



This action returns you to the Analysis menu.

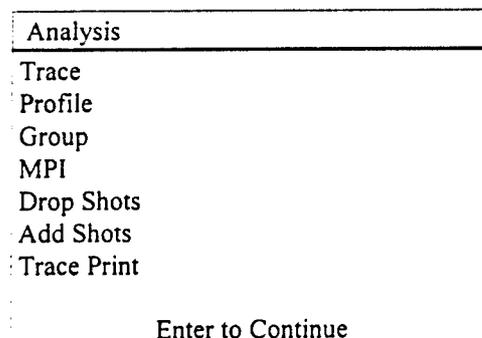
Use the ↑ and ↓ arrow keys to highlight Drop Shots, then press the ENTER key.

The Drop and Add Shots options provide a means of viewing the group characteristics with and without a stray or random shot.



Use the ↑ and ↓ arrow keys to select a shot to remove from the group, and press the G key to drop the shot. Add shot works the same way to add shots removed from the group.

Press the Q key.



## Work Sheet 3-1

Press the Q key.

Use the ↑ and ↓ arrow keys to highlight **Auto Zero**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Continue**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Repeat**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Print**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Select Course**, then press the **ENTER** key. Use this option to change courses. For this exercise you do not need to run another course.

Press the Q key.

| Results       |
|---------------|
| Replay        |
| Analysis      |
| Continue      |
| Repeat        |
| Select course |
| Print         |
| Auto zero     |
| Manual zero   |

This action returns you to the Results menu.

This action tells the computer to zero by using the shot group the Trainee just fired. To zero manually, select **Manual Zero** to display the adjustments.

This action brings up the Load Weapon prompt again; only this time, the course uses the correction from the zeroing you just performed. The course runs the same way, and when it is finished, the Results menu displays.

This action repeats the course again.

This action prints the results of this course session for the trainee or for the instructor's use.

| Course Select |
|---------------|
| Rifle         |
| Pistol        |
| Machine gun   |

Enter to Continue

This action brings up the Course Select menu as shown in the figure above.

| Main Menu    |
|--------------|
| Weapon       |
| Select Stage |

Enter to Continue

This action displays the Main Menu.

## Work Sheet 3-1

You have covered the Big Screen menus, but there are a few more options on the PC display that this exercise will cover. Use the mouse to move the pointer on the PC display over the box which says **Weapon Status**, and click the right mouse button.

| HELP                 | Weapon Status | Target            | Course Status | Zoom Up | Trace |
|----------------------|---------------|-------------------|---------------|---------|-------|
| Cant                 | 0             |                   |               |         |       |
| Butt pressure        | 0             |                   |               |         |       |
| Dust cover           | Close         |                   |               |         |       |
| Rounds left          | 0             |                   |               |         |       |
| Magazine in          | No            |                   |               |         |       |
| Hammer cocked        | No            |                   |               |         |       |
| Bolt forward         | No            |                   |               |         |       |
| Chamber loaded       | No            |                   |               |         |       |
| Automatic            | No            |                   |               |         |       |
| Safety on            | yes           |                   |               |         |       |
| Cant                 |               |                   |               |         |       |
| Butt pressure        |               |                   |               |         |       |
| Dust cover           |               |                   |               |         |       |
| Rounds left          |               |                   |               |         |       |
| Magazine in          |               |                   |               |         |       |
| Hammer cocked        |               |                   |               |         |       |
| Bolt forward         |               |                   |               |         |       |
| Chamber loaded       |               |                   |               |         |       |
| Automatic            |               |                   |               |         |       |
| Safety on            |               |                   |               |         |       |
| LANE CONTROL 1 2 3 4 |               | ESC Previous Menu |               |         |       |

This action displays the weapons status of all four lanes on the PC as shown in the figure above. Note all the items checked. Cant and Butt pressure are not used with this system because there are no special sensors on the weapons to gather this information.

Use the mouse to move the pointer on the PC display over the box which says **Course Status**, and click the right mouse button.

| HELP                 | Weapon Status | Target            | Course Status | Zoom Up | Trace |
|----------------------|---------------|-------------------|---------------|---------|-------|
| Course ID            | Unknown       |                   |               |         |       |
| Shots allowed        | 0             |                   |               |         |       |
| Shots fired          | 0             |                   |               |         |       |
| Shots hit            | 0             |                   |               |         |       |
| Shots score          | n/a           |                   |               |         |       |
| Wind (mph)           | 0             |                   |               |         |       |
| Wind Dir             | 0900          |                   |               |         |       |
| Keypad Status        | unlocked      |                   |               |         |       |
| Course ID            |               |                   |               |         |       |
| Shots allowed        |               |                   |               |         |       |
| Shots fired          |               |                   |               |         |       |
| Shots hit            |               |                   |               |         |       |
| Shots score          |               |                   |               |         |       |
| Wind (mph)           |               |                   |               |         |       |
| Wind Dir             |               |                   |               |         |       |
| Keypad Status        |               |                   |               |         |       |
| LANE CONTROL 1 2 3 4 |               | ESC Previous Menu |               |         |       |

You will now see the Course Status display on the PC as shown in the figure above. Again, note all the items listed. Keypad Status is not used with the ISMT.

**NOTE:** These two PC displays may be used at any time to get a snapshot of the ISMT's status.

## Work Sheet 3-1

Press the ESC key to display the ITS Training menu.

There is another option on this menu called Instructor Authored Courses. Since you have not yet authored a course, this exercise does not go through this option. The structure of the training is basically the same.

Use ARROW Keys to Select, then Press ENTER

ITS Training

1. USMC Markmanship Courses
2. Instructor Authored Courses

MAIN MENU  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  ESC Previous Menu  ↑↓Space Move Bar  ENTER Select

Press the ESC key to return to the Main Menu.

Use ARROW Keys to Select, then Press ENTER

MAIN MENU

1. Daily Operational Readiness Test (DORT)
2. System Setup
3. Student Registration
4. Weapon Configuration
5. ITS Training
6. ITS Training 2
7. Collective Training
8. Database
9. Authoring
10. DOS Shell

MAIN MENU  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  ESC Previous Menu  ↑↓Space Move Bar  ENTER Select

This completes Work Sheet 3-1.

# ITS TRAINING 2 AND COLLECTIVE TRAINING

## Introduction

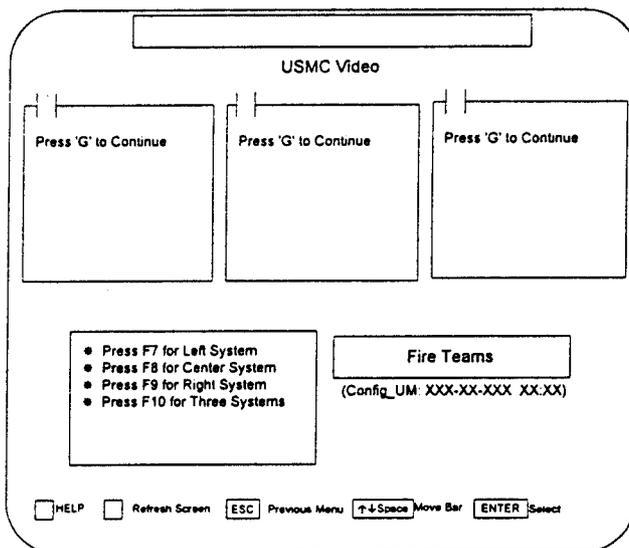
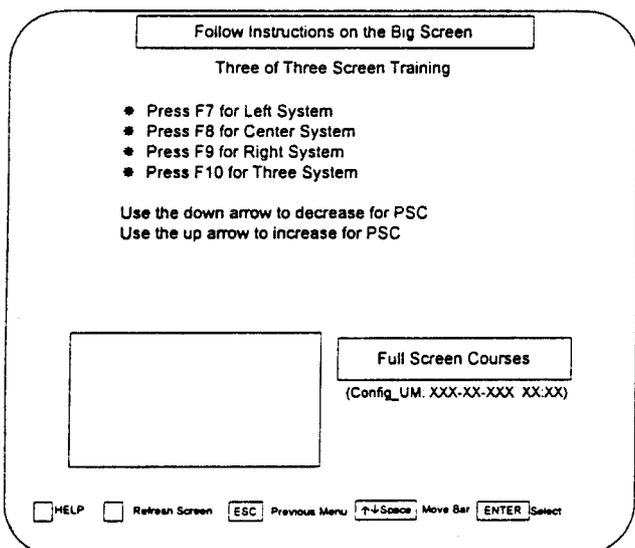
This Assignment Sheet covers Learning Objective 3-2 (Demonstrate the ability to conduct ITS Training 2 on the ISMT) and 3-3 (Demonstrate the ability to conduct Collective training on the ISMT). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to conduct effective ITS 2 and Collective training on the ISMT.

## Capabilities

ITS 2 and Collective operation are defined as full screen marksmanship, shoot/no-shoot, and combat scenarios training. Any of the eleven weapons available for use with the system may be used. Weapons may be fired at any target displayed anywhere on the screen. ITS 2 and Collective training are often referred to as full screen mode.

In ITS 2 marksmanship training, the targets consist of animated video targets. In ITS 2 shoot/no-shoot scenarios, targets consist of individuals who present a potential life-threatening situation. In ITS 2 combat and Collective training scenarios, targets consist of enemy personnel and equipment. The ISMT and IST systems track which position fired a round at a screen location and provide feedback either during the scenario or after it finishes. This feedback enables the trainer and trainees to analyze the firing decisions and marksmanship of each individual firing position.

When the system is configured for an IST, as the instructor you have the option of using any one or all three screens. Care must be used when not utilizing all three PSCs, as the system may lose sync with one or more PSCs when using only one system. If this happens, try to deselect the out-of-sync system and bring the other system(s) to the same menu or display as the out-of-sync system is displaying. Then reselect all systems. This should bring the IST back into sync.



To prevent the systems from losing sync, select a system, or all three systems, on which to run the course. Do not press the F7 - F10 keys again until you completely back out of the course and all three screens are displaying the same thing.

## Realism

Using the ISMT, realistic training can be conducted for one to four trainees at a time with ITS 2 and Collective training. Using the IST, one to twelve trainees (an entire squad) can be trained at a time with ITS 2 and Collective training. Factors controlled by the computer and instructor allow for jammed weapons, weather effects, poor to excellent lighting, night vision scenarios, antipersonnel, antitank, or combinations of all of these factors in combat scenarios. Shoot/no-shoot scenarios challenge the trainees to develop their decision-making process concerning the use of deadly force. Both types of training, when used properly, should enhance the trainees' marksmanship abilities. By accurately simulating many different types of environments, the IST and ISMT expose the trainee to different combat or other life-threatening situations which will lead to improved marksmanship and decision-making.

Using the night vision assembly with ITS 2 and Collective Training alters the projected image so that standard night vision sights/devices must be used to see the courses. Personnel not using image-enhancing devices cannot see the projected image when the night vision training device is used. The Night Vision Assembly is a physical filter which easily fits over the lens of the projector. This is especially valuable in safely training personnel in the use of night vision equipment in a combat scenario.

## Conducting the Training

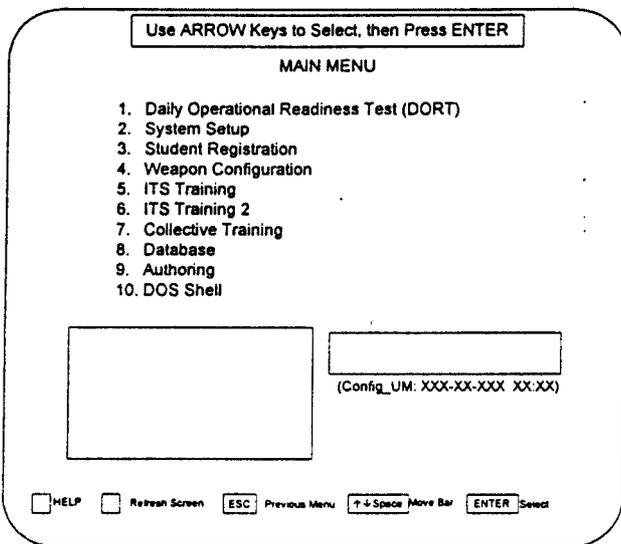
Any of the courses available for the IST/ISMT are available for use in the night vision mode. To conduct training in the night vision mode, place the Night Vision Assembly over the lens of the projector and attach the Night Vision Lens Cover to each AN/PVS-4 being used. The lens cover will prevent the lasers from "splashing" when the AN/PVS-4 is being used. All other functionality is the same as for any other course.

The associated Work Sheets will walk you through a simple training session, but in order to challenge trainees, you will have to develop your skills at administering ITS 2 and Collective training. It is also essential that you know how to analyze the results from the training. ITS 2 and Collective training offer several analysis tools for you to use. This Handbook does not explain how to interpret the results presented by these tools, but the Work Sheets will walk you through displaying the results with the analysis tools provided by the system. With the proper use of the tools available under ITS 2 and Collective training, a trainee should be able to become proficient in combat marksmanship with any of the eleven different weapons available on the system. To fully understand and utilize the system's capabilities, you must practice, practice, practice.

## ITS TRAINING 2

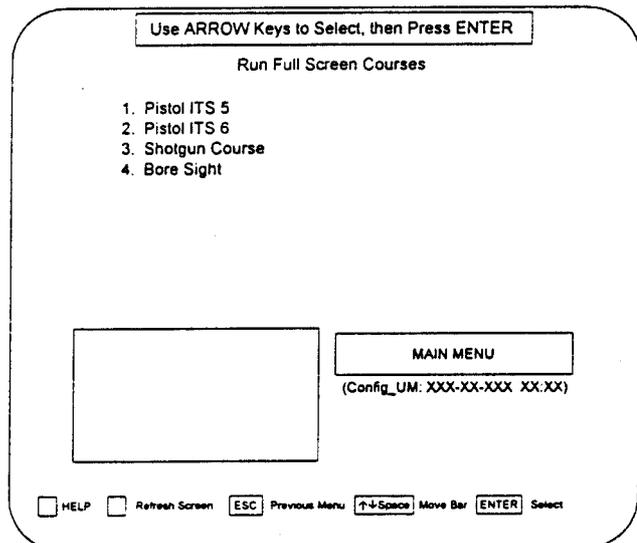
This Work Sheet covers Learning Objective 3-2 (Demonstrate the ability to conduct ITS Training 2 on the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available while conducting ITS Training 2. Before beginning this Work Sheet you must have already performed Work Sheets 1-3, 1-4, 1-5, 1-6, 2-1, 2-2, and 3-1. For the purpose of this Work Sheet, you need only a single pistol registered. To conduct all types of ITS Training 2, you will need other weapons to be registered. The procedures are very similar, and you should not have any difficulty performing other types of ITS Training 2 (other weapons) not covered in this Work Sheet. To conduct training in the night vision mode, place the Night Vision Assembly over the lens of the projector and attach the Night Vision Lens Cover to each AN/PVS-4 being used. All other functionality in Night Vision Mode works the same as the course you will perform in this Work Sheet.

### ACTION



From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **ITS Training 2**, then press the **ENTER** key.

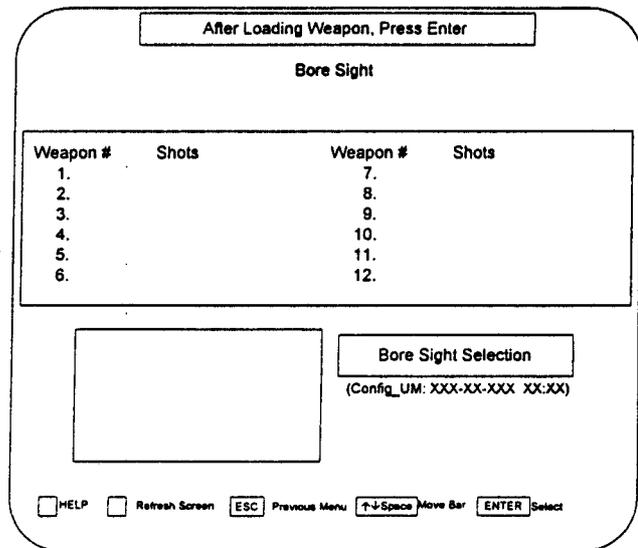
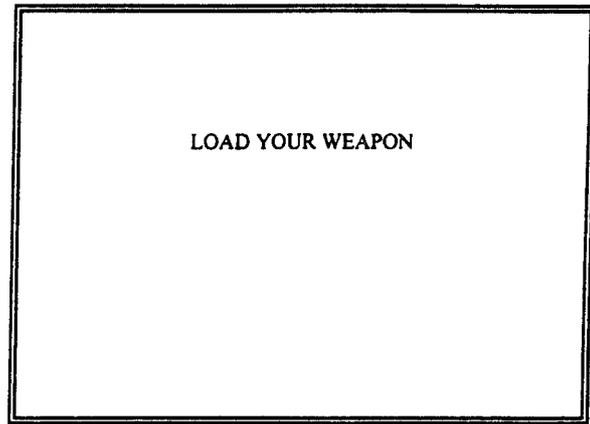
### RESULTS AND COMMENTS



This action brings up the ITS 2 menu on the PC display as shown in the figure above.

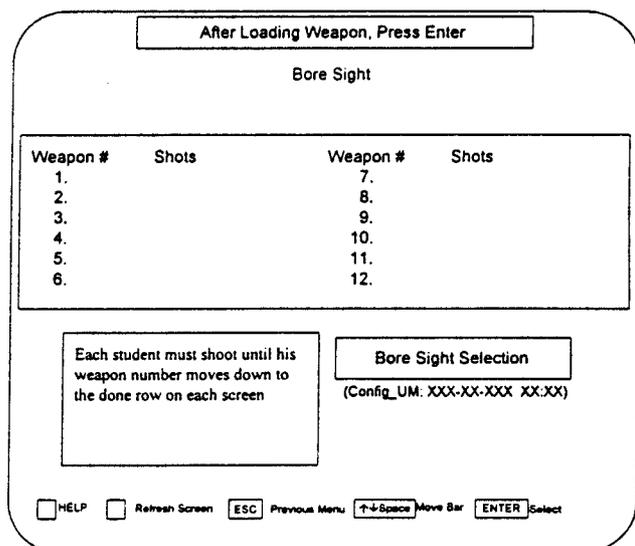
## Work Sheet 3-2

Use the ↑ and ↓ arrow keys to highlight **Bore Sight**, then press the **ENTER** key.

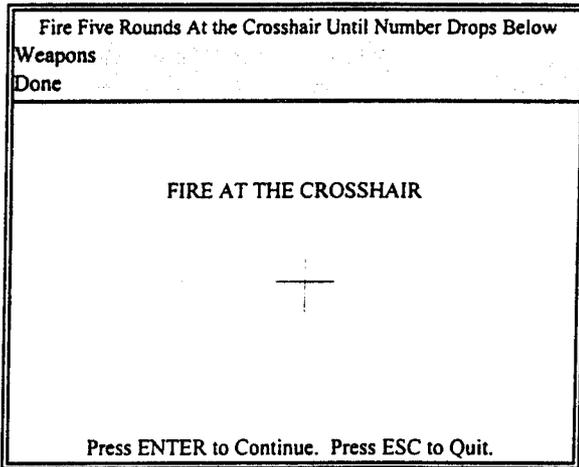


The Bore Sight screen displays on the PC.

When all positions have loaded their weapons, press the **ENTER** key.

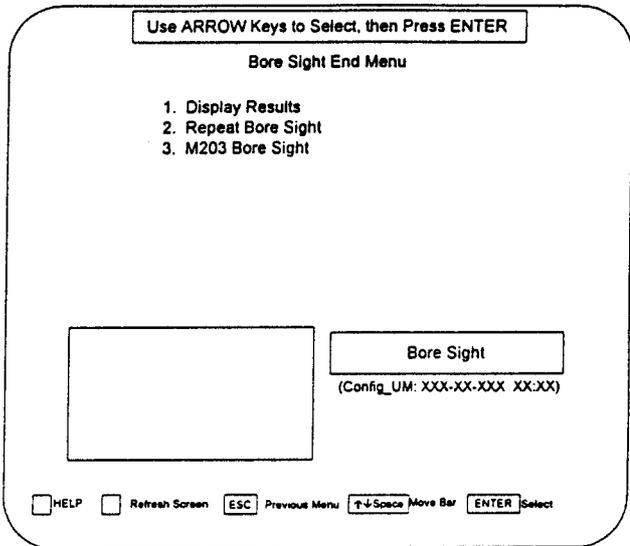


The PC screen displays instructions in the system box.



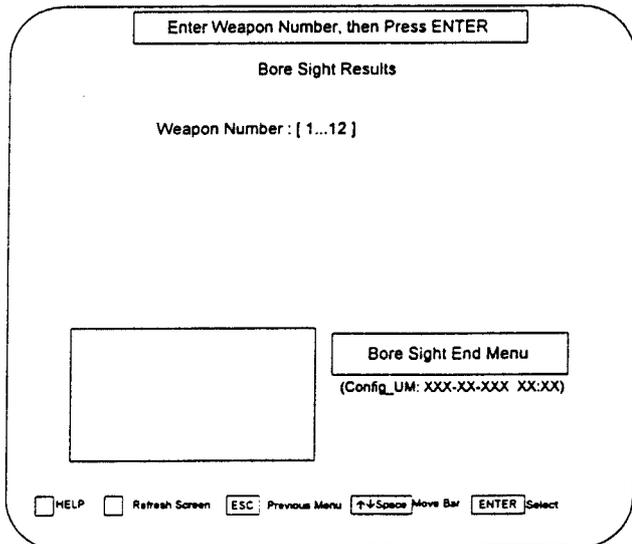
The Big Screen changes to look like the figure above.

When all students have fired five rounds at the crosshairs, press the **ENTER** key.



The PC screen displays the Bore Sight End Menu.

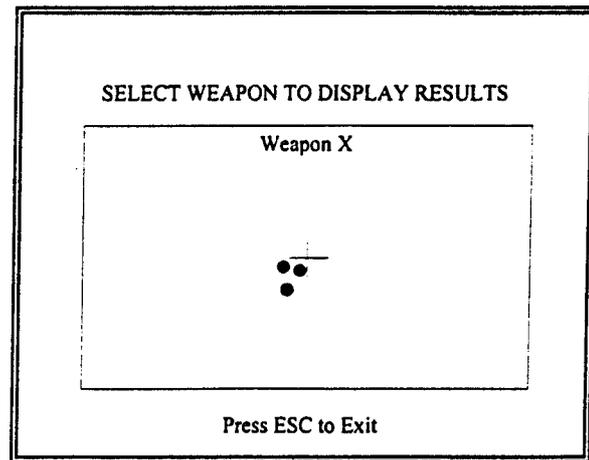
Use the **↑** and **↓** arrow keys to highlight **Display Results**, then press the **ENTER** key.



The PC screen displays the Bore Sight Results screen.

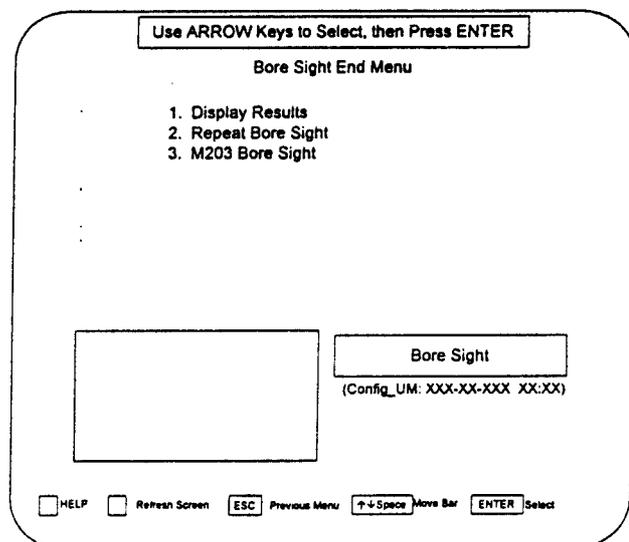
## Work Sheet 3-2

Type in the lane number (weapon number) for which you wish to see the results, then press the **ENTER** key.



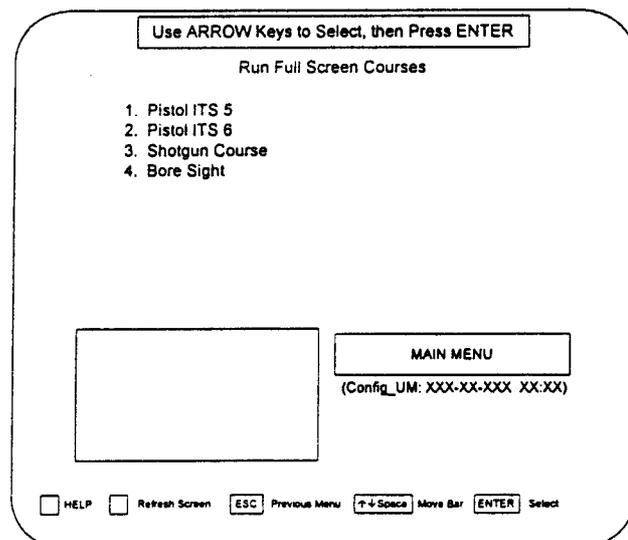
The Big Screen displays the results for the lane you entered.

Press the **ESC** key.



This action takes you back to the Bore Sight End Menu.

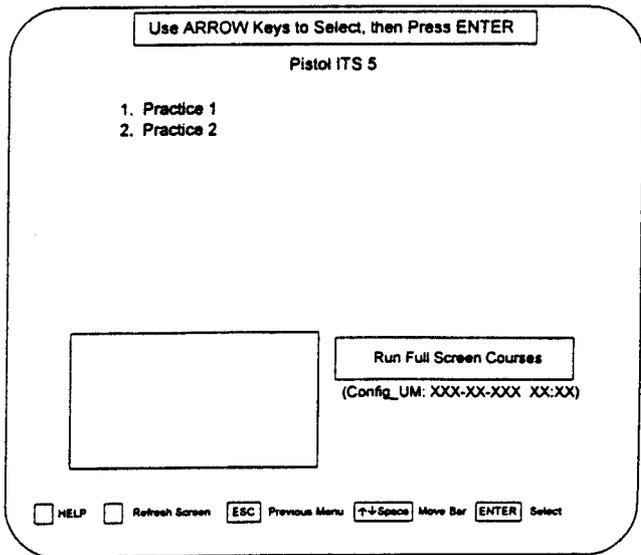
Press the **ESC** key.



This returns you to the Run Full Screen Courses screen.

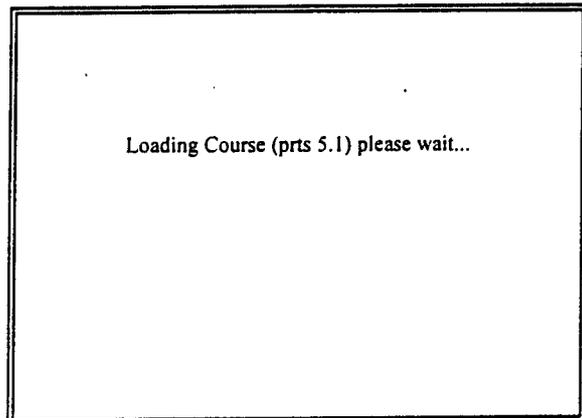
## Work Sheet 3-2

Use the ↑ and ↓ arrow keys to highlight **Pistol ITS 5**, then press the **ENTER** key.

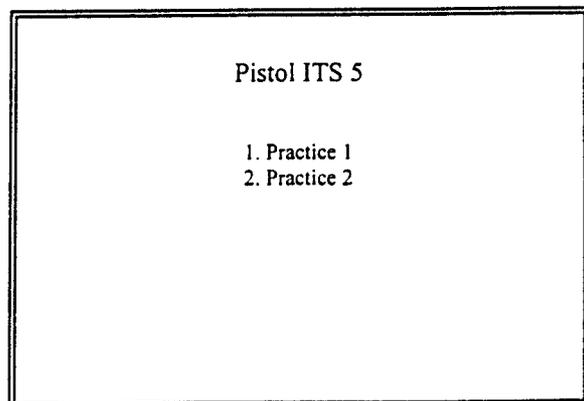


This action displays the pistol practice menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Practice 1**, then press the **ENTER** key.

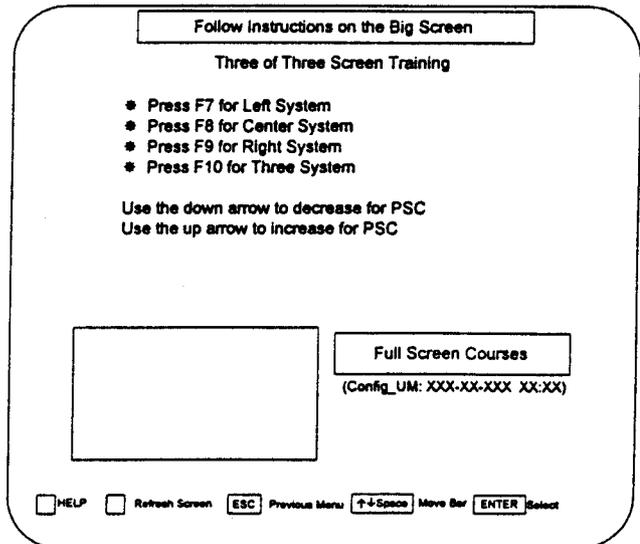


This action displays the message shown on the Big Screen for a few minutes, and then the Pistol ITS 5 menu displays as shown in the figure below.

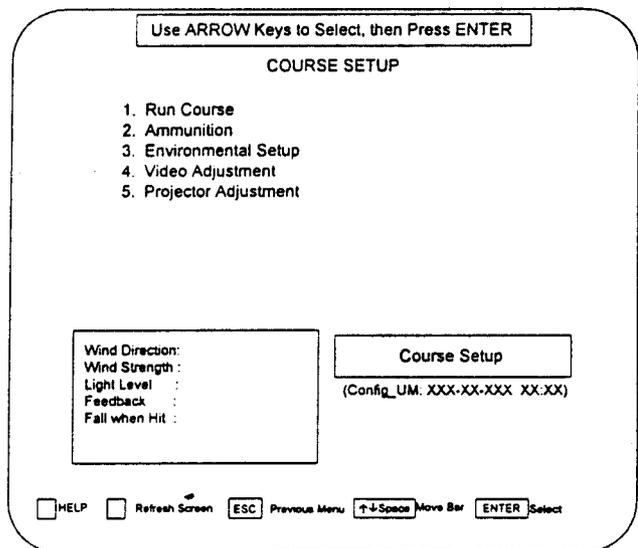
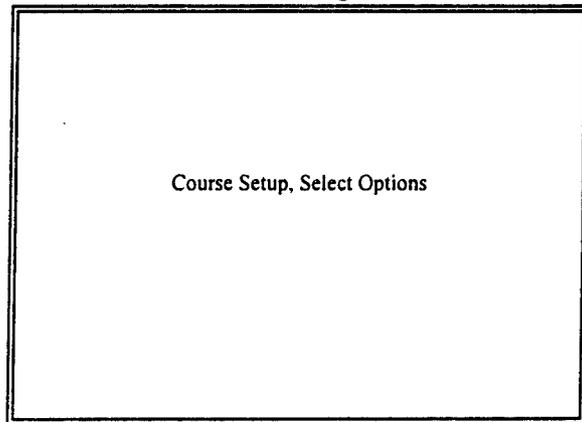


The continue menu on the PC display also comes up as shown in the figure below.

Press the F7 key to select the left screen.



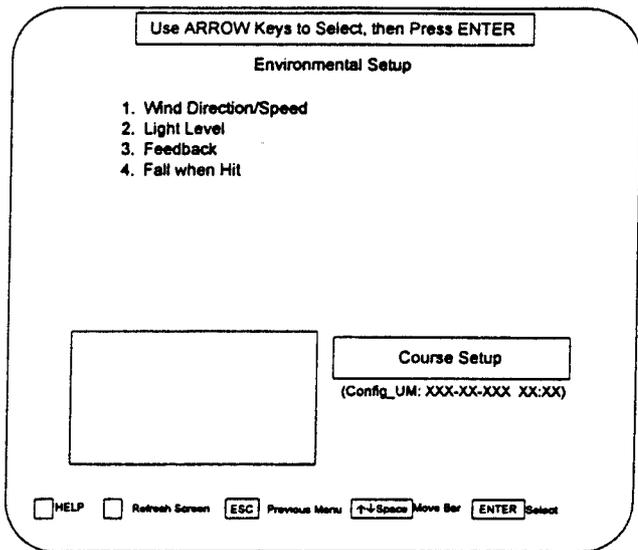
This action brings up the Course Setup menu on the Big Screen as shown in the figure below.



The Course Setup menu displays on the PC.

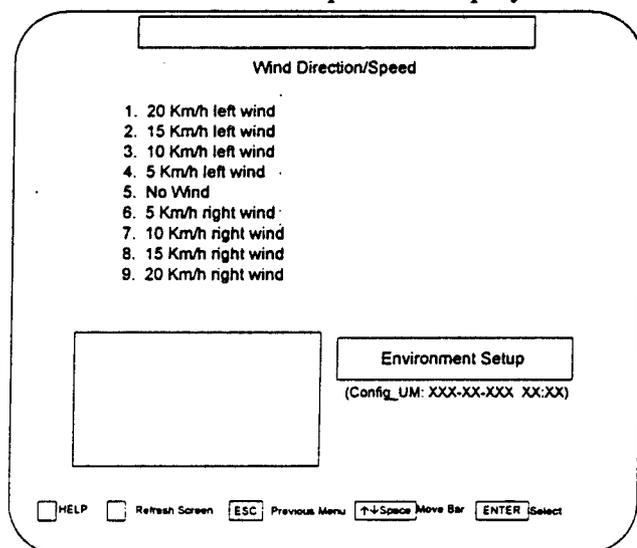
## Work Sheet 3-2

Use the ↑ and ↓ arrow keys to highlight **Environmental Setup** or press the 3 key, then press the ENTER key.



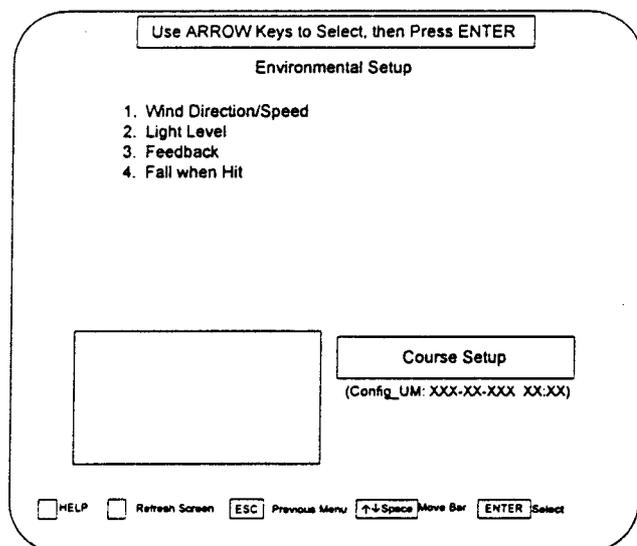
The Environmental Setup menu displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **Wind Direction/Speed** or press the 1 key, then press the ENTER key.



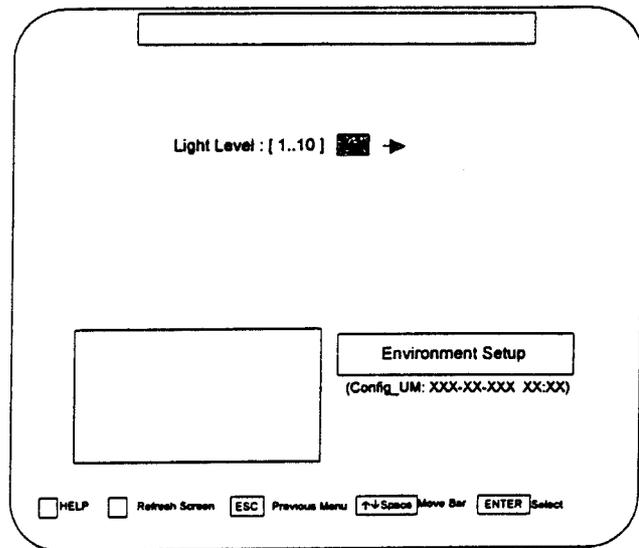
The Wind Direction/Speed menu displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **No Wind** or press the 5 key, then press the ENTER key. Return to the Environmental Setup screen.



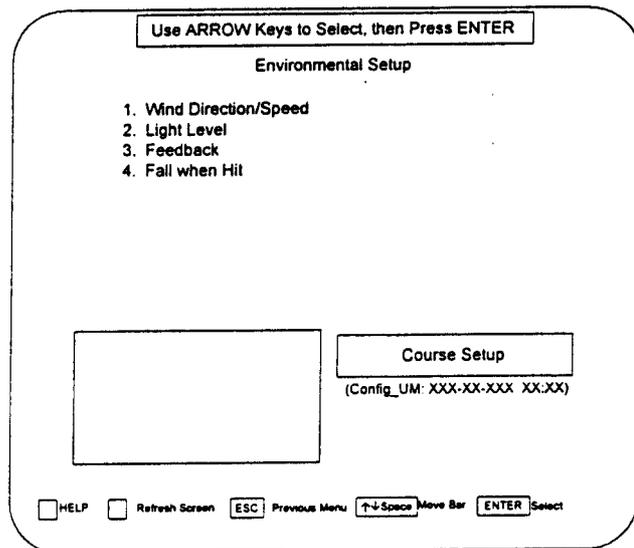
## Work Sheet 3-2

Use the ↑ and ↓ arrow keys to highlight **Light Level** or press the 2 key, then press the ENTER key.

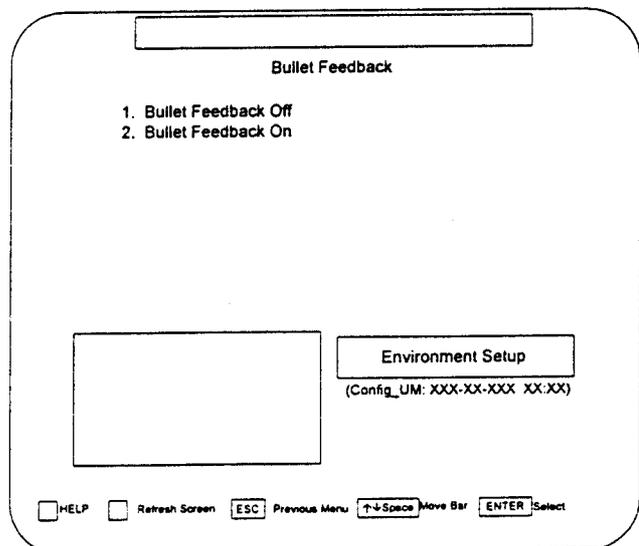


The Light Level screen displays on the PC. The grey box shows the current setting.

Press the 5 key to set the light level to 5 and return to the Environmental Setup screen.

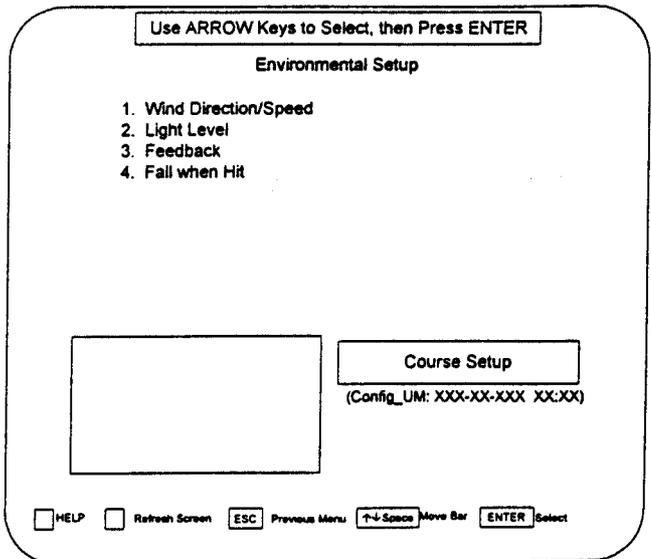


Use the ↑ and ↓ arrow keys to highlight **Feedback** or press the 3 key, then press the ENTER key to display the Bullet Feedback screen.



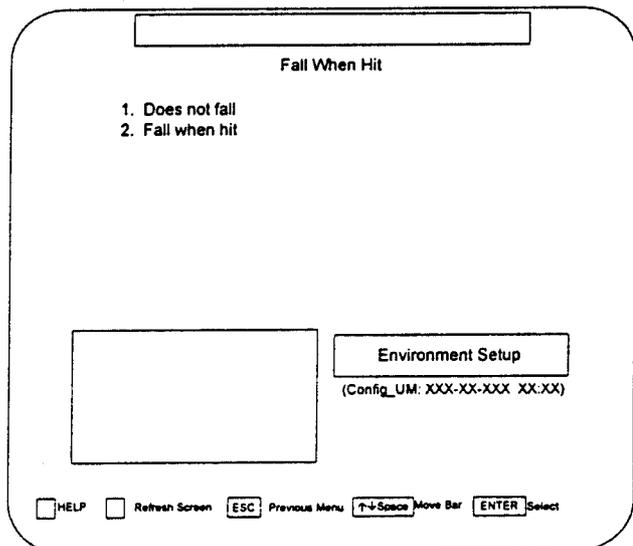
## Work Sheet 3-2

Use the ↑ and ↓ arrow keys to highlight **Bullet Feedback On** or press the 2 key, then press the ENTER key. Then return to the Environmental Setup screen.



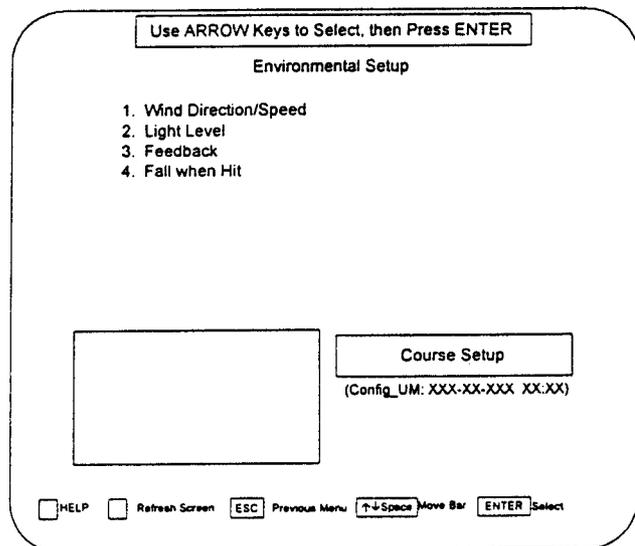
The Environmental Setup screen displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **Fall When Hit** or press the 4 key, then press the ENTER key.

