ARMY	***TM 9-6115-644-10**
AIR FORCE	**TO 35C2-3-446-11**
MARINE CORPS	**TM 09249A/09246A-10/1**

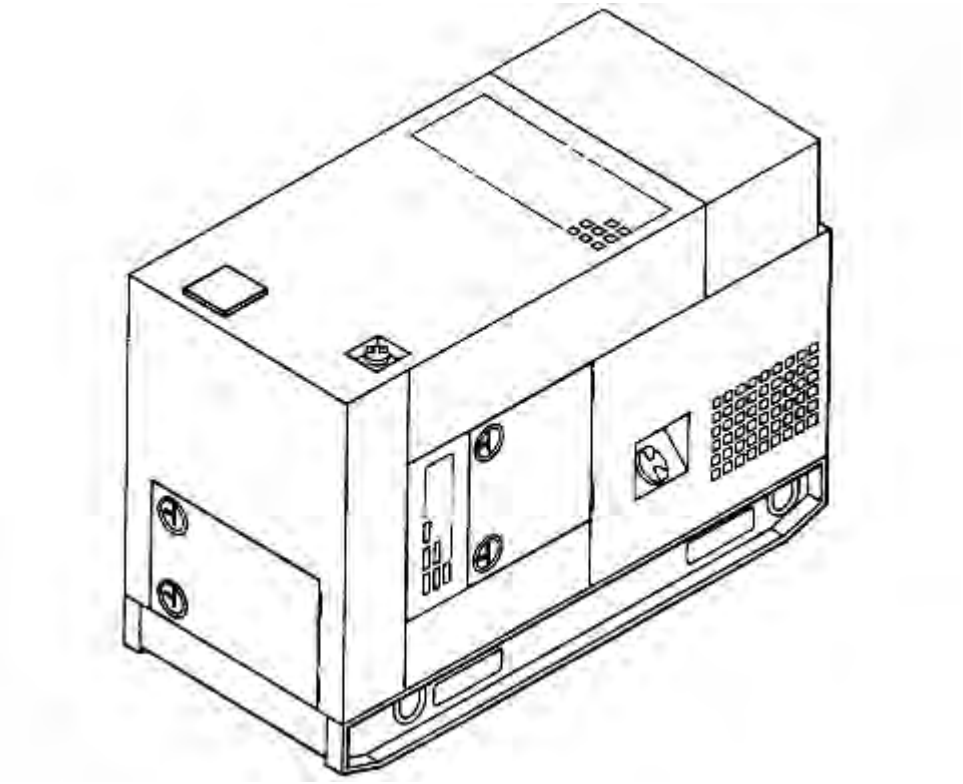
TECHNICAL MANUAL

OPERATOR'S MANUAL

FOR

GENERATOR SET, SKID MOUNTED, TACTICAL QUIET, 30 KW, 50/60 HZ MEP-805A (NSN 6115-01-274-7389) (EIC: VG5)

GENERATOR SET, SKID MOUNTED, TACTICAL QUIET, 30 KW, 400 HZ MEP-815A (NSN 6115-01-274-7394) (EIC: VN5)



*This manual supersedes TM 9-6115-644-10 dated 30 July 1993, including all changes.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENTS OF THE ARMY, AIR FORCE AND HEADQUARTERS, U.S. MARINE CORPS
15 SEPTEMBER 2010

PCN: 184 092491 00

WARNING SUMMARY

FIRST AID

For First Aid information, refer to FM 4-25.11.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING AND CAUTION STATEMENTS

Warning and Caution statements have been strategically placed throughout this text prior to operating procedures, practices, or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION).

A WARNING or CAUTION will apply each time the related step is repeated. Prior to starting any task the WARNINGs or CAUTIONs included in the text for that task must be reviewed and understood. Refer to the materials list at the beginning of the appropriate manual section for materials used during maintenance of this equipment. This warning summary contains the WARNINGs included in the manual.

WARNING SUMMARY – CONTINUED

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. Make sure generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. SHUTDOWN generator set and make sure it is free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Shutdown generator set before performing inspection of wiring. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Ensure nuts on ground terminals are properly secured creating a good ground. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Dangerous voltage exists on live circuits. Always observe precautions and never work alone. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Prior to making any connections for parallel operation, ensure that there is no input to the load and that the generator sets are shutdown. Failure to comply with this warning can cause injury or death to personnel.

