
OPERATOR COURSE

FOR

3KW TACTICAL QUIET GENERATOR SET
MEP 831A (60 HZ) AND MEP 832A (400 HZ)

INSTRUCTOR GUIDE

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HAZARD AWARENESS NOTICE

All personnel involved with operation of the generator set must be thoroughly familiar with the equipment safety precautions contained in the Operator, Unit, Direct Support, and General Support Maintenance Manual for the Tactical Quiet Generator Set.

Pay extreme close attention to specific cautions and warnings throughout the technical manual during training exercises to prevent injury to personnel and damage to the equipment.

HIGH VOLTAGE is used in the operation of this equipment. DEATH or severe injury may result if personnel fail to observe safety precautions.

The generator set produces high voltages and emits deadly carbon monoxide gases when in operation. Extreme caution must be exercised when working with or near this equipment.

Servicing the generator set should not be accomplished alone. Unless under direct supervision of qualified person, no person shall operate or maintain equipment for which they are not qualified.

Servicing the generator set must be accomplished in well-ventilated spaces only ensuring that equipment is grounded. Under no circumstances will a person operate or service this equipment unless the spaces are ventilated and the equipment suitably grounded. Equipment must be grounded in accordance with procedures contained in Field Manual 20-31 Failure to adhere to this may cause death, personal injury, and equipment damage.

Report all hazards. If at any time you detect a hazard, it is your responsibility to report the hazard to the next person in your chain of command. This person should ensure that the hazard will be investigated, publicized, or corrected, as required.

OPERATOR COURSE INSTRUCTOR GUIDE -PM-MEP-3KW OCIG

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HOW TO USE THE INSTRUCTOR GUIDE

COMPOSITION OF THE INSTRUCTOR GUIDE

This Instructor guide provides an instructor with the information required to prepare for, and instruct in, the topics assigned. As an introduction to each topic, the instructor shall display his/her NAME and TOPIC TITLE on the chalkboard. The instructor will also inform the trainees of the topic learning objectives, establish classroom procedures (questioning, note taking, breaks, etc.), and motivate the trainees by emphasizing the importance of the topic. Each topic within the Instructor Guide contains the following:

1. Topic Learning Objectives. This objectives are written to reflect the training that the topic supports. The objectives are derived from the Training Analysis Summary.
2. Trainee Preparation. If applicable, this portion assigns the study and review material that the trainee must complete to prepare for the topic. It contains detailed assignments in reference publications and diagrams, including support materials, and is assigned at the end of each day of instruction. The instructor must review the Trainee Preparation portion of topics planned for the following day and make study assignments accordingly.
3. Instructor Preparation. This part of the topic page contains:
 - a. A reminder to review assigned trainee materials.
 - b. A list of all reference materials required by the instructor to prepare to instruct the topic.
 - c. A list of all training materials required for the topic, including references, equipment, support materials, and test equipment.
4. Discussion-Demonstration-Activities. This page is divided into two columns, as follows:
 - a. Discussion Point. This column outlines subject matter to the depth necessary to support the corresponding topic learning objective. Also, sufficient space is provided for instructor personalization.
 - b. Related Instructor Activity. In this column are listed specific instructor activities, excluding oral discussion, which will aid in trainee learning. The Related Instructor Activity column provides the instructor specific instructions relative to reference documents and guidance to trainee behavior during presentation of instruction. These activities carry the same number as the discussion point to which they are related. As with the discussion points, space is left for the instructor to ad personalizing notes. The "Reference..." is used to help the instructor locate information applicable to a particular discussion point and to be used to prepare for the material to be covered. It is not intended to direct the instructor to use that reference material in the classroom. The term "Refer to ..." provides direction for the instructor when the reference material is actually intended for use in the classroom. If there is no related instructor activity for a discussion point, the space is left blank and the number omitted.

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HOW TO USE THE INSTRUCTOR GUIDE (continued)

FUNCTION OF THE INSTRUCTOR GUIDE

The Instructor Guide expands the approved topic outline into a content format that will serve as an effective plan for instruction. It provides room for instructors to add individual notes. The form of the instructor guide facilitates preparation, minimizes deviation from the approved plan for the topic, and lessens the need for rewriting material already contained in the outline. As the instructors prepare to teach the topic for the first time, they may write in the technical data, information, or notes to be used to do a professional job of instruction. As instructors gain experience teaching a topic, they may modify and improve the data written in. Any activity that does not contribute directly to training in the operation and maintenance of the generator set assembly is wasted effort. A thorough understanding of the equipment theory is necessary in order that the practical work on the equipment may be accomplished. The reason for the theory is to assist the trainee in doing practical work.