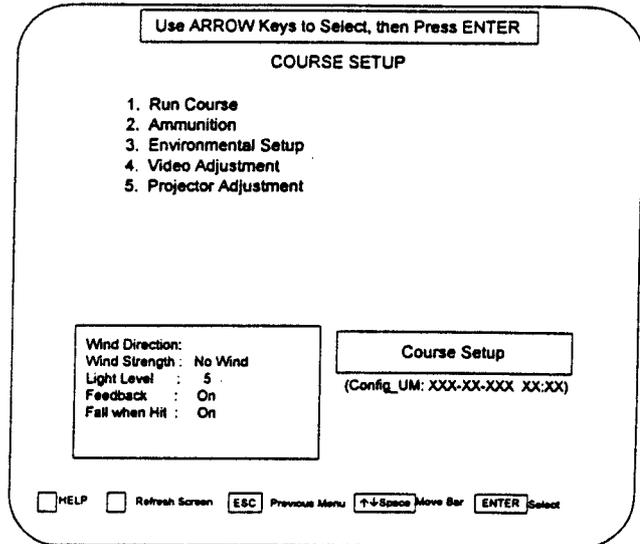


The Fall When Hit screen displays on the PC.

Press the 2 key to select Fall When Hit for targets that are set up for this capability. Then return to the Environmental Setup screen.

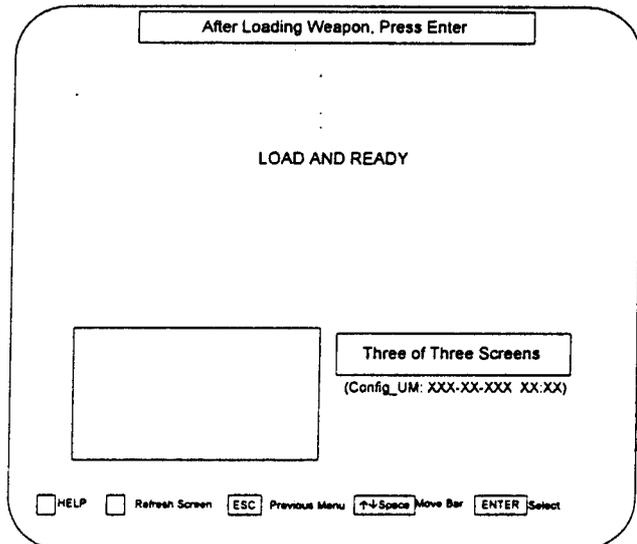


Press the ESC key.

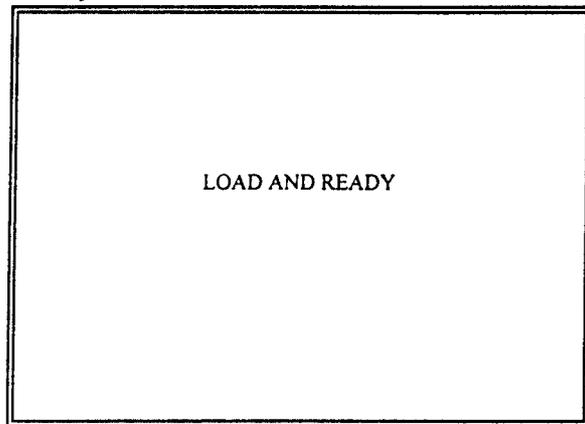


The Course Setup screen displays with your course settings in the box on the lower left of the PC screen.

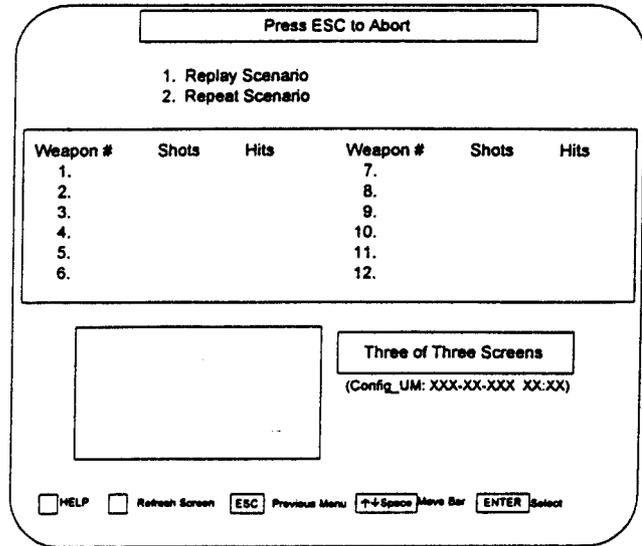
Use the ↑ and ↓ arrow keys to highlight Run Course, then press the ENTER key.



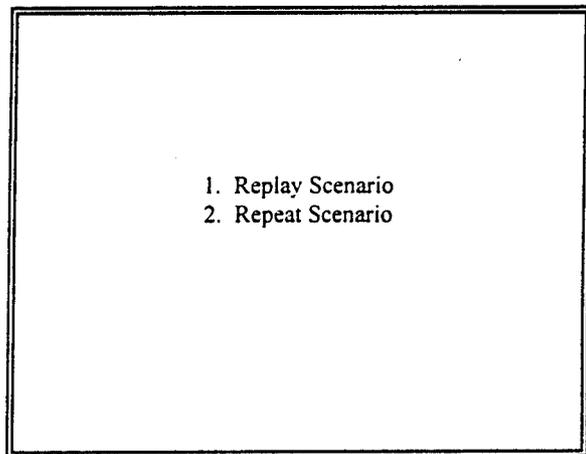
The PC screen and the Big Screen display the Load and Ready screen.



After all students have loaded and readied their weapons, press the **ENTER** key to start the course.



When the course is completed, the PC and the Big Screen change displays.



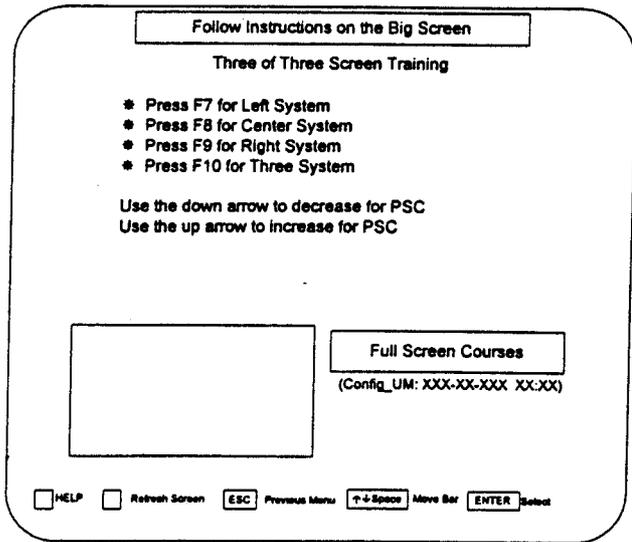
The Replay and Repeat Scenario screen displays.

View the results of the firing positions. If you need to examine the results further, use the **↑** and **↓** arrow keys to highlight **Replay Scenario**, then press the **ENTER** key. This shows the scenario that was just completed with the shots flashing on the screen.

Use the **↑** and **↓** arrow keys to highlight **Repeat Scenario**, then press the **ENTER** key to actually redo the scenario that was just completed.

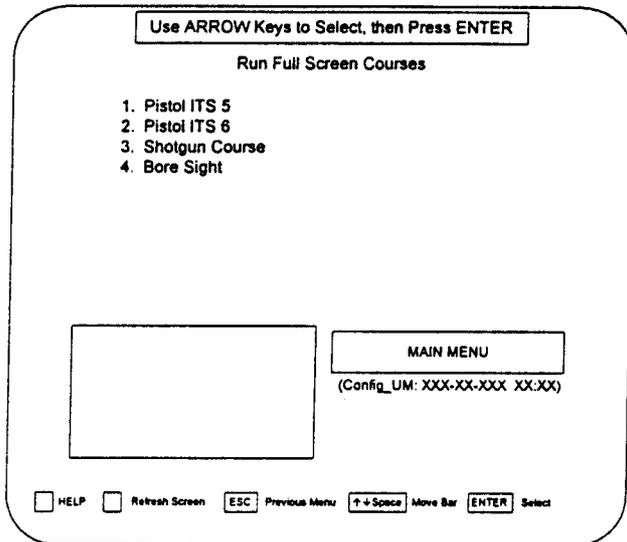
## Work Sheet 3-2

Press the **ESC** key to return to the Three of Three Screen Training screen.



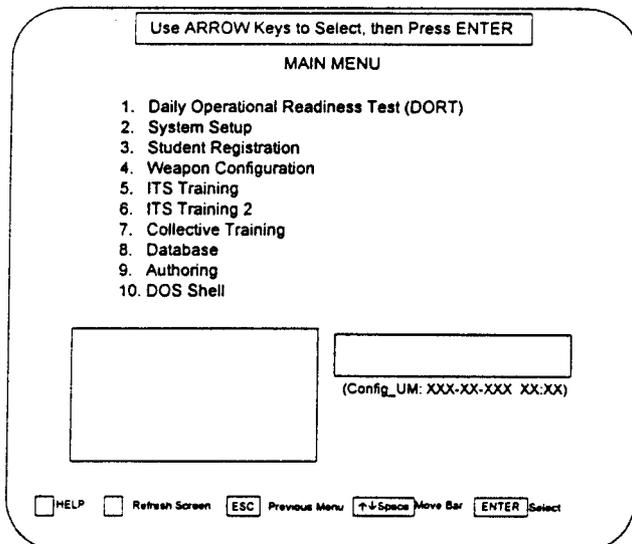
The Three of Three Screen Training screen displays.

Press the **ESC** key to return to the Run Full Screen Courses screen.



The Run Full Screen Courses screen displays.

Press the **ESC** key to return to the Main Menu.



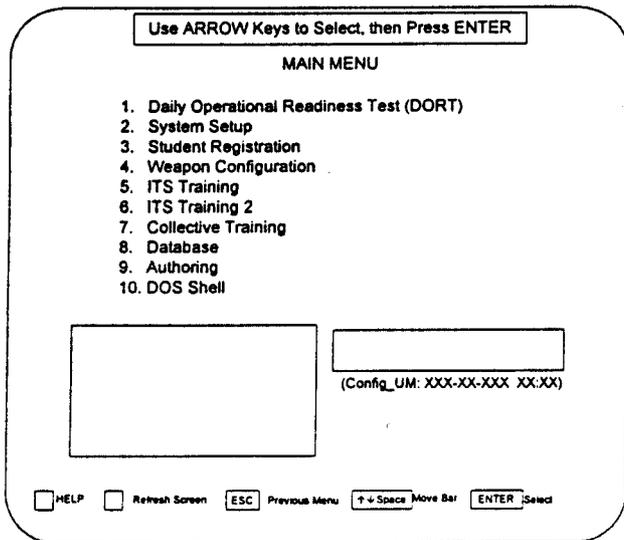
This completes Work Sheet 3-2.

# COLLECTIVE TRAINING

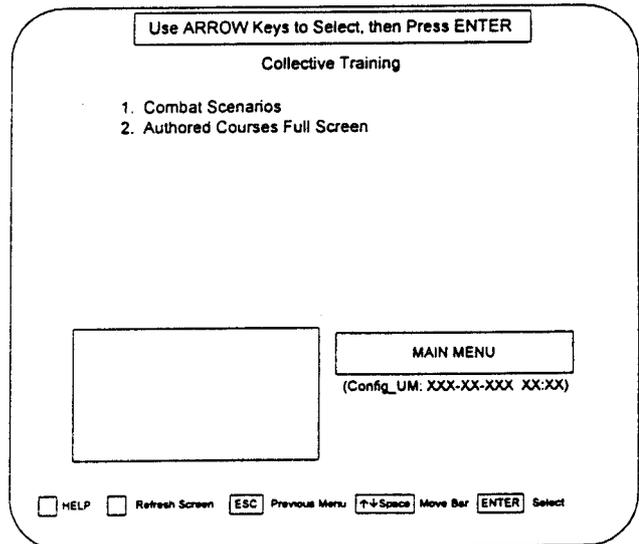
This Work Sheet covers Learning Objective 3-3 (Demonstrate the ability to conduct Collective training on the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available while conducting Collective training. Before beginning this Work Sheet you must have already performed Work Sheets 1-3, 1-4, 1-5, 1-6, 2-1, 2-2, 3-1, and 3-2. For the purpose of this Work Sheet, you need only a single M-16/M203 registered. To conduct all types of Collective training, you will need other weapons to be registered. The procedures are very similar, and you should not have any difficulty performing types of Collective training (other weapons) not covered in this Work Sheet.

## ACTION

## RESULTS AND COMMENTS



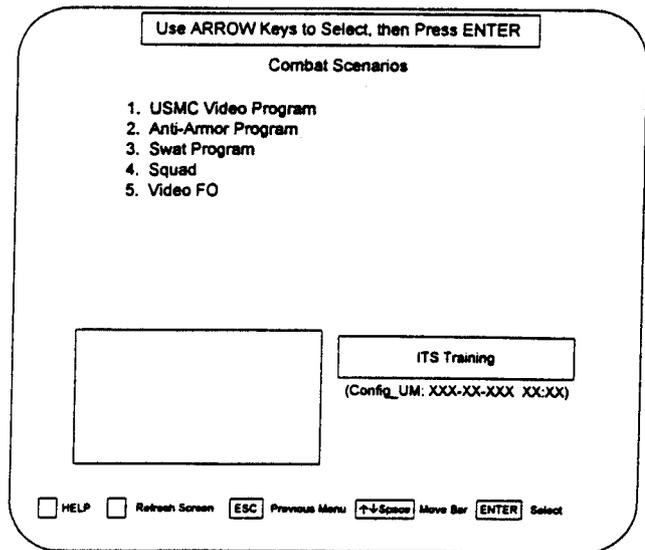
From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Collective Training**, then press the **ENTER** key.



This action brings up the Collective Training menu on the PC display as shown in the figure above.

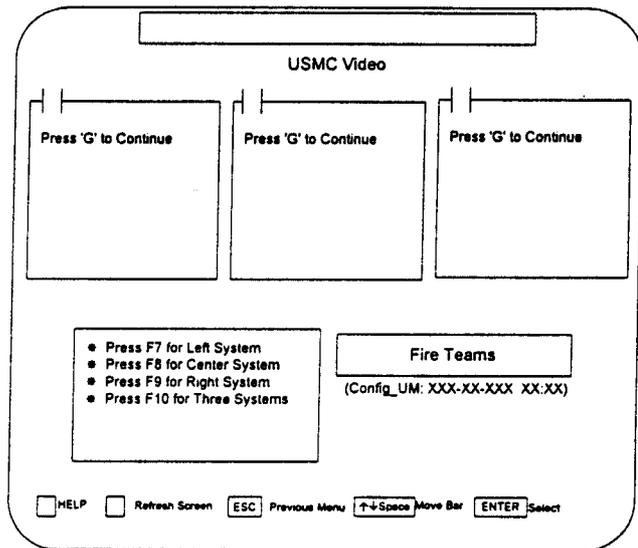
## Work Sheet 3-3

Use the ↑ and ↓ arrow keys to highlight **Combat Scenarios**, then press the **ENTER** key.

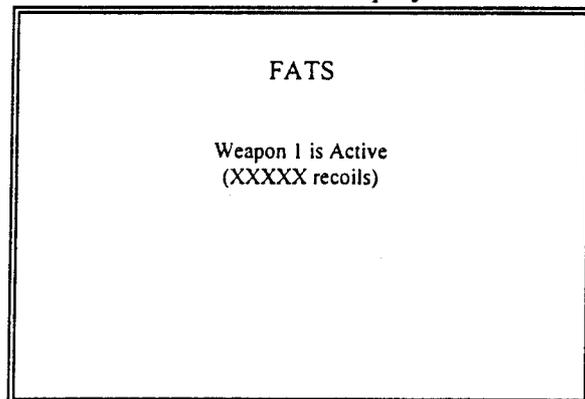


The Combat Scenarios screen displays on the PC and the Big Screen.

Use the ↑ and ↓ arrow keys to highlight **USMC Video Program**, then press the **ENTER** key.



The screen select screen displays on the PC.

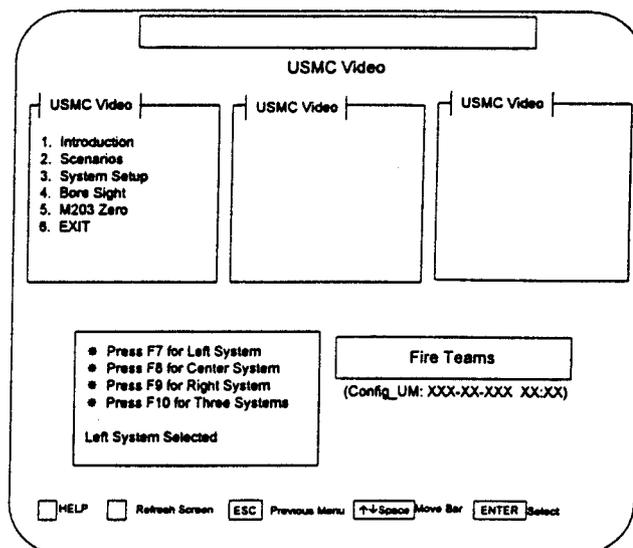


The FATS screen displays on the Big Screen.

## Work Sheet 3-3

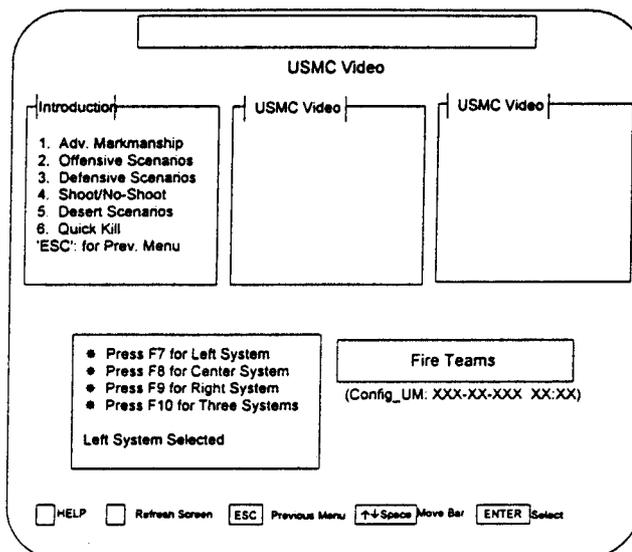
Press the **F7** key to select the left screen, then the **G** key to continue.

**NOTE:** The middle and right boxes of the PC and the middle and right Big Screens will not change because you have selected only the left screen. Any one or all three screens are run the same as the left screen is with this Work Sheet.



This action displays the USMC Video menu as shown in the figure above.

Use the **↑** and **↓** arrow keys to highlight **Introduction**, then press the **ENTER** key.



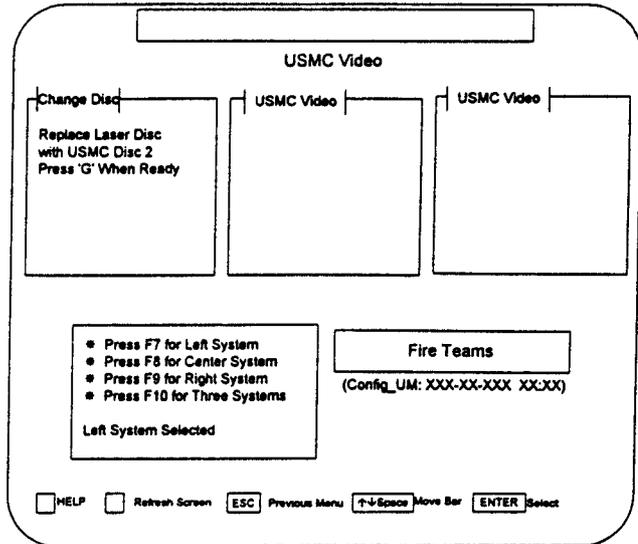
The Introduction menu displays on the PC.

Use the **↑** and **↓** arrow keys to highlight **Adv. Marksmanship**, then press the **ENTER** key.

This action runs an introduction video to the Collective Adv. Marksmanship training. After it finishes, the Big Screen returns to the FATS screen, and the PC continues to display the Introduction menu.

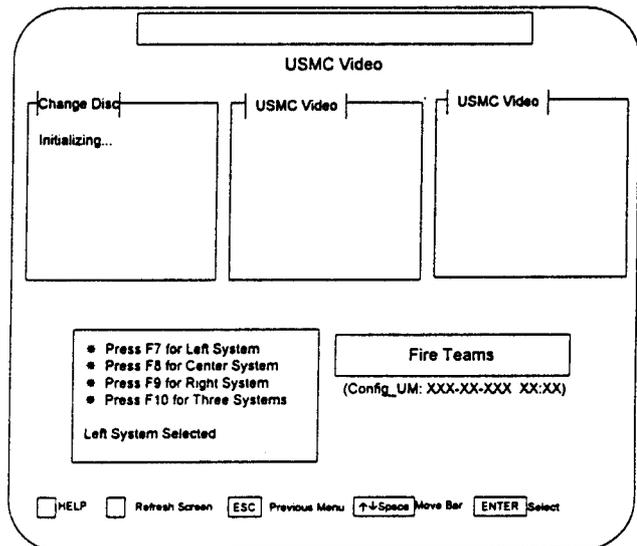
## Work Sheet 3-3

If the incorrect laser disc is in the LDP(s), you will need to load the correct discs.



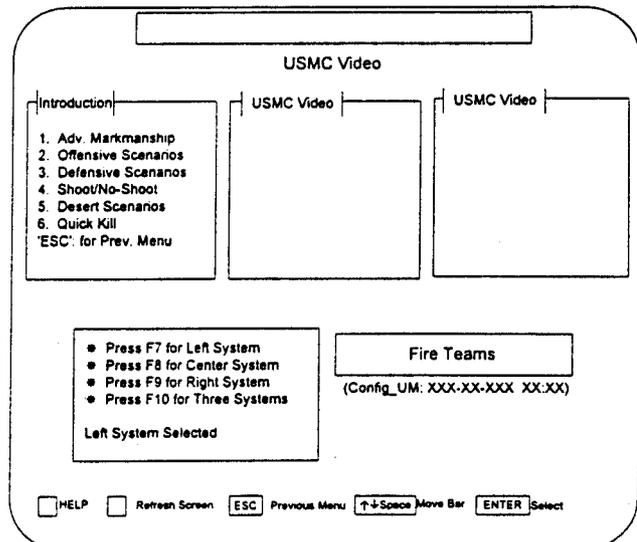
Replace the laser disc in the LDP with the requested disc.

After replacing the discs with the required discs, press the G key to continue.

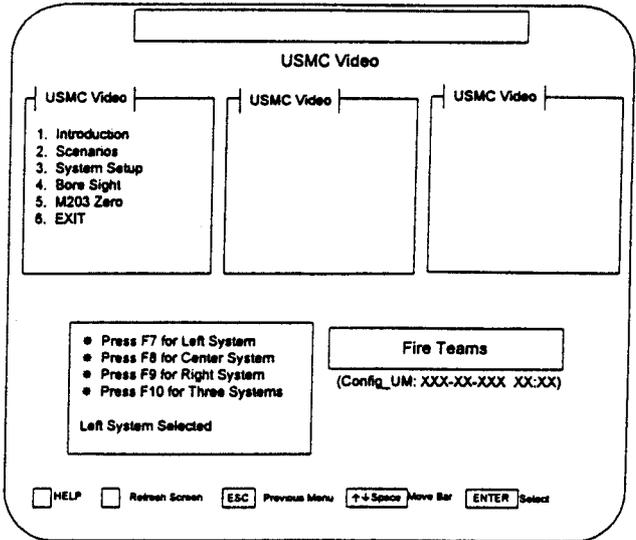


The Laser Disc initializes and then the introduction video to the Collective Adv. Marksmanship training runs.

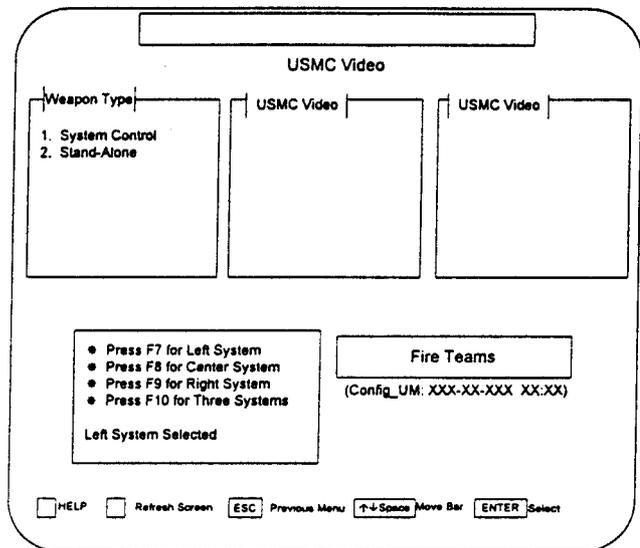
Press the ESC key.



This action brings up the USMC Video menu on the PC as shown in the figure at right.

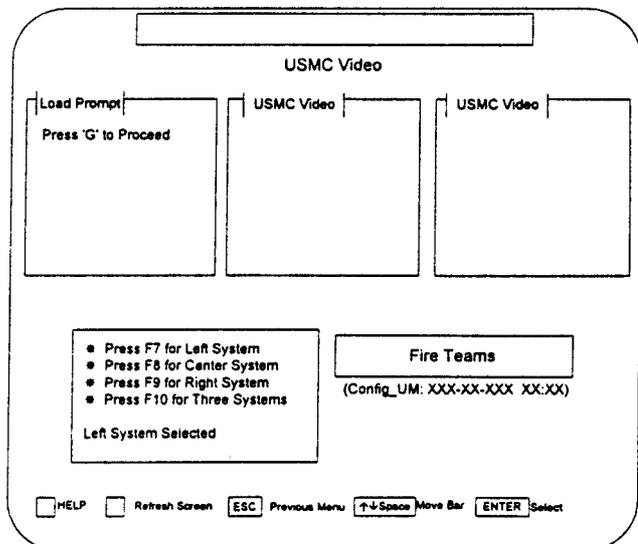


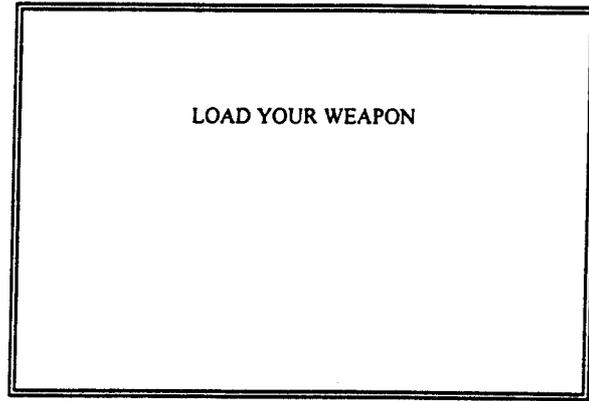
Press the 4 key or use the ↑ and ↓ arrow keys to highlight **Bore Sight**, then press the **ENTER** key.



The Weapon Type menu displays on the PC. For all weapons except the Shotgun, select System Control.

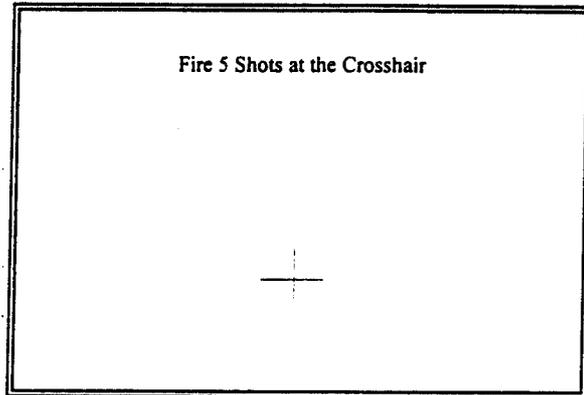
Press the 1 key or use the ↑ and ↓ arrow keys to highlight **System Control**, then press the **ENTER** key.



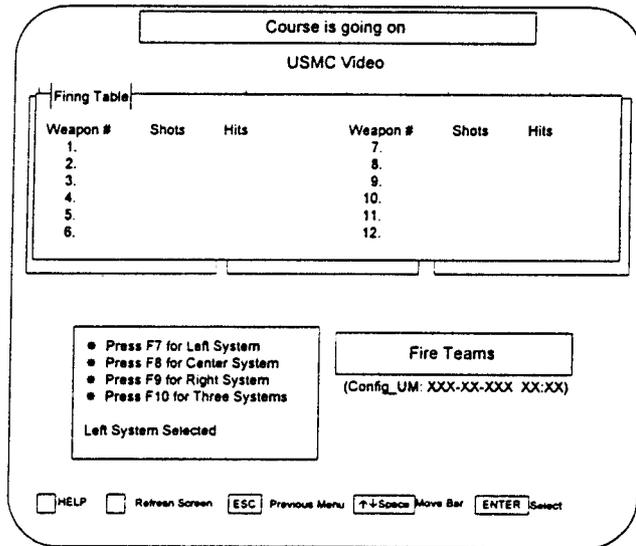


The Load Prompts display on both the PC and the Big Screens.

Have students load their weapons, and then press the G key.



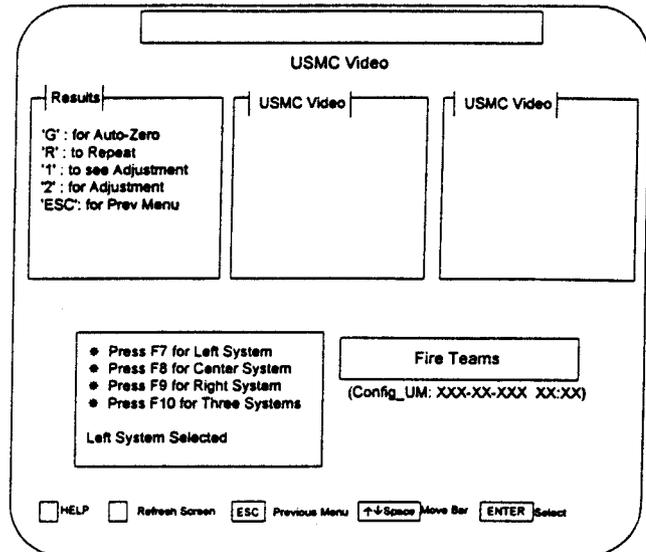
The crosshair displays on the Big Screen.



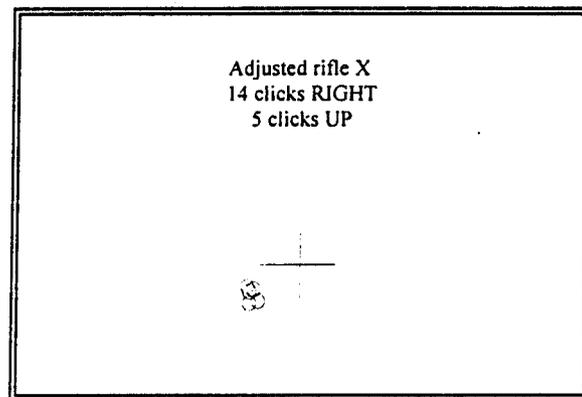
The Firing Table displays on the PC.

Have the students fire five shots at the crosshair.

When the five shots are registered on the screen, ensure that they are in a relatively good grouping so that the zeroing will be accurate. When the students finish firing, the Results screen displays on the PC.

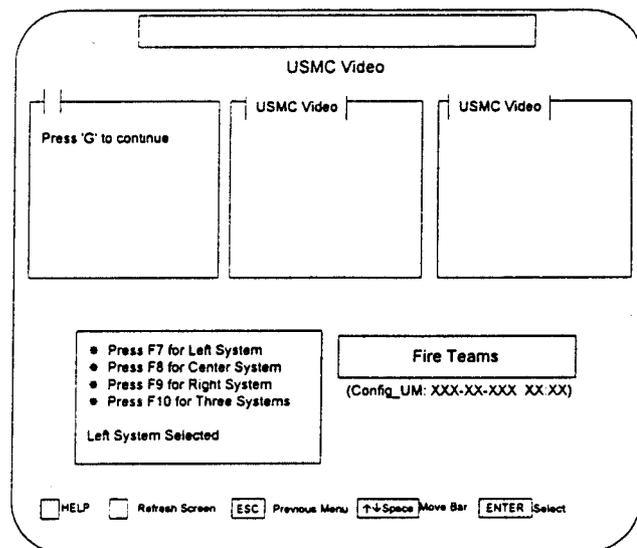


Pressing the G key auto zeros the weapon to the system. Pressing the R key allows the firing of another five-shot group. For this exercise press the 1 key to see the adjustments.



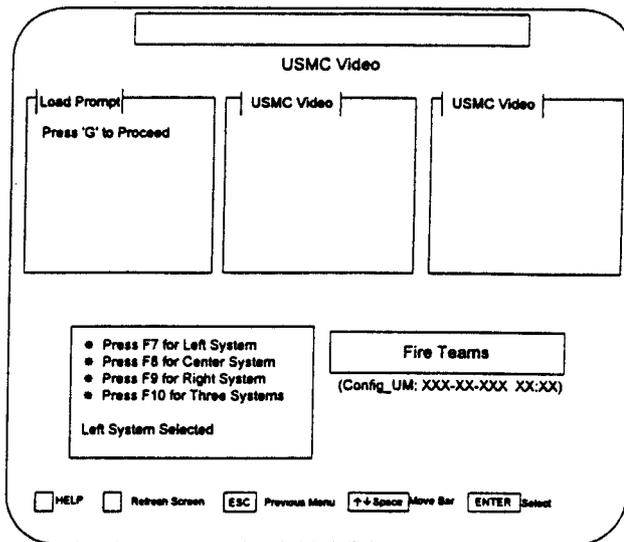
The student may actually adjust the weapon using the adjustments listed, or you can adjust the system (preferred) to zero the weapon.

Press the 2 key to have the system make the adjustments.



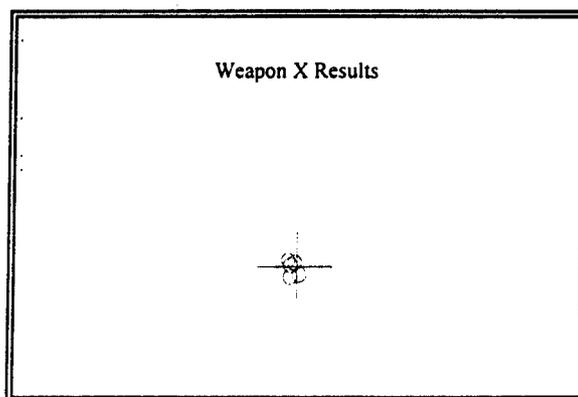
The Press G to continue screen displays on the PC.

Press the G key.

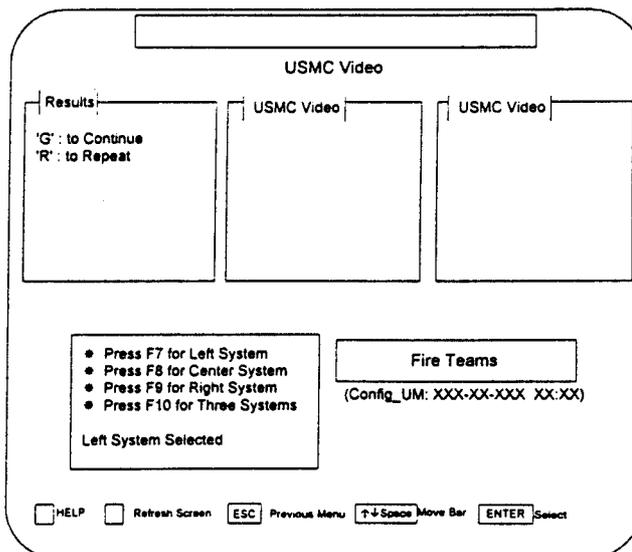


The Load Prompt displays on both the PC and the Big screen.

When all weapons are loaded and ready, press the G key.



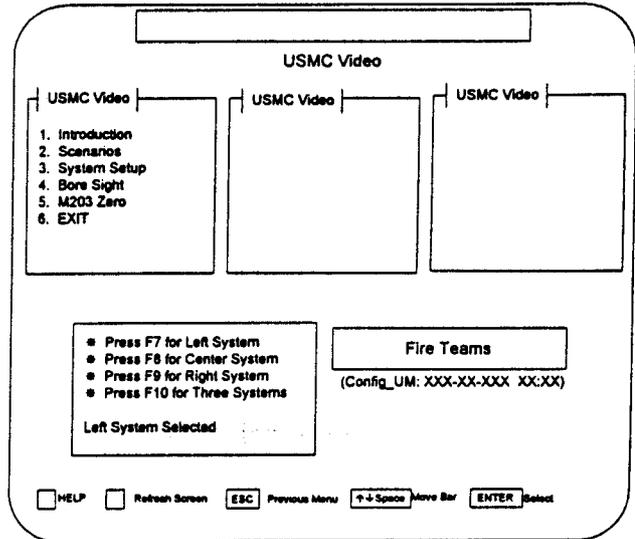
The new five-shot group should now be on the crosshair.



The Results screen displays on the PC.

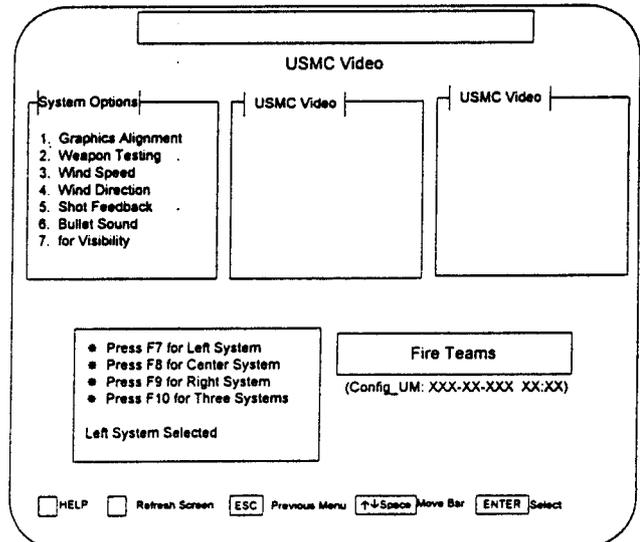
## Work Sheet 3-3

If the shot group is on the crosshair, press **G** to continue. If the shot group is not zeroed, press **R** to repeat the zeroing process.

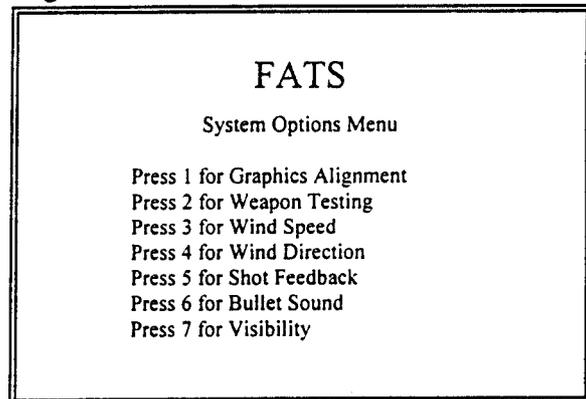


The USMC Video menu displays on the PC.

Use the **↑** and **↓** arrow keys to highlight **System Setup**, then press the **ENTER** key.

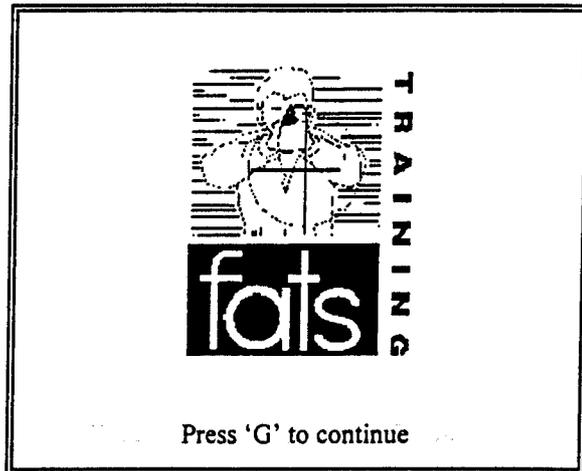


The System Options menu displays on both the PC and the Big Screen.



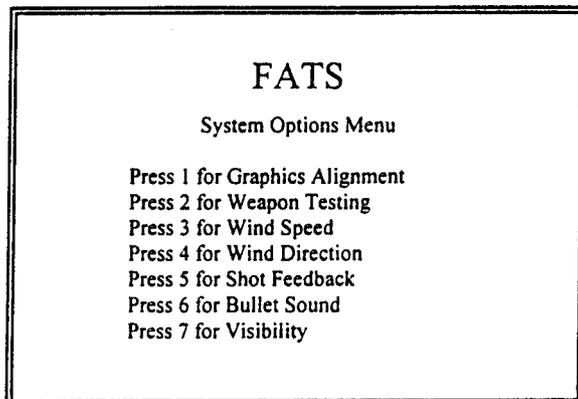
## Work Sheet 3-3

Press the 1 key.



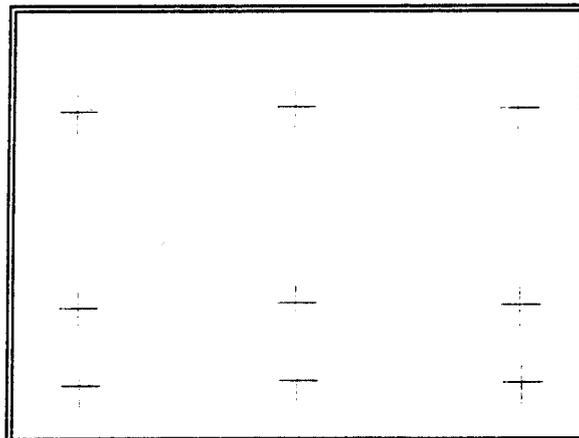
A graphic displays on the Big Screen. If the graphic is correctly displayed, continue with the next step. If the graphic is not correctly displayed, refer to Work Sheet 1-3.

Press the G key to continue.

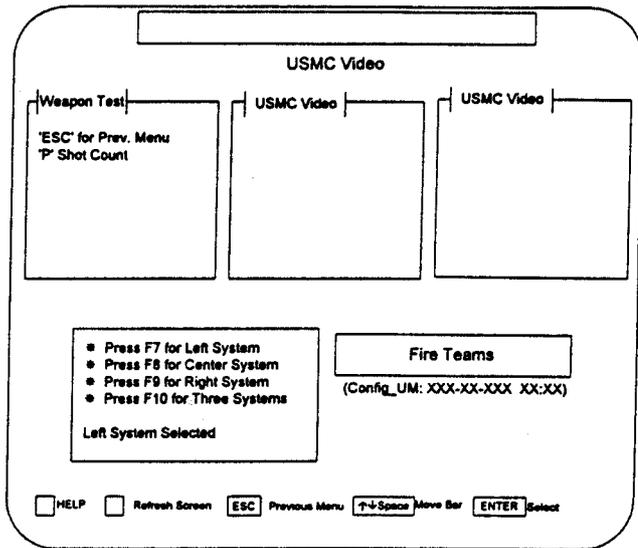


The System Options menus display again on both the PC and the Big Screen.