WARNING SUMMARY – CONTINUED

WARNING

If it is necessary to move a generator set which has been operating in parallel with another generator set, shut-down remaining generator set connected to the load, prior to removing load and ground cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Power is available when the main contactor is open. Avoid accidental contact. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Slave receptacle (NATO connector) is electrically live at all times and is unfused. The Battery Disconnect Switch does not remove power from the slave receptacle. NATO slave receptacle has 24 VDC even when Battery Disconnect Switch is set to OFF. This circuit is only dead when the batteries are fully disconnected. Disconnect the batteries before performing maintenance on the slave receptacle. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Diesel fuel is flammable and toxic to eyes, skin, and respiratory tract. Skin and eye protection are required when working in contact with diesel fuel. Avoid repeated or prolonged contact. Provide adequate ventilation. Operators are to wash exposed skin and change chemical soaked clothing promptly if exposed to fuel. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

WARNING

Fuels used in the generator set are flammable. When filling the fuel tank, maintain metal-to-metal contact between filler nozzle and fuel tank opening to eliminate static electrical discharge. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

WARNING

Hot engine surfaces from the engine and generator circuitry are possible sources of ignition. When hot refueling with DF-1, DF-2, JP5 or JP8, avoid fuel splash and fuel spill. Do not smoke or use open flame when performing refueling. Remember PMCS is still required. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

WARNING

Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.

WARNING

In extreme cold weather, skin can stick to metal. Avoid contacting metal items with bare skin in extreme cold weather. Failure to comply with this warning can cause injury to personnel.

WARNING SUMMARY – CONTINUED

WARNING

Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel.

WARNING

Exhaust discharge contains deadly gases including carbon monoxide. DO NOT operate generator set in enclosed areas unless exhaust discharge is properly vented outside. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Hot exhaust gases can ignite flammable materials. Allow room for safe discharge of hot gases and sparks. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Top housing panels and exhaust system can get very hot. Shutdown generator set, and allow system to cool before performing checks, services and maintenance. Failure to comply with this warning can cause severe burns and injury to personnel.

WARNING

Top housing panels and exhaust system can get very hot. When performing DURING PMCS, wear gloves and additional protective clothing as required. Failure to comply with this warning can cause severe burns and injury to personnel.

WARNING

Exercise extreme caution when performing DURING PMCS checks inside engine compartment. Avoid contact with moving or hot engine parts. Failure to comply with this warning can cause injury or death to personnel.

WARNING

When running, winterization heater has hot metal surfaces that will burn flesh on contact. Shutdown generator set and allow heater to cool before performing maintenance. Wear gloves and additional protective clothing as required. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

WARNING

Battery acid can cause burns to unprotected skin. Wear safety goggles and chemical gloves and avoid acid splash while working on batteries. Failure to comply with this warning can cause injury to personnel.

WARNING SUMMARY – CONTINUED

WARNING

Solvent used to clean parts is potentially dangerous to personnel and property. Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes. Wear goggles and rubber gloves to protect eyes and skin. Wash exposed skin thoroughly. Do not smoke or use near open flame or excessive heat. Failure to comply with this warning can cause injury to personnel, and damage to the equipment.

WARNING

Do not remove the Bonding Jumper between GND and N unless the Weapon System requires an ungrounded system. Failure to comply can cause death or serious injury to personnel. Refer to applicable Weapon System TM for specific guidance on power and connection requirements.

LIST OF EFFECTIVE PAGES / WORK PACKAGES

NOTE: This manual supersedes TM 9-6115-644-10 dated 30 July 1993, including all changes. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 15 September 2010

THE TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 20 AND THE TOTAL NUMBER OF WORK PACKAGES IS 27, CONSISTING OF THE FOLLOWING:

Page / WP No.	Change No.
Front cover	0
Blank	0
Warning summary (6 pages)	0
i - viii	0
Chp 1 title page	0
Chp 1 index	0
WP 0001 (6 pgs)	0
WP 0002 (8 pgs)	0
WP 0003 (8 pgs)	0
Chp 2 title page	0
Chp 2 index	0
WP 0004 (6 pgs)	0
WP 0005 (22 pgs)	0
WP 0006 (4 pgs)	0
WP 0007 (2 pgs)	0
Chp 3 title page	0
Chp 3 index	0
WP 0008 (2 pgs)	0
WP 0009 (12 pgs)	0
Chp 4 title page	0
Chp 4 index	0
WP 0010 (4 pgs)	0
WP 0011 (12 pgs)	0
WP 0012 (4 pgs)	0
WP 0013 (4 pgs)	0
WP 0014 (2 pgs)	0
WP 0015 (2 pgs)	0
WP 0016 (2 pgs)	0
WP 0017 (2 pgs)	0
Chp 5 title page	0
Chp 5 index	0
WP 0018 (2 pgs)	0
WP 0019 (4 pgs)	0
WP 0020 (2 pgs)	0
WP 0021 (4 pgs)	0
WP 0022 (4 pgs)	0
WP 0023 (2 pgs)	0
Chp 6 title page	0

Page / WP No.	Change No.
Chp 6 index	0
WP 0024 (2 pgs)	0
WP 0025 (6 pgs)	0
WP 0026 (2 pgs)	0
WP 0027 (2 pgs)	0
Index-1 - Index-2	0
Inside back cover	0
Back cover	0

ARMY	***TM 9-6115-644-10**
AIR FORCE	**TO 35C2-3-446-11**
MARINE CORPS	**TM 09249A/09246A-10/1**

HEADQUARTERS,
DEPARTMENTS OF THE ARMY, AIR FORCE AND
HEADQUARTERS, U. S. MARINE CORPS
WASHINGTON, D. C.,15 SEPTEMBER 2010

TECHNICAL MANUAL

OPERATOR'S MANUAL

FOR

GENERATOR SET, SKID MOUNTED, TACTICAL QUIET, 30 KW, 50/60 HZ
MEP-805A (NSN 6115-01-274-7389) (EIC: VG5)

GENERATOR SET, SKID MOUNTED, TACTICAL QUIET, 30 KW, 400 HZ
MEP-815A (NSN 6115-01-274-7394) (EIC: VN5)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Reports, as applicable by the requiring Service, should be submitted as follows:

(a) (A) Army - Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) located in the back of this manual, directly to: Commander, U.S. Army CECOM Life Cycle Management Command (LCMC) Fort Monmouth, ATTN: AMSEL-LCL-ECM, Fort Monmouth, NJ 07703-5006. You may also send in your recommended changes via electronic mail or by fax. Our fax number is 732-532-1556, DSN 992-1556. Our e-mail address is MONM-AMSELLEOPUBSCHG@conus.army.mil. Our online web address for entering and submitting DA Form 2028s is http://edm.monmouth.army.mil/pubs/2028.html.

(b) (MC) Marine Corps - Submit notice of discrepancies or suggest changes on a NAVMC 10772. The NAVMC may be submitted via the Internet using website https://www.ala.usmc.mil, click on Publications, Technical Publications, follow the instructions, and then click on NAVMC 10772. It may also be submitted by electronic mail to smb.log.tech.pubs.fct@usmc.mil, or by mailing a paper copy NAVMC 10772 in an envelope addressed to Commander, Marine Corps Systems Command, ATTN: Assistant Commander Acquisition and Logistics (AC LCL/TP), 814 Radford Blvd, Suite 20343, Albany, Georgia 31704-0343. In addition, forward an information copy to the Project Officer at the following address: Commander, Marine Corps Systems Command (GTES-EPS), 2200 Lester Street, Quantico, VA 22134-6050.

(c) (F) Air Force - By Air Force AFTO Form 22 (Technical Manual (TM) Change Recommendation and Reply) in accordance with TO 00-5-1.

A reply will be furnished to you.

*This manual supersedes TM 9-6115-644-10 dated 30 July 1993, including all changes.
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.HEA

TABLE OF CONTENTS

WP Sequence No.
- Page No.

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

HOW TO USE THIS MANUAL

This manual contains operator maintenance instructions for the MEP-805A and MEP-815A Tactical Quiet Generator (TQG) Sets.

NOTE

Throughout the family of manuals, directional orientation in relation to the equipment is described from the point of view of the operator facing the operator's controls looking out over the equipment. From this perspective, the end of the equipment containing the operator's controls will be referred to as the rear.

This manual provides operating procedures, troubleshooting, maintenance, and supporting information required to operate and maintain the Tactical Quiet Generator Sets. Listed below are some of the features included in this TM to help locate and use the provided information.