USE OF THE INSTRUCTOR GUIDE

When issued to an instructor, this guide becomes his personal property subject only to the regulations that govern classified matter.

Each instructor will make handwritten entries in the spaces provided. Personalized topics may be passed on to a relieving instructor; however, they are to be used only for reference purposes in developing a personalized Instructor Guide.

STUDY ASSIGNMENTS

If applicable, study assignments are provided in the Instructor Guide and all completed assignments should be reviewed with the trainees at the first opportunity.

EQUIPMENT FAULTS

The Fault Applicability List in the Instructor Guide lists the faults/fault insertion devices, if required, in this course. When desirable, additional faults may be selected from the Fault Applicability List in the Guide.

INSTRUCTION SHEETS, EXAMINATIONS, QUIZZES

If applicable, Instruction Sheets, consisting of Information Sheets, Job Sheets, Assignment Sheets, Problem Sheets, and Diagram Sheets are an integral part of the course and help new trainees achieve the topic learning objectives. Quizzes and Examinations are administered to monitor trainee comprehension at the completion of significant areas of instruction.

DIVISION OF COURSE MATERIALS INTO FUNCTIONAL PARTS

The course material in this Instructor Guide has been divided into parts to support the Training Analysis Summary. It has been divided into sections to support instruction on theory, operation, preventive maintenance, and corrective maintenance. The sequence of instruction is based on an analysis of the tasks for the trainee performance.

TRAINING MATERIAL SUPPORT PROGRAM

The Training Material Support Program has been established for the purpose of improving the curriculum and other training material. It is each instructor's responsibility to become familiar with this program. You are to submit all of your suggestions for improvement. These suggestions should include discrepancies found or any comments that you feel will improve training. There will be no changes in this curriculum until authorized by the U.S. Army Troop Support Command.

HOW TO USE THE INSTRUCTOR GUIDE (continued)

SECURITY

In the event that classified information is added to this Instructor Guide as a result of instructor personalization, the Instructor Guide shall be marked and handled in accordance with the regulations of the latest edition of the Department of the Army Supplement to the DoD Information Security Program Regulation.

SAFETY PRECAUTIONS

High voltage present, and the emission of deadly carbon monoxide gases by the generator set assembly are extremely dangerous. The importance of stringent ventilation requirements in the proper preparation and installation of the generator set assembly must be continuously stressed. Safety must be a part of each day of training so that the trainee will develop safe working habits.

ALLOCATION OF INSTRUCTIONAL TIME

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<u>Volume No.</u>	<u>Part No.</u>	<u>Section No.</u>	<u>Topic No.</u>	<u>Classroom Hours</u>	<u>Laboratory Hours</u>	<u>Part Totals</u>
		1	1-1	0.25	0	0.25
			1-2	0.50	0	0.50
			Section Total	0.75	0	0.75
		2	2-1	0.25	0	0.25
			Section Total	0.25	0	0.25
		3	3-1	0	0.25	0.25
			Section Total	0	0.25	0.25
		4	4-1	0	0.25	0.25
			Section Total	0	0.25	0.25
		5	5-1	0	0.50	0.50
			5-2	0	0.25	0.25
			5-3	0	0.25	0.25
			Section Total	0	1.00	1.00

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ALLOCATION OF INSTRUCTIONAL TIME (continued)

<u>Volume No.</u>	<u>Part No.</u>	<u>Section No.</u>	<u>Topic No.</u>	<u>Classroom Hours</u>	<u>Laboratory Hours</u>	<u>Part Totals</u>
		6	6-1	0	0.50	0.50
			Section Total	0	0.50	0.50
			COURSE TOTAL	1.00	3.00	4.00

INSTRUCTIONAL TIME TOTAL	3.00 Hours
TESTING /ADMIN/REVIEW	1.00 Hours
COURSE TOTAL	4.00 Hours

NOTE

Classroom and laboratory (hands-on) hours shown reflect the time used with an actual class size of 15 and a trainee / instructor ratio for laboratory / hands-on periods of 8 / 1. This time may vary slightly at different activities due to different class loading of available resources. Actual times should be reflected on each activities master course schedule.