Press the 2 key.

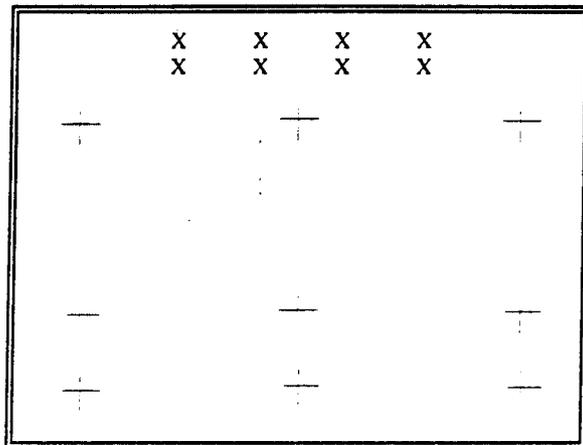


The weapon test screen displays on the Big Screen.



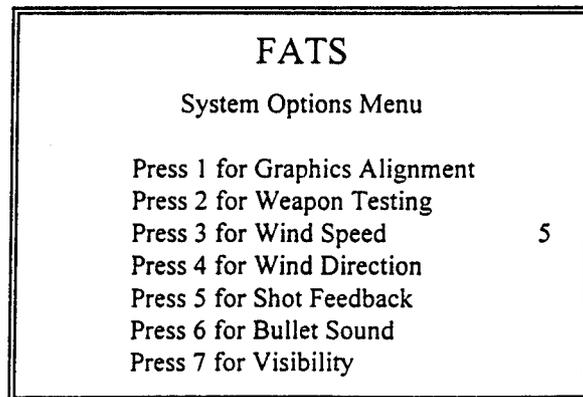
The Weapon Test menu displays on the PC.

Fire each registered weapon at the Big Screen. After firing a few rounds from each registered weapon, press the P key.



The top row is the rounds fired from the respective lane; the lower row is the count of shots registered by the system. If the two rows match, the weapons are registering all shots; if they do not match, refer to Work Sheet 1-3 to align the system.

Press the ESC key to return to the System Setup menus. Then press the 3 key.



Use the → or ← arrow keys to adjust the wind speed in 5 mph increments between 0 and 30 mph. The number at the right of Press 3 for Wind Speed shows the current selection.

## Work Sheet 3-3

Select 5 mph for wind speed, then press the 4 key.

**FATS**  
System Options Menu

Press 1 for Graphics Alignment  
Press 2 for Weapon Testing  
Press 3 for Wind Speed           5  
Press 4 for Wind Direction       -  
Press 5 for Shot Feedback  
Press 6 for Bullet Sound  
Press 7 for Visibility

Use the → or ← arrow keys to adjust the wind direction.

Select → for a left-to-right wind direction, then press the 5 key.

**FATS**  
System Options Menu

Press 1 for Graphics Alignment  
Press 2 for Weapon Testing  
Press 3 for Wind Speed           5  
Press 4 for Wind Direction       -  
Press 5 for Shot Feedback       On  
Press 6 for Bullet Sound  
Press 7 for Visibility

Use the → or ← arrow keys to turn the shot feedback on or off.

Select **On** for shot feedback, then press the 6 key.

USMC Video

|   |            |            |
|---|------------|------------|
| Amplitude<br>1. Test<br>2. Louder<br>3. Quieter<br>ESC: for Prev Menu | USMC Video | USMC Video |
|---|------------|------------|

- Press F7 for Left System
- Press F8 for Center System
- Press F9 for Right System
- Press F10 for Three Systems

Left System Selected

**Fire Teams**

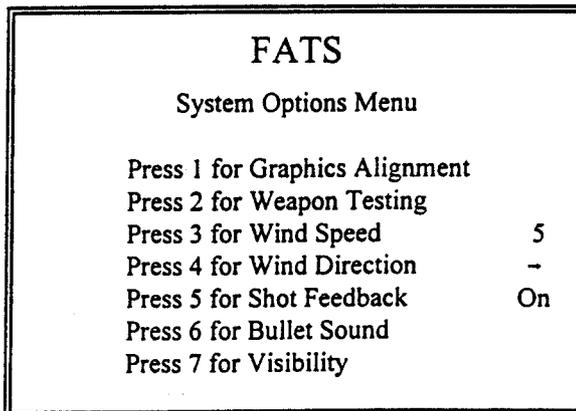
(Config\_UM: XXX-XX-XXX XX:XX)

HELP     Refresh Screen     Previous Menu     Move Bar     Select

The Amplitude menu displays on the PC.

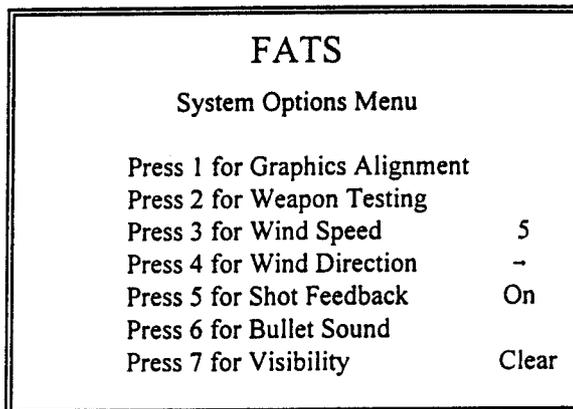
**Work Sheet 3-3**

Press the 1 key to hear a test shot sound.  
 Increase the sound by pressing the 2 key, or decrease the sound by pressing the 3 key.  
 When the amplitude (level of sound) is adjusted to the desired level, press the ESC key.



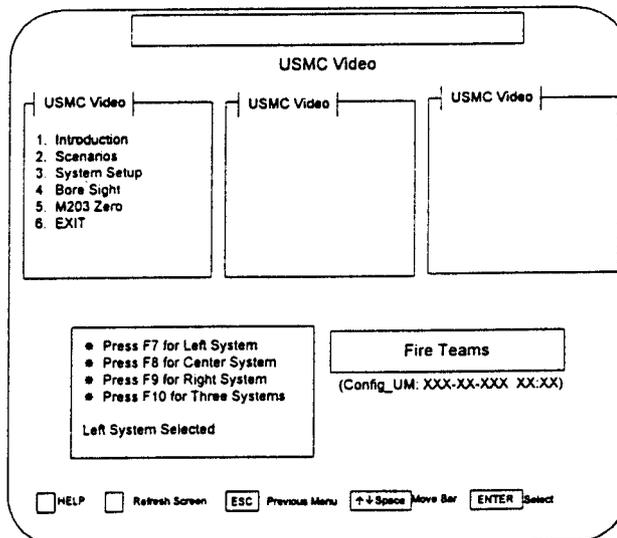
The last setup option is done via the Big Screen.

Press the 7 key.



Use the → or ← arrow keys to adjust the visibility. The choices are clear, fog, and dusk.

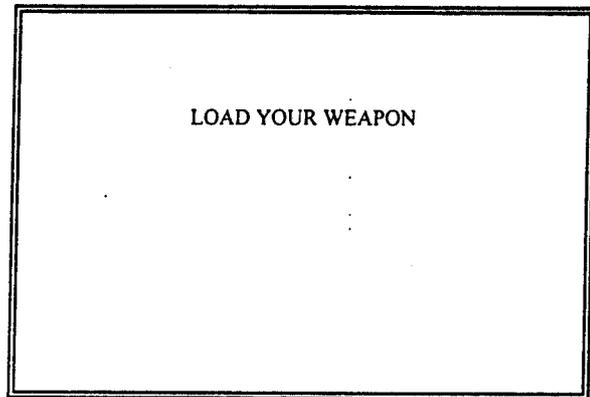
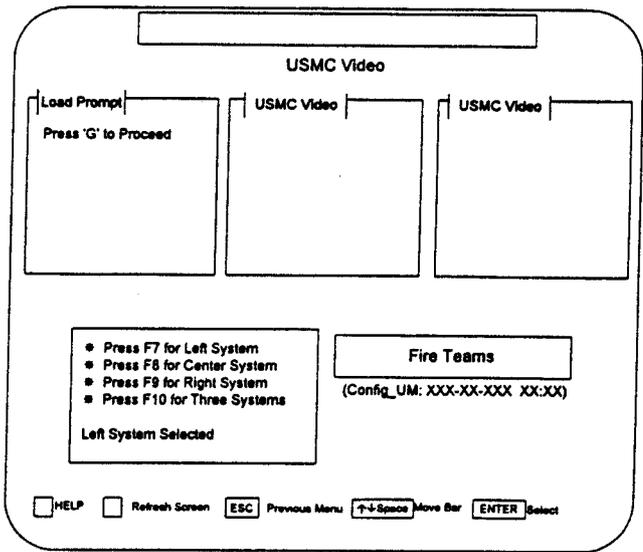
Select **Clear** and press the ESC key.



The setup options are complete; the only required adjustment left is for using the M203.

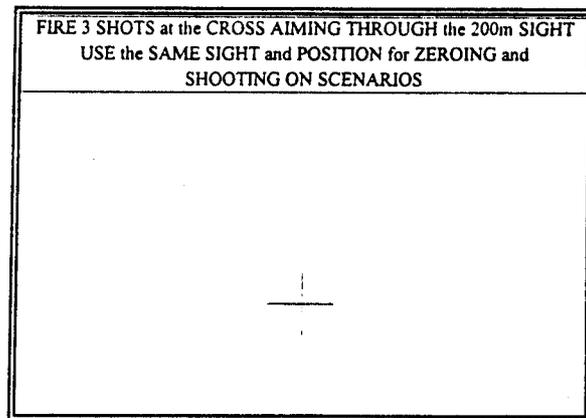
## Work Sheet 3-3

Use the ↑ and ↓ arrow keys to highlight M203 Zero, then press the ENTER key.

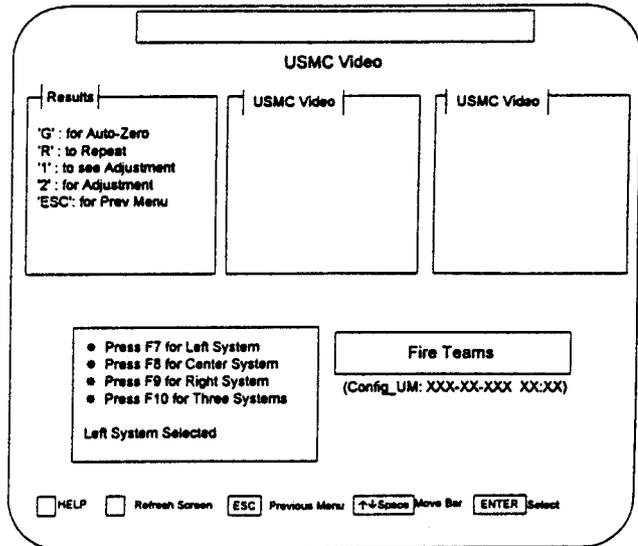


The Load Prompts display on both the PC and the Big Screen.

Press the G key when the M203 is loaded and ready.

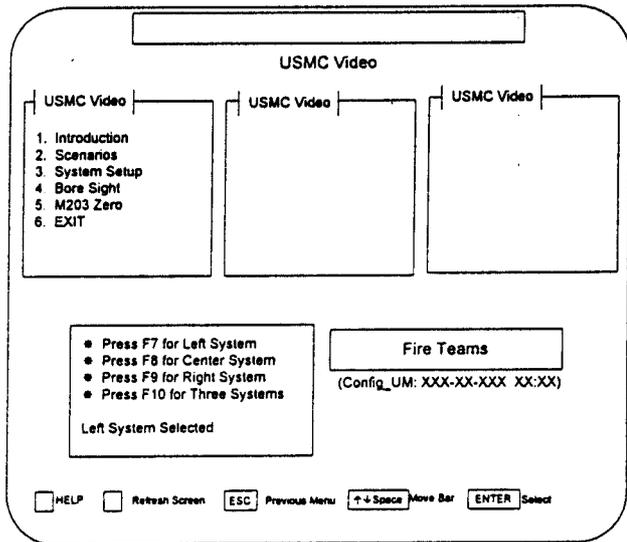


Follow the Big Screen directions.

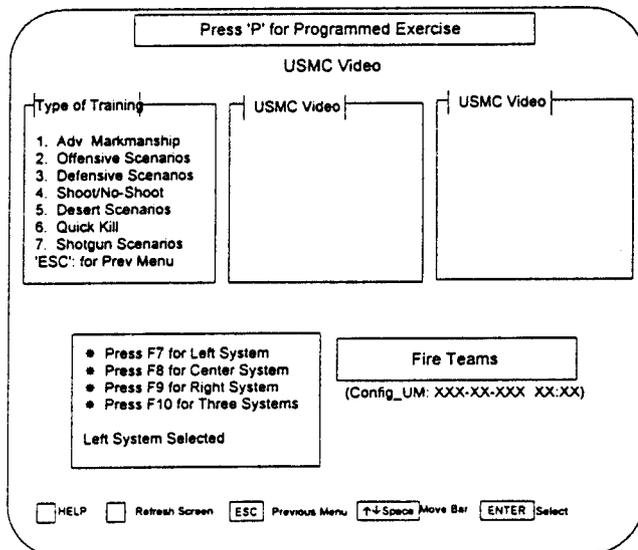


The Results menu displays on the PC when the 3 shots are fired.

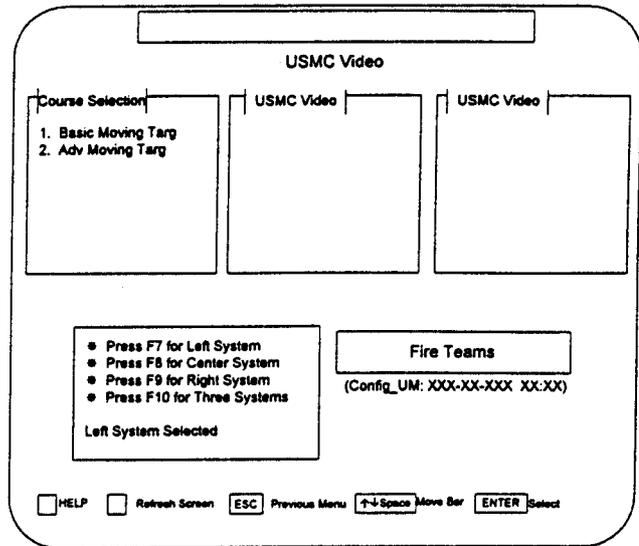
Follow the same process to zero the M203 that you performed for the M-16. Then press the ESC key to return to the USMC Video menu.



Press the 2 key or use the ↑ and ↓ arrow keys to highlight Scenarios, then press the ENTER key.

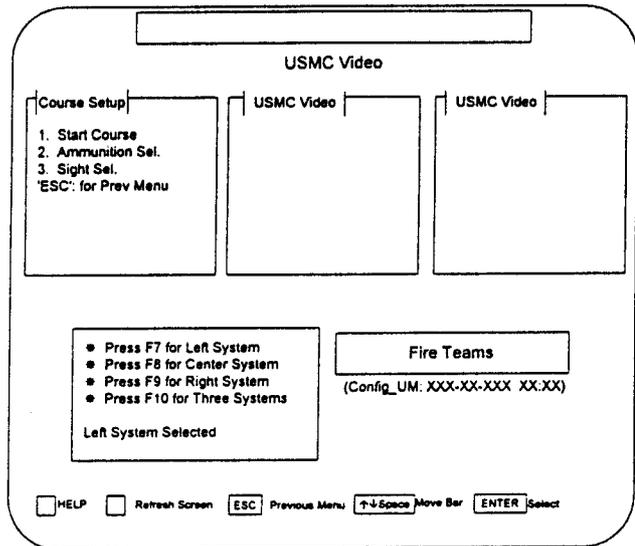


Press the 1 key or use the ↑ and ↓ arrow keys to highlight Adv. Marksmanship, then press the ENTER key.



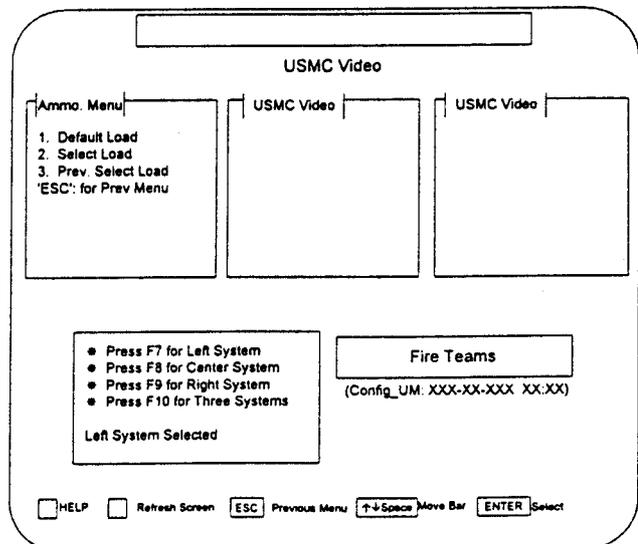
The Course Selection menu displays on the PC.

Press the 1 key or use the ↑ and ↓ arrow keys to highlight Basic Moving Targ, then press the ENTER key.



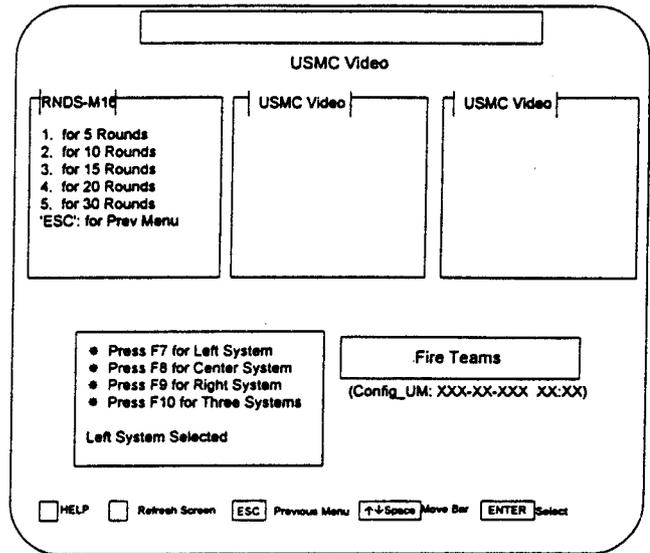
This action displays the Course Setup menu.

Press the 2 key.



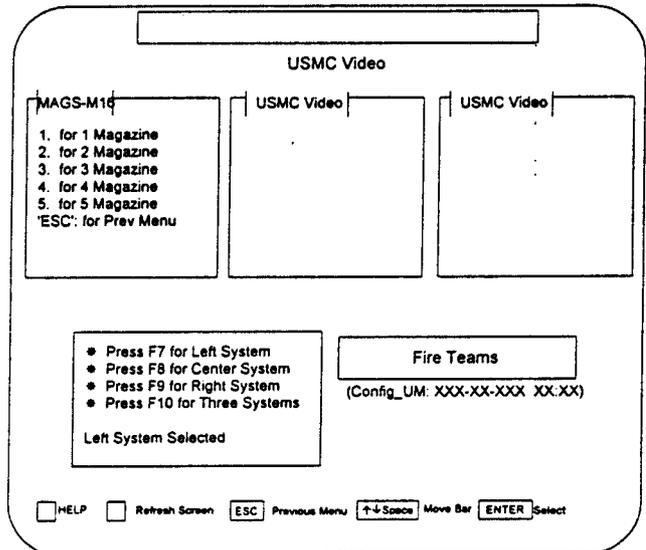
### Work Sheet 3-3

With the Ammunition menu displayed on the PC, press the 2 key.



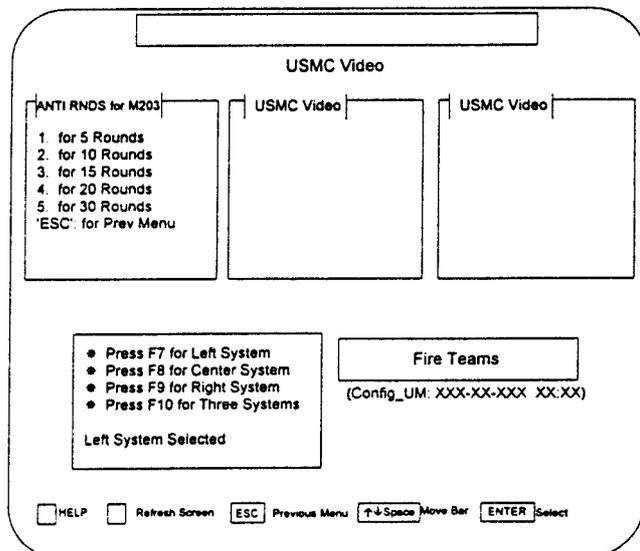
The RND5 - M16 menu displays.

For this exercise select 30 rounds per magazine. Press the 5 key to select 30 rnds.



The MAGS - M16 menu displays.

For this exercise select 3 magazines. Press the 3 key to select 3 mags.



## Work Sheet 3-3

For this exercise select 5 rounds. Press the 1 key to select 5 rounds.

The screenshot shows a menu titled "USMC Video". On the left, a box labeled "Course Setup" contains a list: "1. Start Course", "2. Ammunition Sel.", "3. Sight Sel.", and "'ESC': for Prev Menu". To the right are two empty boxes labeled "USMC Video". Below these is a box with instructions: "• Press F7 for Left System", "• Press F8 for Center System", "• Press F9 for Right System", "• Press F10 for Three Systems", and "Left System Selected". To the right of this is a "Fire Teams" box with "(Config\_UM: XXX-XX-XXX XX:XX)". At the bottom, a control bar includes: "HELP", "Refresh Screen", "ESC Previous Menu", "↑↓Space Move Bar", and "ENTER Select".

The Course Setup menu displays on the PC.

Press the 3 key.

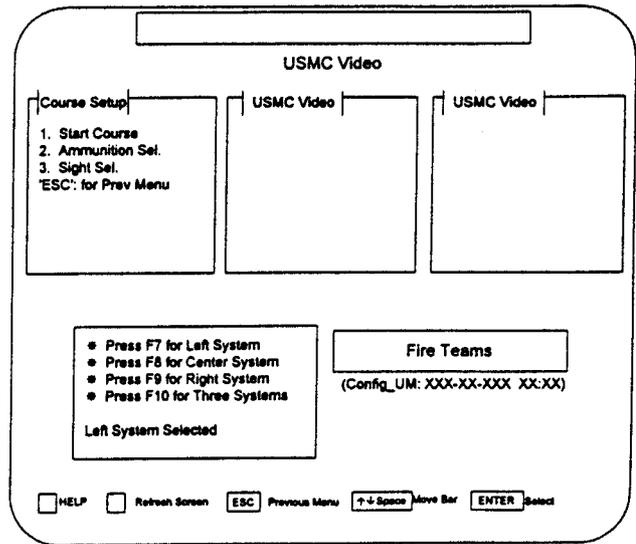
For this exercise select Iron Sight. Press the 3 key. Do the same for the M203.

The screenshot shows a menu titled "USMC Video". On the left, a box labeled "Sight Sel.-Wpn X" contains: "M-16", "1. Day Telescope", "2. Night Vision", "3. Iron Sight", and "'ESC': for Prev Menu". To the right are two empty boxes labeled "USMC Video". Below these is a box with instructions: "• Press F7 for Left System", "• Press F8 for Center System", "• Press F9 for Right System", "• Press F10 for Three Systems", and "Left System Selected". To the right of this is a "Fire Teams" box with "(Config\_UM: XXX-XX-XXX XX:XX)". At the bottom, a control bar includes: "HELP", "Refresh Screen", "ESC Previous Menu", "↑↓Space Move Bar", and "ENTER Select".

The screenshot shows a menu titled "USMC Video". On the left, a box labeled "Sight Sel.-Wpn X" contains: "M203", "1. Day Telescope", "2. Night Vision", "3. Iron Sight", and "'ESC': for Prev Menu". To the right are two empty boxes labeled "USMC Video". Below these is a box with instructions: "• Press F7 for Left System", "• Press F8 for Center System", "• Press F9 for Right System", "• Press F10 for Three Systems", and "Left System Selected". To the right of this is a "Fire Teams" box with "(Config\_UM: XXX-XX-XXX XX:XX)". At the bottom, a control bar includes: "HELP", "Refresh Screen", "ESC Previous Menu", "↑↓Space Move Bar", and "ENTER Select".

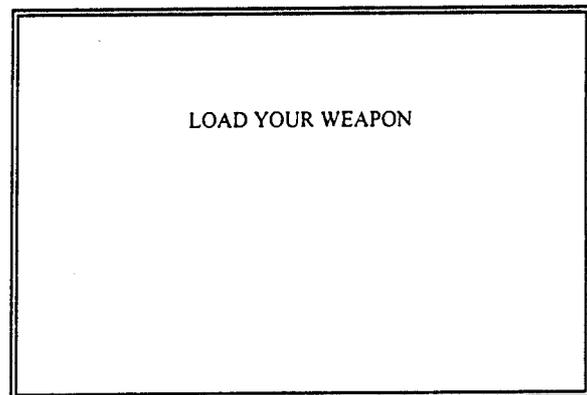
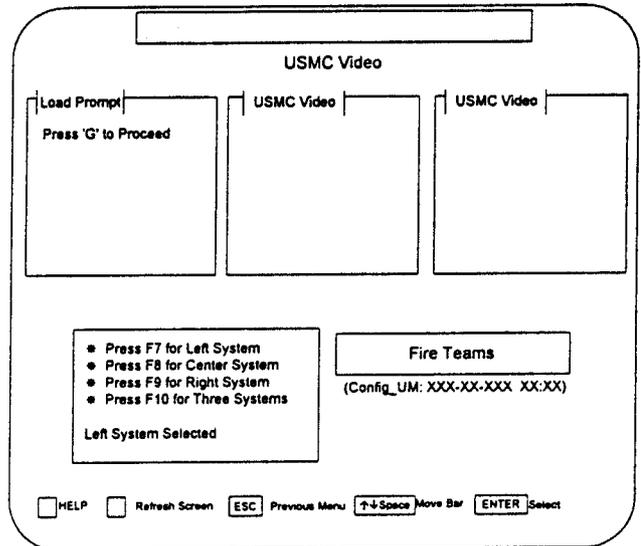
# Work Sheet 3-3

Press the ESC key.



This action displays the Course Setup menu.

Press the 1 key to run the course.



The Load Prompts display on both the PC and the Big Screen.

# Work Sheet 3-3

Press the G key.

Course is going on

USMC Video

| Firing Table |       |      |          |       |      |
|--------------|-------|------|----------|-------|------|
| Weapon #     | Shots | Hits | Weapon # | Shots | Hits |
| 1.           |       |      | 7.       |       |      |
| 2.           |       |      | 8.       |       |      |
| 3.           |       |      | 9.       |       |      |
| 4.           |       |      | 10.      |       |      |
| 5.           |       |      | 11.      |       |      |
| 6.           |       |      | 12.      |       |      |

- Press F7 for Left System
- Press F8 for Center System
- Press F9 for Right System
- Press F10 for Three Systems

Left System Selected

**Fire Teams**

(Config\_UM: XXX-XX-XXX XX:XX)

HELP   
  Refresh Screen   
 [ESC] Previous Menu   
 [↑↓Space] Move Bar   
 [ENTER] Select

This action runs the course. The Shots and Hits automatically update as the course runs. When the course finishes, the Big Screen and PC change to look like the figures below.

Moving Target Range I  
 9 Targets in the Scenario  
 Gun 1: Shots fired=XX Hit=XX

USMC Video

| Results   | USMC Video | USMC Video |
|---|------------|------------|
| 'G': for Auto-Zero<br>'R': to Repeat<br>'1': to see Adjustment<br>'Z': for Adjustment<br>'ESC': for Prev Menu |            |            |

- Press F7 for Left System
- Press F8 for Center System
- Press F9 for Right System
- Press F10 for Three Systems

Left System Selected

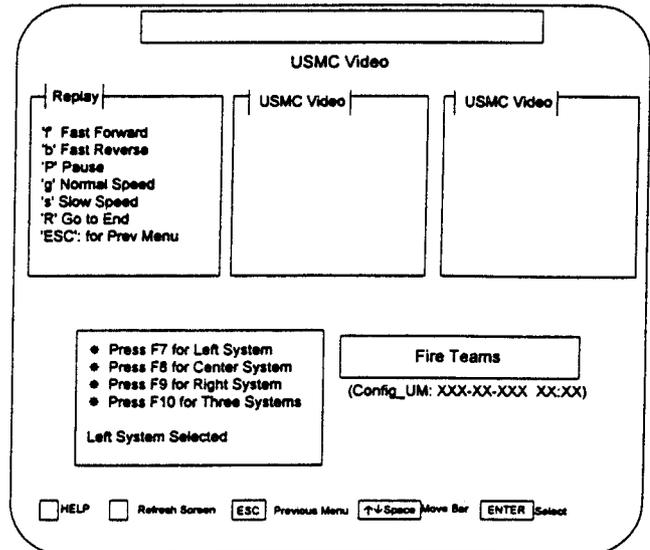
**Fire Teams**

(Config\_UM: XXX-XX-XXX XX:XX)

HELP   
  Refresh Screen   
 [ESC] Previous Menu   
 [↑↓Space] Move Bar   
 [ENTER] Select

## Work Sheet 3-3

Pressing the **G** key will repeat the same course with the same setup. Press the **R** key.



This action replays the entire scenario. To control the position of the scenario, use the Replay menu.

Press the **f** key to fast forward the video.

Press the **b** key to fast reverse the video.

Press the **p** key to pause the video.

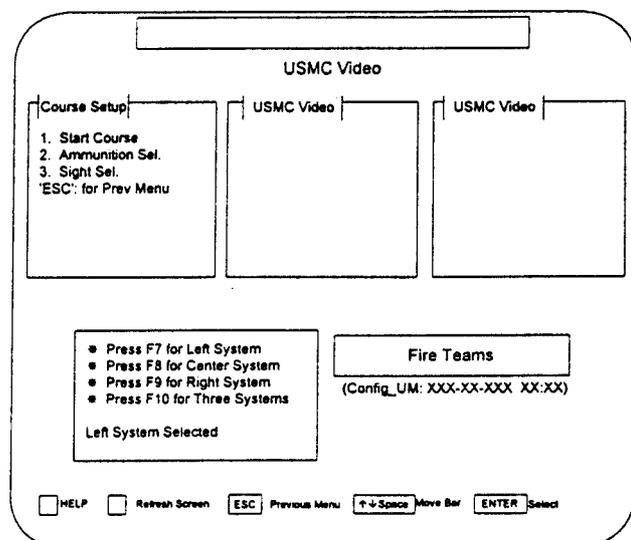
Press the **g** key for normal speed of the video.

Press the **s** key for slow speed of the video.

Press the **R** key to go to the end of the video.

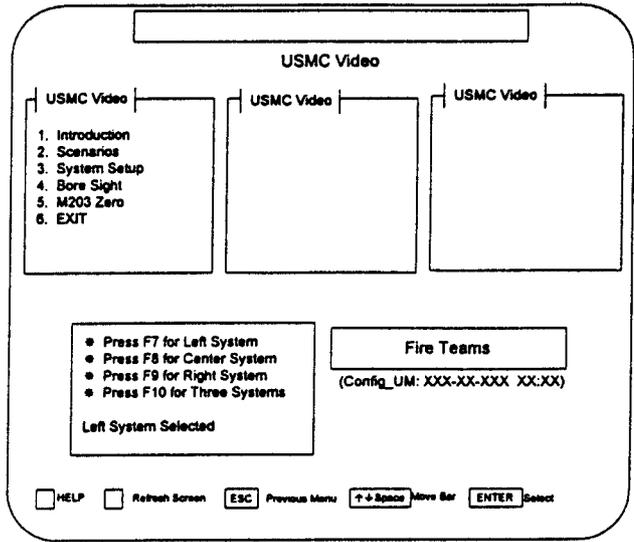
After examining the scenario and analyzing the shots, hits, targets, etc., press the **R** key to go to the end of the video if not already there, then complete the next step.

Press the **ESC** key.



# Work Sheet 3-3

Press the ESC key.



USMC Video

USMC Video | USMC Video | USMC Video

- 1. Introduction
- 2. Scenarios
- 3. System Setup
- 4. Bore Sight
- 5. M203 Zero
- 6. EXIT

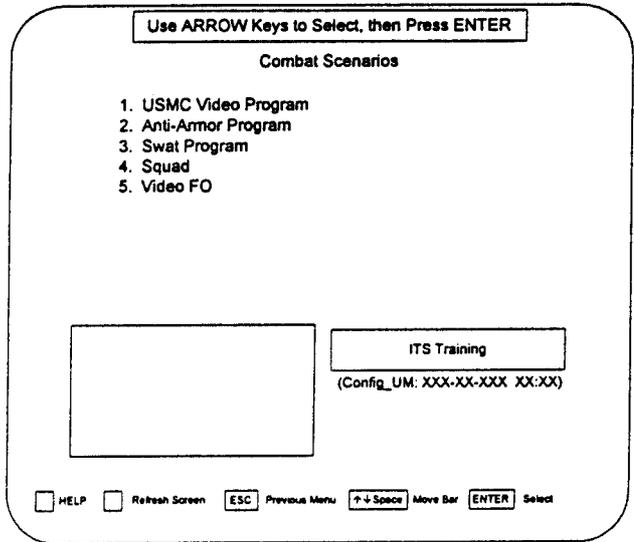
• Press F7 for Left System  
• Press F8 for Center System  
• Press F9 for Right System  
• Press F10 for Three Systems

Left System Selected

Fire Teams  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

Press the ESC key.



Use ARROW Keys to Select, then Press ENTER

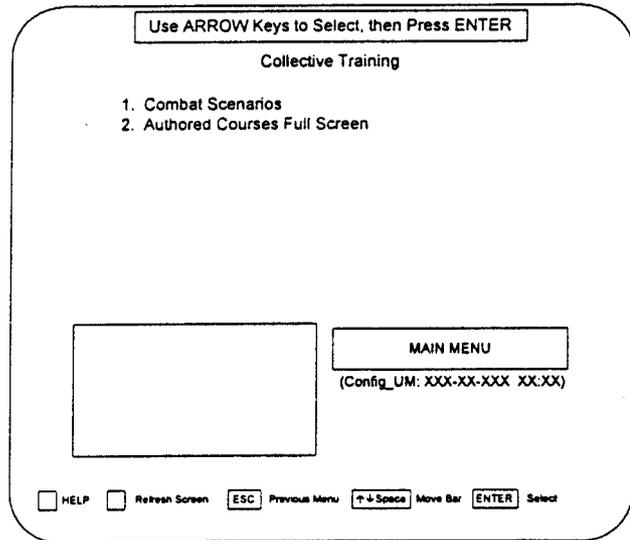
Combat Scenarios

- 1. USMC Video Program
- 2. Anti-Armor Program
- 3. Swat Program
- 4. Squad
- 5. Video FO

ITS Training  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

Press the ESC key.



Use ARROW Keys to Select, then Press ENTER

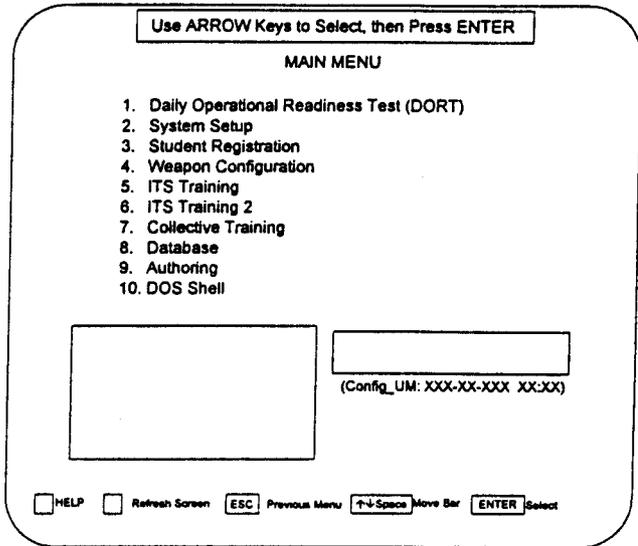
Collective Training

- 1. Combat Scenarios
- 2. Authored Courses Full Screen

MAIN MENU  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

Press the ESC key.



This completes Work Sheet 3-3.

## ITS TRAINING 2 AND COLLECTIVE TRAINING

### Introduction

This Problem Sheet covers Learning Objective 3-1 (Demonstrate the ability to conduct ITS training on the ISMT), 3-2 (Demonstrate the ability to conduct ITS Training 2 on the ISMT), and 3-3 (Demonstrate the ability to conduct Collective training on the ISMT). By completing this Problem Sheet you will gain a better understanding of ITS and Collective training operations. You may use your notes, Assignment Sheets, and Work Sheets to help solve the problems presented here. However, you may **not** use other persons (for example, technicians, trainees, Administrator) to help you solve these problems; this work must be your own.

After completing this Problem Sheet, take it to your Handbook Administrator for grading. If the Administrator finds your work acceptable, go on to complete the rest of Section 3.

### Instructions

The following problems present realistic situations which you may encounter with the ISMT or IST systems. From your knowledge of the system and the materials provided in this Handbook, you should be able to find solutions for each of the problems presented. Write your answers so that the Instructor will readily understand how you would solve the problem. If you are unsure of your answers, then you may go back through the Work Sheets and again read the Assignment Sheets. There is no time limit to this Problem Sheet. You should not attempt to answer the problems without first completing the associated Assignment Sheets and Work Sheets.

### Problems

#### Problem 1

The volume of the shots heard while conducting Collective training is barely audible. With the Systems Option menu screen displayed on the Big Screen, which keyboard keys are used to adjust the sound level of weapons fired?

#### Problem 2

List the three visibility settings.

#### Problem 3

How many weapons can be used in the Stand Alone mode? List them.

## **Problem Sheet 3-1**

### **Problem 4**

When are shots registered in the Firing Table on the PC display?

### **Problem 5**

On the Firing Table display on the PC, what information is displayed?

### **Problem 6**

List the different types of training courses available under ITS Training 2.

After completing this Problem Sheet, take it to the OJT Handbook Administrator.

## INDIVIDUAL LANE AUTHORIZING

### Introduction

This Assignment Sheet covers Learning Objective 3-4 (Demonstrate the ability to author an Individual Lane course for the ISMT). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to author an Individual Lane course for the ISMT.

### Capabilities

Individual Lane authoring provides the instructor the capability to create marksmanship courses for the ISMT. This capability is needed in order to continually challenge the trainee in developing his/her marksmanship skills. After only a short time, the trainee will become proficient at the courses supplied with the ISMT. When this occurs, the trainee will become bored, and the process of skill development will slow if not stop altogether. In order to keep this from happening, you as the trainer must be able to develop realistic and challenging courses to continually challenge the trainee, no matter what his/her skill level.

Individual lane authoring provides you, the trainer, the ability to create targets, animate these targets, and change the conditions under which the targets appear. These factors, coupled with the system's capabilities, ensure that challenging marksmanship courses will always be available to the trainee.

### Realism

Realistic training can be conducted for one to four trainees at a time using individual lane-authored training courses for the ISMT. Factors controlled by the computer and instructor allow for all of the same capabilities available under ITS training. Authored courses, when used properly, should enhance the trainee's marksmanship abilities. By accurately simulating many different types of environments using different targets, the trainee may be exposed to different ranges which will lead to improved marksmanship.

### Conducting the Training

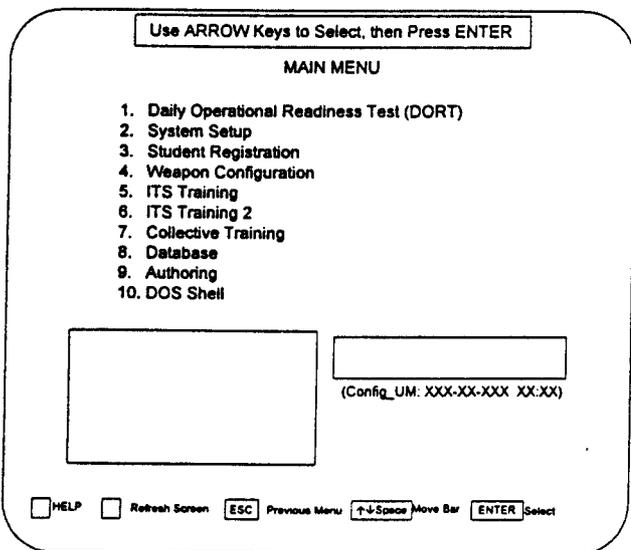
With the proper use of the tools available to author Individual Lane courses, a trainee should be able to become proficient in marksmanship with any of the eleven different weapons available on the system. To fully understand and utilize the system's capabilities, you must practice, practice, practice. Remember to get feedback from the trainees on the courses you author. The trainees will often suggest improvements which are hard to recognize while authoring. When these improvements are included in your courses, you will be able to create better, more challenging courses for the trainees than were previously possible. The associated Work Sheet will walk you through a simple authoring session, but in order to challenge trainees, you will have to develop your skills at authoring Individual Lane training courses.

## INDIVIDUAL LANE AUTHORIZING

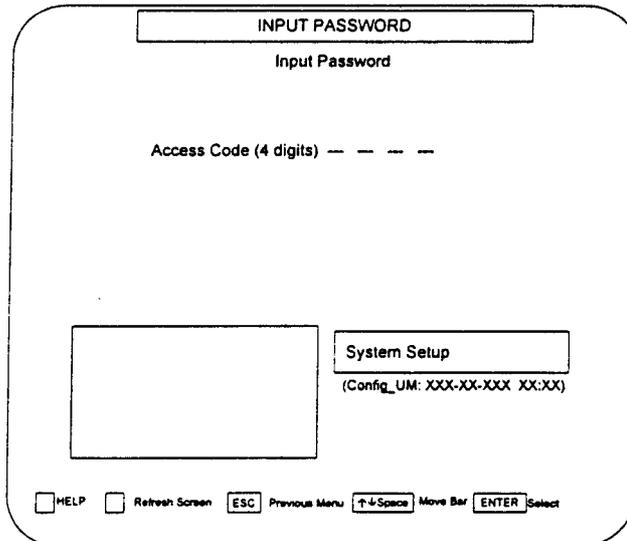
This Work Sheet covers Learning Objective 3-4 (Demonstrate the ability to author an Individual Lane course for the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available to construct tailored Individual Lane courses for instruction.