WORK PACKAGES

This TM has been organized using the WP format. Each chapter contains a series of WPs rather than sections and paragraphs. Each WP is designed to stand alone as a complete information module; if the user keeps the section(s) of this TM in a loose-leaf binder, the user will be able to remove just the WP needed to complete a specific task. Here are some WP features of which the user should be aware.

Each WP is numbered using a four-digit number beginning with WP 0001. WPs are numbered sequentially throughout the TM (ex. WP 0016. WP 0026. etc.). The Table of Contents lists each chapter and WP title as well as all figures and tables contained within each. Figures and tables are numbered sequentially for each WP.

The WP number is located at the top right of each page. It is also located at the bottom of the page with the WP page number included (0001-1 would be page 1 of the General Information WP (WP 0001, General Information)).

Each WP starts on a right-hand page. This is done so the user can remove a single WP from the paper TM if needed for a task. Blank pages are assigned a number, but it appears on the preceding or following page. For example. if page 0001-10 of a WP is blank. page 0001-9 will have the number 0001-9/10 blank; or if page 0001-1 of a WP is blank, page 0001-2 will have the number 0001-1 blank/2.

Each WP containing step-by-step maintenance or troubleshooting procedures will end with the words END OF TASK, and each WP ends with the statement END OF WORK PACKAGE. Think of each WP as a small, stand-alone TM.

Typographical conventions are as follows:
[Unload] indicates a soft key or a switch.
[Previous] + [Next] indicates two simultaneous key presses. [+] [-] indicates two sequential key presses.

References to equipment Data and Description Plates are printed as they appear on the equipment whenever possible.

Warnings, Cautions and Notes Definitions

Warnings, Cautions, Notes chapter titles, and paragraph headings are printed in bold type. Icons related to warnings are shown directly above the warning text.

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout this publication. Warning, Cautions and Notes provide supplemental information. Personnel must understand and apply these Warnings, Cautions and Notes during many phases of operation and maintenance to ensure personnel safety and health and the protection of property. Portions of this information may be repeated in certain chapters of this publication for emphasis.

WORK PACKAGES – CONTINUED

WARNING

A warning identifies a clear danger to the person doing that procedure.

CAUTION

A warning identifies a clear danger to the person doing that procedure.

NOTE

A note highlights essential procedures, conditions, or statements or conveys important instructional data to the user.

CHAPTER OVERVIEW

Chapter 1 - General Information, Equipment Description and Theory of Operation

Chapter 1 provides an introduction to the Tactical Quiet Generator Sets. It is divided into three work packages, as follows:

General Information. This work package provides general information about this manual and the related forms and records. Instructions are provided for making equipment improvement recommendations. Coverage includes a reference to the TM that contains instructions on destruction of materiel to prevent enemy use. Also, a list of abbreviations and acronyms is provided. Also, a nomenclature cross-reference list is provided as well as a list of abbreviations and acronyms.

Equipment Description and Data. This work package describes capabilities, characteristics, and features. It provides basic equipment data and shows the locations of major components. Descriptions of the major components are also provided.

Theory of Operation. This work package provides functional descriptions of the equipment.

Chapter 2 - Operator Instructions

Chapter 2 provides instructions for operating the Tactical Quiet Generator Sets. The chapter is divided into three work packages, as follows:

Description and Use of Operator Controls and Indicators. This work package provides references to the applicable generator set technical manuals and trailer technical manuals. Those references contain information on operator's controls and indicators for the equipment.

Operation Under Usual Conditions. This work package contains instructions for preparing the equipment for use and operation under normal conditions. Coverage includes connection instructions and preparation instructions for movement to a new worksite.

Operation Under Unusual Conditions. This work package provides unusual operating procedures or references to the applicable accompanying technical manuals.

Chapter 3 - Operator Troubleshooting Procedures

Chapter 3 covers troubleshooting procedures of the Tactical Quiet Generator Sets to be performed by the operator. The chapter is divided as follows:

Operator Troubleshooting Index. This work package provides a troubleshooting introduction and malfunction/symptom index to direct you to the appropriate troubleshooting procedure at the operator level.

Operator Troubleshooting Procedures. This work package provides troubleshooting procedures and corrective actions that are to be performed by the operator. It also provides references to the applicable technical manuals.