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COURSE LEARNING OBJECTIVES

INTRODUCTION STATEMENT

Upon successful completion of this course, the trainee will have acquired the following Knowledge and Skills and be able to:

Knowledge

1. Describe the generator set course content, schedule, and objective.
2. Describe the generator set and identify the major systems and the function of each.
3. Describe the organization, content, use and safety precautions in the generator set documentation.
4. Describe the function of the engine and generator set controls and indicators.
5. Describe the procedures for operating the generator set under unusual conditions.
6. Identify the locations of decals and plates on the generator set.

Skills

1. Perform PMCS procedures on the generator set.
2. Perform startup and shutdown procedures on the generator set.
3. Perform operator troubleshooting on the generator set.

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SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

<u>Topic No.</u>	<u>Topic Title</u>	<u>Page</u>
1-1	Course Introduction	1-1-1
1-1A	Technical Documentation	1-1-4
1-2	Description of Equipment and Principles of Operation	1-2-1

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Time: 0.25 HRS.

1-1. COURSE INTRODUCTION

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Describe the generator set course content, schedule, and objective.

TRAINEE PREPARATION

A. Trainee Support Material

1. None

B. Reference Publications

1. None

C. Reference Drawings

1. None

INSTRUCTOR PREPARATION

A. Review Assigned Trainee Material

B. Reference Publications

1. None

C. Training Materials Required

1. Overhead Projector
2. Transparencies 1-1-1 and 1-1-2
3. Trainee Guide

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

1-1 COURSE INTRODUCTION

Discussion Point

Related Instructor Activity

1. Introduction

1. Introduce self and background.

- a. Course Conduct (Raise hands, ask questions)
- b. Regulations (Food, drink, smoking)
- c. Breaks (10 minutes per hour of training)
- d. Safety - in and out of classroom

a. Course Title

a. Show Transparency 1-1-1.

b. Course Content

(1) Reference Documentation

(1) Inventory reference documentation

(2) Trainee Guide

(2) Explain the use of Trainee Guide.

- Outline Sheets
- Diagram Sheets
- Assignment Sheets
- Job Sheets

OPERATOR COURSE INSTRUCTOR GUIDE -PM-MEP-3KW OCIG

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Discussion Point

Related Instructor Activity

(3) Testing	(3) Explain final testing.
c. Class Schedule	c. Distribute class schedule. Explain allotted time for each topic.
d. Course Objective	d. Show Transparency 1-1-2. Read course objective to trainees.
2. Review and Summary	
3. Assignments	3. None

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Time: 0.25 HRS.

1-2. GENERATOR SET DESCRIPTION AND PRINCIPLES OF OPERATION

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Describe the generator set and identify the major systems and the principles operation for each.

TRAINEE PREPARATION

- A. Trainee Support Material
 1. Trainee Guide
- B. Reference Publications
 1. Operator, Unit and Direct Support maintenance Manual
TM 9-6115-639-13
- C. Reference Drawings
 1. None

INSTRUCTOR PREPARATION

- A. Review Assigned Trainee Material
- B. Reference Publications
 1. TM 9-6115-639-13
- C. Training Materials Required
 1. Overhead Projector
 2. Transparencies 1-2-1 through 1-2-3
 3. Trainee Guide

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

1-2. GENERATOR SET DESCRIPTION AND PRINCIPLES OF OPERATION

Discussion Point

Related Instructor Activity

1. Topic Learning Objectives

1. Review topic learning objectives

2. Generator Set Description

a. Size

(1) 3KW

(2) 60 Hz (MEP 831A) or 400 Hz (MEP 832A)

(2) Describe differences between models

b. Features

(1) The generator set is a fully enclosed, self contained, skid mounted, portable tactical quiet unit.

(2) Equipped with all control, instruments, and indicators required to operate the generator set in all conditions.

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Discussion Point

Related Instructor Activity

c. Basic Components

c. Show Transparency 1-2-1.

(1) Skid Base

Tell trainees all location references are given facing the control panel (front of generator set).

- (a) Supports generator set components
- (b) Slots for forklift
- (c) Lifting handles for movement by personnel
- (d) Tie down rings for security during transportation

(2) Enclosure

- (a) Encloses and protects unit from elements
- (b) Hinged cover for easy PMCS access
- (c) Insulated to reduce sound

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SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Discussion Point

Related Instructor Activity

- | | |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| (3) Engine | (3) Show transparency 1-2-2.