### ACTIONS

### RESULTS AND COMMENTS



From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Authoring**, then press the ENTER key.



This action brings up the Access menu on the PC display as shown in the figure above.

## Work Sheet 3-4

From the Access menu, type in the four digits that are the access code, then press the **ENTER** key.

INPUT PASSWORD

Input Password

Access Code (4 digits) # # # #

OK! Press Enter to Proceed

System Setup  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP Refresh Screen ESC Previous Menu ↑↓Space Move Bar ENTER Select

This action displays "OK! Press Enter to Proceed" on the PC display.

Press the **ENTER** key.

Use ARROW Keys to Select, then Press ENTER

Authoring

1. Individual Lane
2. One of Three Screens
3. Three of Three Screens
4. One of Three Screens (FO)
5. Three of Three Screens (FO)

INSTRUCTOR CONTROL MODE  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP Refresh Screen ESC Previous Menu ↑↓Space Move Bar ENTER Select

The Authoring menu displays on the PC display.

Use the **↑** and **↓** arrow keys to highlight **Individual Lane**, then press the **ENTER** key.

Follow Instructions on Big Screen

Authoring

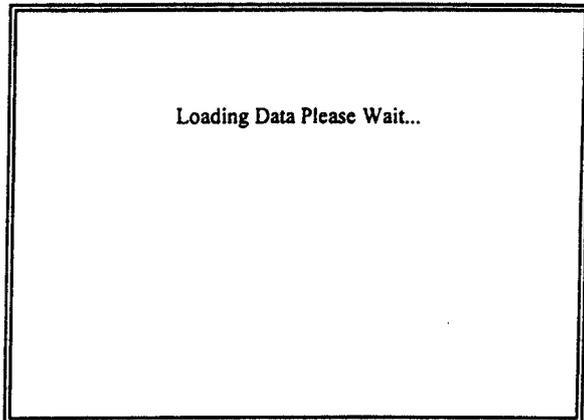
- \* Press F7 for Left System
- \* Press F8 for Center System
- \* Press F9 for Right System
- \* Press F10 for Three Systems

INSTRUCTOR CONTROL MODE  
(Config\_UM: XXX-XX-XXX XX:XX)

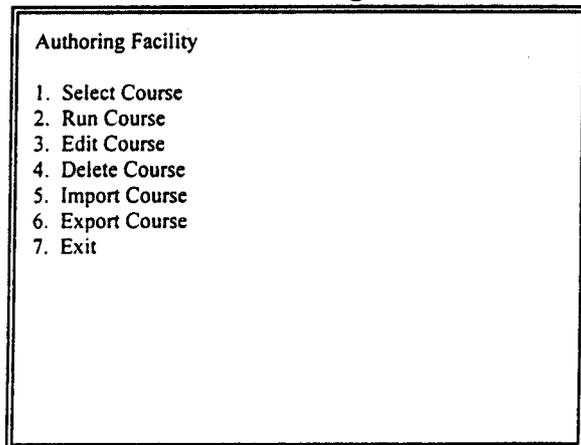
HELP Refresh Screen ESC Previous Menu ↑↓Space Move Bar ENTER Select

The PC displays the System Select screen.

Press the F7 key to select the Left system.



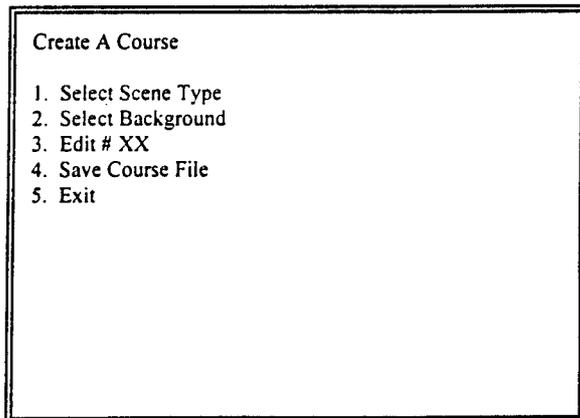
The Big Screen display looks like the figure above. After a few minutes, the Big Screen displays the Authoring Facility menu and looks like the figure below.



From the Authoring Facility menu, use the ↑ and ↓ arrow keys to highlight **Edit Course**, then press the ENTER Key.

**NOTE:** In order for the system to know the type of course from which to select, the Edit Course option must always be the first selection. The **Select Course**, **Run Course**, or **Delete Course** options will not work if no course type is set. If other courses have been authored and are available, these options will work after the next two steps.

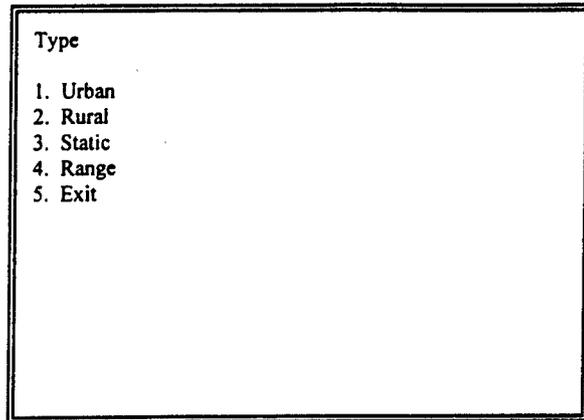
**NOTE:** Xs are used to represent number values that change according to system parameters and user inputs.



The Create A Course menu appears on the Big Screen as shown in the figure above.

## Work Sheet 3-4

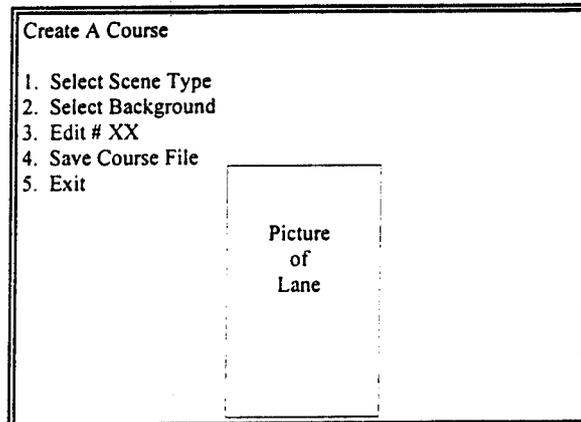
Use the ↑ and ↓ arrow keys to highlight **Select Scene Type**, then press the **ENTER** key.



This action displays the Type menu on the Big Screen as shown in the figure above.

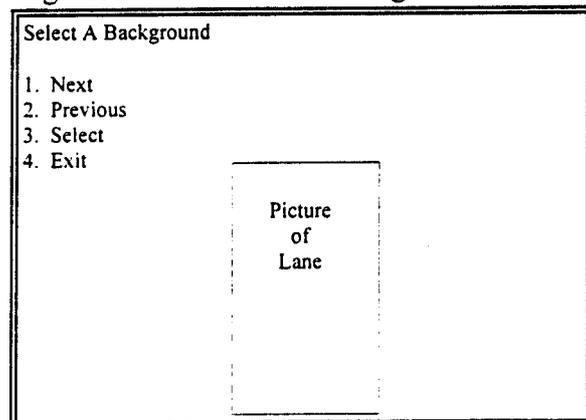
Use the ↑ and ↓ arrow keys to highlight **Range**, then press the **ENTER** Key.

Since you selected **Individual Lane**, the Types available are **Range, Urban, Rural, and Static**. The Big Screen displays the loading data screen again. This takes several minutes, so wait before pressing any keys. Next, you see the Create A Course menu that shows a picture of a lane in the center of the screen as shown in the figure below.



Use the ↑ and ↓ arrow keys to highlight **Select Background**, then press the **ENTER** Key.

This action displays the Select A Background menu on the Big Screen as shown in the figure below.



## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **Next**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key.

Press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key.

This action changes the display of the lane on the Big Screen. After viewing the available lane backgrounds using the Previous and Next menu selections, decide which one to use in your authored course.

Select A Background

1. Next
2. Previous
3. Select
4. Exit

Picture of Lane

Enter Scene No [1-40]: X

This action brings up the scene select request box. Type in a scene number between 1 and 4.

Select A Background

1. Next
2. Previous
3. Select
4. Exit

Picture of Lane

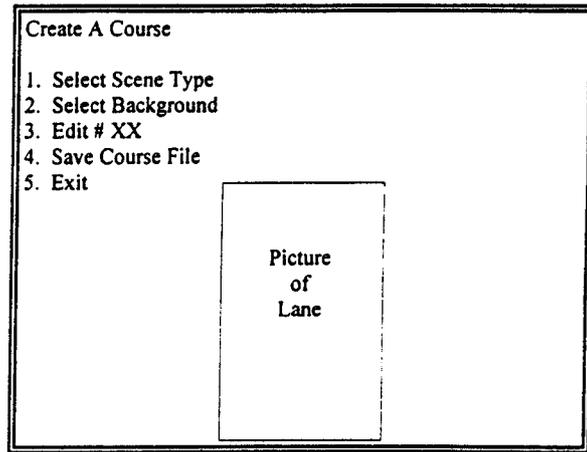
The scene you selected displays on the Big Screen. If this is not the scene you want, use the ↑ and ↓ arrow keys to highlight Next or Previous, and then press the **ENTER** key to scroll through the selections. Remember the original number you typed in and how many times you press the enter key when Next or Previous is highlighted. Add or subtract the number of times you pressed the **ENTER** key, then use the ↑ and ↓ arrow keys to highlight Select again, and then press the **ENTER** key. Type in the new scene number and press the **ENTER** key. Your new selection will display on the Big Screen.

This selects the background.

## Work Sheet 3-4

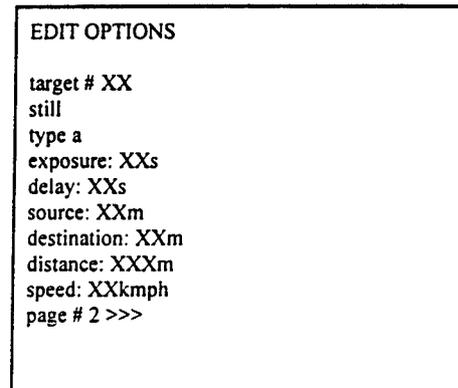
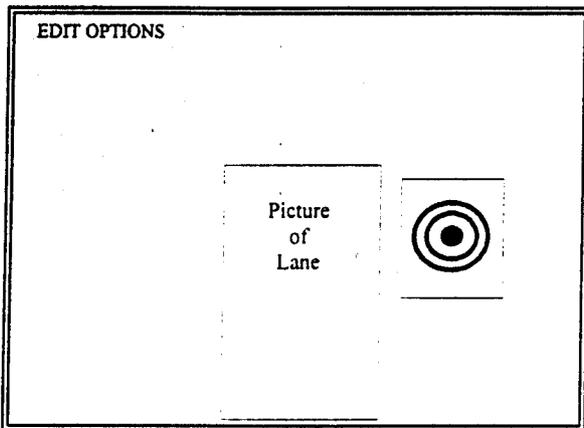
Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

**NOTE:** The Edit # will have the selected scene number displayed.



Use the ↑ and ↓ arrow keys to highlight **Edit # XX**, then press the **ENTER** Key.

This action displays the Edit Options menu as shown in the figure below, which is the top left shaded area of the figure at the left.



Use the ↑ and ↓ arrow keys to highlight **still**, then use the → and ← keys to scroll through the choices for this option.

The choices available are **still** or **moving**. For this edit, pick **still**. After completing this target, you will edit another target. At that point, you will learn the moving option and the functions associated with it.

Use the ↑ and ↓ arrow keys to highlight **type a**, then use the → and ← keys to scroll through the choices for this option.

In this step, you pick the type of target to put into your authored Individual Lane course. The targets available for single lane are **type a**, **type d**, **b\_mod**, **e\_sa**, **36yds**, **pzero**, **esil**, **dbesil**, **mgsaw**, **mg60m**, **newmg60m**, **fsil**, **d\_mod**, **window**, **bunker**, and **tank1**. To complete this Work Sheet, select **type a**.

## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **exposure: XXs**, then press the **ENTER** key.

This action brings up the input requestor box. In this box, you see a question mark as shown in the bottom left portion of the figure below.

```
EDIT OPTIONS
target # XX
still
type a
exposure: XXs
delay: XXs
source: XXm
destination: XXm
distance: XXXm
speed: XXkmph
page # 2 >>>
? 
```

Type **10**, then press the **ENTER** key.

The input requestor box disappears, and the value **10** appears in the highlighted area where the words "exposure: 10s" are displayed. You have set the display time of the target for 10 seconds.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

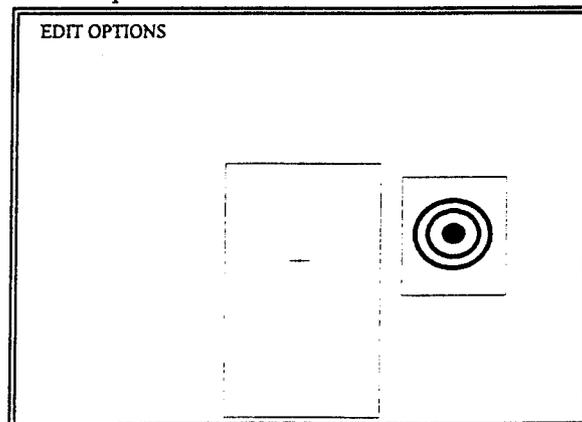
This action brings up the input requestor box again.

Type **15**, then press the **ENTER** key.

The input requestor box disappears, and the value **15** appears in the highlighted area. The words "delay: 15s" display. You have now set the time for the target to appear at 15 seconds after the course begins. This means that 15 seconds after the start of the course, the target will appear. It will be displayed for 10 seconds (as set in the step above).

Use the ↑ and ↓ arrow keys to highlight **source: XXs**, then press the **ENTER** key.

This action brings up a red cross on the picture of the lane you are working on, as shown in the figure below. The red cross represents the bottom middle of the target.



Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the ENTER key.

Type 200, then press the ENTER key.

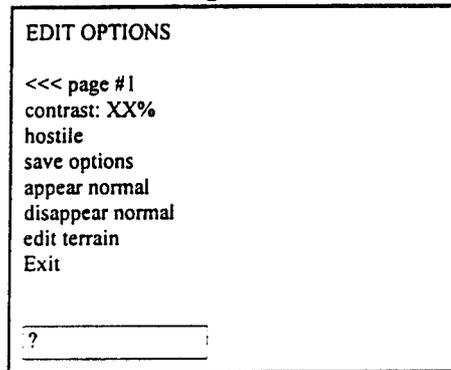
Use the ↑ and ↓ arrow keys to highlight page # 2 >>>, then press the ENTER key.

This action positions the target where you want it to appear. When you have moved the cross to the desired location, perform the next step.

This action sets the target on the background and brings up the input requestor box (note the box with the question mark in it).

This action expands the target size and distance in proper proportion into the lane at the place you designated with the red cross.

This action brings up the second page of Edit Options as shown in the figure below.



Use the ↑ and ↓ arrow keys to highlight contrast: XX%, then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight save options, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight target # X, and use the → key to select 2.

Use the ↑ and ↓ arrow keys to highlight still, then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight type a, then use the → and ← keys to scroll through the choices for this option.

This action scrolls through the % of contrast between the target and the background you have selected. A setting of 0% means that the target blends completely with the background and appears invisible. A setting of 100% makes the target completely black. A setting between 40% and 80% is normally used. Scroll the options until 50% is displayed, then perform the next step.

This action saves the target as target 01 in the course, and you return to page one of the Edit Options.

This action starts the editing process for a second target on the lane.

This time, select the option moving.

This time, select type d.

## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the ENTER key.

Type **25**, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight **source: XXs**, then press the ENTER key.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the ENTER key.

Type **200**, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight **destination: XXs**, then press the ENTER key.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the ENTER key.

Type **200**, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight **distance: XXXm**, then press the ENTER key.

Type **10**, then press the ENTER key.

This action brings up the input requestor box (note the question mark in it).

The input requestor box disappears, and the value **25** appears in the highlighted area. The words "delay: 25s" appear. The second target will appear 25 seconds after the course begins. This is when the first target in the course will disappear.

This action causes a red cross to display on the background in the lane on which you are working. This red cross represents the bottom middle of the target you have selected.

This action positions the target where you want it to begin moving on the background of the lane. When you have moved the cross where you want the target to start moving, perform the next step.

This action sets the target on the background and brings up the input requestor box.

This action sets the target at the proper proportion into the lane at the spot you designated with the red cross.

This action causes a red cross to display on the background of the lane on which you are working.

This action positions the final destination of the target. When you have moved the cross to where you want the target to stop its movement, perform the next step.

This action sets the location where the target will end its movement in the lane and displays the input requestor box.

This action sets the target at the proper proportion for a target at 200 meters distance into the lane at the spot you designated with the red cross.

This action displays the input requestor box.

This action sets the distance the target travels at 10 meters. Since the source and destination distances are the same, the target will move directly across from starting point to ending point without changing its size (proportion).

## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **speed: XXkmph**, then press the **ENTER** key.

Type **25**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **page # 2 >>>**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **contrast: XX%**, then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **appear normal**, then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **disappear normal**, then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **save options**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **page # 2 >>>**, then press the **ENTER** key.

This action displays the input requestor box.

This action sets the speed of the target's movement across the screen. Since you have already set the speed and distance, the exposure is automatically calculated with the correct value. Check this value to ensure that it is appropriate for your course. For example, it would be of little value to have a moving target that is displayed for several minutes. Adjust either the speed or the distance (or both) to expose the target for an appropriate amount of time.

This action brings up the second page of Edit Options as shown in the figure below.

```
EDIT OPTIONS
<<< page #1
contrast: XX%
hostile
save options
appear normal
disappear normal
edit terrain
Exit
```

This action scrolls through the % of contrast between the target and the background you have selected. Again, select a value between 40% and 80%, then perform the next step.

This action scrolls through the options available for making the target appear. The options are **appear normal**, **emerge to east**, **emerge to west**, and **rise**. Leave the selection on **rise**.

This action scrolls through the different options available for making the target disappear. The options are **disappear normal**, **shelter to east**, **shelter to west**, **drop**, **retreat**, and **stop**. Leave the selection on **drop**.

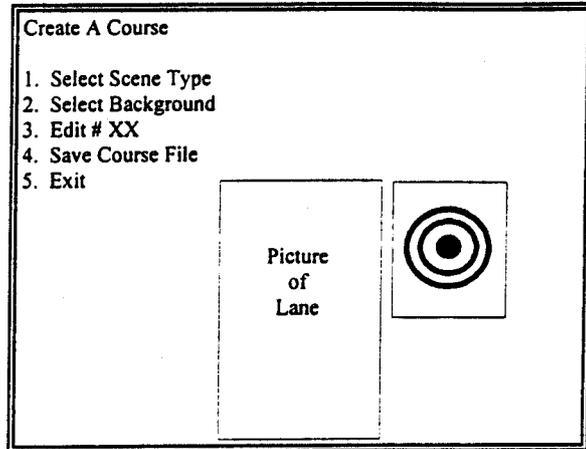
This action saves the target as target 02 in the course and returns you to page one of the Edit Options.

This action again displays the second page of Edit Options.

## Work Sheet 3-4

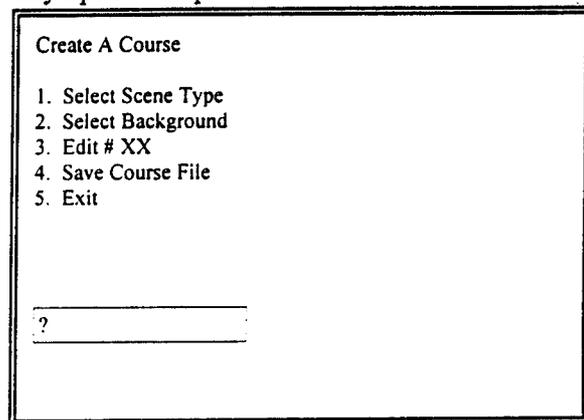
Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

This action returns you to the Create A Course menu as shown in the figure below.



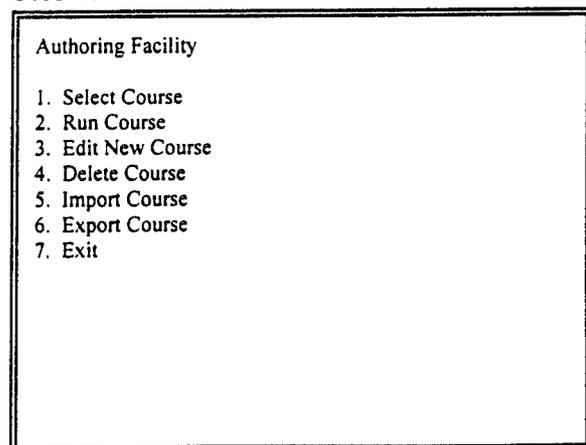
Use the ↑ and ↓ arrow keys to highlight **Save Course File**, then press the **ENTER** key.

This action displays the input requestor box as shown in the figure below. During this step, you name the course. The name cannot have more than 8 characters. It cannot contain any spaces or punctuation.



Type the name of the course, then press the **ENTER** key.

This action saves the course you just authored and returns you to the Authoring Facility menu as shown in the figure below.

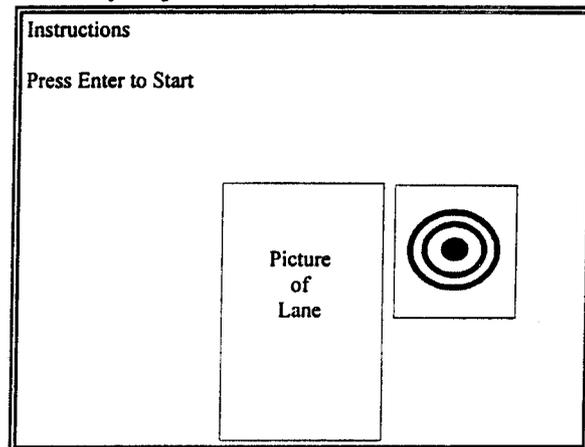


## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the **ENTER** key.

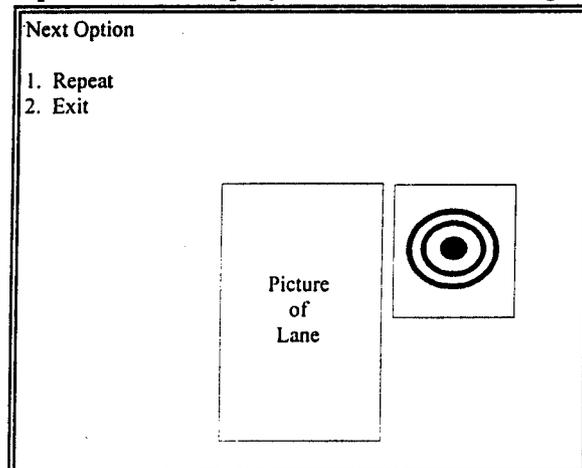
**NOTE:** If you had not just authored a course, an input requestor box would display asking you to type a course name into it. However, because the course you just authored has been stored in the memory of the computer, the computer will automatically run it.

This action displays the Instructions screen on the Big Screen as shown in the figure below. While you cannot fire at the course under this option, you will be able to see the course as it will run. Use this option to check that the course you just authored is a usable course.

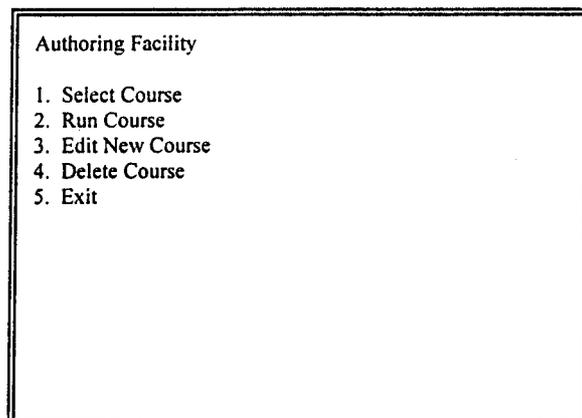


Press the **ENTER** key.

This action runs the course. After the course runs, the Next Option menu displays, as shown in the figure below.



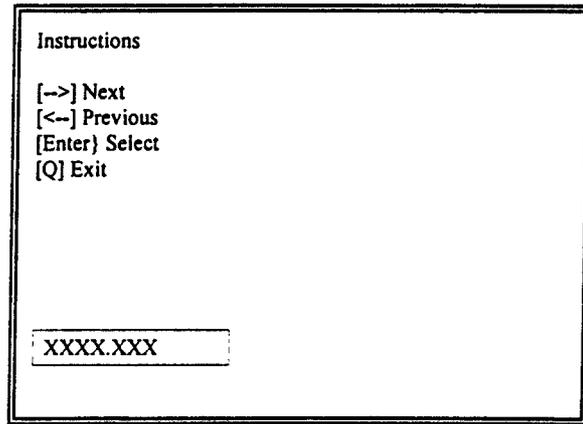
Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.



This action returns you to the Authoring Facility menu as shown in the figure above.

## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **Select Course**, then press the ENTER key.



This action displays the Instructions menu and the input requestor box as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Next** or **Previous**, then use the - or = keys to scroll through the choices of courses.

This action displays all the courses that are available for editing in the Individual Lane configuration. Leave the name of the course you want displayed in the input requestor box, then perform the next step.

Use the ↑ and ↓ arrow keys to highlight **Select**, then press the ENTER key.

This action displays the word "Loading..." in the input requestor box. The computer is loading the course you have selected.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the ENTER key.

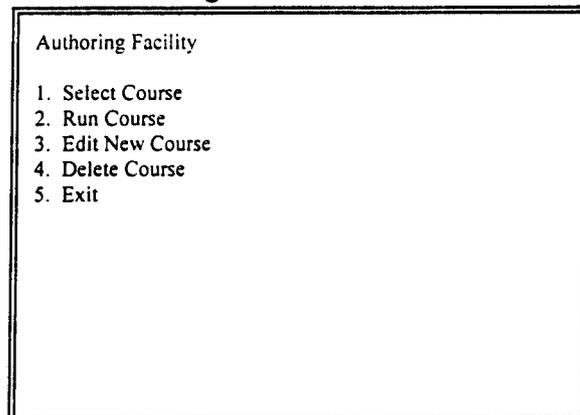
This action returns you to the Authoring Facility menu.

Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the ENTER key.

This action runs the course you have just loaded. When the course finishes running, the Next Option menu is displayed.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the ENTER key.

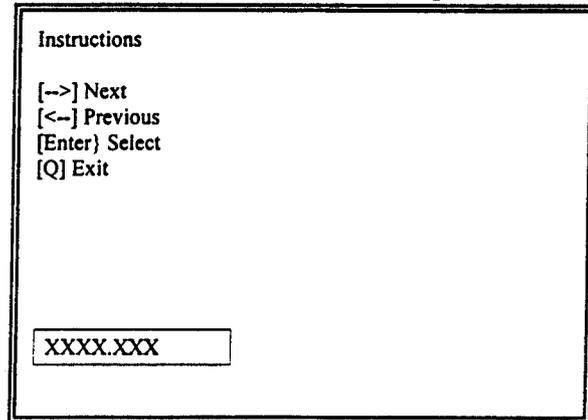
This action returns you to the Authoring Facility menu as shown in the figure below.



## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **Delete Course**, then press the **ENTER** key.

This action displays the Instructions menu with the input requestor box as shown in the figure below.



Instructions

- [→] Next
- [←] Previous
- [Enter] Select
- [Q] Exit

XXXX.XXX

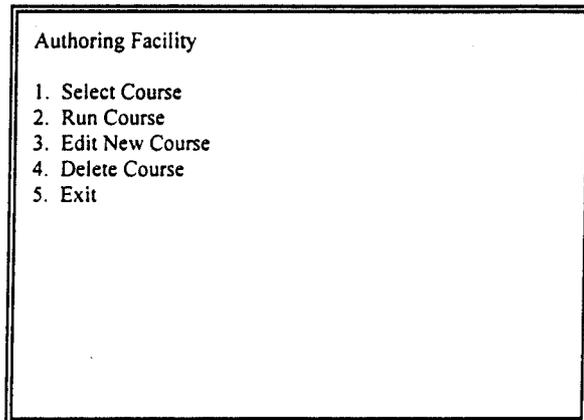
Use the ↑ and ↓ arrow keys to highlight **Next** or **Previous**, then use the → or ← keys to scroll through the choices of courses.

This action displays the different courses in the input requestor box. To **delete** an authored course, leave the course name displayed in the input requestor box.

Use the ↑ and ↓ arrow keys to highlight **Delete**, then press the **ENTER** key.

If you do not want to delete an authored course, then perform the next step.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key



Authoring Facility

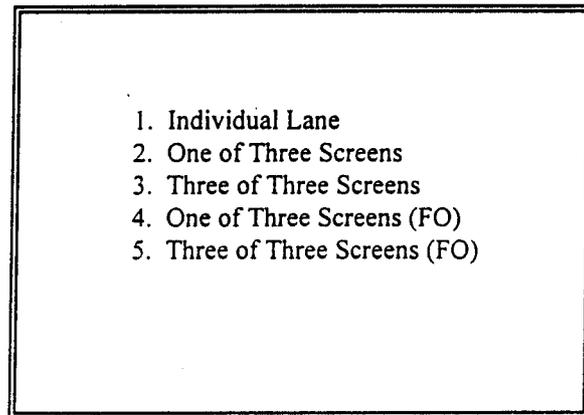
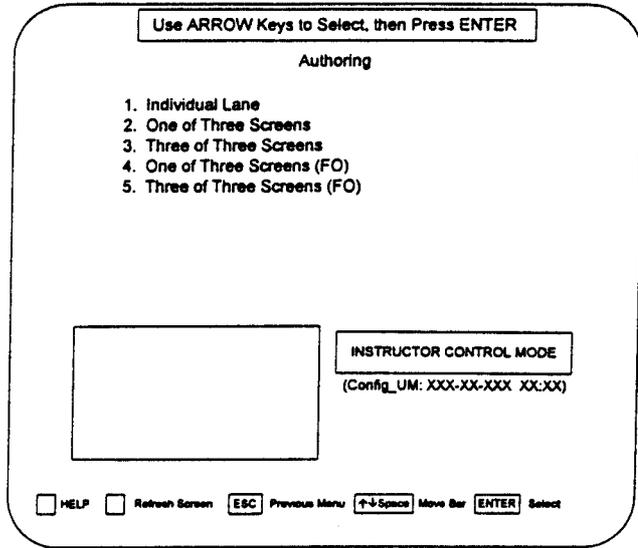
1. Select Course
2. Run Course
3. Edit New Course
4. Delete Course
5. Exit

This action takes you to the Authoring Facility menu as shown in the figure above.

## Work Sheet 3-4

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

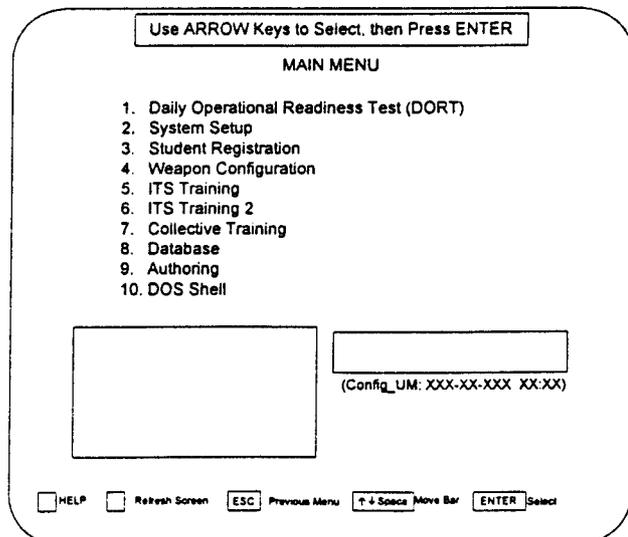
This action takes you to the PC and Big Screen displays as shown below.



Use the ↑ and ↓ arrow keys to highlight the same item that is highlighted on the other Big Screens, then press the **F10** key.

This action will re-sync the three systems.

Press the **ESC** key.



This completes Work Sheet 3-4.

**Congratulations!**  
**You have authored an Individual Lane Course.**

**REMEMBER**

1. Authoring requires imagination, understanding of the system's capabilities, and practice. The best way to maximize authoring options is to experiment.
2. Always make the targets fit the background scene proportionally. For example, do not put a 200-yard target on a target form that is obviously 400 yards away. The ISMT screen is approximately 10 feet wide. If you select a place in a background which you estimate to be 200 yards away, then the terrain at that point on the screen is actually 100 yards wide on the whole screen. A lane is about  $\frac{1}{4}$  of the full screen; therefore, a lane is about 25 yards wide at 200 yards distance, 50 yards wide at 400 yards distance, etc.

## ONE OF THREE SCREENS AUTHORIZING

### Introduction

This Assignment Sheet covers Learning Objective 3-5 (Demonstrate the ability to author a One of Three Screens course for the ISMT). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to author a One of Three Screens course for the ISMT.

### Capabilities

One-of-three screens authoring (full screen) provides the instructor the capability to create courses for the ISMT. This capability is needed in order to continually challenge the trainee in developing his/her marksmanship and decision-making (shoot/no-shoot) skills. After only a short time, the trainee will become proficient at the courses supplied with the ISMT. When this occurs, the trainee will become bored and the process of skill development will slow, if not stop altogether. In order to keep this from happening, you as the trainer must be able to develop realistic and challenging courses to continually challenge the trainee, no matter what his/her skill level.

One-of-three screens authoring provides you, the trainer, the ability to create targets, animate these targets, and change the conditions under which the targets appear both in video (dynamic environment) and graphic (static environment) modes. These factors, coupled with the system's full screen capabilities, ensure that challenging combat marksmanship and shoot/no-shoot courses will always be available to the trainee. Authoring night vision courses is exactly the same as a daylight course except that the night vision assembly is used when running a night course. No special settings are used in authoring a night vision course. Personnel not using image-enhancing devices cannot see the projected image when the night vision training device is used.

### Realism

Realistic training can be conducted for one to four trainees at a time with full screen scenarios using one-of-three-screens-authored courses for the ISMT. Three of Three Screens Authoring and course administration is functionally the same with the added feature that moving targets may cross from one screen to another. Factors controlled by the computer and instructor allow for all of the same capabilities available under supplied full screen courses. Authored courses, when used properly, should enhance the trainees' combat marksmanship abilities and decision-making process and response time in shoot/no-shoot situations. By accurately simulating many different types of environments, the trainee may be exposed to different scenarios which will lead to improved skills.

### Conducting the Training

With the proper use of the tools available for authoring One of Three Screens courses, a trainee should be able to become proficient in combat marksmanship with any of the weapons available on the system. To fully understand and utilize the system's capabilities, you must practice, practice, practice. Don't try to put too much into one course; keep it simple, especially for the first few you develop. After improving your skills at authoring, experiment with different tools and effects to create more challenging courses.

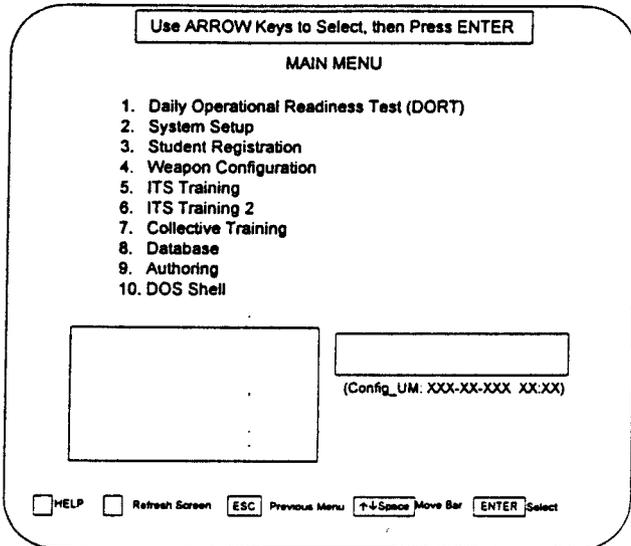
Remember to get feedback from the trainees on the courses you author. The trainees will often suggest improvements which are hard to recognize while authoring. When these improvements are included in your courses, you will be able to create better, more challenging courses than were previously possible. The associated Work Sheet will walk you through a simple authoring session, but in order to challenge trainees, you will have to develop your skills at authoring full screen training courses.

# ONE OF THREE SCREENS AUTHORIZING

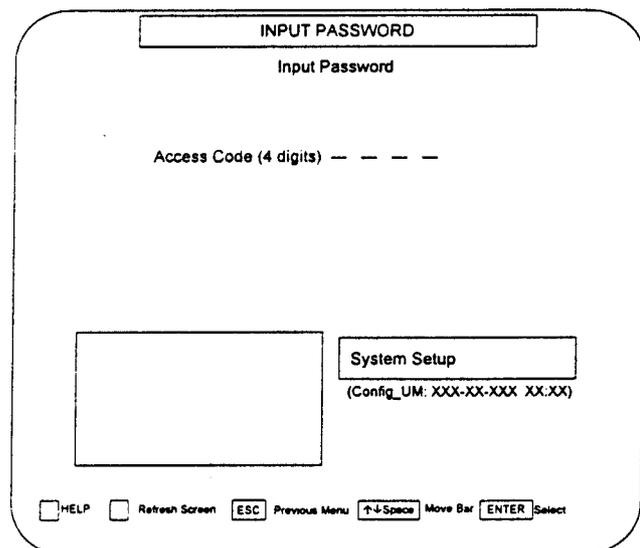
This Work Sheet covers Learning Objective 3-5 (Demonstrate the ability to author a One of Three Screens course for the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available to construct tailored One of Three Screens courses for instruction.

## ACTIONS

## RESULTS AND COMMENTS



From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Authoring**, then press the **ENTER** key.



This action brings up the Access Menu on the PC display as shown in the figure above.

## Work Sheet 3-5

From the Access Menu, use the keyboard keys to type in your access code, then press the **ENTER** key.

INPUT PASSWORD

Input Password

Access Code (4 digits) \* \* \* \*

OK! Press Enter to Proceed

System Setup  
(Config\_UM: XXX-XX-XXX XX:XX)

[HELP] [Refresh Screen] [ESC] Previous Menu [↑↓Space] Move Bar [ENTER] Select

This action displays "OK! Press Enter to Proceed" on the PC display.

Press the **ENTER** key.

Use ARROW Keys to Select, then Press ENTER

Authoring

1. Individual Lane
2. One of Three Screens
3. Three of Three Screens
4. One of Three Screens (FO)
5. Three of Three Screens (FO)

INSTRUCTOR CONTROL MODE  
(Config\_UM: XXX-XX-XXX XX:XX)

[HELP] [Refresh Screen] [ESC] Previous Menu [↑↓Space] Move Bar [ENTER] Select

The Authoring menu displays on the PC.

Use the **↑** and **↓** arrow keys to highlight **One of Three Screens**, then press the **ENTER** key.

Follow Instructions on Big Screen

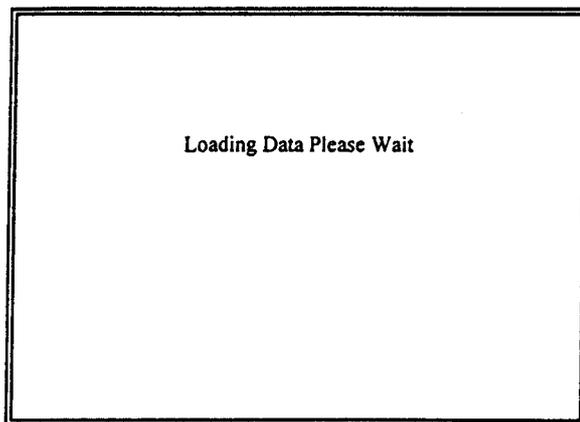
Authoring

- \* Press F7 for Left System
- \* Press F8 for Center System
- \* Press F9 for Right System
- \* Press F10 for Three Systems

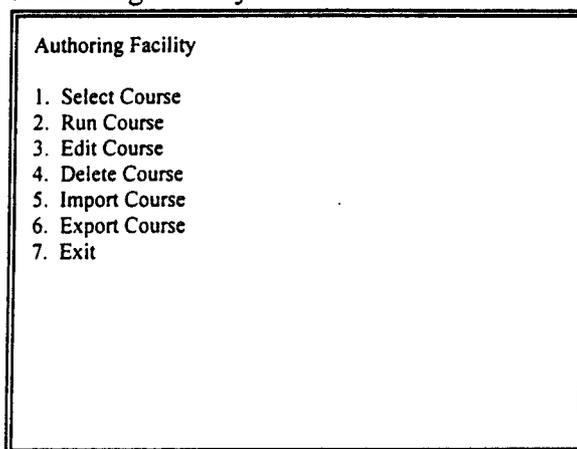
INSTRUCTOR CONTROL MODE  
(Config\_UM: XXX-XX-XXX XX:XX)

[HELP] [Refresh Screen] [ESC] Previous Menu [↑↓Space] Move Bar [ENTER] Select

Press the F7 key to select the Left system.



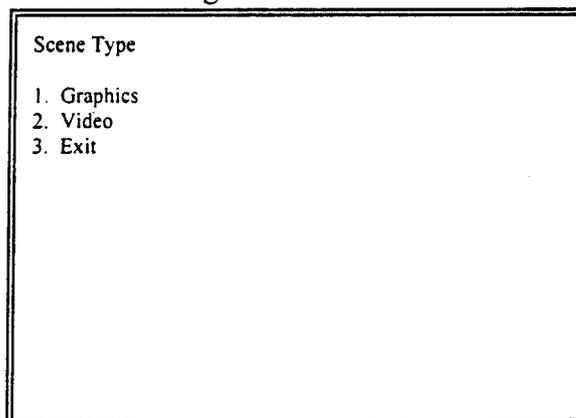
The Big Screen display looks like the figure above. After a few minutes it changes to display the Authoring Facility menu as shown below.



From the Authoring Facility menu, use the ↑ and ↓ arrow keys to highlight **Edit Course**, then press the **ENTER** key.

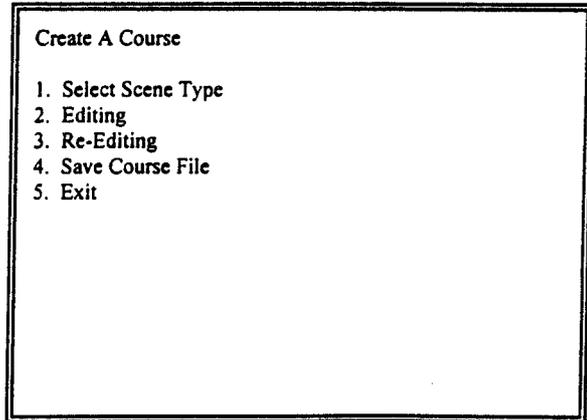
**NOTE:** You cannot select a course, run a course, or delete a course until the scene type has been selected. Selecting the scene type tells the system which course category to offer you for selection.