Chapter 4 - Operator Maintenance Instructions

CHAPTER OVERVIEW – CONTINUED

Chapter 4 covers maintenance procedures for the Tactical Quiet Generator Sets to be performed by the operator. Its purpose is to provide you with the information that you need to keep the equipment in good operating condition. The chapter is divided as follows:

Operator Preventive Maintenance Checks and Services (PMCS) Introduction. This work package provides a detailed explanation of each table entry in the PMCS table along with applicable warnings, cautions and notes prior to starting on the PMCS procedures.

Operator PMCS, Including Lubrication Instructions. This work package contains detailed instructions that the operator must perform before, during, and after preventive maintenance checks and services. Coverage includes all operator PMCS for the equipment. This work package also has a section which provides references to the applicable lubrication instructions.

Operator Maintenance Procedures. These work packages refer the operator to the preventive maintenance checks and services required by WP 0011.

Chapter 5 - Supporting Information

Chapter 5 covers maintenance procedures for the Tactical Quiet Generator Sets to be performed by the operator. Its purpose is to provide you with the information that you need to keep the equipment in good operating condition. The chapter is divided as follows:

References. This work package lists all publications referenced in the various chapters of the technical manual. The listing includes the title and document number of each publication.

Components of End Item (COEI) and Basic Issue Items (BII) Lists. This work package lists the items usually packaged separately but needed for installation and operation of the equipment. The work package has three sections, as follows:

Introduction. This section explains the entries in Tables 1 and 2.

Components of End Item. The equipment is normally shipped fully assembled, so this section is not applicable.

Basic Issue Items. This section contains a list of the accessories needed for installation and operation of the equipment.

Additional Authorization List (AAL). This work package lists additional items you are authorized for support of the equipment. This work package contains two sections, as follows:

Introduction. This section explains the entries in Tables 1.

Additional Authorized Items List. This table lists the Additional Authorized Items.

Expendable and Durable Items List. This work package lists expendable/durable supplies and materials needed to operate and maintain your equipment. The work package contains two sections, as follows:

Introduction. This section explains the entries in Tables 1.

Expendable and Durable Items List. The list indicates the maintenance level that needs each item and identifies the items by National Stock Number (NSN), description, and unit of measure.

Winterization Kit. WP 0018 through WP 0023 provide information on the operation, troubleshooting and maintenance of the winterization kit designed to be mounted in generator sets where extreme cold temperatures are anticipated. These work package are divided as follows:

General Information and Equipment Description and Data. These work packages describe and illustrate the components of the winterization kit to ensure proper operation of the kit when installed on all generator sets.

Troubleshooting Procedures. This work package provides troubleshooting procedures and corrective actions that are to be performed by the operator.

PMCS Introduction and PMCS Including Lubrication Instruction. These work packages contain detailed instructions that the operator must perform before, during, and after preventive maintenance checks and services. Coverage includes all operator PMCS for the winterization kit.

Maintenance Procedures. This work package refers the operator to the preventive maintenance checks and services required by WP 0011.

CHAPTER OVERVIEW – CONTINUED

Rear Matter

Alphabetical Index. An alphabetical index at the back of this technical manual provides a listing of subjects covered, cross-referenced to the applicable work packages.

HOW TO FIX AN EQUIPMENT MALFUNCTION

Determining the Cause

Finding the cause of a malfunction, troubleshooting, is the first step in fixing your equipment and returning it to operation. Follow these simple steps to determine the root of the problem:

1. Turn to the Table of Contents in this manual.
2. Locate "Troubleshooting" under the chapter that covers your level of maintenance. Turn to the page indicated.
3. For operator troubleshooting, find the malfunction listing in the troubleshooting symptom index. Follow the instructions provided as indicated by the symptom index.

Preparing for a Task

Be sure that you understand the entire maintenance procedure before beginning any maintenance task. Make sure that all parts, materials, and tools are handy. Read all steps before beginning.

Prepare to do the task as follows:

1. Carefully read the entire task before starting. It tells you what you will need and what you have to know to start the task. DO NOT START THE TASK UNTIL:
    a. You know what is needed
    b. You have everything you need
    c. You understand what to do
2. If parts are listed, they can be drawn from technical supply. Before you start the task, check to make sure you can get the needed parts.
3. If expendable/durable supplies or materials are needed, get them before starting the task. Refer to WP 0027 for the correct nomenclature and NSN.