Identify and point out engine components. |
| (a) Single cylinder, air cooled, direct injection, four stroke, diesel engine | |
| (b) 6.7 horsepower output at 3600 RPM | |
| (c) Mounted to skid base with vibration isolators | |
| (4) Permanent Magnet Generator | (4) Show transparency 1-2-2.

Identify and point out generator. |
| (a) Four three-phase isolated AC output windings | |
| (b) Voltage output proportional to engine speed | |
| (c) Mounted directly to engine crankshaft extension | |

SECTION 1. INTRODUCTION, GENERATOR SET DESCRIPTION, AND PRINCIPLES OF OPERATION

Discussion Point

Related Instructor Activity

(5) Control Box Assembly

(5) Show transparency 1-2-3.

Identify and point out control box assembly.

- (a) Contains switches, indicators, and circuitry to control and monitor generator set operation
- (b) Hinged control panel allows access for maintenance
- (c) Fault indicator module alerts operator to generator set failure
- (d) Duplex convenience receptacle and ground fault circuit interrupter (GFCI) provided on 60 Hz model (MEP 831A)

(6) Output / Load Connections

(6) Show transparency 1-2-3.

Identify and point out output panel and NATO slave receptacle.

- (a) Load and ground connection terminals mounted on skid base, behind hinged panel
- (b) 24VDC NATO output slave receptacle

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SECTION 2. TECHNICAL MANUAL ORGANIZATION

<u>Topic No.</u>	<u>Topic Title</u>	<u>Page</u>
2-1	Introduction to the Technical Documentation	2-1-1

SECTION 2. INTRODUCTION TO THE TECHNICAL DOCUMENTATION

Time: 0.25 HRS.

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic the trainee will be able to:

1. Describe the organization, content, use, and safety precautions in the generator set documentation.

TRAINEE PREPARATION

A. Trainee Support Material

1. Trainee Guide

B. Reference Publications

1. Operator, Unit and Direct Support
Maintenance Manual, TM 9-6115-639-13

C. Reference Drawings

1. None

INSTRUCTOR PREPARATION

A. Review Assigned Trainee Material

B. Reference Publications

1. TM 9-6115-639-13

C. Training Materials Required

1. Trainee Guide

SECTION 2. INTRODUCTION TO THE TECHNICAL DOCUMENTATION

2-1. INTRODUCTION TO THE TECHNICAL MANUAL

Discussion Point

Related Instructor Activity

1. Topic Learning Objectives

2. Technical Documentation

a. Operator, Unit and Direct Support
Maintenance Manual, TM 9-6115-639-13

b. Organization

(1) Chapters, sections, tables, and appendix format

(2) Division of text / text between maintenance levels

(3) Tasks and procedures authorized for the operator

c. Content

a. Identify Technical Manual.

b. Refer students to Technical Manual. Discuss each section listed in the Table of Contents. Define applicability to operating personnel.

Discussion Point

Related Instructor Activity

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <p>d. Use</p> <p>(1) A guide for generator set operation and maintenance</p> | |
| <p>e. Safety</p> <p>(1) Notes - Denote essential information of special importance or interest to aid in job performance</p> <p>(2) Cautions - Denote conditions, practices or procedures that must be observed to avoid damage to, or destruction of, equipment.</p> <p>(3) Warnings - Denote conditions, practices or procedures that must be observed to avoid personal injury or loss of life.</p> | <p>e. Refer Trainees to Warning Summary in Manual, pages a, b, c, d.</p> |
| <p>3. Review and summary</p> | |
| <p>4. Assignment</p> | <p>4. None</p> |

SECTION 3. OPERATOR CONTROLS AND INDICATORS

Time: 0.25 HRS.

3.1 GENERATOR SET CONTROLS AND INDICATORS

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Describe the function of the controls and indicators on the generator set.