The Scene Type menu appears on the Big Screen as shown in the figure below.



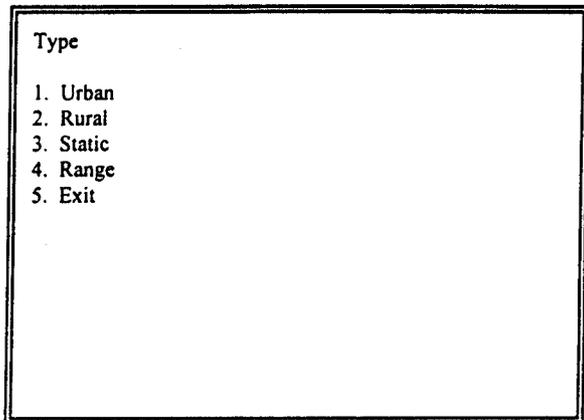
## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight **Graphics**, then press the **ENTER** key.



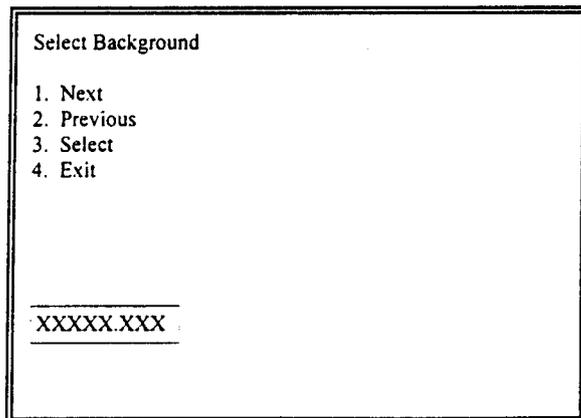
This action displays the Create A Course menu on the Big Screen as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Select Scene Type**, then press the **ENTER** key.



The Type menu appears on the Big Screen as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Urban**, then press the **ENTER** key.

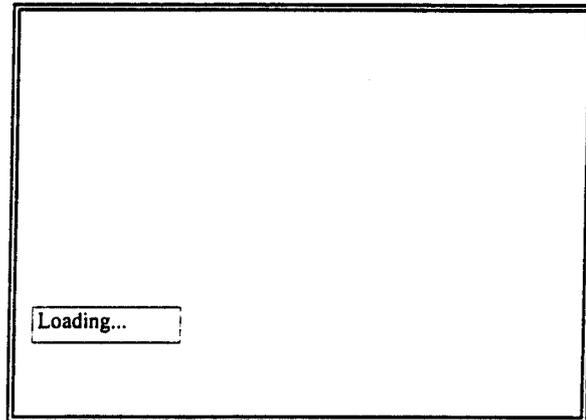


The Big Screen displays the Select Background menu with an input request box as shown in the figure above.

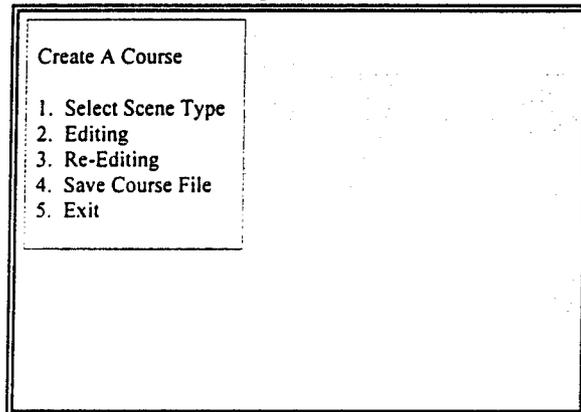
Use the ↑ and ↓ arrow keys to highlight **Next**, then press the **ENTER** key.

This action displays different scene names in the input request box. Leave `lng_bld1.tga` displayed in the input request box, and then perform the next step.

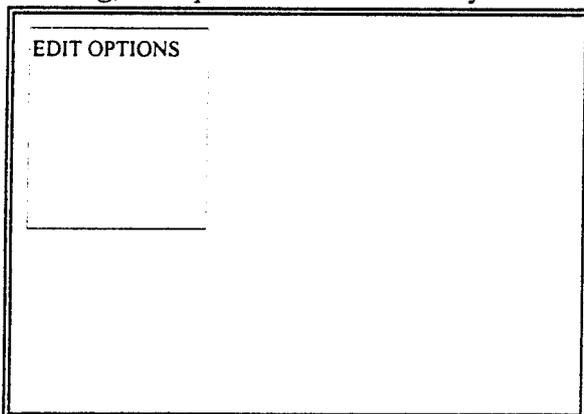
Use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key.



This action brings up the message "Loading..." in the input request box while the computer loads your choice of a background, as shown in the figure above. After a few minutes, the screen is filled with video, and the Create A Course menu is displayed as shown in the figure below.

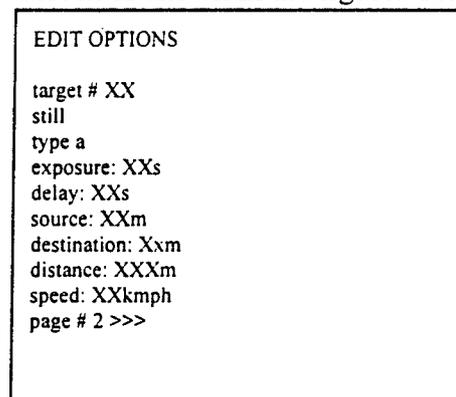


Use the ↑ and ↓ arrow keys to highlight **Editing**, then press the **ENTER** key.



Use the ↑ and ↓ arrow keys to highlight **still**, and then use the ← and → keys to scroll through the choices for this option.

This action displays the Edit Options menu(s) on the Big Screen as shown in the figures below.



The choices available are still or moving. For this first target, pick **still**.

## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight **target**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **exposure: XXs**, then press the **ENTER** key.

Type in **3**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

Type in **5**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **source: XXs**, then press the **ENTER** key.

Choose the type of target to put into your authored One of Three Screens course. For this first target, pick **type\_a**.

This action brings up the input requestor box with a question mark in it as shown in the bottom left-hand portion of the figure below.

EDIT OPTIONS

target # XX  
still  
type a  
exposure: XXs  
delay: XXs  
source: XXm  
destination: XXm  
distance: XXXm  
speed: XXkmph  
page # 2 >>>

?

The input requestor box disappears, and the value **3** appears in the highlighted area so that the words “exposure: 3s” are displayed. You have now set the time so that the target will be displayed for 3 seconds.

This action brings up the input requestor box. (Note the question mark in it).

The input requestor box disappears, and the value **5** appears in the highlighted area so that the words “delay: 5s” are displayed. You have now set the time so that the target appears 5 seconds after the beginning of the course. This means that 5 seconds after the start of the course, the target appears and will be displayed for 3 seconds as set in the step above.

EDIT OPTIONS

+

This action brings up a red cross on the picture of the lane on which you are working, as shown in the figure above. This red cross represents the bottom middle of the target.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the ENTER key.

Type in 200, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight Page # 2 >>>, then press the ENTER key.

Use the ↑ and ↓ arrow keys to highlight contrast: XX%, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight save options, then press the ENTER key.

This action positions the target where you want it to appear on the background of the lane. When you have moved the cross to the desired location, perform the next step.

This action sets the target on the background and brings up the input requestor box.

This action sets the target at the proper proportion (200 meters) into the lane at the spot you designated with the red cross. If the target does not appear correctly, perform the step again, typing in a larger value to make the target smaller or a smaller value to make the target larger.

```

EDIT OPTIONS
<<< page # 1
contrast: XX%
hostile
ID Number: XXX
save options
appear normal
disappear normal
edit terrain
Exit

```

This action brings up the second page of Edit Options as shown in the figure above.

This action scrolls through the % of contrast with which the target will be displayed against the background. 0% results in a target that completely blends with the background and appears invisible, and 100% results in a completely black target. Scroll until you have 50% displayed, and perform the next step.

```

EDIT OPTIONS
target # XX
still
type a
exposure: XXs
delay: XXs
source: XXm
destination: XXm
distance: XXXm
speed: XXkmph
page # 2 >>>

```

This action saves the target as target 01 in the course and returns you to page one of the Edit Options.

Use the ↑ and ↓ arrow keys to highlight **target # XX**, then use the → arrow key to select **02**.

This action starts the process for setting up a second target on the lane.

Use the ↑ and ↓ arrow keys to highlight **still**, and then use the → and ← keys to scroll through the choices for this option.

Select the option **moving**.

Use the ↑ and ↓ arrow keys to highlight **type a**, and then use the → and ← keys to scroll through the choices for this option.

Select **type d**.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

This action brings up the input requestor box.

Type in **8**, then press the **ENTER** key.

The input requestor box disappears, and the value **8** appears in the highlighted area so that the words "delay: 8s" are displayed. You have now set the time for the target to appear at 8 seconds after the beginning of the course. This is when your first target will disappear.

Use the ↑ and ↓ arrow keys to highlight **source: XXs**, then press the **ENTER** key.

This action brings up a red cross on the picture of the background on which you are working. The red cross represents the bottom middle of the target.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

This action positions the target where you want it to start on the background. When you have moved the cross to the desired location, perform the next step.

Press the **ENTER** key.

This sets the target on the background and brings up the input requestor box.

Type in **200**, then press the **ENTER** key.

This action sets the target at the proper proportion at the spot you designated with the red cross. If the target does not appear to be the correct size, perform the step again and type a different value.

Use the ↑ and ↓ arrow keys to highlight **destination: XXs**, then press the **ENTER** key.

This action brings up a red cross on the picture of the background on which you are working.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

This action positions the target where you want it to end its movement on the background. When you have moved the cross to the desired location, perform the next step.

Press the **ENTER** key.

This action sets the target where it will end its movement on the lane and brings up the input requestor box.

Type in 200, then press the ENTER key.

This action sets the target into the background at the proper proportion for a target at 200 meters distance, at the spot you designated with the red cross.

Use the ↑ and ↓ arrow keys to highlight distance: XXXm, then press the ENTER key.

This action brings up the input requestor box.

Type in 100, then press the ENTER key.

This action sets the distance the target travels to 100 meters.

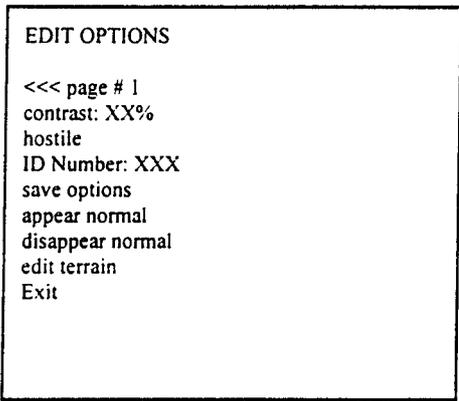
Use the ↑ and ↓ arrow keys to highlight speed: XXkmph, then press the ENTER key.

This action brings up the input requestor box.

Type in 7, then press the ENTER key.

This action sets the speed of the target's movement across the screen. Since you have now set the speed and distance, the Exposure is automatically filled in with the correct value. Check the value to ensure that it is appropriate for your course. It would be of little value to add a moving target if it were going to be exposed for 10 minutes. Adjust the speed or distance (or both) to expose the target for an appropriate time.

Use the ↑ and ↓ arrow keys to highlight Page # 2 >>>, then press the ENTER key.



This action brings up the second page of Edit Options as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight contrast: XX%, and then use the → and ← keys to scroll through the choices for this option.

This action scrolls through the % of contrast between the target and the background.

Use the ↑ and ↓ arrow keys to highlight appear normal, and then use the → and ← keys to scroll through the choices for this option.

This action scrolls through the different options available for making the target appear. The options are **appear normal**, **emerge to East**, **emerge to West**, and **rise**. Leave the selection on **rise**.

Use the ↑ and ↓ arrow keys to highlight **disappear normal**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **Save Options**, then press the **ENTER** key.

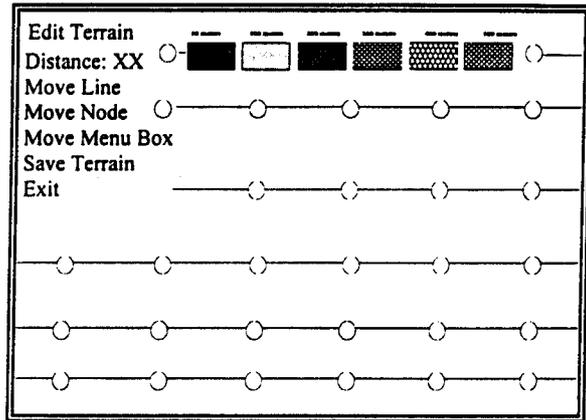
Use the ↑ and ↓ arrow keys to highlight **Page # 2 >>>**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Edit Terrain**, then press the **ENTER** key.

This action scrolls through the options available for making the target disappear. The options are **disappear normal**, **shelter to East**, **shelter to West**, **drop**, **retreat**, and **stop**. Leave the selection on **drop**.

This action saves the target as target 02 in the course and returns you to page one of the Edit Options.

This action brings up the second page of Edit Options.



This action brings up the Edit Terrain menu and terrain lines as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Distance: XX**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Move Line**, then press the **ENTER** key.

Press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Move Node**, then press the **ENTER** key.

This action scrolls through the different distances of the terrain lines. Note the legend box that contains the colors used to denote the different distances. Select the closest distance, 50 meters, and then perform the next step.

Now use the ↑ and ↓ arrow keys to move the 50-meter line up and down on the screen. This action tells the computer the distance to objects on the screen. When you have positioned the distance line at the point where you want it, perform the next step.

This action takes you out of Move Line so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

Now use the ↑ and ↓ arrow keys to move the selected node (selected node turns black) on the 50-meter line up and down. To change the node, use the → and ← arrow keys. After you have positioned the 50-meter line nodes where you want them, perform the next step.

Press the **ENTER** key.

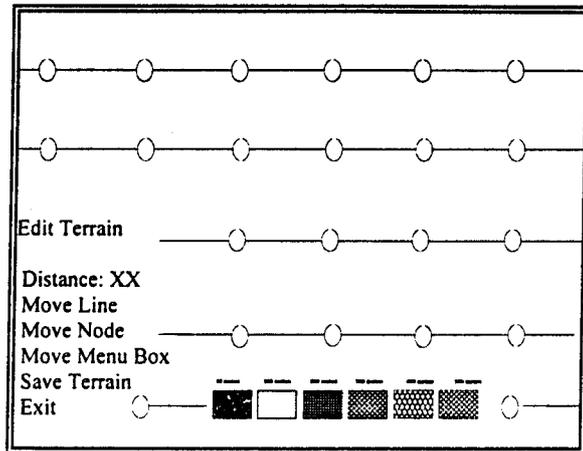
Use the ↑ and ↓ arrow keys to highlight **Distance**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Move Menu Box**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

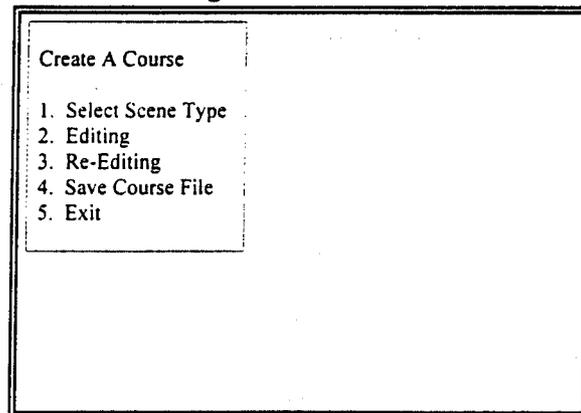
This action takes you out of Move Node so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

This action brings up the distances so that you can adjust the positions and nodes. Perform the same procedure on the remaining lines that you did on the 50-meter line to accurately reflect the distances you see in the graphic. If the menu box and legend box get in the way of adjusting the range lines, perform the next step.

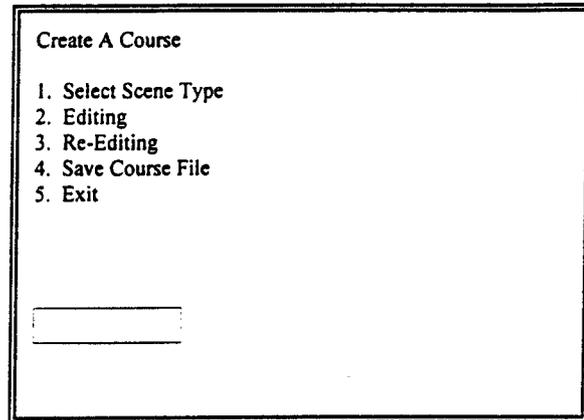


This action moves the menu box and the legend box to the other half of the screen as shown in the figure above.

This action returns you to the Create A Course menu as shown in the figure below.

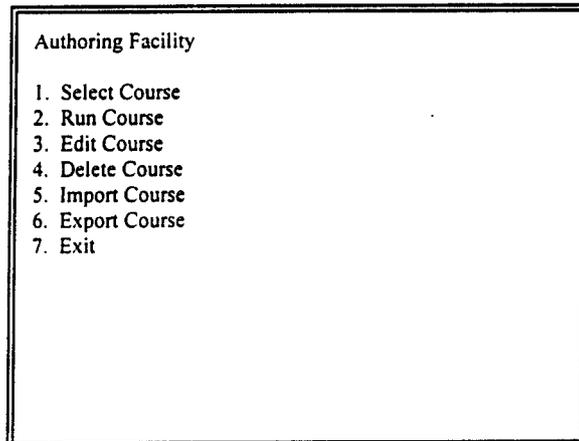


Use the ↑ and ↓ arrow keys to highlight **Save Course File**, then press the **ENTER** key.



This action brings up the input requestor box, as shown in the figure above. At this time you will name the course. The name cannot be more than 8 characters. It cannot contain any spaces or punctuation.

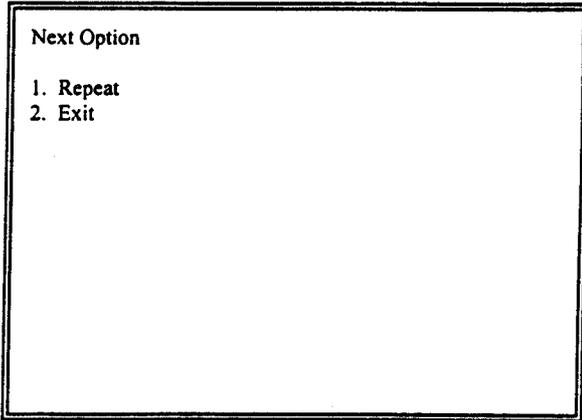
Type in your course's name, then press the **ENTER** key.



This action saves the course you just authored and returns you to the Authoring Facility menu, as shown in the figure above.

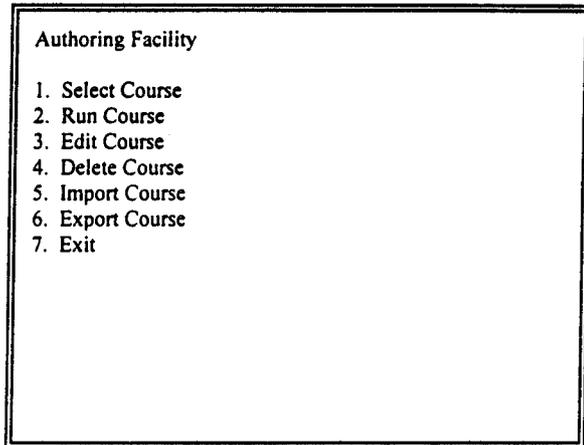
Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the **ENTER** key.

Your authored course should now run. Because the course you just authored is stored in the memory of the computer, the computer will automatically run it. While you cannot fire at the course under this option, you will be able to see the course as it will run. Use this option to check that the course you just authored is a usable course. It is important to note that if you had not just authored a course, an input request box would display asking you to type a course name into it.



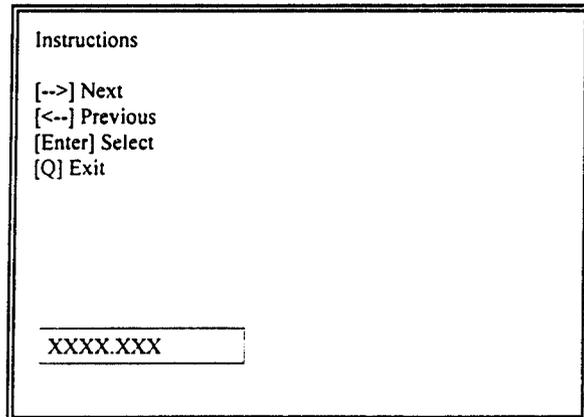
The Next Option menu displays when the course finishes.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.



This action returns you to the Authoring Facility menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Select Course**, then press the **ENTER** key.



This action brings up the Instructions menu and the input requestor box as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Next** or **Previous**, then use the → or ← keys to scroll through the choices of courses.

This action displays all the courses that are available for editing in the One of Three Screens configuration. Leave the name of the course you want displayed in the input requestor box and perform the next step.

## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight **Select**, then press the ENTER key. Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the ENTER key to return to the Authoring Facility menu.

### Authoring Facility

1. Select Course
2. Run Course
3. Edit Course
4. Delete Course
5. Import Course
6. Export Course
7. Exit

This action displays the message "Loading..." in the input requestor box. The computer loads the course you have selected, then displays the Authoring Facility menu.

Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the ENTER key.

### Next Option

1. Repeat
2. Exit

This action runs the course you have just loaded. When the course finishes, the Instructions menu displays.

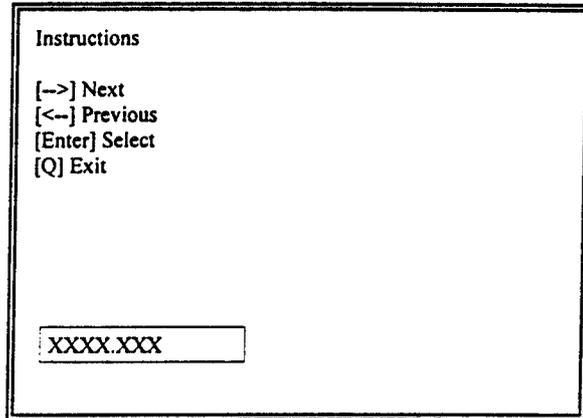
Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the ENTER key.

### Authoring Facility

1. Select Course
2. Run Course
3. Edit Course
4. Delete Course
5. Import Course
6. Export Course
7. Exit

This action takes you back to the Authoring Facility menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Delete Course**, then press the **ENTER** key.



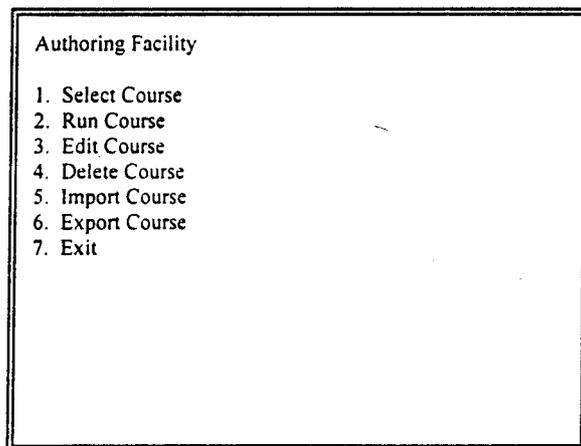
This action displays the Instructions menu with the input requestor box as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Next** or **Previous**, then use the → or ← keys to scroll through the choices of courses.

Course names display in the input requestor box. To delete an authored course, leave that course's name displayed in the input requestor box.

If you do not want to delete an authored course, skip this step and perform the next step. To delete the course use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key. Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

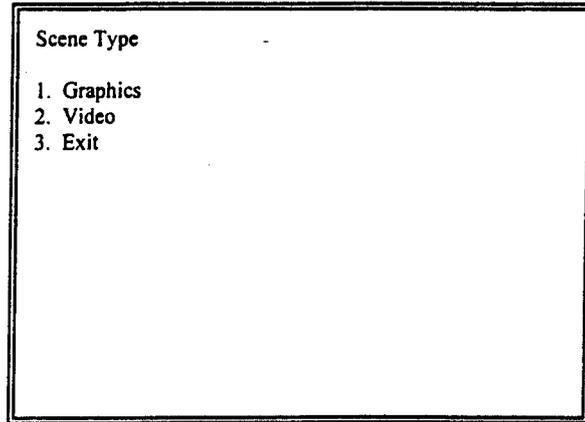
Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.



This action returns you to the Authoring Facility menu.

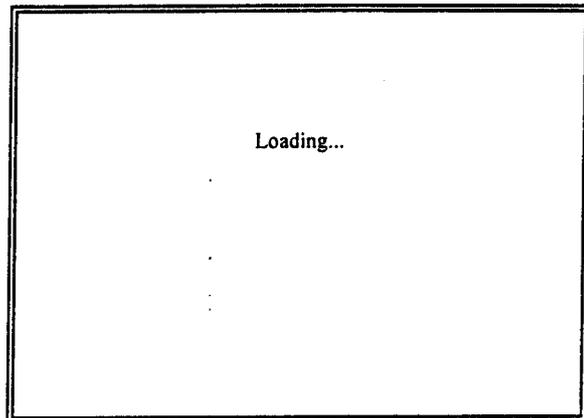
## Work Sheet 3-5

From the Authoring Facility menu, use the ↑ and ↓ arrow keys to highlight **Edit Course**, then press the **ENTER** key.

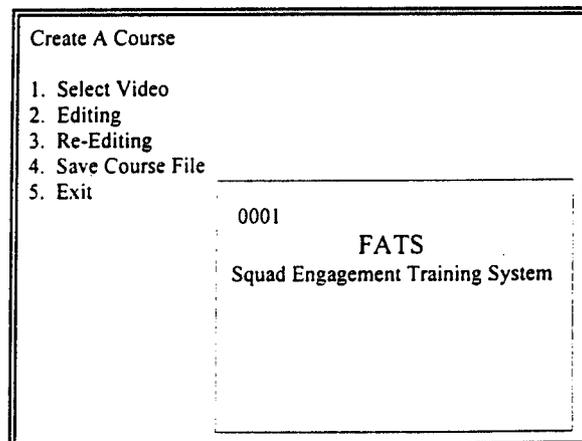


The Scene Type menu appears on the Big Screen.

Use the ↑ and ↓ arrow keys to highlight **Video**, then press the **ENTER** key.



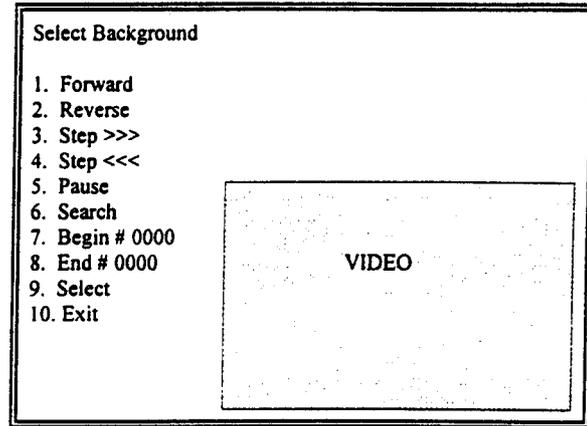
This loading of the video may take a few minutes. The system loads the video and sets the camera up to display at video resolutions.



This action displays the Create A Course menu on the Big Screen. It may take a few minutes for the menu to load because the camera has to change resolutions.

## Work Sheet 3-5

From the Create A Course menu use the ↑ and ↓ arrow keys to highlight **Select Video**, then press the **ENTER** key.

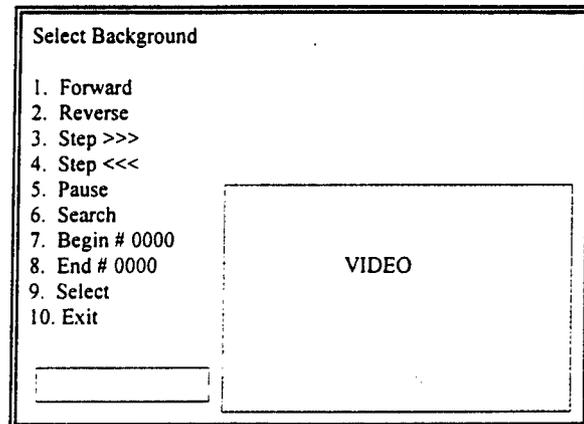


This action displays the Select Background menu.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Forward**, then press the **ENTER** key.

This action starts the video playing in the window. The video displays at 30 frames a second. Watch a few minutes of the video to locate a scene that you want to use for the course you are authoring. To stop the video, select either **Step**, **Pause**, **Search**, **Begin**, **End**, or **Select**, then press the **ENTER** key.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Search**, then press the **ENTER** key.



This action brings up the input requestor box as shown in the figure above. Type in **996**, and perform the next step.

Press the **ENTER** key.

This action displays frame 996 in the video box.

From the Create A Course menu, use the ↑ and ↓ arrow keys to highlight **Step >>>**, then press the **ENTER** key.

This action moves the display one frame each time you press the **ENTER** key. The **Step <<<** works the same way, but in reverse.

From the Select Background menu use the ↑ and ↓ arrow keys to highlight **Search**, then press the **ENTER** key.

This action brings up the input requestor box as shown in the figure above. Type in **1216**, then perform the next step.

Press the **ENTER** key.

This action displays frame 1216 in the video box. Using the step function, step through the frames until you come to the end of the displayed scene.

## Work Sheet 3-5

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Begin # 0000**, then press the **ENTER** key.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **End # 0000**, then press the **ENTER** key.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Search**, then press the **ENTER** key.

**NOTE:** You cannot begin a target and the video on the same frame. Always search for a frame after the beginning of the video, before you edit targets.

From the Select Background menu, use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

From the Create A Course menu, use the ↑ and ↓ arrow keys to highlight **Editing**, then press the **ENTER** key.

This action brings up the input requestor box again. Type in **996**, and notice that the menu item **Begin # 0000** changes to **Begin # 0996**.

This action brings up the input requestor box again. Type in **1216**, and notice that the menu item **End # 0000** changes to **End # 1216**.

This action selects the frame of video starting at frame 996 and ending at frame 1216 for the background. This film clip is 220 frames. At 30 frames per second, you have a little more than 7 seconds of video. Keep this in mind when editing targets. You should now have the **Create A Course** menu displayed with frame 1216 in the video box.

This action brings up the input requestor box again. Type in **1000**. This is the frame on which your first target will begin.

```
Create A Course
1. Select Video
2. Editing
3. Re-Editing
4. Save Course File
5. Exit
1000
```

This action displays the **Create A Course** menu.

```
EDIT OPTIONS
target # XX
still
type a
exposure: XXs
delay: XXs
source: XXm
destination: XXm
distance: XXXm
speed: XXkmph
page # 2 >>>
```

This action displays the **Edit Options** menu.

## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight **still**, and then press the **ENTER** key to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **type a**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

Type in **0**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **source: XXs**, then press the **ENTER** key.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the **ENTER** key.

Type in **100**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **destination: XXs**, then press the **ENTER** key.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the **ENTER** key.

Type in **100**, then press the **ENTER** key.

Select **moving**.

This time, select the target type **human2h**.

This action brings up the input requestor box.

The input requestor box disappears, and the value **0** appears in the highlighted area so that the words "delay: 0s" are displayed.

This action brings up a red cross on the picture of the background. The red cross represents the bottom middle of the target you have selected.

This action positions the target where you want it to begin moving. Move the cross to the tree line in the center of the video so that the target appears to have just stepped out of the trees.

This sets the target on the background and brings up the input requestor box.

This action sets the target at the proper proportion into the background at the spot you designated with the red cross. If the target does not appear to be the correct size, perform the step again and type in a different value.

This action brings up a red cross on the picture of the background.

This action positions the target where you want it to end its movement on the background. Move the cross to the far right side of the screen so that it appears to have taken shelter to the east.

This sets where the target will end its movement on the lane and brings up the input requestor box with a question mark in it.

This action sets the target at the proper proportion for a target at 100 meters distance into the background, at the spot you designated with the red cross.

Use the ↑ and ↓ arrow keys to highlight **distance: XXXm**, then press the **ENTER** key.

Type in **75**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Speed: XXkmph**, then press the **ENTER** key.

Type in **25**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **page # 2 >>>**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **contrast: XX%**, and then use the → or ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **appear normal**, and then use the → or ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **disappear normal**, and then use the → or ← keys to scroll through the choices for this option.

This action brings up the input requestor box.

This action sets the distance the target travels at 75 meters.

This action brings up the input requestor box.

This action sets the speed of the target's movement across the screen. Since you have now set the speed and distance, the Exposure is automatically calculated using the correct value. Check the value to ensure that it is appropriate for the course. Remember that the video will only last a little more than 7 seconds. Make adjustments to the distance and speed to expose the target no more than 7 seconds.

```
EDIT OPTIONS
<<< page # 1
contrast: XX%
hostile
ID Number: XXX
save options
appear normal
disappear normal
edit terrain
Exit
```

This action brings up the second page of Edit Options as shown in the figure above.

This action scrolls through the % of contrast between the target you have selected and the background.

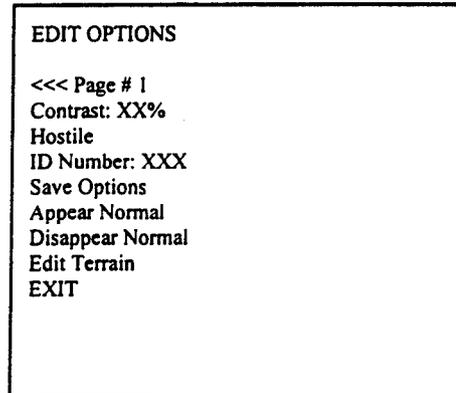
This action scrolls through the options available for making the target appear. The options are **appear normal**, **emerge to East**, **emerge to West**, and **rise**. Leave the selection on **emerge to East**.

This action scrolls through the options available for making the target disappear. The options are **disappear normal**, **shelter to East**, **shelter to West**, **drop**, **retreat**, and **stop**. Leave the selection on **shelter to East**.

Use the ↑ and ↓ arrow keys to highlight **save options**, then press the **ENTER** key.

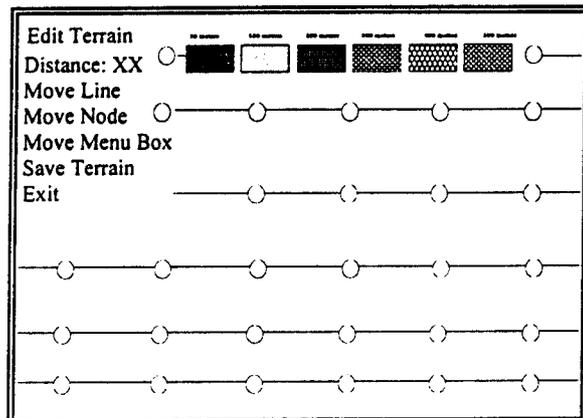
Use the ↑ and ↓ arrow keys to highlight **page # 2 >>>**, then press the **ENTER** key.

This action saves the target as target 01 in the course and returns you to page one of the Edit Options.



This action brings up the second page of Edit Options as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Edit Terrain**, then press the **ENTER** key.



This action brings up the Edit Terrain menu and terrain lines as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Distance**, then press the **ENTER** key.

This action scrolls through the distances of the terrain lines. Note the legend box with the colors which denote different distances. Select the closest distance, 50 meters, then perform the next step.

Use the ↑ and ↓ arrow keys to highlight **Move Line**, then press the **ENTER** key.

Now use the ↑ and ↓ arrow keys to move the 50-meter line up and down on the screen. This action tells the computer the distance to objects on the screen. When you have positioned the distance line at the point where you want it, perform the next step.

Press the **ENTER** key.

This action takes you out of Move Line so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight **Move Node**, then press the **ENTER** key.

Press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Distance**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Move Menu Box**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key to return to the Create A Course menu.

Use the ↑ and ↓ arrow keys to highlight **Save Course File**, then press the **ENTER** key.

**NOTE:** The name cannot be more than 8 characters. It cannot contain any spaces or punctuation.

Now use the ↑ and ↓ arrow keys to move the selected node (selected node turns black) on the 50-meter line up and down. To change the node selected, use the → and ← arrow keys. After you have positioned the 50-meter line nodes, perform the next step.

This action takes you out of Move Node so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

This action brings up the next distance so that you may adjust its position and nodes. Perform the same procedure on the 100-meter line that you did on the 50-meter line so that the 100-meter line accurately reflects the distance you want on the graphic. If the menu box and legend box get in the way of adjusting the distance lines, perform the next step.

This action moves the menu box and the legend box to the other half of the screen.

Create A Course

1. Select Video
2. Editing
3. Re-Editing
4. Save Course File
5. EXIT

This action brings up the input requestor box with a question mark in it. At this time, you will name the course.

Create A Course

1. Select Scene Type
2. Editing
3. Re-Editing
4. Save Course File
5. Exit

\_\_\_\_\_

?

\_\_\_\_\_

## Work Sheet 3-5

Type in the name of the course, then press the **ENTER** key.

### Authoring Facility

1. Select Course
2. Run Course
3. Edit Course
4. Delete Course
5. Import Course
6. Export Course
7. Exit

This action saves the course you just authored and takes you to the Authoring Facility menu as shown above.

Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the **ENTER** key.

### Instructions

Press Enter to Start

Because the course you just authored is in the memory of the computer, the computer will automatically run it. This action brings up the Instructions screen on the Big Screen as shown in the figure above. You will be able to see the course as it will run to check that it is a usable course.

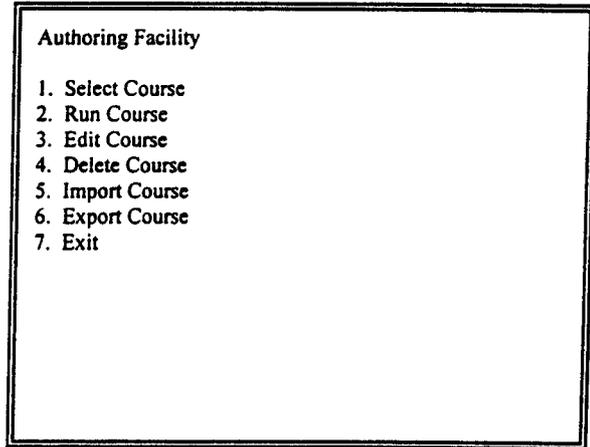
Press the **ENTER** key.

### Next Option

1. Repeat
2. EXIT

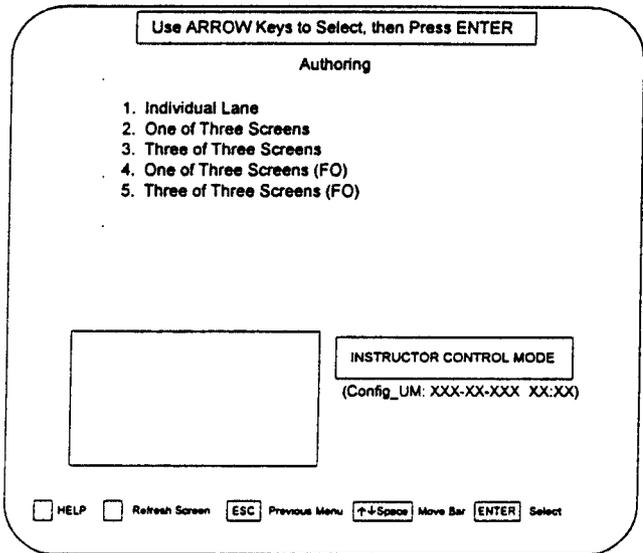
This action runs the course and then brings up the Next Option menu as shown in the figure above. If the course did not run the way you wanted it to, from the Authoring Facility Menu, select Edit Course to get to the Create A Course menu. From the Create A Course menu, select Re-Editing. Make sure the input requestor box contains the name of the course you want, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight Exit, then press the ENTER key.

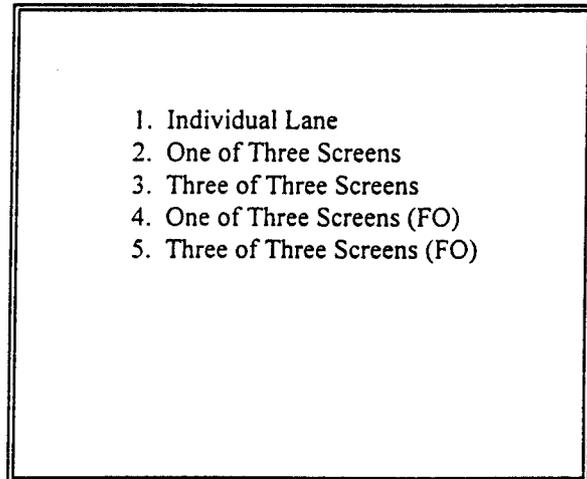


This action returns you to the Authoring Facility menu as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight Exit, then press the ENTER key.



This action takes you to the PC display as shown in the figure above. The Big Screen also displays the authoring menu as show below.



## Work Sheet 3-5

Use the ↑ and ↓ arrow keys to highlight the same item that is highlighted on the other Big Screens, then press the F10 key.

This action re-syncs the three systems.

Press the ESC key.

Use ARROW Keys to Select, then Press ENTER

MAIN MENU

1. Daily Operational Readiness Test (DORT)
2. System Setup
3. Student Registration
4. Weapon Configuration
5. ITS Training
6. ITS Training 2
7. Collective Training
8. Database
9. Authoring
10. DOS Shell

(Config\_UM: XXX-XX-XXX XX:XX)

HELP    Refresh Screen    ESC Previous Menu    ↑↓ Space Move Bar    ENTER Select

This completes Work Sheet 3-5.