How to Do the Task

Before starting, read the entire task. Be sure that you understand the entire procedure before you begin the task. As you read, remember the following:

1. PAY ATTENTION TO WARNINGS, CAUTIONS, AND NOTES.
2. Use the List of Abbreviations/Acronyms if you do not understand the special abbreviations or unusual terms used in this manual.
3. The following are standard maintenance practices. Instructions about these practices are usually not included in task steps. When standard maintenance practices do not apply, the task steps will tell you.
    a. Discard used preformed packing, retainers, gaskets, cotter pins, lockwashers, and similar items. Install new parts to replace the discarded items.
    b. Coat packing before installation, in accordance with the task instructions.
    c. Disassembly procedures describe the disassembly needed for total authorized repair. You may not need to disassemble an item as far as described in the task. Follow the disassembly steps only as far as needed to repair/replace worn or damaged parts.
    d. Clean the assembly, subassembly, or part before inspecting it.
    e. Before installing components having mating surfaces, inspect the mating surfaces to make sure they are in serviceable condition.
    f. Hold the bolt (or screw) head with a wrench (or screwdriver) while tightening or loosening a nut on the bolt (or screw).
    g. When a cotter pin is required, align the cotter pin holes within the allowable torque range.
    h. Inspect for foreign objects after performing maintenance.

CHAPTER 1

OPERATOR GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

FOR

30 kW GENERATOR SET (50/60 Hz AND 400 Hz), SKID MOUNTED, TACTICAL QUIET

CHAPTER 1

OPERATOR GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION

WORK PACKAGE INDEX

MAINTENANCE

GENERAL INFORMATION

SCOPE

Type of Manual

This manual contains operation and operator maintenance instructions for the Tactical Quiet (TQ), 30 kW 50/60 and 400 Hz Generator Sets (Figure 1), herein referred to as generator set. Included are descriptions of major components and their functions in relation to other components. See Table 1 below for a list of model numbers and equipment names for the generator sets.

Table 1. Model Numbers and Equipment Names.

MODEL NUMBER	EQUIPMENT NAME
MEP-805A	Generator Set, Skid Mounted, Tactical Quiet, 30 Kw, 50/60 Hz
MEP-815A	Generator Set, Skid Mounted, Tactical Quiet, 30 Kw, 400 Hz

Purpose of Equipment

The generator set provides tactical quiet AC power. The generator set is easily transported, operated, and maintained.