TRAINEE PREPARATION

- A. Trainee Support Material
 1. Trainee Guide
- B. Reference Publications
 1. Operator, Unit and Direct Support Maintenance Manual, TM 9-6115-639-13
- C. Reference Drawings
 1. None

INSTRUCTOR PREPARATION

- A. Review Assigned Trainee Material
- B. Reference Publications
 1. TM 9-6115-639-13
- C. Training Material Required
 1. Generator Set
 2. Trainee Guide

SECTION 3. OPERATOR CONTROLS AND INDICATORS

3.1. ENGINE AND GENERATOR CONTROLS AND INDICATORS

Discussion Point

Related Instructor Activity

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Topic Learning Objectives
2. Control Panel Controls and Indicators<ol style="list-style-type: none">a. Switches and controls
b. Normal operating positions
c. Gauges and meters
d. Fault and system condition indicators
e. Controls used for emergency or unusual operation | <ol style="list-style-type: none">2. Refer trainees to Manual, page 2-2, and Figure 2-1.<ol style="list-style-type: none">a. Point out control panel switches and indicators. Briefly discuss the function of each, as related to operation of the generator set.
b. Emphasize the importance of understanding the use of each control and indicator. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SECTION 3. OPERATOR CONTROLS AND INDICATORS

Discussion Point

Related Instructor Activity

- | | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 3. Skid Base Mounted Controls | 3. Refer trainees to Manual, page 2-2, and Figure 2-1. |
| a. Output / Load Panel Terminals | a. Point out skid base mounted controls. Briefly discuss the function of each, as related to operation of the generator set. |
| b. NATO Slave Receptacle | |
| 4. Engine Oil Fill Cap and Gauge | |
| 5. Generator Set Fuel Tank Fill Port | |
| 6. Review and Summary | |
| 7. Assignment | 7. None |

SECTION 4. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Time: 0.25 HRS.

4-1 PMCS INSTRUCTIONS

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Describe PMCS procedures on the generator set.

TRAINEE PREPARATION

A. Trainee Support Material

1. Trainee Guide

B. Reference Publications

1. Operator and Unit, Direct Support
Maintenance Manual TM 9-6115-639-13

C. Reference Drawings

1. None

INSTRUCTOR PREPARATION

A. Review Assigned Trainee Material

B. Reference Publications

1. TM 9-6115-639-13

C. Training Materials Required

1. Generator Set
2. Trainee Guide

SECTION 4. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4.1. PMCS INSTRUCTIONS

Discussion Point

Related Instructor Activity

1. Topic Learning Objectives

2. Preventive Maintenance Checks & Services

a. Purpose

b. Leakage definitions

c. PMCS table

(1) Content

(2) Columns

(3) Use

2. Refer Trainees to Manual, Paragraph 2-2.

a. Discuss content and format. Describe the PMCS Table (each column). Emphasize Notes, Cautions, and Warnings.

SECTION 4. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Discussion Point

Related Instructor Activity

- | | |
|------------------------------------|--------------------------------------------|
| d. PMCS Intervals and Requirements | |
| (1) Before (B) | (1) Demonstrate before (B) operation PMCS. |
| (2) During (D) | (2) Demonstrate during (D) operation PMCS. |
| (3) After (A) | (3) Demonstrate after (A) operation PMCS. |
| 3. Review and Summary | |
| 4. Assignment | 4. None |

SECTION 5. OPERATING PROCEDURES

<u>Topic No.</u>	<u>Topic Title</u>	<u>Page</u>
5-1	Operation Under Usual Conditions	5-1-1
5-2	Operation Under Unusual Conditions	5-2-1
5-3	Markings and Plates	5-3-1

SECTION 5. OPERATING PROCEDURES

Time: 0.50 HRS.

5-1. OPERATING UNDER USUAL CONDITIONS

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Perform startup, shutdown and PMCS procedures on the generator set.

TRAINEE PREPARATION

- A. Trainee Support Material
 1. Trainee Guide
- B. Reference Publications
 1. Operator, Unit and Direct Support Maintenance Manual TM 9-6115-639-13
- C. Reference Drawings
 1. None

INSTRUCTOR PREPARATION

- A. Review Assigned Trainee Material
- B. Reference Publications
 1. TM 9-6115-639-13
- C. Trainee Materials Required
 1. Trainee Guide
 2. Generator Set

SECTION 5. OPERATING PROCEDURES

5.1. OPERATING UNDER USUAL CONDITIONS

<u>Discussion Point</u>	<u>Related Instructor Activity</u>
1. Topic Learning Objectives	
2. Operation Sequence	2. Reference Manual, Paragraphs 2-6 through 2-9.
a. Preparation for use	a. Demonstrate preparation for use. Emphasize proper procedures and safety precautions.
b. Initial adjustments and checks	b. Demonstrate initial adjustments and checks. Emphasize before operation (B) PMCS procedures.
c. Startup	c. Demonstrate startup procedure. Emphasize safety precautions.
d. Normal operation	d. Demonstrate normal operation procedure. Emphasize during operation (D) PMCS procedures.
3. Shutdown	3. Demonstrate normal shutdown procedure. Emphasize after operation (A) PMCS procedures.