**Congratulations!**

**You have authored a One of Three Screens course with a graphic and a video.**

## FORWARD OBSERVER COURSES

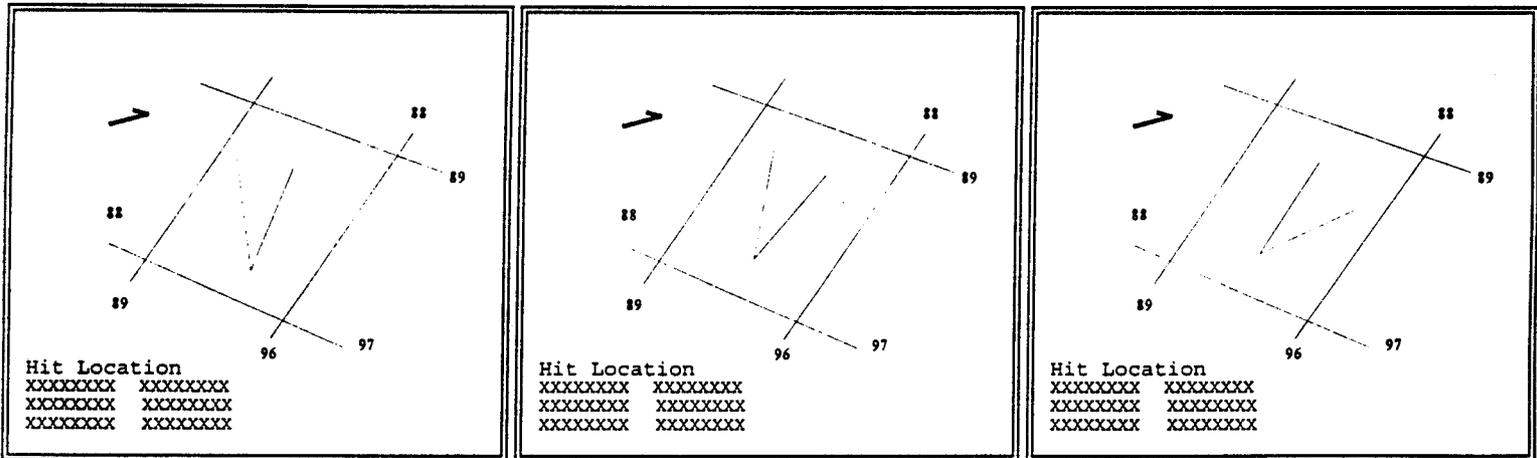
### Introduction

This Assignment Sheet covers Learning Objective 3-6 (Demonstrate the ability to administer a Forward Observer course on the ISMT). By completing this Assignment Sheet and the associated Work Sheets, you will gain the knowledge necessary to conduct effective Forward Observer training on the ISMT.

### Capabilities

The IST/ISMT is capable of accurately displaying the results of artillery or close air support on user-defined courses. An FO course may be designed with any number of targets, hard and soft, moving and still. The user-designed courses may use any of several supplied graphic backgrounds. The type of weapons simulated for FO are the 60 mm, 81 mm, 105 mm, 155 mm and 5" VAL. Additionally there is a close air (bombs) option. The projectile types simulated by the system are smoke or high explosives, and the fuse types are impact, delay, proximity, and near surface. With all the different options available for course creation, a variety of simulations may be generated to challenge and develop the trainees' skills at being a forward observer.

Forward Observer courses must be created using the same functionality that is used in the creation of One-of-Three and Three-of-Three courses. One of the only differences is that the Forward Observer course is approximately 4,000 yards of view. Care must be used when placing the contour lines, as the system uses their spacing when calculating the distances on the screen. With practice you will be able to accurately place targets for called-in artillery.



The three fields of views as shown for an IST setup will not cover the possible grid coordinates that the system will accept. This means that shots called in to coordinates not in the field of views will not be displayed on the screens. The system always displays grid coordinates in the display results on map option at the end of a course.

## Realism

Realistic training can be conducted for one to twelve trainees at a time using FO authored courses. When creating an FO course make plenty of targets for trainees who are using small arms weapons. This will keep them challenged while a single or at most two other trainees are calling for artillery. In creating these targets all of the same factors you used to create One of Three and Three of Three courses must be used. Factors controlled by the computer and instructor allow for weather effects, poor to excellent lighting, night vision scenarios, antipersonnel, antitank, or combinations of all of these factors in combat scenarios. Both FO and conventional marksmanship types of training, when used properly, should enhance the trainees' abilities. By accurately simulating many different types of environments, the trainee may be exposed to different combat or other life-threatening situations which will lead to improved marksmanship, fire control coordination, and decision-making.

## Conducting the Training

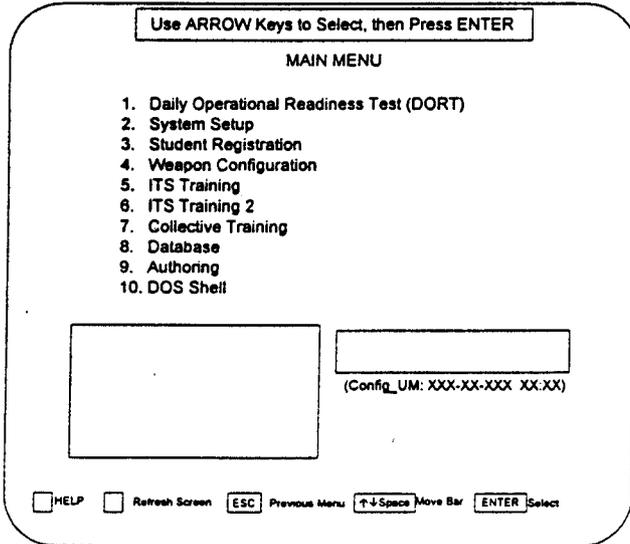
With the proper use of the tools available with FO training, a trainee should be able to become proficient in calling for accurate artillery strikes. To fully understand and utilize the system's capabilities, you must be familiar with all forms of coordinating and delivering ordinance. This Handbook will not attempt to teach you forward observer processes or techniques; it will provide you with the tools to use to create courses and train others in coordinating and delivering ordinance. The only way that you will become better at training others in Forward Observer courses is to practice, practice, practice. Continually create new courses and reedit old ones to make them more challenging and realistic. The associated Work Sheet will walk you through a simple training session, but in order to challenge trainees, you will have to develop your skills at creating FO courses and administering FO training.

## FORWARD OBSERVER COURSES

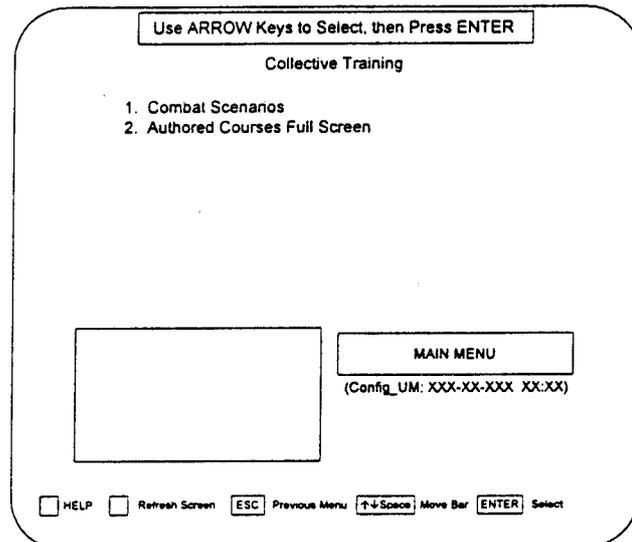
This Work Sheet covers Learning Objective 3-6 (Demonstrate the ability to administer a Forward Observer course on the ISMT). Upon completion of this Work Sheet, you will be familiar with the options available to conduct effective forward observer training on the ISMT. Before beginning this Work Sheet, you must have already performed Work Sheets 3-1, 3-3, and 3-5. For the purpose of this Work Sheet, you do not need a weapon registered. To administer effective Forward Observer training courses, you will need to run several courses using several different types of setups.

### ACTIONS

### RESULTS AND COMMENTS



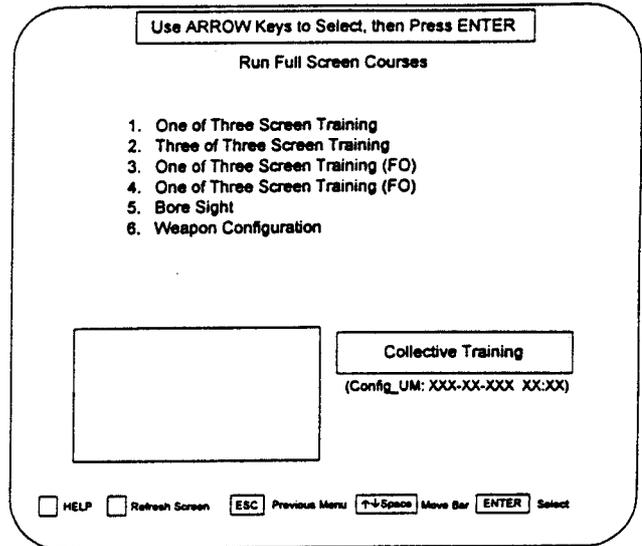
From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Collective Training**, then press the **ENTER** key.



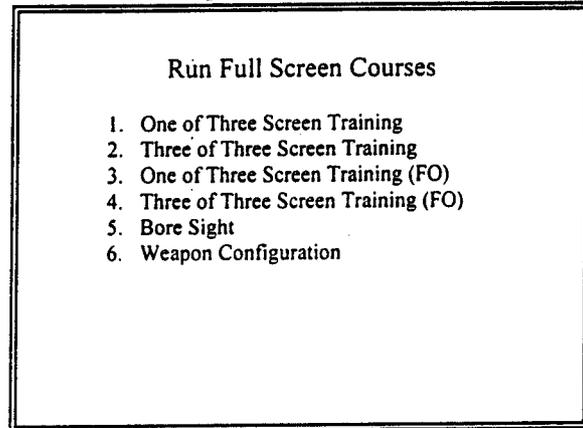
This action brings up the Collective Training menu on the PC display as shown in the figure above.

# Work Sheet 3-6

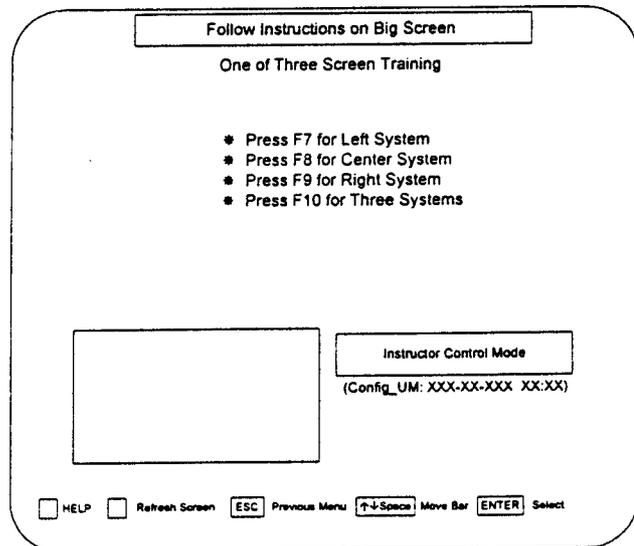
Use the ↑ and ↓ arrow keys to highlight **Authored Courses Full Screen**, then press the **ENTER** key.



The Run Full Screen Courses menu displays on the PC, and the Big Screen looks like the figure below.



Use the ↑ and ↓ arrow keys to highlight **Three of Three Screen Training (FO)**, then press the **ENTER** key.



The Select System menu displays on the PC.

## Work Sheet 3-6

Press the F10 key.

Instructions

[-->] Next  
[-->] Previous  
[Enter] Select  
[Q] Exit

XXXX.XXX

Use the ↑ and ↓ arrow keys to highlight **Next** or **Previous**, then use the → or ← keys to scroll through the choices of courses.

Use the ↑ and ↓ arrow keys to highlight **Select**, then press the **ENTER** key. Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key.

This action displays all the courses that are available for running in the Three of Three Screens (FO) configuration. Leave the name of the course you want displayed in the input requestor box, and perform the next step.

Instructions

[-->] Next  
[-->] Previous  
[Enter] Select  
[Q] Exit

Loading....

Use ARROW Keys to Select, then Press ENTER

COURSE SETUP

1. Run Course
2. Register Known Point
3. Ammunition
4. Environmental Setup
5. Video Adjustment
6. Projector Adjustment

Wind Direction:  
Wind Strength :  
Light Level :  
Feedback :  
Fall when Hit :

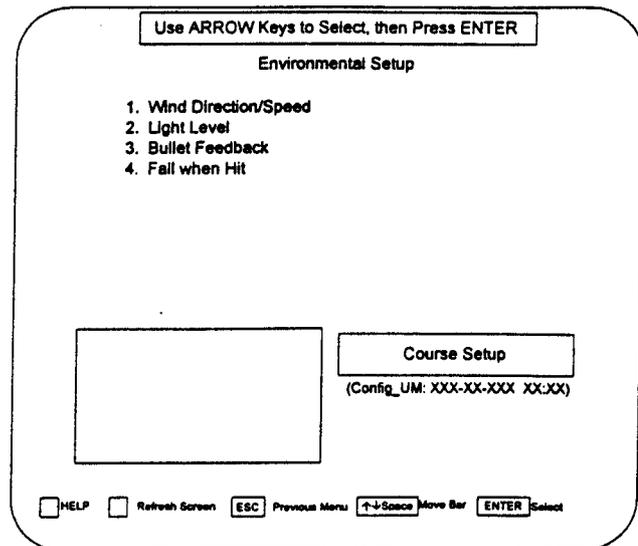
Course Selection  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

After the course loads, the Course Setup menu displays on the PC.

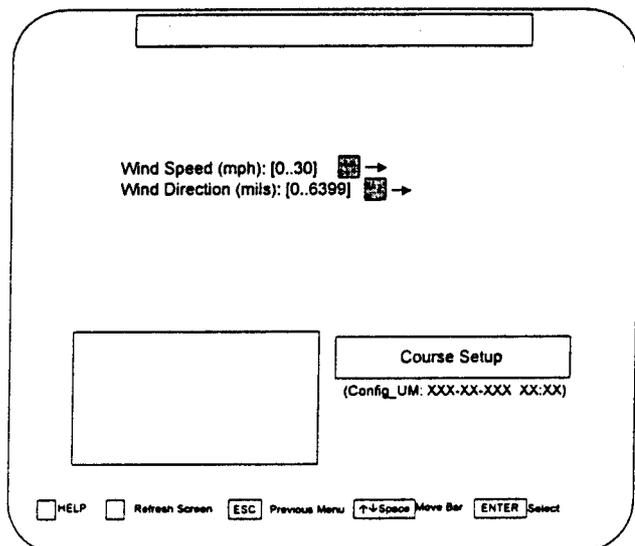
## Work Sheet 3-6

Use the ↑ and ↓ arrow keys to highlight **Environmental Setup**, then press the **ENTER** key.



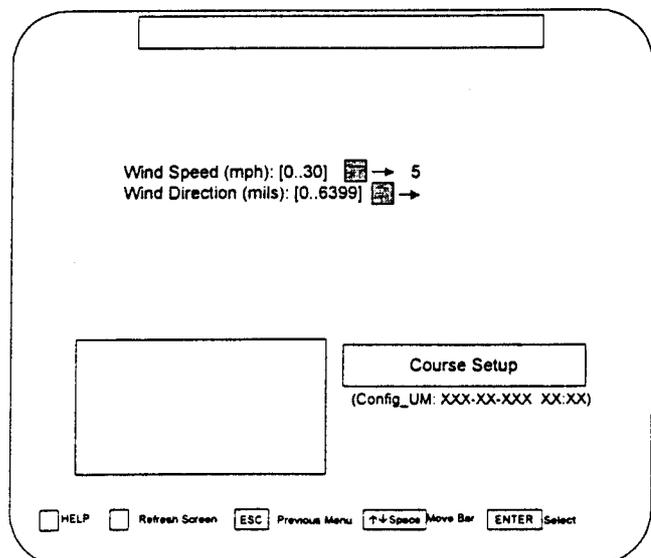
The Environmental Setup menu displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **Wind Direction/Speed**, then press the **ENTER** key.

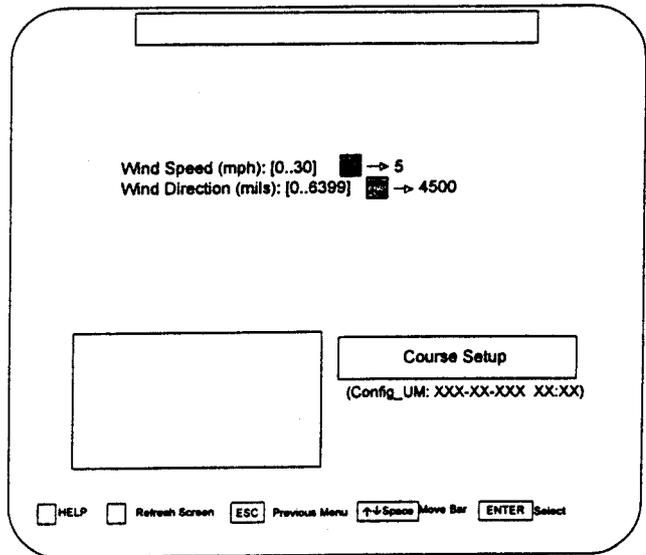


The greyed boxes contain the current settings for wind direction and speed.

Use the ↑ and ↓ arrow keys to highlight **Wind Speed**, then type in the wind speed in mph from 0 to 30. For this exercise type in **5**.

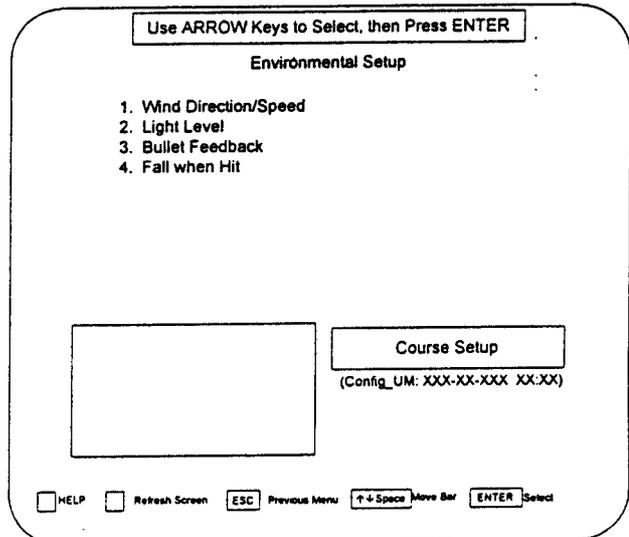


Use the ↑ and ↓ arrow keys to highlight **Wind Direction**, then type in the wind direction in mils from 0 to 6399. For this exercise type in **4500**.



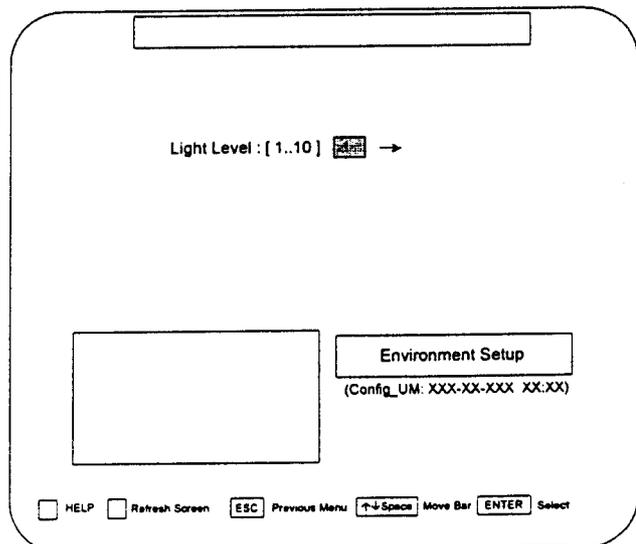
The values you typed in appear after the arrows for the Wind Speed and Wind Direction lines.

Press the **ESC** key.

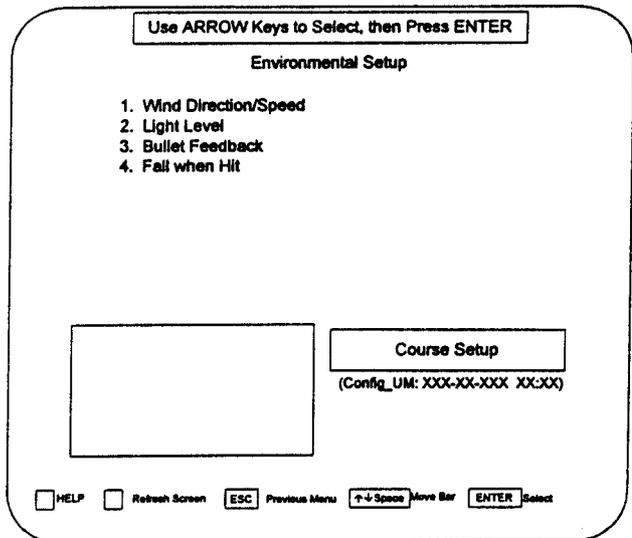


The Environmental Setup menu displays again.

Use the ↑ and ↓ arrow keys to highlight **Light Level**, then press the **ENTER** key.

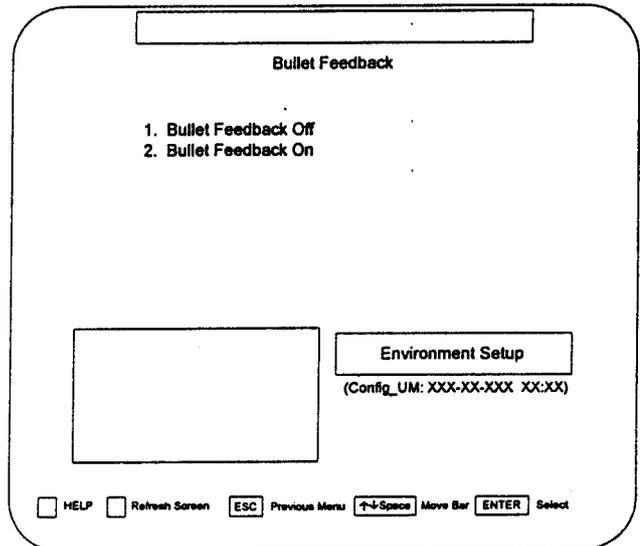


Type in a light level between 0 for total darkness and 10 for bright. For this exercise type in 5 for a nominal light level, then press the ESC key.



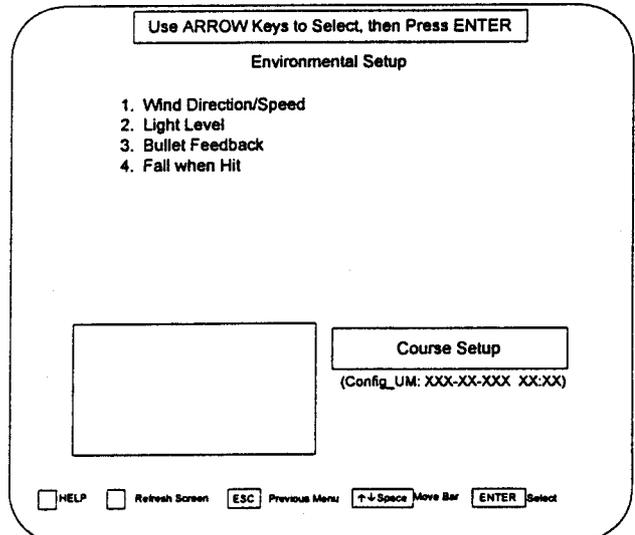
The Environmental Setup menu displays again.

Use the ↑ and ↓ arrow keys to highlight **Bullet Feedback**, then press the ENTER key.



The Bullet Feedback menu displays on the PC.

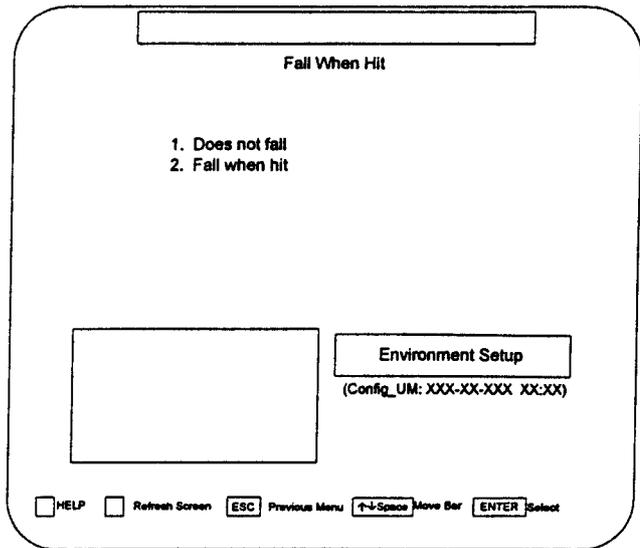
Use the ↑ and ↓ arrow keys to highlight **Bullet Feedback On**, then press the ENTER key.



The Environmental Setup menu displays again.

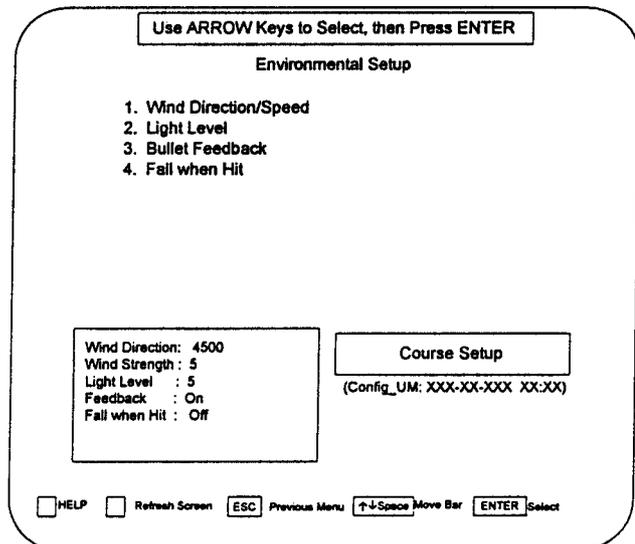
## Work Sheet 3-6

Use the ↑ and ↓ arrow keys to highlight **Fall When Hit**, then press the **ENTER** key.



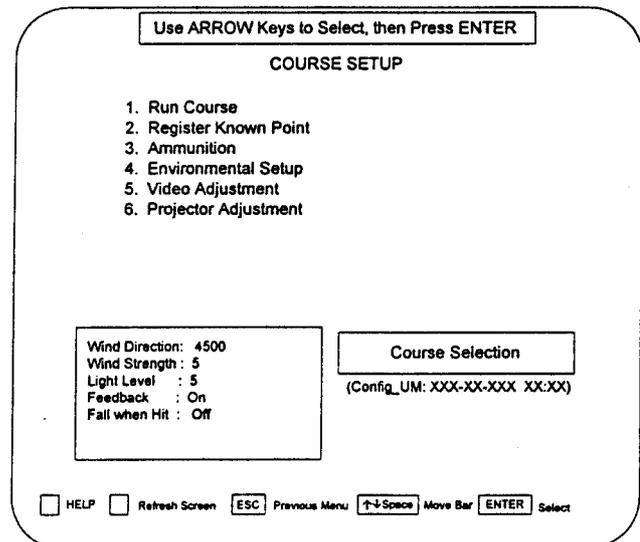
The Fall When Hit menu displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **Does not fall**, then press the **ENTER** key.

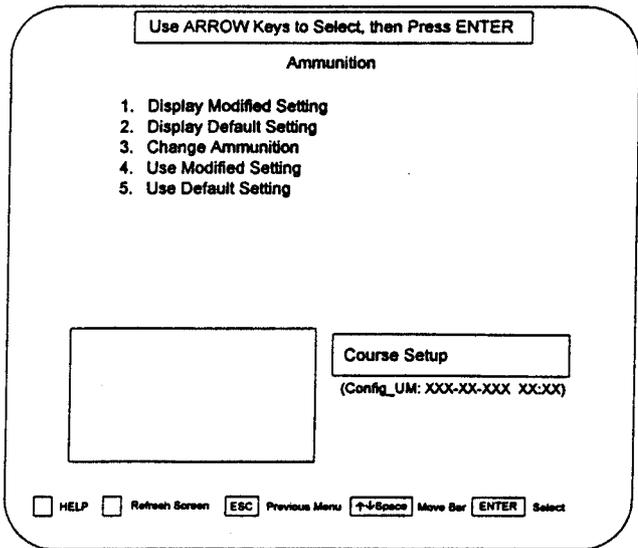


The Environmental Setup menu displays again with the new environmental settings shown in the system message box in the lower left portion of the screen.

Press the **ESC** key.



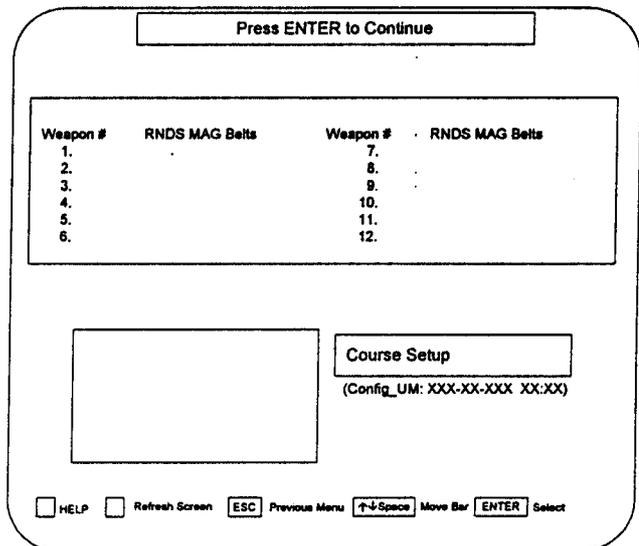
Use the ↑ and ↓ arrow keys to highlight **Ammunition**, then press the ENTER key.



The Ammunition menu displays.

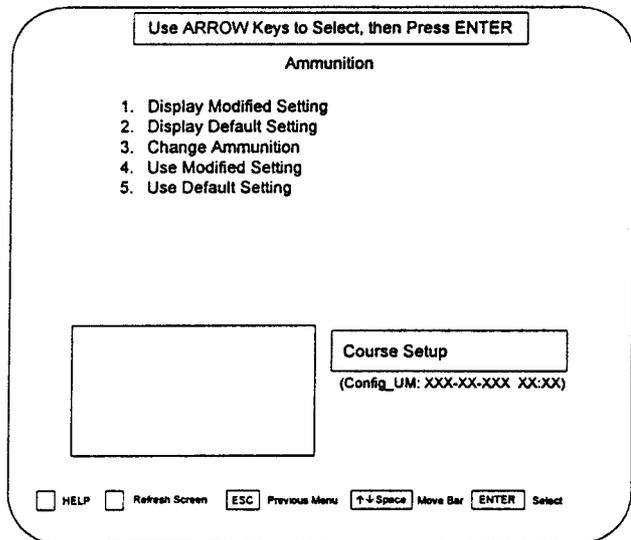
Use the ↑ and ↓ arrow keys to highlight **Display Default Setting**, then press the ENTER key.

**NOTE:** The Display Modified Settings menu looks the same, except the actual values may be different if they are modified.



The default settings display for the system-registered weapons.

Press the ENTER key.



**Work Sheet 3-6**

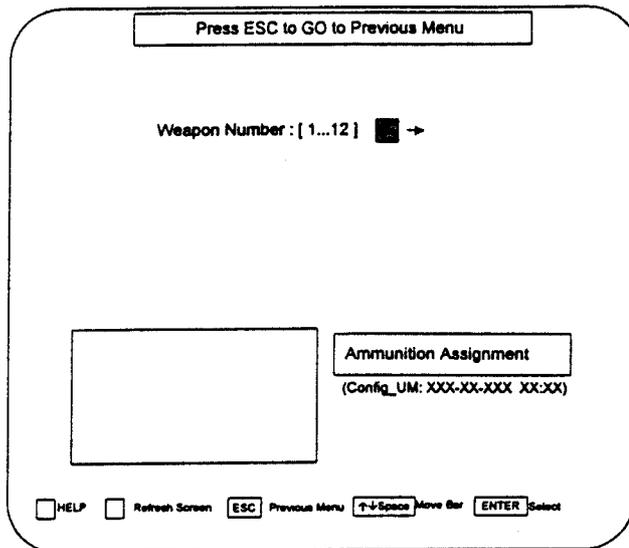
Use the ↑ and ↓ arrow keys to highlight **Change Ammunition**, then press the **ENTER** key.

If you wish to change the ammunition settings for a weapon, you type in the weapon number (lane number) for which you wish to modify the settings and press the **ESC** key.

**NOTE:** For this exercise it is not necessary to have any weapons registered to the system.

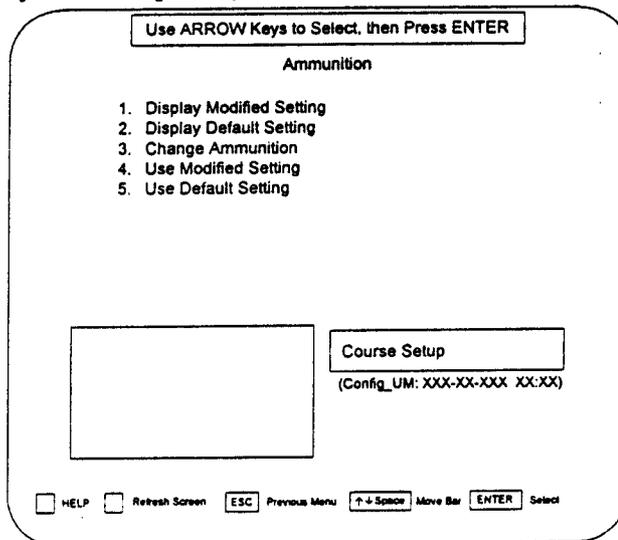
For this exercise use the ↑ and ↓ arrow keys to highlight **Use Default Setting**, then press the **ENTER** key.

**NOTE:** The Video Adjustment and Projector Adjustment options work the same as in Work Sheet 1-4.

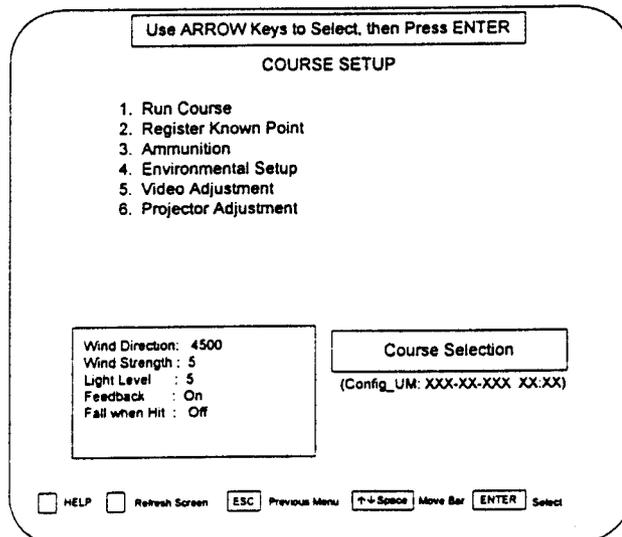


The Weapon Select menu displays on the PC.

Use this option to change the ammunition settings for any of the positions that will fire conventional system weapons (non-FO) on the FO course.

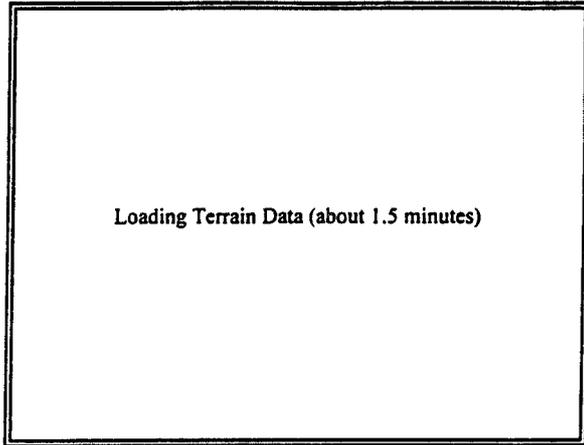


The Ammunition menu displays again.

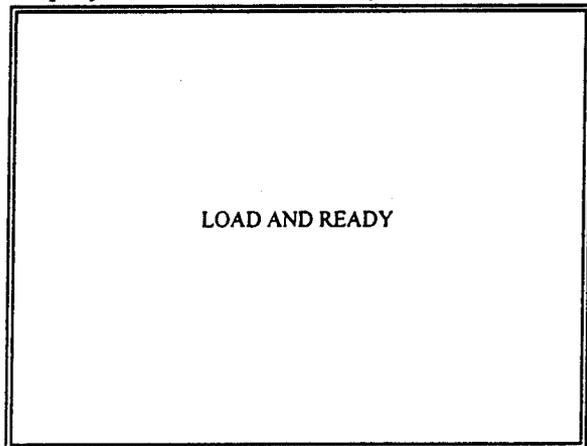


## Work Sheet 3-6

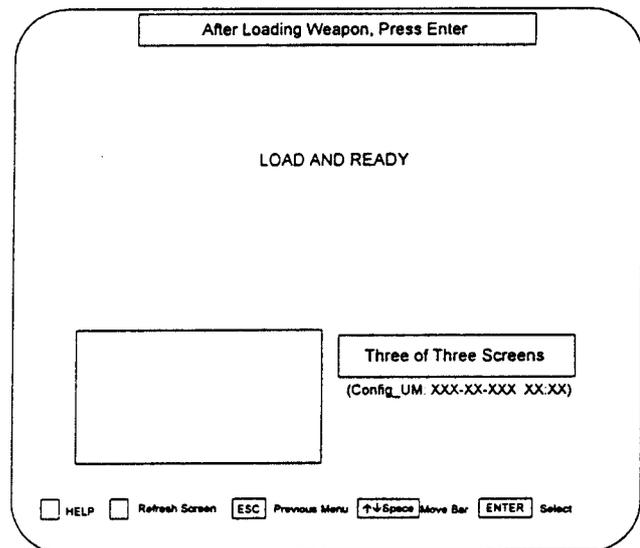
For this exercise use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the **ENTER** key.



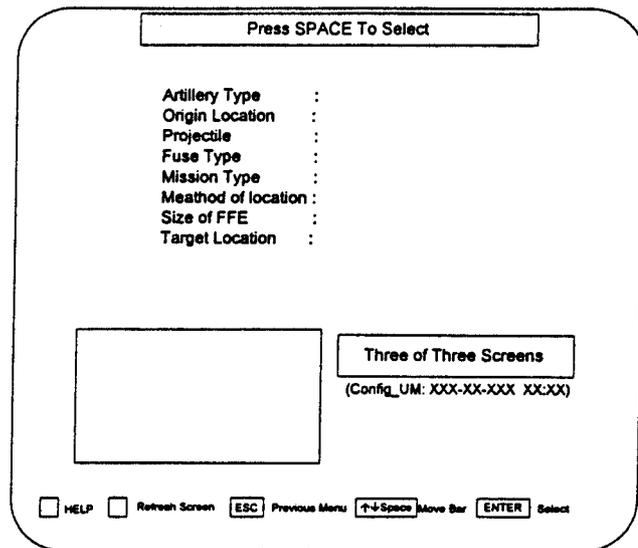
The Big Screen displays the loading data screen. When the course is finished loading, the Big Screen displays the Load and Ready screen.



The PC display also displays the Load and Ready screen.



Once the course loads and all weapons registered to the system (if any) are readied, press the **ENTER** key to start the course.



The FO input screen displays on the PC.

Use the ↑ and ↓ arrow keys to highlight **Artillery Type**, and then use the → and ← keys to scroll through the choices for this option. For this exercise leave the selection on 60mm mortar.

Use the ↑ and ↓ arrow keys to highlight **Origin Location**, and then use the → and ← keys to select the point of origin of the artillery fire. For this exercise select **A**.

Use the ↑ and ↓ arrow keys to highlight **Projectile**, and then use the → and ← keys to scroll through the choices for this option. For this exercise leave the selection on **HE**.

Use the ↑ and ↓ arrow keys to highlight **Fuse Type**, and then use the → and ← keys to scroll through the choices for this option. For this exercise leave the selection on **impact**.

Use the ↑ and ↓ arrow keys to highlight **Mission Type**, and then use the → and ← keys to scroll through the choices for this option. For this exercise leave the selection on **Fire For Effect**.

This action scrolls through the types of artillery to be called for. The choices are **60mm, 81mm, 105mm, 155mm, 5" VAL**, and **close air**.

This action scrolls through the two different positions from which the artillery will be fired. The options are **A** and **B**.

This action scrolls through the different types of ordnance which may be used. The options are **smoke** and **HE**.

This action scrolls through the different types of ordnance which may be used. The options are **impact, delay, proximity**, and **near surface**.

This action scrolls through the different types of ordnance which may be used. The options are **adjust** and **Fire For Effect (FFE)**.

## Work Sheet 3-6

Use the ↑ and ↓ arrow keys to highlight **Method of Location**, and then use the → and ← keys to scroll through the choices for this option. For this exercise leave the selection on **Grid**.

When all the fields are filled in, press the **ENTER** key.

This action scrolls through the different types of ordnance which may be used. The options are **Grid**, **Shift from Known Point**, **Polar mils**, **Polar Degrees**, and **Shift from Last Point**.

Press ENTER To Fire

Size of FFE :  
Target Location :

Three of Three Screens  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

The artillery fire request screen displays.

Use the ↑ and ↓ arrow keys to highlight **Size of FFE**, and then type in the number of rounds to be delivered in the FFE.

Use the ↑ and ↓ arrow keys to highlight **Target Location** and type in the grid coordinates the trainee gives you, then press the **ENTER** key.

Press ENTER To Fire

Size of FFE :  
Target Location : Add or Drop =  
: Right or Left =  
: Up or Down =

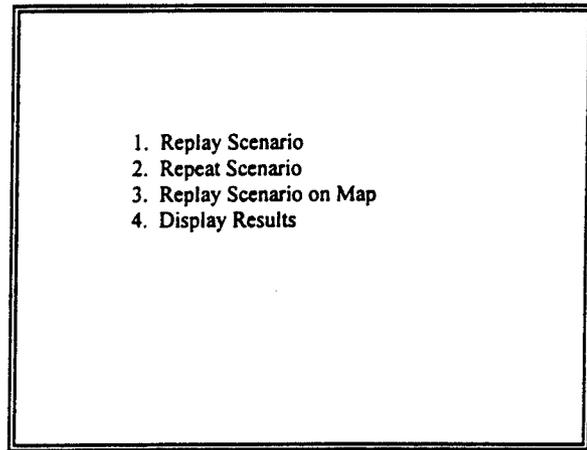
Three of Three Screens  
(Config\_UM: XXX-XX-XXX XX:XX)

HELP  Refresh Screen  Previous Menu  Move Bar  Select

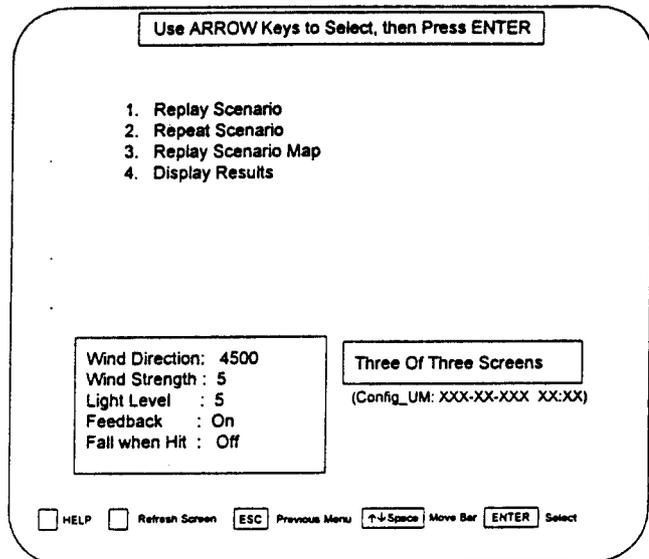
After firing the rounds for the FFE, the system automatically changes to **Shift from Last Point** for method of location.

## Work Sheet 3-6

Continue to fill in values for the coordinates the trainee wants and press the **ENTER** key to fire until the course you created finishes (either from fired rounds or time).

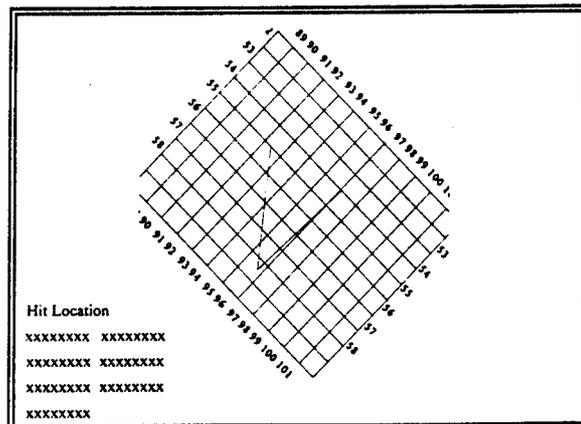


The Replay and Results menu displays on the Big Screen when the FO course finishes.



The PC displays the Replay and Results menu.

Use the ↑ and ↓ arrow keys to highlight **Replay Scenario on Map**, then press the **ENTER** key.



The V in the grid represents the actual viewing area of the screen. The grid shows the coordinates according to the scenario picked. The hit location displays all hits in red and all misses in yellow. The shots show up on the screen as circles.

Use the ↑ and ↓ arrow keys to highlight **Display Results**, then press the **ENTER** key.

| Scenario Results |      |       |     |       |
|------------------|------|-------|-----|-------|
| Wpn #            | Type | Shots | Hit | Score |
| 1                |      |       |     |       |
| 2                |      |       |     |       |
| 3                |      |       |     |       |
| 4                |      |       |     |       |
| FO               | FO   | 36    | 12  |       |

Press ESC to Exit

This action displays the Scenario Results on the Big Screen. This is used to show all who fired on the courses (both FO and system-registered weapons), their shots, hits, and if applicable, scores. Each Big Screen displays its weapon #s.

Press the **ESC** key.

Use ARROW Keys to Select, then Press ENTER

1. Replay Scenario
2. Repeat Scenario
3. Replay Scenario Map
4. Display Results

Wind Direction: 4500  
 Wind Strength : 5  
 Light Level : 5  
 Feedback : On  
 Fall when Hit : Off

Three Of Three Screens  
 (Config\_UM: XXX-XX-XXX XX:XX)

HELP  
  Refresh Screen  
  ESC Previous Menu  
 ↑↓Space Move Bar  
 ENTER Select

Press the **ESC** key.

Use ARROW Keys to Select, then Press ENTER

**COURSE SETUP**

1. Run Course
2. Register Known Point
3. Ammunition
4. Environmental Setup
5. Video Adjustment
6. Projector Adjustment

Wind Direction: 4500  
 Wind Strength : 5  
 Light Level : 5  
 Feedback : On  
 Fall when Hit : Off

Course Selection  
 (Config\_UM: XXX-XX-XXX XX:XX)

HELP  
  Refresh Screen  
  ESC Previous Menu  
 ↑↓Space Move Bar  
 ENTER Select

## Work Sheet 3-6

Press the ESC key.

**NOTE:** If you were only using one of three screens, you would have to resync the three systems before continuing.

Use ARROW Keys to Select, then Press ENTER

Run Full Screen Courses

1. One of Three Screen Training
2. Three of Three Screen Training
3. One of Three Screen Training (FO)
4. One of Three Screen Training (FO)
5. Bore Sight
6. Weapon Configuration

HELP  Refresh Screen  ESC Previous Menu  ↑↓Space Move Bar  ENTER Select

Press the ESC key.

Use ARROW Keys to Select, then Press ENTER

Collective Training

1. Combat Scenarios
2. Authored Courses Full Screen

HELP  Refresh Screen  ESC Previous Menu  ↑↓Space Move Bar  ENTER Select

Press the ESC key.

Use ARROW Keys to Select, then Press ENTER

MAIN MENU

1. Daily Operational Readiness Test (DORT)
2. System Setup
3. Student Registration
4. Weapon Configuration
5. ITS Training
6. ITS Training 2
7. Collective Training
8. Database
9. Authoring
10. DOS Shell

HELP  Refresh Screen  ESC Previous Menu  ↑↓Space Move Bar  ENTER Select

This completes Work Sheet 3-6.

## COMPREHENSIVE COURSE TEST

**Have you?**

**Yes    No**

       Read Assignment Sheets 3-1, 3-2, 3-3, 3-4, and 3-5?

       Completed Work Sheets 3-1, 3-2, 3-3, 3-4, 3-5, and 3-6?

       Completed Problem Sheet 3-1?

       Reviewed all the material covered in Section 3?

If the answer to all of the above is YES, then see your OJT Handbook Administrator for Test Sheet 3-1.

# SECTION 4

Contains:

Assignment Sheet 4-1

Work Sheet 4-1

Work Sheet 4-2

Test Sheet 4-1

## Mortar Simulator

### Introduction

This Assignment Sheet covers Learning Objective 4-1 (Describe the function of all major components of the system). By completing this Assignment Sheet, you will gain the knowledge necessary to recognize and describe the major components of the mortar simulator system.

### Overview

The Mortar Simulator Trainer like the ISMT/IST consists of mostly commercial, off-the-shelf, nondevelopmental items. Each system consists of standard U.S. Marine Corps crew-served simulated weapons, a simulation unit, and an instructor station that allows control of all training and feedback. The Mortar Simulator Trainer system provides combat, night operations, and forward observer training through interaction with targets projected on a PSC display.

The Mortar Simulator Trainer may be set up for four 81mm or three 60mm mortar firing positions. The Mortar Simulator Trainer is an integrated system made up of computer-controlled, modular components. The instructor starts and controls training situations by selecting a mode of operation, such as a FO or FO and FDC training, from the Instructor Station computer keyboard following instructions provided on the instructor's monitor or PSC screen. The Mortar Simulator Trainer maintains aimed-weapon location, recognizes weapon operation, recognizes fuse settings and round types, and integrates all commands necessary to display the fired round, generates appropriate audio, records the hit data, stores the data for future reference, and monitors student performance.

### Major Components

The Mortar Simulator Trainer consists of these major components:

#### Instructor Station (IS)

The Instructor Station includes the following:

**Instructor Station Computer (ISC)** - The Instructor Station Computer controls the system and displays all of the performance data gathered by the Mortar Simulator Trainer. The maintenance programs are also controlled by the ISC.

The ISC has a floppy disk drive and a hard disk drive that have enough storage to copy, duplicate, locally edit, and record changes to the training system software. The main enclosure of the ISC contains the motherboard, power supply, disk drives, peripheral controller cards for the computer, and connectors for both serial and Com1 ports. The main enclosure is an off-the-shelf item that has been configured and tested for Mortar Simulator Trainer applications in the support of simulated systems. The ISC also includes a keyboard and a mouse. The keyboard is a standard PC-type, 101-key keyboard that makes maximum use of function keys. From the keyboard, the instructor can start and check all system functions. The mouse is a standard, off-the-shelf product. The ISC monitor is a high resolution, VGA color monitor. It is used to present text and graphics and video to monitor trainee performance, to begin training scenarios, and to perform maintenance and test functions. The monitor is a commercial off-the-shelf item that has been tested and approved for use in the Mortar Simulator Trainer.

**Primary Simulation Computer (PSC)** - The Primary Simulation Computer is a FATS-developed and protected product. Its primary function is to perform real-time imagery and data collection. The PSC assembly is modular and contains a number of circuit card assemblies designed for specific purposes. Mechanically and electrically, the PSC circuit card assemblies conform to the VME Bus standard. The VME standard is an industry-wide computer packaging and interconnect standard for high-performance, industrial-grade computer equipment. The mortar simulators are connected to the center PSC.

**Laser Disc Player (LDP)** - The Laser Disc Player and PSC enable the Mortar Simulator Trainer to use a variety of video discs. Video shows full motion targets and provides the most realistic threat presentations possible. Video disc technology provides a cost-effective means of creating the most realistic training available. The Laser Disc Player provides the synchronized audio.

**Printer** - The printer is a standard, commercial, off-the-shelf dot-matrix printer. The printer is activated by the instructor using the keyboard to select displays on the monitor. The printer provides easy tractor feed (for pin-fed paper) or friction feed (for cut-sheet paper).

**Primary Power Control** - The primary power control is a modified, commercial off-the-shelf power strip with circuit breaker, keyswitch, and lighted on-off switch.

### Simulation Unit (SU)

The Simulation Unit includes the following:

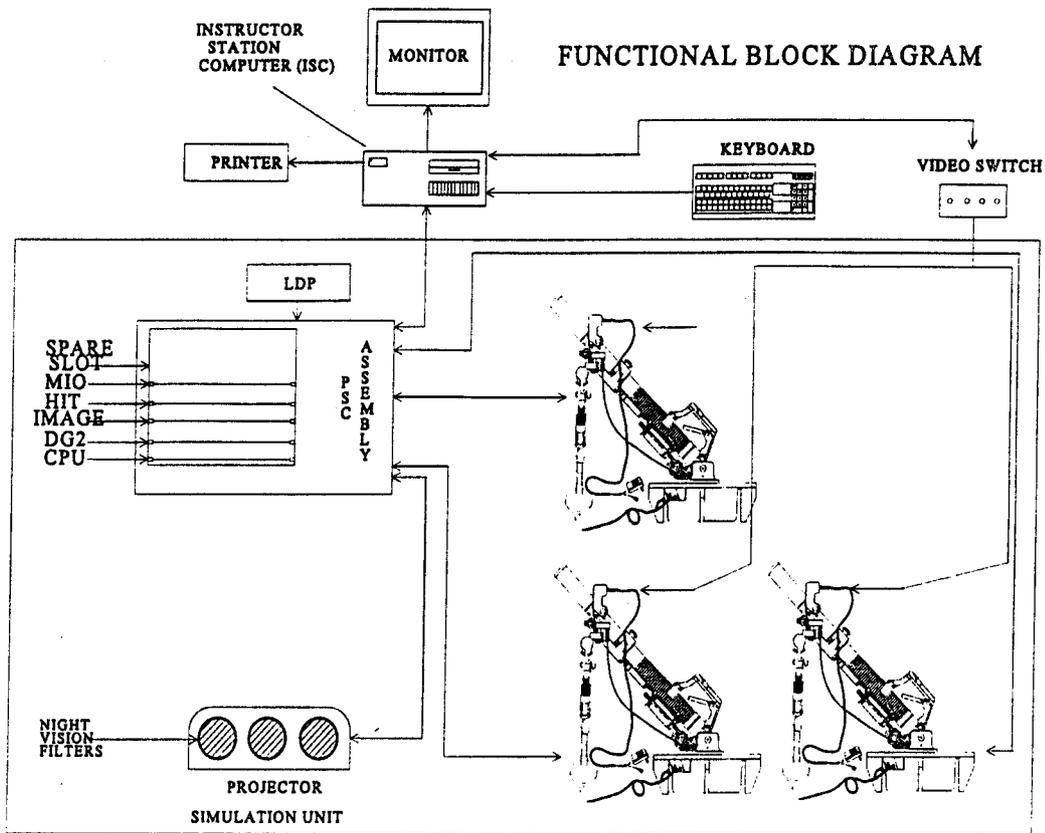
**Projectors** - The projectors display the training imagery for one to three full-screen training configurations. The projector has three monochrome (single color) CRT-type lenses with dual line rate capability to handle video with both high and standard resolution line rates. The projector is an off-the-shelf item.

**Night Vision Assembly** - This device alters the projected image so that standard night vision devices currently used by the USMC can be used with the system to replicate night fire control operations accurately on the Mortar Simulator Trainer. Personnel not using image-enhancing devices cannot see the projected image when the night vision training mode is used. The Night Vision Assembly is a physical filter which easily fits over the lens of the projector.

**Screen** - The screen is a commercially available off-the-shelf item used universally for large-screen video projection. It is portable and assembles quickly and easily. The Mortar Simulator Trainer is delivered with three 7.5' H X 10' W screen.

**Speakers** - The speakers are off-the-shelf items. The speakers are used to provide audio feedback to simulate scenarios more accurately.

**Video Camera** - The sight camera allows the instructor to see a video picture on the ISC of what the actual mortar sight is displaying. Any one of four sight cameras may be selected for view using the video selector switch. The camera has its own power converter which plugs into a standard 120VAC outlet.



## System Startup

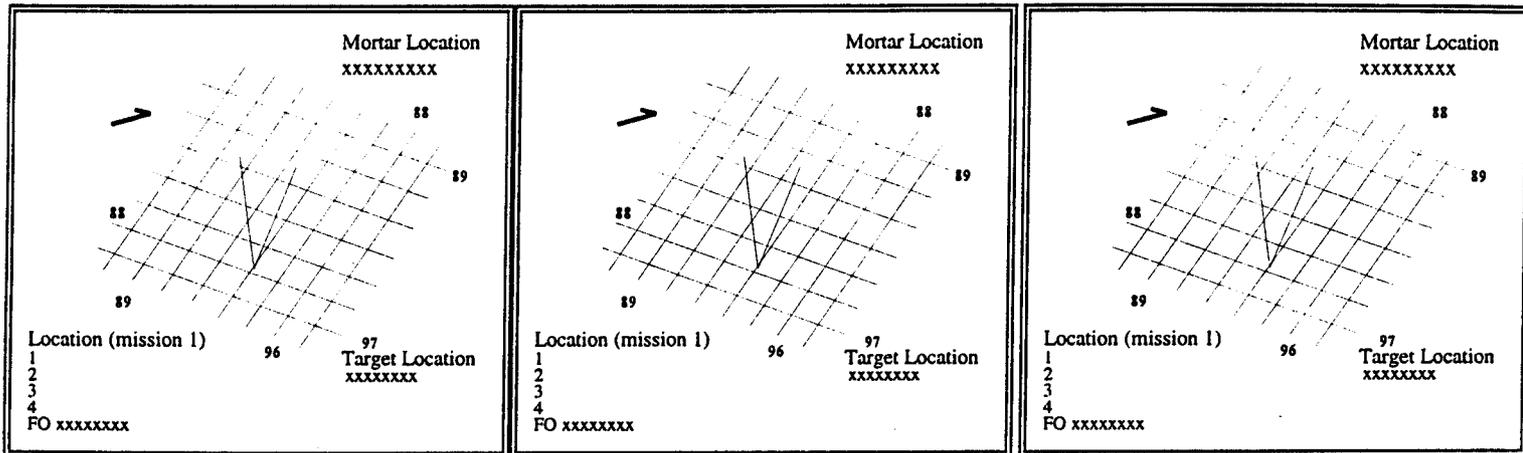
The Mortar Simulator Trainer is designed so that with the equipment connected and set up (see Work Sheets 1-1 and 1-2), turning on the system and booting with the Mortar Simulator Trainer disk in the PSC will enter the simulation program on the PC. Setting up the system is basically the same as for the ISMT/IST, except that the mortars use video cameras on their sights in addition to the CO<sub>2</sub> and electrical connections.

## Capabilities

The Mortar Simulator Trainer is capable of accurately displaying the results of 60mm and/or 81mm mortars on the supplied video courses and user-defined graphic courses. The simulation weapons have multiple sensors; and with the video camera attached to the sight, the instructor can remotely determine if the weapon has been properly set up, leveled, and sighted. The type of weapons for the mortar simulation courses are the 60mm M224 and the 81mm M252. The projectile types simulated by the system are smoke, illumination, or high explosives; and the fuse types are impact, delay, proximity, and near surface. With all the different options available for course creation, a variety of simulations may be run or generated (authored) to challenge and develop the trainees' skills at being a Forward Observer (FO), part of the Fire Direction Center (FDC), or a member of a mortar team.

## Assignment Sheet 4-1

Under the authoring options a mortar simulation course may be designed with any number of targets, hard and soft, moving and still. The user-designed graphic courses may use any of several supplied graphic backgrounds. FO, FO and FDC, and Closed Loop courses must be created using the same functionality that is used in the creation of the ISMT/IST One-of-Three and Three-of-Three courses. One major difference is



that the Mortar Simulator Trainer courses display a much greater depth of view and are not designed for direct fire. Due to the increased apparent distance of the displays in the Mortar Simulator Trainer, care must be used when placing the contour lines, as the system uses their spacing when calculating the distances on the screen. With practice you will be able to place targets accurately for called-in mortar fire.

The three fields of views as shown for a Mortar Simulator Trainer setup may not cover the possible grid coordinates that the system will accept. This means that shots called in to coordinates not in the field of view may not be displayed on the screens without zooming out. The system instructor may change views in the results screens by simply clicking on the zoom out, in or normal buttons. This allows for the recognition and analysis of errant shots. The system always displays grid coordinates with the course results at the end of a course.

## Realism

Realistic training can be conducted for one to four 81mm mortar teams or one to three 60mm mortar teams, forward observer(s), and FDC personnel using closed loop courses. The system also allows for just forward observer training or forward observer and FDC training, which does not require any simulator weapons to be attached to the system. These training scenarios are referred to as open loop training. Factors controlled by the computer and instructor allow for meteorological effects, weather effects (wind), day or night scenarios, or combinations of all of these factors in combat scenarios. Both open loop and closed loop types of training, when used properly, should enhance the trainees' abilities to call for and deliver accurate mortar fire. By accurately simulating many different types of environments, the trainee may be exposed to different combat or other life-threatening situations which will lead to improved fire control coordination and decision-making.

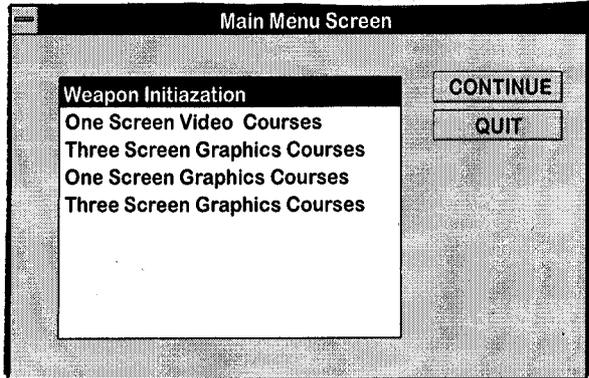
## **Conducting the Training**

With the proper use of the tools available with the Mortar Simulator Trainer, a trainee should be able to become proficient in calling for accurate mortar fire. To fully understand and utilize the system's capabilities, you must be familiar with all forms of coordinating and delivering mortar ordinance. This Handbook will not attempt to teach you forward observer, fire direction center, or mortar team processes or techniques; it will provide you with the tools to use to run courses, create courses, and train others in coordinating and delivering mortar fire. The only way that you will become better at training others in delivering accurate mortar fire is to practice, practice, practice. Continually create new courses and reedit old ones to make them more challenging and realistic. The associated Work Sheets will walk you through a simple training session, but in order to challenge trainees, you will have to develop your skills at both creating courses and administering training.

# MORTAR SIMULATION TRAINING

This Work Sheet covers Learning Objective 4-2 (Demonstrate the ability to to set up and conduct training on a Mortar Simulation Course). Upon completion of this Work Sheet, you will be familiar with the setup options and procedures for conducting the Mortar Simulator Training. Before beginning this Work Sheet, you must have already read Assignment Sheet 4-1 and performed Work Sheets 1-1 and 1-2. For the purpose of this Work Sheet, you need only a single 81mm mortar registered.

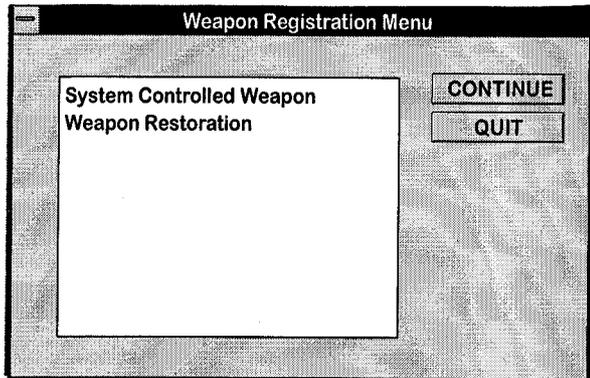
## ACTIONS



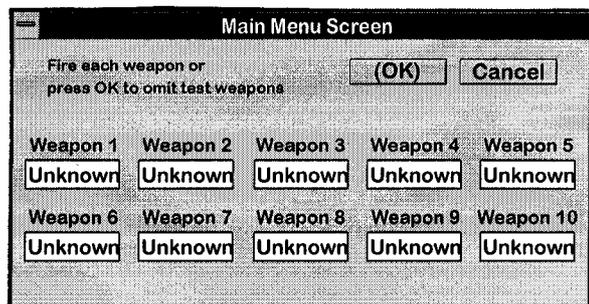
From the Main Menu PC display, use the ↑ and ↓ arrow keys or mouse to highlight **Weapon Initialization**, then press the ENTER key.

Use the arrow keys or mouse to highlight **System Controlled Weapon**, and click on the CONTINUE button.

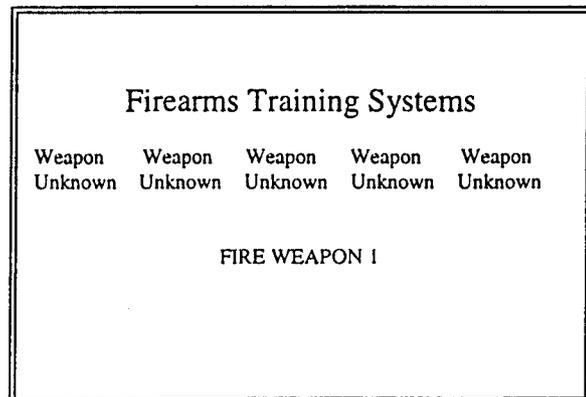
## RESULTS AND COMMENTS



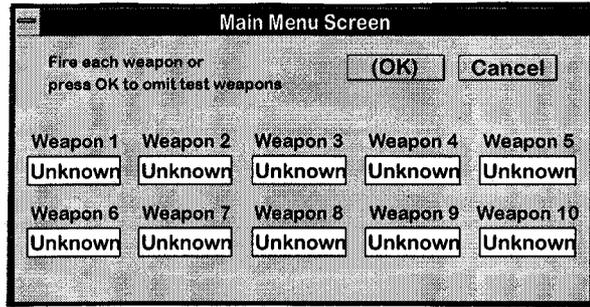
The Weapon Registration Menu displays on the PC.



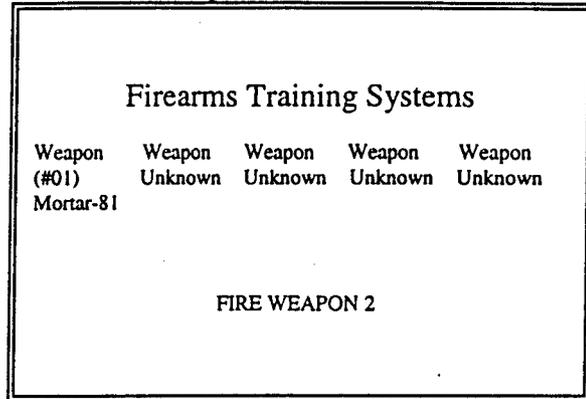
The Weapon Initialization screen displays on the PC.



With the mortar attached to the system and correctly hooked up with electrical, CO<sub>2</sub>, and video lines, drop a simulation round down the barrel.

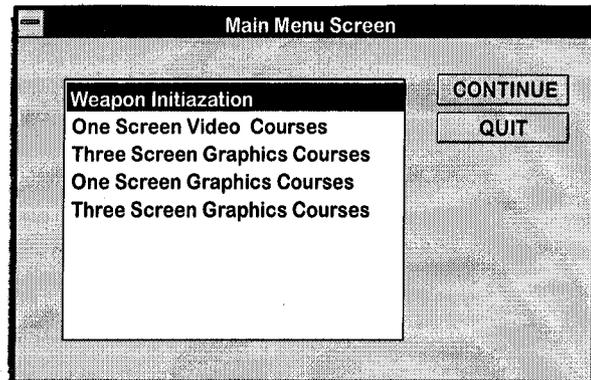


The weapon should be displayed in the Weapon 1 box of the Weapon Initialization screen on the PC.



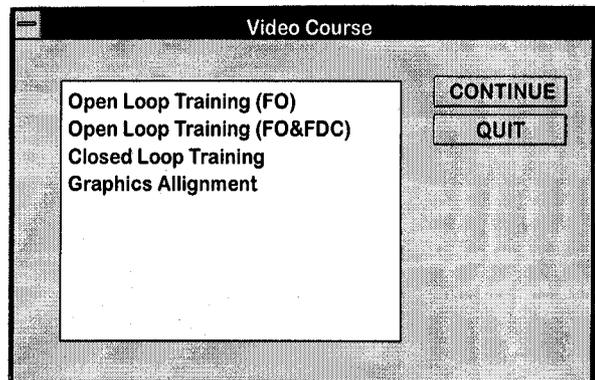
The PSC screen should also show the weapon fired.

If registering more than one weapon, you would repeat the process for each weapon registered. When finished registering all weapons, click on the OK button.



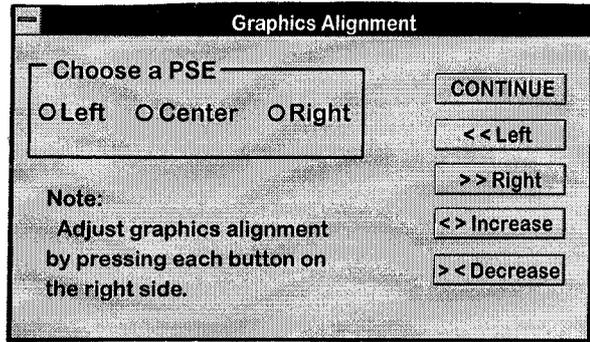
The Main Menu Selection screen displays.

From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Three Screen Video Course**, then click on the **CONTINUE** button.



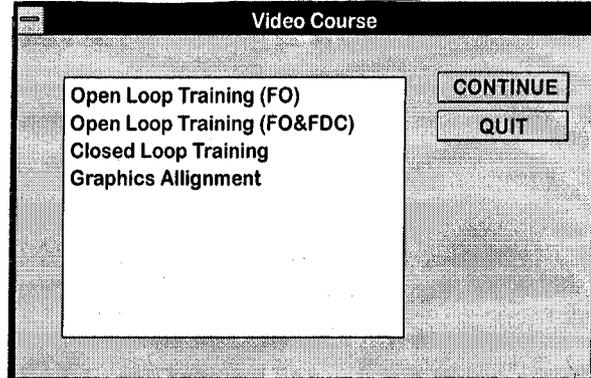
The Video Course screen displays on the PC.

From the Video Course screen, use the ↑ and ↓ arrow keys to highlight **Graphics Alignment**, then click on the **CONTINUE** button.

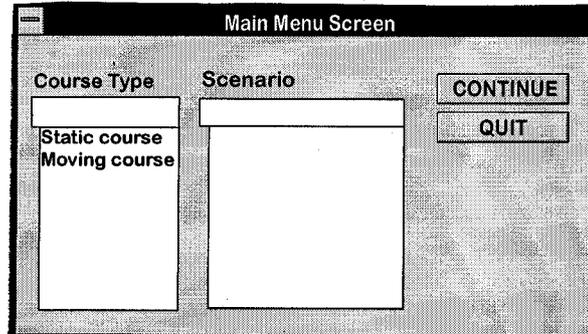


The Graphics Alignment screen displays.

Click on the <<Left, >>Right, <>Increase, or Decrease buttons to align the white box with the FATS logo display on the PSC screen. When the alignment is complete click on the **Continue** button.

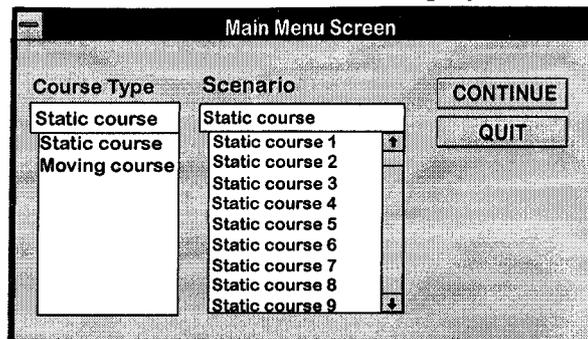


Use the ↑ and ↓ arrow keys or mouse to highlight **Open Loop Training (FO)**, then click on the **CONTINUE** button.



The Course Selection screen displays on the PC.

Use the ↑ and ↓ arrow keys or mouse to highlight **Static course**.



All the system static courses are listed in the scroll selection box under Scenario. The currently selected course is highlighted in the non-scroll box directly under Scenario.

## Work Sheet 4-1

For this Work Sheet, select **Static course 1**, and click on the **CONTINUE** button.

The Mortar Setup screen displays on the PC.

Click on the **YES** button under **Split section** to use two different firing positions. **No** if using only one firing position.

Click in the **Mortar Location** box to type in the grid coordinates of the mortar if different from the default. The default is the FO location.

Click in the **Altitude** box to type in an altitude other than the default.

Click in the **Mnt Az** box to type in the mount's azimuth if different from the default.

Click in the **Ref Def** box to type in a referred deflection different from the default of 2800.

Click in the **Elevation** box to type in an elevation different from the default.

In the **Mortar Info** section, enter the geographical position of the mortars from the center. Use the **Bearing** and **Distance** boxes for each one of the mortars to put in the mortar's positions.

Click on the **CONTINUE** button when you have entered all the Mortar Setup data.

**NOTE:** If you clicked **YES** in the **Split section** area you must enter the following data for both sections.

**NOTE:** Default of each course is = center of view for that course.

The Course Setup screen displays on the PC.

## Work Sheet 4-1

Under the Surface Wind section, type the wind direction (in mils) in the box under **Direction** and the wind speed in knots under **Speed**.

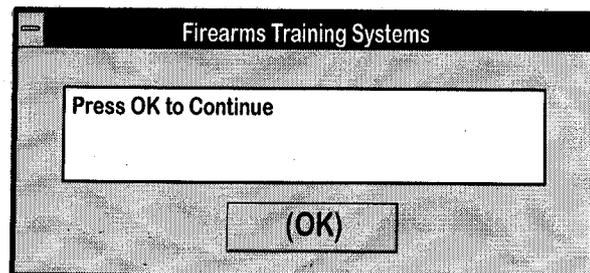
In the Course vision section, select either **day vision** or **night vision** by clicking on the button next to them.

Set the **Time of flight** by clicking on the scroll bar up and down arrow to display the amount of seconds for the time of flight. Use real time, or 5 through 30 seconds in 5 seconds increments, for the time it will take for the round to reach its target from the time it is fired.

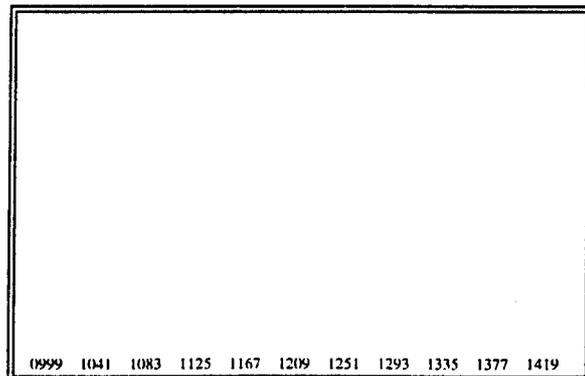
Under MET /REGN offset, select either **No** or **Yes** to use the system's meteorological effects. This feature allows the system to compensate for MET data applied by the FDC or to push the rounds off target to cause the observer to compensate for non-standard conditions. If you select **YES**, fill in the appropriate **DEFlection** and **RanGE** data.

Click on the **OK** button when finished entering the course setup data.

Click on the **OK** button.

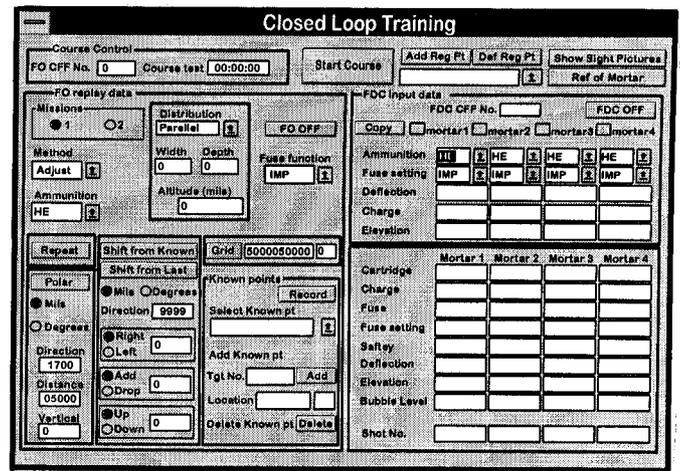


The system requests a confirmation to load the course.



The PSC screen displays the video course with a grid mill scale on the bottom of the screen.

**NOTE:** Only the **Course control** and the **FO input data** portions of the Closed Loop Training screen are active in Open Loop Training (FO) mode.



The PC displays the Closed Loop Training screen.

In the Course control portion of the PC screen, enter the CCF No. if applicable.

The other buttons and functions available under Course control are:

**Start course / Quit**

Click on this button to start the course. Once the course is running the button changes to QUIT. Click on QUIT to end the course.

**Add Reg Pt**

Used to enter Known Points for firing.

**Del Reg Pt**

Used to delete a registered point.

**Show Sight Picture**

Clicking on this button displays the video from the sight camera of the selected mortar on the PC.

Buttons and functions available under **FO input data** are:

**Missions**

Click on either 1 or 2.

**Method**

Click on the drop-down arrow at the left of the box to display the choices. **Adjust** or **FFE** are the options.

**Distribution**

Click on the drop-down arrow at the left of the box to display the choices. **Parallel**, **Open**, **Converged**, **Spec Sheaf**, and **Linear** are the choices.

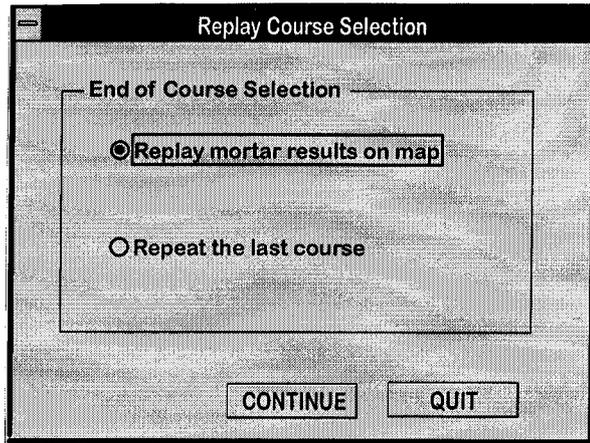
If you select Spec Sheaf, then the **Width**, **Depth**, and **Altitude (mils)** must be filled in.

**Fuse function**

Click on the drop-down arrow at the left of the box to display the choices. **Impact**, **Delay**, **Proximity**, and **Near surface** are the choices.

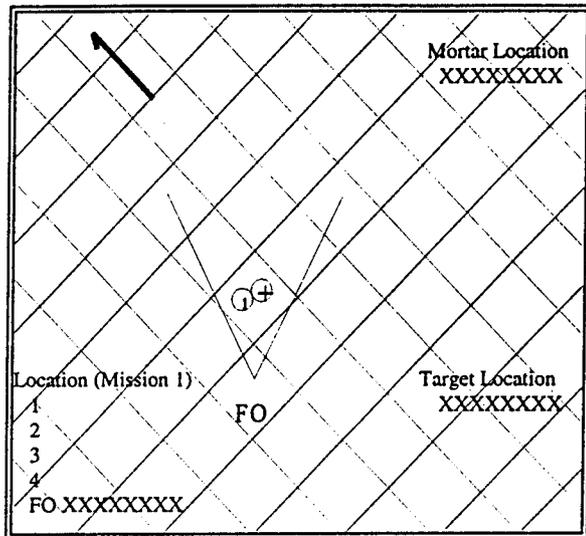
|  |   |
|--|---|
| <b>Ammunition</b>                          | Click on the drop-down arrow at the left of the box to display the choices. <b>HE, Illumin,</b> and <b>Smoke</b> are the choices.   |
| <b>Repeat</b>                              | Click on this button to fire the same coordinates as the last called shot.  |
| <b>Polar</b>                               | Use this button to call for shots using polar <b>Mils</b> or <b>Degrees</b> . If using Polar, fill in the <b>Direction, Distance,</b> and <b>Vertical</b> boxes with the FO's data.   |
| <b>Shift from Known or Shift from Last</b> | If you have registered known points, you can use the Shift from Known to call shots. The Shift from Last is selected after the first shot is fired regardless of the method selected to call for the first shot. For both types you must select either <b>Mils</b> or <b>Degrees</b> . Select either <b>Right</b> or <b>Left</b> , and fill in the amount in the box to the right of the buttons. Then select either <b>Add</b> or <b>Drop</b> , and fill in the amount in the box to the right of the buttons. Select either <b>Up</b> or <b>Down</b> , and fill in the amount in the box to the right of the buttons.   |
| <b>Grid</b>                                | Fill in the grid coordinates for the shot.  |
| <b>Known points</b>                        | Use this section to register or remove known points from the system. Click on the drop-down arrow at the left of the <b>Select known pt</b> box to display the known points in the system. Highlight the known point desired and then use the <b>Shift from Known</b> section to call shots. Use the <b>Add known pt</b> to add a <b>Tgt No.</b> and <b>Loc.</b> for a known point. Click on the <b>Add</b> button to add the target number and location to a known point. Click on the <b>Record</b> button to register the coordinates presently in the system as a known point. Use the <b>Delete known pt</b> to remove a known point from the system by clicking on the <b>Delete</b> button. The selected known point will be removed from the registered known points on the system. |
| <b>FO CFF</b>                              | After filling out the call for fire information from the FO, click on this button to fire the shot. After the time delay set in the mortar setup screen, the shot will appear on the screen (if the coordinates called for are on the screen).  |

Continue to enter the FO's called-for data and click on the FO CFF button for each set of data. After all shots desired are called for or the allotted time is reached, click on the **Quit** button.

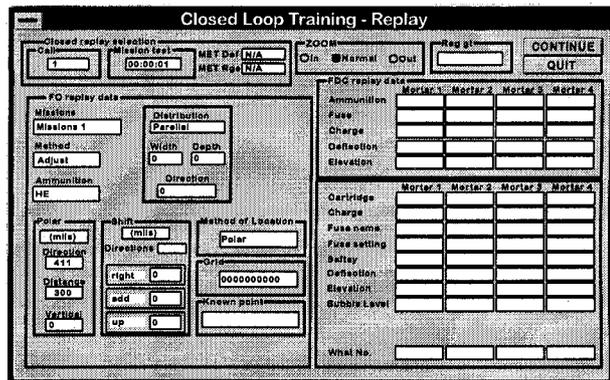


The Replay Course Selection screen displays on the PC.

Select **Repeat the last course** to start the course again, or select **Replay mortar results on map** to review the results of the course just completed. For this Work Sheet select **Replay mortar results on map**, and click on the **CONTINUE** button.

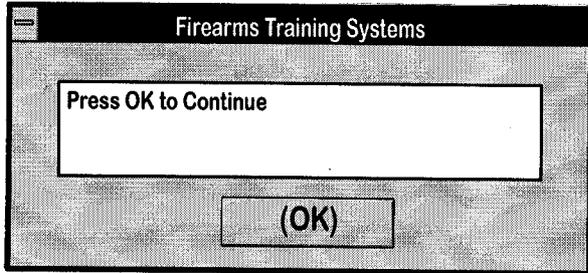


The PSC screen should display something like the graphic above. The PC display looks like the graphic below.



The Closed Loop Training - Replay screen displays with the information of the first shot.

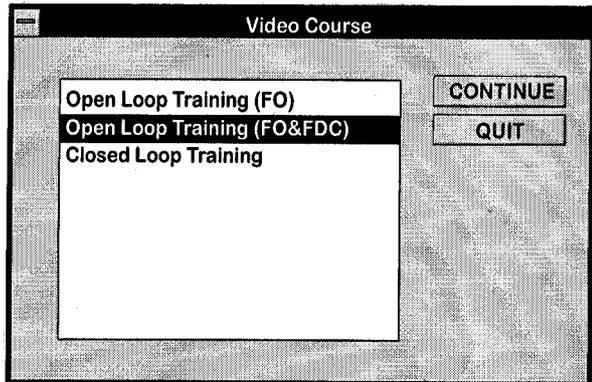
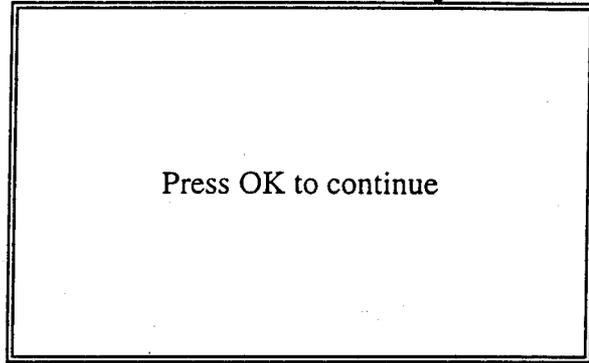
Use the PC and PSC displays to analyze the FO calls. If desired you can click on **Zoom In**, **Normal**, or **Out** buttons on the PC display to change the view on the PSC display. When finished analyzing the first shot, click on the **Continue** button to display the next shot. When all shots have been reviewed, clicking on **Continue** will display the **Press OK to Continue** screen below.



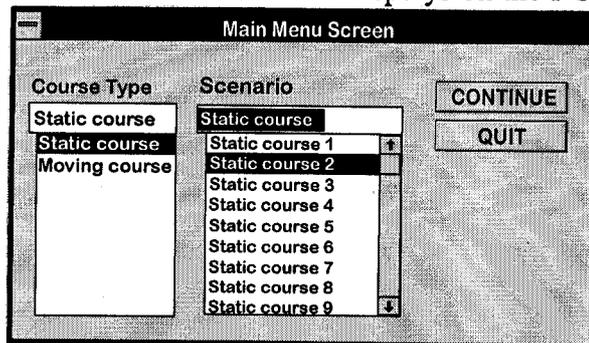
Click on the **OK** button.