SECTION 5. OPERATING PROCEDURES

Discussion Point

Related Instructor Activity

4. Operating Procedures.

4. Prepare generator set for operation by trainees.

- a. Direct trainees to operate the generator set as outlined in Job Sheet 5-1-1.
- b. Verify that the trainees observe safety precautions and answer all questions correctly.
- c. Supervise operation to ensure trainees perform in accordance with Job Sheet.
- d. Critique operation to check for trainees understanding.

5. Review Summary

6. Assignment

6. None

SECTION 5. OPERATING PROCEDURES

Time: 0.25 HRS.

5-2. OPERATION UNDER UNUSUAL CONDITIONS

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Describe the procedures for operating the generator set under unusual conditions.

TRAINEE PREPARATION

A. Trainee Support Material

1. Trainee Guide

B. Reference Publications

1. Operator, Unit and Direct Support

Maintenance Manual TM 9-6115-639-13

C. Reference Drawings

1. None

INSTRUCTOR PREPARATION

A. Review Assigned Trainee Material

B. Reference Publications

1. Manual TM 9-6115-639-13

C. Training Materials Required

1. Trainee Guide
2. Generator Set

SECTION 5. OPERATING PROCEDURES

5.2. OPERATION UNDER UNUSUAL CONDITIONS

Discussion Point

Related Instructor Activity

- | | |
|------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. Topic Learning Objectives | |
| 2. Operation under Unusual Conditions | 2. Reference Manual, Paragraphs 2-13 through 2-16. |
| a. Battle short operation | Review and demonstrate procedures. Describe why and how each procedure is to be used. |
| b. Unusual weather | |
| c. Nuclear, biological, and chemical (NBC) decontamination | |
| d. Hand starting (manual engine cranking) | |
| 3. Emergency Shutdown | 3. Reference Manual, Paragraph 2-10. |
| 4. Review and Summary | |
| 5. Assignment | 5. None |

SECTION 5. OPERATING PROCEDURES

Time: 0.25 HRS.

5-3. MARKINGS AND PLATES

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Identify the locations of markings and plates on the generator set.

TRAINEE PREPARATION

A. Trainee Support Materials

1. Trainee Guide

B. Reference Publications

1. Operator, Unit and Direct Support

Maintenance Manual TM 9-6115-639-13

C. Reference Drawings

1. None

INSTRUCTOR PREPARATION

A. Review Assigned Trainee Material

B. Reference Publications

1. Manual TM 9-6115-639-13

C. Training Materials Required

1. Trainee Guide
2. Generator Set

SECTION 5. OPERATING PROCEDURES

5.3. DECALS AND PLATES

Discussion Point

Related Instructor Activity

1. Topic Learning Objectives

2. Operational Plates

a. Fuel capacity plate

b. Oil capacity plate

c. Battery connection plate

d. Load terminal connection plate

e. Operating instruction plate

2. Reference Manual, Figure 2-2. Point to each marking and plate as it is presented.

SECTION 5. OPERATING PROCEDURES

Discussion Point

Related Instructor Activity

3. Warning and Caution Plates

a. Grounding caution plate

4. Review and Summary

5. Assignment

5. None

SECTION 6. TROUBLESHOOTING

Time: 0.50 HRS.

6-1. TROUBLESHOOTING PROCEDURES

TOPIC LEARNING OBJECTIVE

Upon successful completion of this topic, the trainee will be able to:

1. Perform operator troubleshooting on the generator set.

TRAINEE PREPARATION

- A. Trainee Support Materials
 1. Trainee Guide
- B. Reference Publications
 1. Operator, Unit and Direct Support Maintenance Manual TM 9-6115-639-13
- C. Reference Drawings
 1. None

INSTRUCTOR PREPARATION

- A. Review Assigned Trainee Material
- B. Reference Publications
 1. Manual TM 9-6115-639-13
- C. Training Materials Required
 1. Trainee Guide
 2. Generator Set