Select (highlight) **Open Loop Training (FO & FDC)**, and click on the **CONTINUE** button.

The PSC screen looks like the figure below.

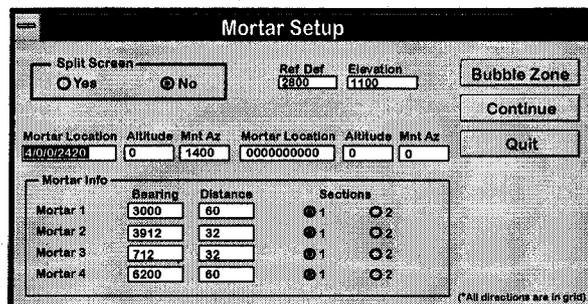


The **Video Course** screen displays on the PC.



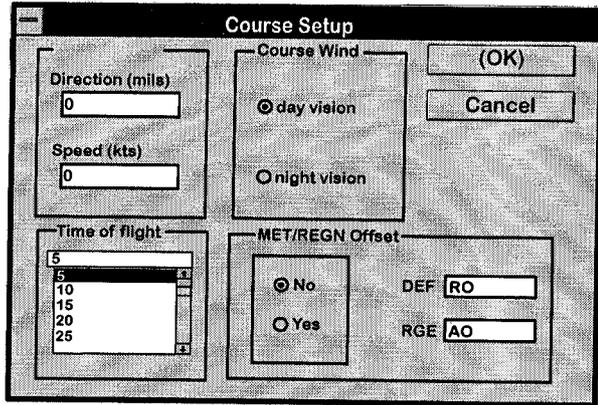
The **Course Selection** screen displays on the PC.

Select **Static course**, **Static course 2**, and click on the **CONTINUE** button.



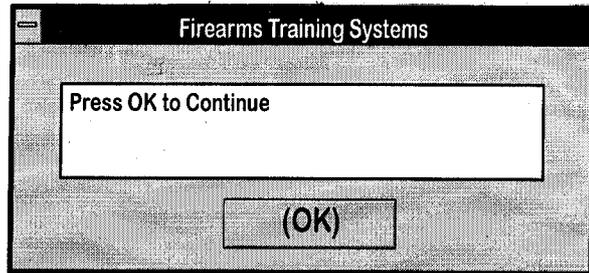
The **Mortar Setup** screen displays on the PC.

Fill in the mortar setup data, and click on the **CONTINUE** button.

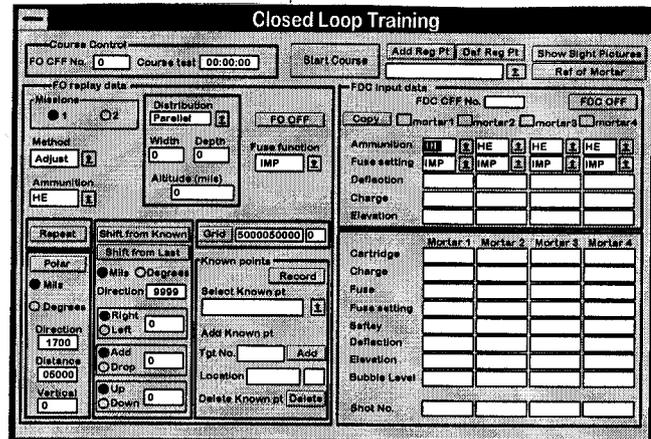


The Course Setup screen displays on the PC.

Fill in the course setup data, and click on the **CONTINUE** button.



Click on the **OK** button.



The Open Loop Training (FO & FDC) screen displays on the PC.

The **Course control** and **FO input data** portions of the screen work the same as in Open Loop Training (FO), except that the **FO OFF** button is disabled. With FO & FDC you will need to input the data the FDC gives after receiving the FO's call for fire. This data will be typed in the **FDC input data** portion of the screen.

Buttons and functions available under **FDC input data** are:

**mortar1** through **mortar4** select boxes.

Click in these boxes to select mortars 1 through 4 for firing.

**Ammunition**

Click on the drop-down arrow at the left of the box to display the choices. **HE**, **Illumin**, and **Smoke** are the choices.

**Fuse setting**

Click on the drop-down arrow at the left of the box to display the choices. **Impact**, **Delay**, **Proximity**, and **Near surface** are the choices.

**Charge**

Type in the charge data from the FDC.

**Deflection**

Type in the deflection setting from the FDC.

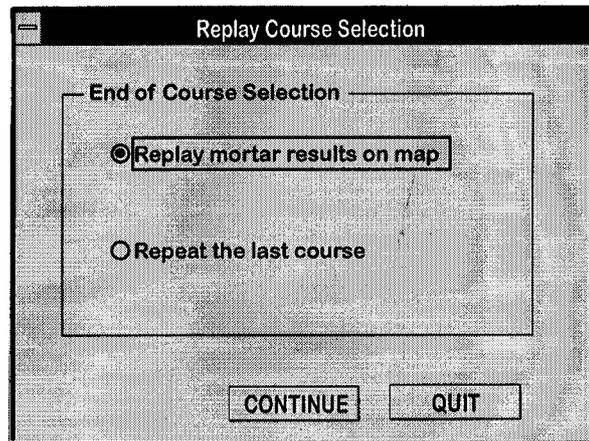
**Elevation**

Type in the elevation data from the FDC.

**FDC OFF**

After filling out the call for fire information from the FDC, click on this button to fire the shot. After the time delay set in the mortar setup screen, the shot will appear on the screen (if the coordinates called for are on the screen).

Continue to enter the FO and FDC's called for data and click on the **FDC OFF** button for each set of data. After all shots desired are called for or the allotted time is reached, click on the **Quit** button.



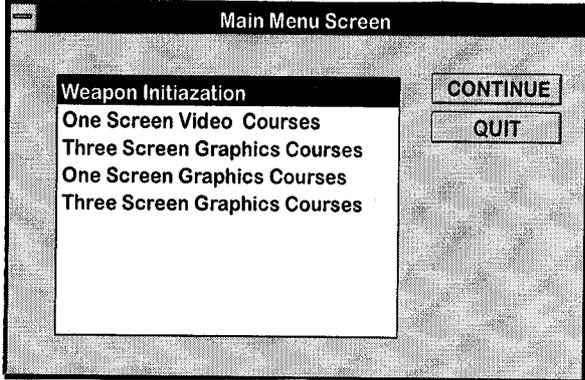
The Replay Courses Selection screen displays on the PC.

The same screens appear for the FO & FDC as did for the FO courses. Closed Loop training is the same as FO & FDC, except that the **FDC OFF** button is disabled. Actually dropping a round down the barrel of the mortar will fill in the mortar data, and the shot will display on the PSC screen after the delay set in the mortar setup screen.

## GRAPHIC COURSE AUTHORIZING

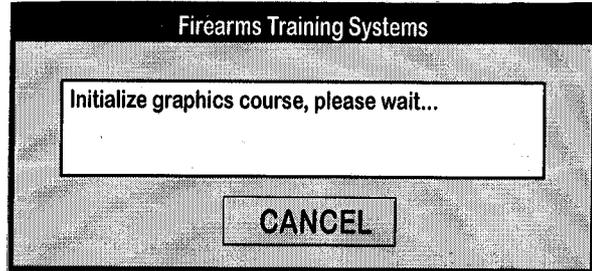
This Work Sheet covers Learning Objective 4-3 (Demonstrate the ability to author a Graphics Mortar Course). Upon completion of this Work Sheet, you will be familiar with the options available to construct tailored graphic courses for instruction.

### ACTIONS

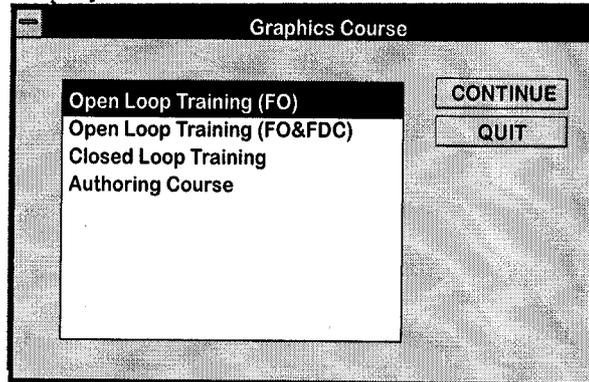


From the Main Menu PC display, use the ↑ and ↓ arrow keys to highlight **Three Screen Graphics Courses**, then press the **CONTINUE** button.

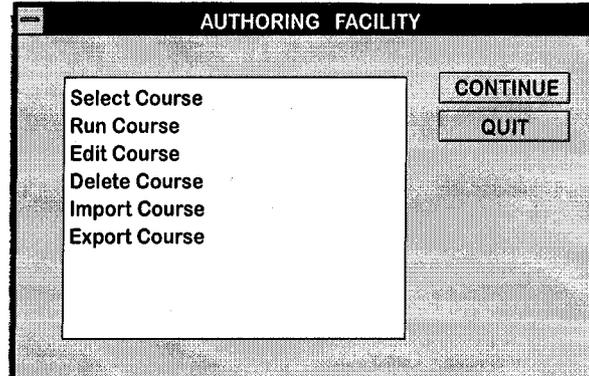
### RESULTS AND COMMENTS



The system requires a few seconds to switch to graphics mode then, the Graphics Course menu displays on the PC.



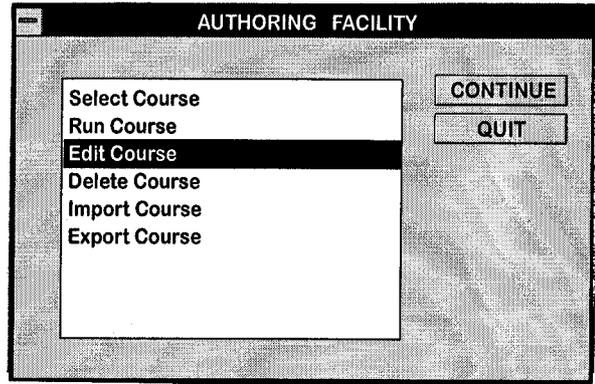
Use the mouse or arrow keys to highlight **Authoring Course**, and click on the **CONTINUE** button.



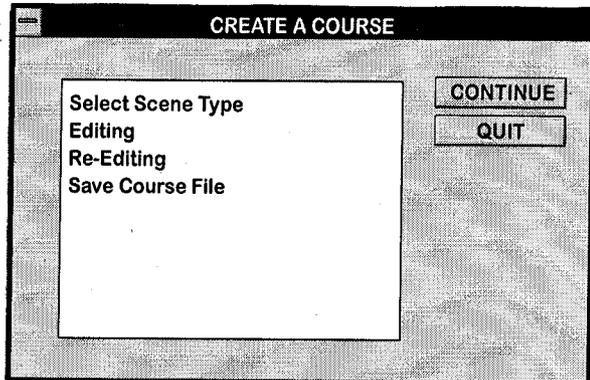
The Authoring Facility menu displays on the PC.

## Work Sheet 4-2

Use the mouse or arrow keys to highlight **Edit Course**.

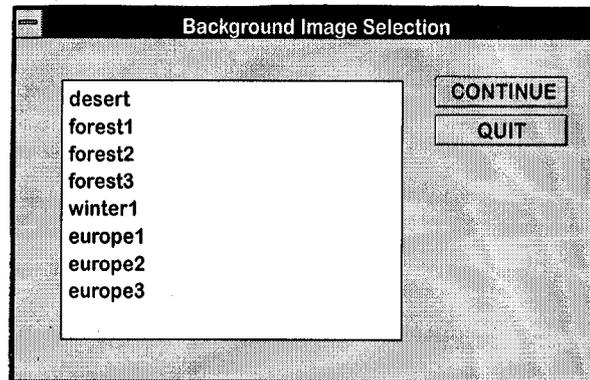


Click on the **CONTINUE** button.



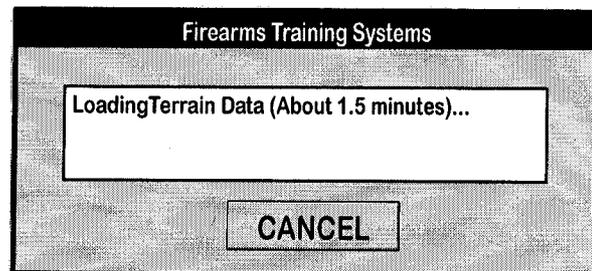
The Create A Course menu displays on the PC.

Use the mouse or arrow keys to highlight **Select Scene Type**, and click on the **CONTINUE** button.

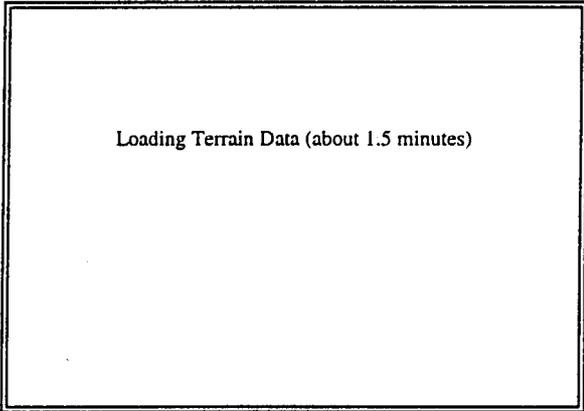
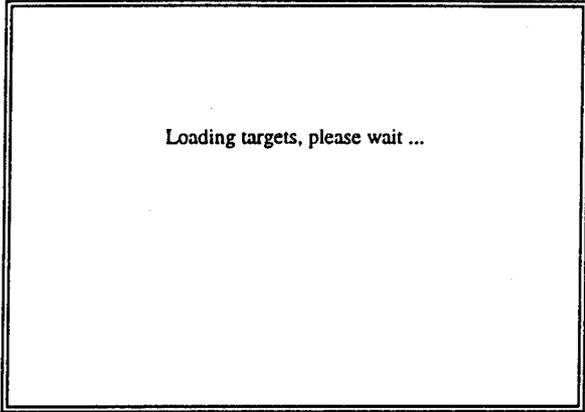
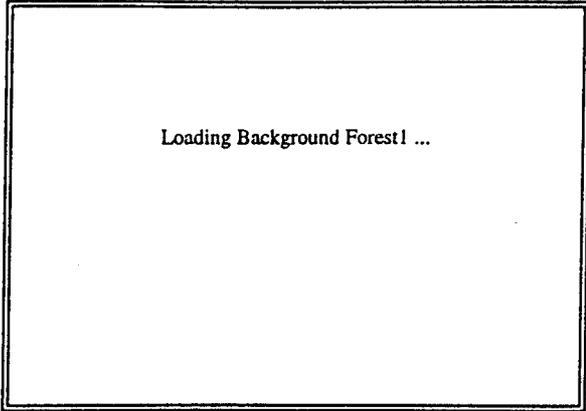


The Background Image Selection menu displays on the PC.

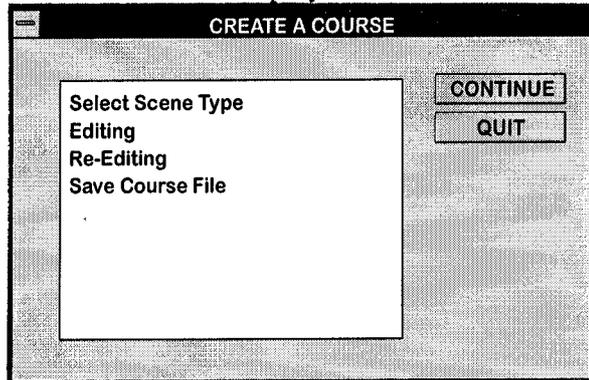
For this Work Sheet, use the mouse or arrow keys to highlight **forest1**, and click on the **CONTINUE** button.



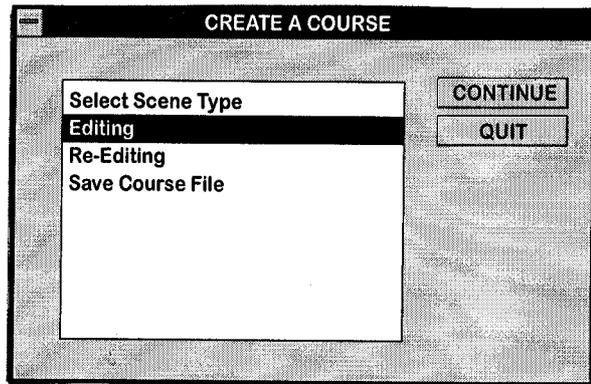
The system will load the background, targets, and terrain data for the type of background selected. This loading of data may take a few minutes.



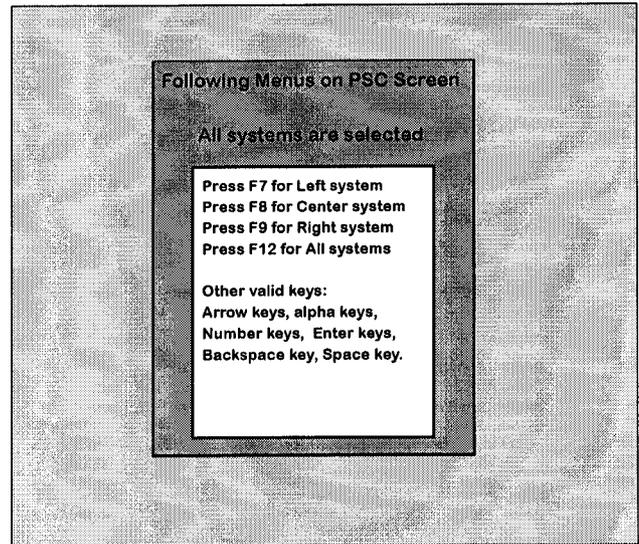
The Big Screens display a loading message and the graphic data until loading is complete, then the loading message disappears. On the PC the Create A Course screen displays.



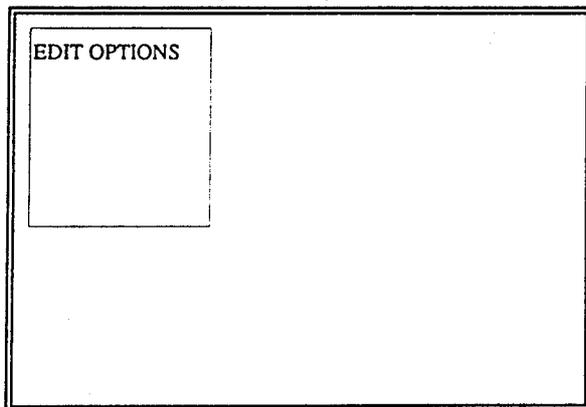
Use the mouse or arrow keys to highlight **Editing**, and click on the **CONTINUE** button.



The PC display changes to the system selection menu.

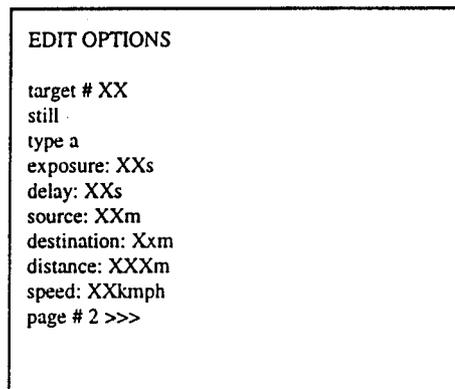


Press the **F8** key to edit the Center screen. The PSC screen displays the **EDIT OPTIONS** menu in the upper left corner of the screen as shown below.



Use the **↑** and **↓** arrow keys to highlight **still**, and then use the **→** and **←** keys to scroll through the choices for this option.

For clarity, the **EDIT OPTIONS** menu will be shown without the rest of the PSC screen.



The choices available are **still**, **cross**, or **moving**. For this first target, pick **still**.

Use the ↑ and ↓ arrow keys to highlight **target**, and then use the ← and → keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **exposure: XXs**, then press the **ENTER** key.

Choose the type of target to put into your authored graphic course. For this first target, pick **tank1**.

This action brings up the input requestor box with a question mark in it as shown in the bottom left-hand portion of the figure below.

```
EDIT OPTIONS
target # XX
still
tank1
exposure: XXs
delay: XXs
source: XXm
destination: XXm
distance: XXXm
speed: XXkmph
page # 2 >>>
? 
```

Type in **2**, then press the **ENTER** key.

The input requestor box disappears, and the value **2** appears in the highlighted area so that the words “exposure: 2s” are displayed. You have now set the time so that the target will be displayed for 2 seconds.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

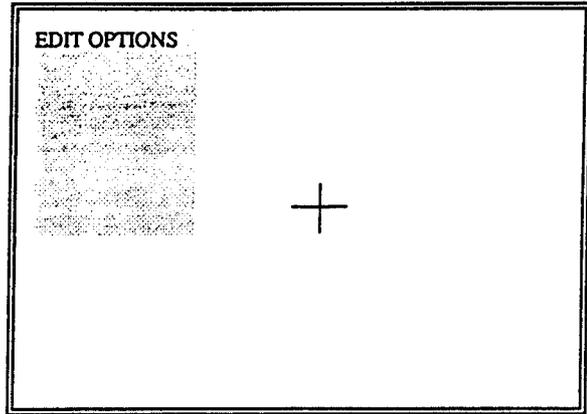
This action brings up the input requestor box. (Note the question mark in it.)

Type in **5**, then press the **ENTER** key.

The input requestor box disappears, and the value **5** appears in the highlighted area so that the words “delay: 5s” are displayed. You have now set the time so that the target appears 5 seconds after the beginning of the course. This means that 5 seconds after the start of the course, the target appears and will be displayed for 2 seconds as set in the step above.

## Work Sheet 4-2

Use the ↑ and ↓ arrow keys to highlight  
source: **XXm**, then press the **ENTER** key.



This action brings up a red cross on the picture of the lane on which you are working, as shown in the figure above. This red cross represents the bottom middle of the target.

Use the ↑, ↓, ←, and → arrow keys to move the red cross on the picture of the lane.

This action positions the target where you want it to appear on the background of the lane. When you have moved the cross to the desired location, perform the next step.

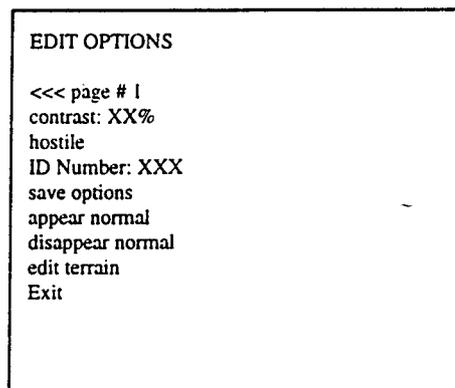
Press the **ENTER** key.

This action sets the target on the background and brings up the input requestor box.

Type in **400**, then press the **ENTER** key.

This action sets the target at the proper proportion (400 meters) into the lane at the spot you designated with the red cross. If the target does not appear correctly, perform the step again, typing in a larger value to make the target smaller or a smaller value to make the target larger.

Use the ↑ and ↓ arrow keys to highlight  
**Page # 2 >>>**, then press the **ENTER** key.



This action brings up the second page of Edit Options as shown in the figure above.

## Work Sheet 4-2

Use the ↑ and ↓ arrow keys to highlight **contrast: XX%**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **save options**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **target # XX**, then use the → arrow key to select **02**.

Use the ↑ and ↓ arrow keys to highlight **still**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **type a**, and then use the → and ← keys to scroll through the choices for this option.

Use the ↑ and ↓ arrow keys to highlight **delay: XXs**, then press the **ENTER** key.

Type in **7**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **source: XXm**, then press the **ENTER** key.

This action scrolls through the % of contrast with which the target will be displayed against the background. 0% results in a target that completely blends with the background and appears invisible, and 100% results in a completely black target.

Scroll until you have **50%** displayed, and perform the next step.

```
EDIT OPTIONS
target # XX
still
tank1
exposure: XXs
delay: XXs
source: XXm
destination: XXm
distance: XXXm
speed: XXkmph
page # 2 >>>
```

This action saves the target as target 01 in the course and returns you to page one of the Edit Options.

This action starts the process for setting up a second target on the lane.

Select the option **moving**.

Select **tank2**.

This action brings up the input requestor box.

The input requestor box disappears, and the value **7** appears in the highlighted area so that the words "delay: 7s" are displayed. You have now set the time for the target to appear at 7 seconds after the beginning of the course. This is when your first target will disappear.

This action brings up a red cross on the picture of the background on which you are working. The red cross represents the bottom middle of the target.

## Work Sheet 4-2

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the **ENTER** key.

Type in **300**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **destination: XXm**, then press the **ENTER** key.

Use the ↑, ↓, →, and ← arrow keys to move the red cross on the picture of the lane.

Press the **ENTER** key.

Type in **300**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **distance: XXXm**, then press the **ENTER** key.

Type in **100**, then press the **ENTER** key.

Use the ↑ and ↓ arrow keys to highlight **speed: XXkmph**, then press the **ENTER** key.

Type in **7**, then press the **ENTER** key.

This action positions the target where you want it to start on the background. When you have moved the cross to the desired location, perform the next step.

This sets the target on the background and brings up the input requestor box.

This action sets the target at the proper proportion at the spot you designated with the red cross. If the target does not appear to be the correct size, perform the step again and type a different value.

This action brings up a red cross on the picture of the background on which you are working.

This action positions the target where you want it to end its movement on the background. When you have moved the cross to the desired location, perform the next step.

This action sets the target where it will end its movement on the lane and brings up the input requestor box.

This action sets the target into the background at the proper proportion for a target at 300 meters distance, at the spot you designated with the red cross.

This action brings up the input requestor box.

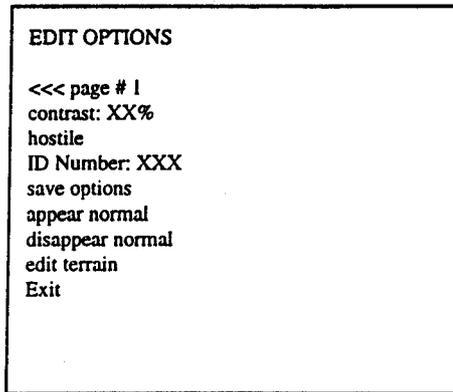
This action sets the distance the target travels to 100 meters.

This action brings up the input requestor box.

This action sets the speed of the target's movement across the screen. Since you have now set the speed and distance, the Exposure is automatically filled in with the correct value. Check the value to ensure that it is appropriate for your course. It would be of little value to add a moving target if it were going to be exposed for 30 minutes. Adjust the speed or distance (or both) to expose the target for an

Use the ↑ and ↓ arrow keys to highlight **Page # 2 >>>**, then press the **ENTER** key.

appropriate time.



This action brings up the second page of Edit Options as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **contrast: XX%**, and then use the ← and → keys to scroll through the choices for this option.

This action scrolls through the % of contrast between the target and the background. Use **80%**.

Use the ↑ and ↓ arrow keys to highlight **appear normal**, and then use the ← and → keys to scroll through the choices for this option.

This action scrolls through the different options available for making the target appear. The options are **appear normal, emerge to East, emerge to West, and rise**. Leave the selection on **appear normal**.

Use the ↑ and ↓ arrow keys to highlight **disappear normal**, and then use the ← and → keys to scroll through the choices for this option.

This action scrolls through the options available for making the target disappear. The options are **disappear normal, shelter to East, shelter to West, drop, retreat, and stop**. Leave the selection on **stop**.

Use the ↑ and ↓ arrow keys to highlight **save options**, then press the **ENTER** key.

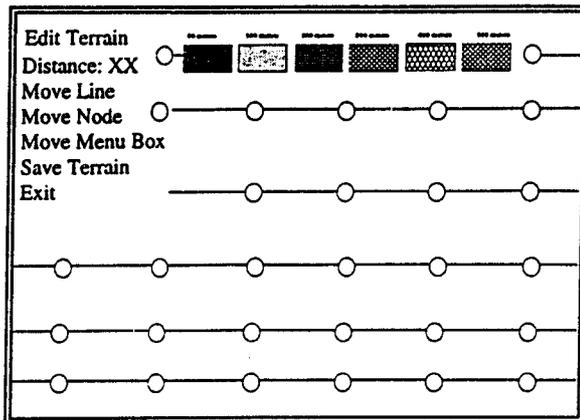
This action saves the target as target 02 in the course and returns you to page one of the Edit Options.

Use the ↑ and ↓ arrow keys to highlight **Page # 2 >>>**, then press the **ENTER** key.

This action brings up the second page of Edit Options.

## Work Sheet 4-2

Use the ↑ and ↓ arrow keys to highlight **Edit Terrain**, then press the **ENTER** key.



This action brings up the Edit Terrain menu and terrain lines as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Distance: XX**, then press the **ENTER** key.

This action scrolls through the different distances of the terrain lines. Note the legend box that contains the colors used to denote the different distances. Select the closest distance, **50 meters**, and then perform the next step.

Use the ↑ and ↓ arrow keys to highlight **Move Line**, then press the **ENTER** key.

Now use the ↑ and ↓ arrow keys to move the 50-meter line up and down on the screen. This action tells the computer the distance to objects on the screen. When you have positioned the distance line at the point where you want it, perform the next step.

Press the **ENTER** key.

This action takes you out of Move Line so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

Use the ↑ and ↓ arrow keys to highlight **Move Node**, then press the **ENTER** key.

Now use the ↑ and ↓ arrow keys to move the selected node (selected node turns black) on the 50-meter line up and down. To change the node, use the ← and → arrow keys. After you have positioned the 50-meter line nodes where you want them, perform the next step.

Press the **ENTER** key.

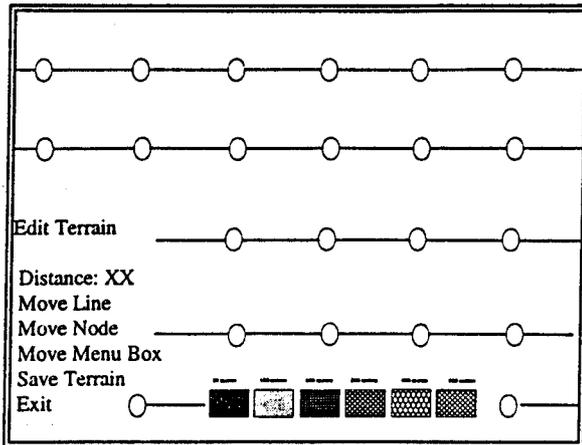
This action takes you out of Move Node so that the ↑ and ↓ arrow keys may be used to move through the menu items again.

Use the ↑ and ↓ arrow keys to highlight **Distance xx**, then press the **ENTER** key.

This action brings up the distances so that you can adjust the positions and nodes. Perform the same procedure on the remaining lines that you did on the 50-meter line to accurately reflect the distances you see in the graphic. If the menu box and legend box get in the way of adjusting the range lines, perform the next step.

## Work Sheet 4-2

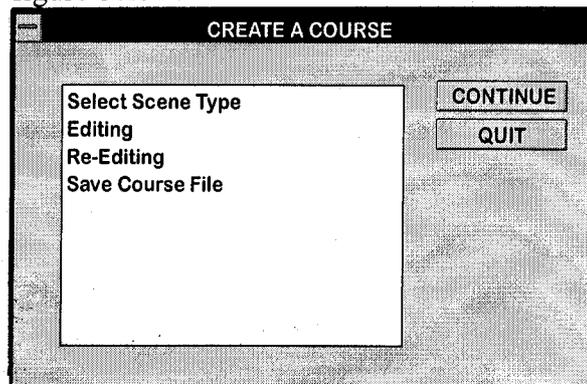
Use the ↑ and ↓ arrow keys to highlight **Move Menu Box**, then press the **ENTER** key.



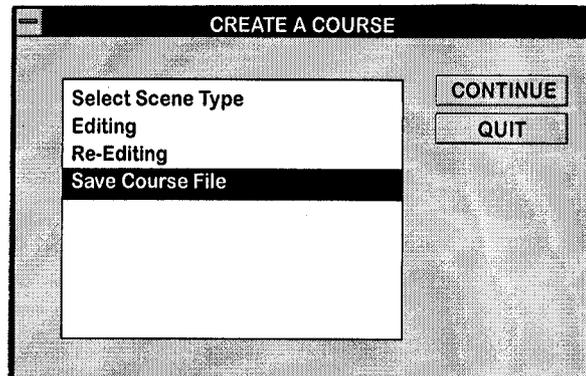
This action moves the menu box and the legend box to the other half of the screen as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Exit**, then press the **ENTER** key. Because only the Center screen was being edited, you must select the other PSC screens using the F7 and F9 keys and edit them as you did the Center screen. When you have completed your edits, Exit from each screen.

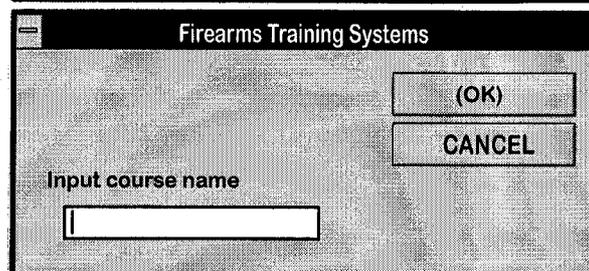
After you exit from all three screens, the system returns you to the Create A Course menu on the PC as shown in the figure below.



Use the ↑ and ↓ arrow keys to highlight **Save Course File**.



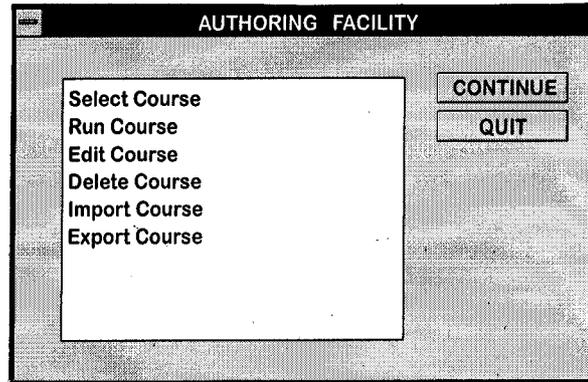
Press the **CONTINUE** button.



This action brings up the input requestor box, as shown in the figure above. At this time you will name the course. The name cannot be more than 8 characters. It cannot contain any spaces or punctuation.

## Work Sheet 4-2

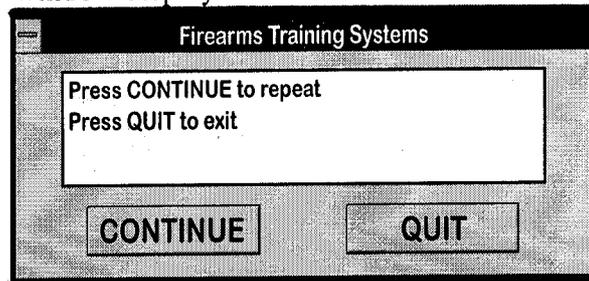
Type in your course's name, then press the **OK** button.



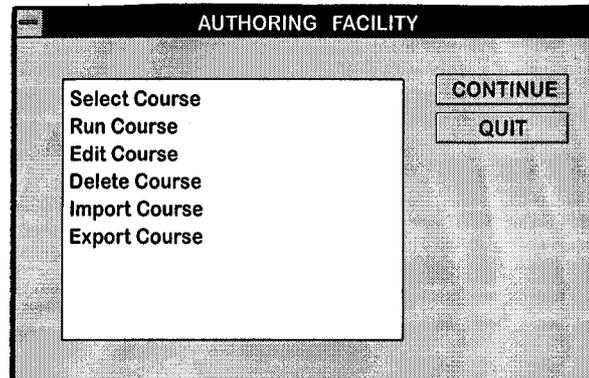
This action saves the course you just authored and returns you to the Authoring Facility menu, as shown in the figure above.

Use the ↑ and ↓ arrow keys to highlight **Run Course**, then press the **ENTER** key.

Your authored course should now run. Because the course you just authored is stored in the memory of the computer, the computer will automatically run it. While you cannot fire at the course under this option, you will be able to see the course as it will run. Use this option to check that the course you just authored is a usable course. It is important to note that if you had not just authored a course, an input request box would display asking you to type a course name into it. When the course finishes, the following request window displays.



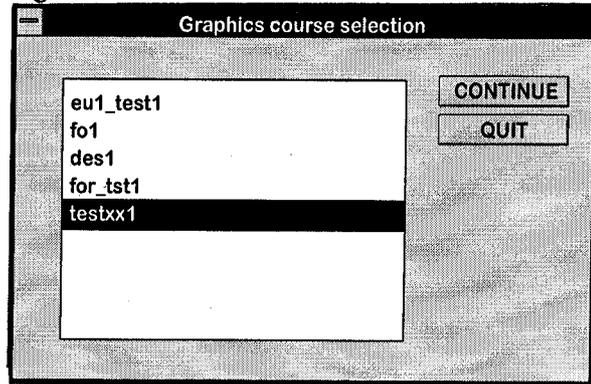
Click on the **QUIT** button.



The Authoring Facility menu displays on the PC.

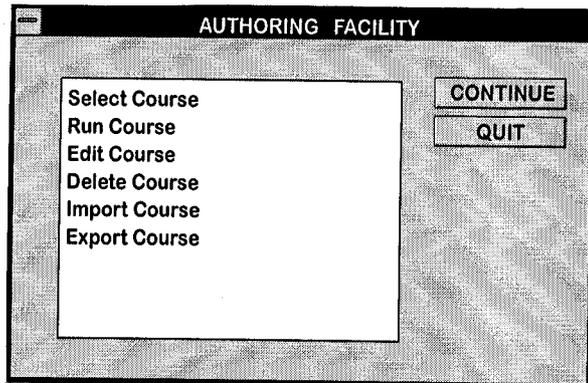
Use the ↑ and ↓ arrow keys to highlight **Delete Course**, then press the **CONTINUE** button.

This action displays the Graphics course selection menu with the courses available on the system as shown in the figure below.



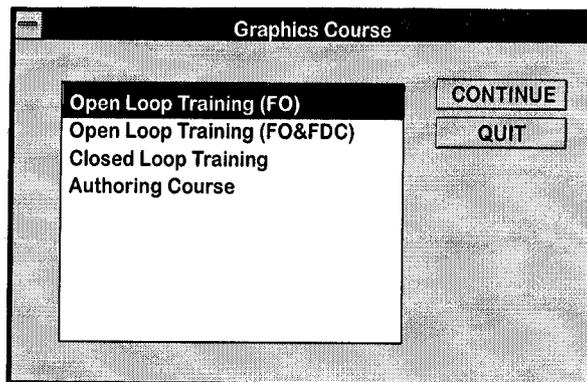
Use the ↑ and ↓ arrow keys to highlight a course to delete, then press the **CONTINUE** button. If you do not want to delete an authored course, click on the **QUIT** button.

Click on the **QUIT** button.



This action takes you to the Authoring Facility menu as shown in the figure above.

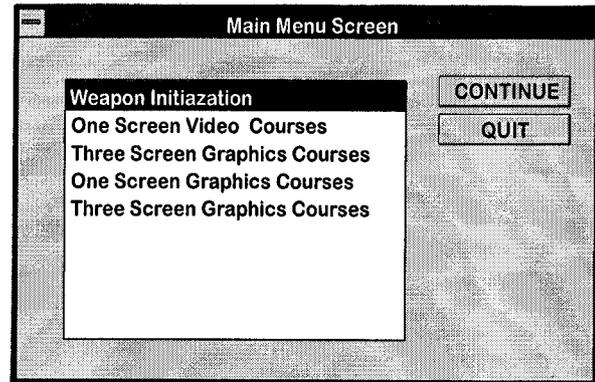
Click on the **QUIT** button.



This action takes you to the Graphics Course display above.

## Work Sheet 4-2

Click on the **QUIT** button.



This completes Work Sheet 4-2.

**Congratulations!**  
**You have authored a Graphics Mortar Course.**

### REMEMBER

1. Authoring requires imagination, understanding of the system's capabilities, and practice. The best way to maximize authoring options is to experiment.
2. Always make the targets fit the background scene proportionally. For example, do not put a 200-yard target on a target form that is obviously 400 yards away. The PSC screen is approximately 10 feet wide. If you select a place in a background which you estimate to be 200 yards away, then the terrain at that point on the screen is actually 100 yards wide on the whole screen.

## MORTAR COURSE TEST

### Introduction

This Test Sheet covers all Learning Objectives of Section 4. By successfully completing this Test, you will demonstrate an understanding of the Mortar Simulation software and hardware. You may **not** use your notes, Assignment Sheets, or Work Sheets to complete the test.

After completing this Test, have your OJT Handbook Administrator grade your work. If the OJT Handbook Administrator finds your work acceptable, you will be qualified to use the Mortar Simulation Trainer.

### Instructions

The following tasks must be accomplished to the satisfaction of the Handbook Administrator. Do not start this test without first checking with your OJT Handbook Administrator.

### Tasks

- Task 1            Create a One Screen graphics course for closed loop 60mm mortar training. Include both moving and still targets. Have at least one point in the course where multiple targets are visible.
- Task 2            Create a Three Screen graphics course with multiple hard targets over one thousand yards away for artillery fire. Use both moving and still targets for mortar targets.
- Task 3            Administer the One Screen Closed Loop course to a trainee for FO, a trainee for FDC, and trainees for mortar team. Explain to your Handbook Administrator how you interpret the results of the firing and what, if any, things you would recommend for the "trainees" to do to improve their mortar skills.

# MORTAR COURSE TEST

## Introduction

This Test Sheet covers all Learning Objectives of Section 4. By successfully completing this Test, you will demonstrate an understanding of the Mortar Simulation software and hardware. You may **not** use your notes, Assignment Sheets, or Work Sheets to complete the test.

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## Instructions

The following tasks must be accomplished to the satisfaction of the Handbook Administrator. Do not start this test without first checking with your OJT Handbook Administrator.

## Tasks

Task 1 Create a One Screen graphics course for closed loop 60mm mortar training. Include both moving and still targets. Have at least one point in the course where multiple targets are visible.

- Targets are correct proportion for distance.
- Moving targets are visible long enough for a shot and move at a reasonable speed.
- Multiple targets are displayed at least once during the course.

Task 2 Create a Three Screen graphics course with multiple hard targets over one thousand yards away for artillery fire. Use both moving and still targets for mortar targets.

- Targets are correct proportion for distance.
- Moving targets are visible long enough for a shot and move at a reasonable speed.
- Multiple FO targets are displayed at least once during the course.

**Task 3** Administer the One Screen Closed Loop course to a trainee for FO, a trainee for FDC, and trainees for mortar team. Explain to your handbook administrator how you interpret the results of the firing and what, if any, things you would recommend for the "trainees" to do to improve their mortar skills.

- Understands how to use the results to interpret FO, FDC, and mortar team skills.