SECTION 6. TROUBLESHOOTING

6.1. TROUBLESHOOTING PROCEDURES

Discussion Point

Related Instructor Activity

1. Topic Learning Objectives

2. Troubleshooting Procedures

a. Engine troubles

b. Generator set troubles

3. Troubleshooting Generator Set

2. Refer to Manual, Paragraph 3-2. Discuss use of Malfunction Index (Table 3-1) and Troubleshooting Table (Table 3-2).

3. Prepare the generator set for troubleshooting by the trainees. Insert fault 6-1-1.

a. Direct trainees to perform troubleshooting as outlined in Job Sheet 6-1-1.

b. Supervise troubleshooting procedure to ensure trainees perform in accordance with Job Sheet 6-1-1.

c. Verify that trainee observes safety precautions.

d. Critique troubleshooting to check trainee understanding.

SECTION 6. TROUBLESHOOTING

Discussion Point

Related Instructor Activity

4. Review Summary

5. Assignment

5. None

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MASTER MATERIALS LIST

COURSE: Operator Course, 3KW Tactical Quiet Generator Set

CLASS SIZE: 20 Students

A. TEXTS

<u>Doc No.</u>	<u>Title</u>	<u>Per Tr.</u>	<u>Per Inst.</u>	<u>Per Cl.</u>
PM-MEP 3KW	Operator Course Instructor Guide	1	1	16
PM-MEP 3KW	Operator Course Trainee Guide	1	1	16

B. REFERENCES

<u>Doc No.</u>	<u>Title</u>	<u>Per Tr.</u>	<u>Per Inst.</u>	<u>Per Cl.</u>
TM 9-6115-639-13	Operator, Unit and Direct Support Manual, 3KW Tactical Quiet Generator Set	1	1	16

C. EQUIPMENT

<u>Item No.</u>	<u>Nomenclature</u>	<u>Part No.</u>	<u>CAGE</u>	<u>Per Tr.</u>	<u>Per Inst.</u>	<u>Per Cl.</u>
1	3KW Generator Set	MEP 831A / 832A	30554	0	1	1
2	Overhead Projector	---	---	0	1	1

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C. EQUIPMENT (continued)

<u>Item No.</u>	<u>Nomenclature</u>	<u>Part No.</u>	<u>CAGE</u>	<u>Per Tr.</u>	<u>Per Inst.</u>	<u>Per Cl.</u>
3	Cleaning Cloth	---	---	0	1	1
4	Engine Oil	Note 1		0	1	1
5	Diesel Fuel	Note 1		0	1	1
6	Projector Screen	---	---	0	1	1
7	Podium / Lecture Stand	---	---	0	1	1
8	Table, 3' x 6'	---	---	0	1	1

Note 1: Oil and fuel requirements will vary depending upon climactic conditions. Consult fuel capacity and oil capacity plates for exact requirements and specifications.

D. TRANSPARENCIES

<u>Trans No.</u>	<u>Title</u>	<u>Per Class</u>	<u>Source</u>	<u>Fig No.</u>
1-1-1	Course Title	1	---	---
1-1-2	Course Objective	1	---	---
1-2-1	Generator Set Systems and Components	1	TM 9-6115-639-13	1-2
1-2-2	Engine / Generator / Skid Base Assembly	1	TM 9-6115-639-13	1-3
1-2-3	Control Box/Output Load Connection	1	TM 9-6115-639-13	1-5

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FAULT APPLICABILITY LIST

<u>Part</u>	<u>Sect.</u>	<u>TOS</u>	<u>Equipment</u>	<u>Function Faulted</u>	<u>Fault No.</u>	<u>Document</u>
			Generator Set	DC circuit breaker tripped	1	TM 9-6115-639-13
			Generator Set	Pinched fuel line	2	TM 9-6115-639-13
			Generator Set	Loose electrical connection	3	TM 9-6115-639-13
			Generator Set	GFCI tripped	4	TM 9-6115-639-13
			Generator Set	Circuit interrupter switch open	5	TM 9-6115-639-13
			Generator Set	Clogged air inlet duct	6	TM 9-6115-639-13
			Generator Set	Low engine oil	7	TM 9-6115-639-13
			Generator Set	Aux fuel switch off	8	TM 9-6115-639-13
			Generator Set	Incorrect load terminal	9	TM 9-6115-639-13
			Generator Set	Water in filter / separator	10	TM 9-6115-639-13
			Generator Set	Improper fuel	11	TM 9-6115-639-13

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ANSWER SHEET

Instruction Sheet Type and Number

Question Number and Answer