SCOPE – CONTINUED

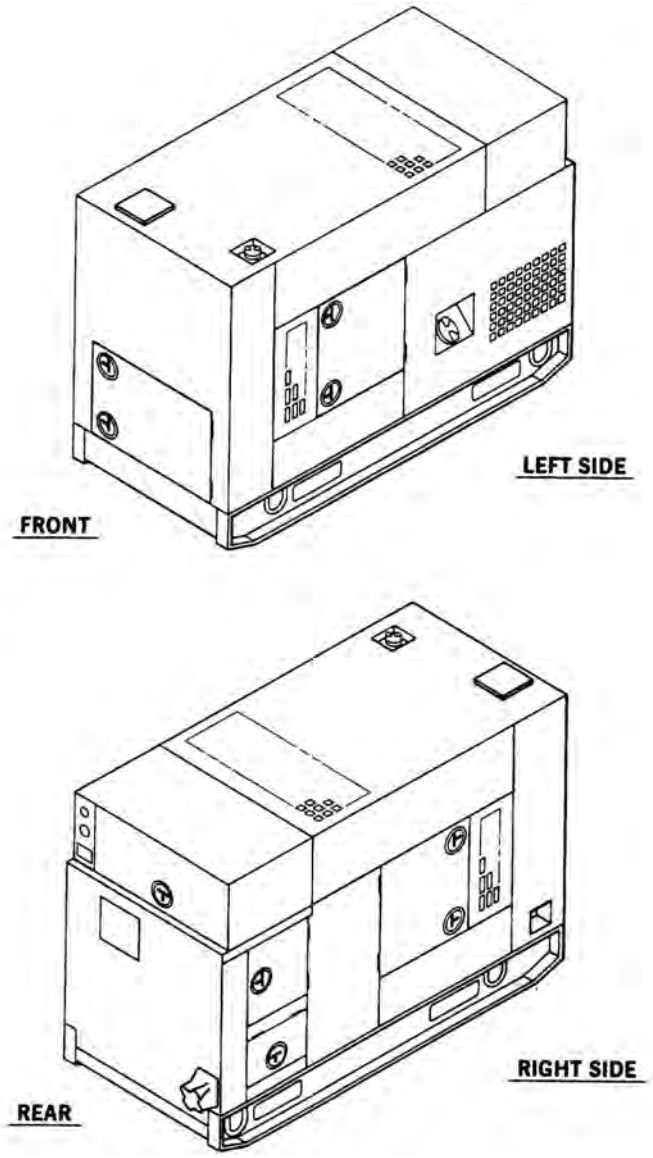


Figure 1. Generator Set, 30 kW, Tactical Quiet.

MAINTENANCE FORMS, RECORDS, AND REPORTS

(1) (Army) Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual; DA PAM 738-751, Functional Users Manual for the Army Maintenance Management Systems - Aviation (TAMMS-A); or AR 700-138, Army Logistics Readiness and Sustainability.

(2) (Marine Corps) Maintenance forms and records used by Marine Corps personnel are prescribed by TM 4700-15/1.

(3) (Air Force) Maintenance forms and records used by Air Force personnel are prescribed in AFI 21-101 and the applicable TO 00-20 Series Technical Orders.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

(1) (Army) If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. If you have Internet access, the easiest and fastest way to report problems or suggestions is to follow the instructions and links below:

If you have a user's account you can submit the PQDR for ALL CECOM (B16) Warranty, EIR and PQDRs (including those B16 Aviation related) through the Navy's Web Product Quality Deficiency Reporting (PQDR) site, http://www.nslcptsmh.csd.disa.mil/webpqdr/webpqdr.htm. If you do not, either go to EZPQDR, http://www.nslcptsmh.csd.disa.mil/webpqdr/files/ezqpdr.htm, and input your PQDR there or establish a new account. New accounts can be established at the following address: http://www.nslcptsmh.csd.disa.mil/accessforms/uarform.htm.

CECOM (B16) aviation PQDRs will not go to AMCOMs Joint Deficiency Reporting System (JDRS). If AMCOM should get a CECOM aviation PQDR they will re-direct it to the CECOM PQDR Team.

Use the PQDR for Warranties, EIRs and PQDRs. There is a block on the PQDR that can be clicked if it is a Warranty. The originator can still put in the description that they want this investigated as an EIR and then enter what the issue is.

You may also submit your SF 368 (Product Quality Deficiency Report) via email (MONM-AMSELLEODCSCFO@CONUS.ARMY.MIL), facsimile (732-532-2929) or regular mail (call 732-532-8843 for the current mailing address).

We will send you a reply.

(2) (Air Force) Air Force personnel are encouraged to submit EIR's in accordance with AFR 900-4.

(3) (Marine Corps) QDR shall be reported on SF 368 in accordance with MCO P4855.10, Product Quality Deficiency Report Manual. Submit to Commanding General, Marine Corps Logistics Base (Code 850), Albany, Georgia 31704-5000. A reply will be furnished to you.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

For aircraft TMs, this information shall include a reference to TM 1-1500-344-23, volumes 1 through 4 (Cleaning and Corrosion Control).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Destruction of Army materiel to prevent enemy use shall be in accordance with TM 750-244-2.

PREPARATION FOR STORAGE OR SHIPMENT

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

WARRANTY INFORMATION

The generator sets (MEP-805A and MEP-815A) manufactured under contract number DAAK01-88-D-D082 are warranted by Libby Corporation for a period of 36 months or 1,800 operating hours, whichever occurs first. The generator sets manufactured under contract number DAAK01-94-D-0036 are warranted by Fermont, Inc. for a period of 36 months or 1,800 operating hours, whichever occurs first. Refer to Warranty Technical Bulletin TB 9-6115-644-24. The warranty starts on the date found in block 23, DA Form 2408-9, in the logbook. Report all defects in material or workmanship to your supervisor, who will take appropriate action through your Unit Maintenance Shop.

NOMENCLATURE CROSS-REFERENCE LIST

Model Numbers and Equipment Names.

Common Name	Official Nomenclature
MEP-805A	Generator Set, Skid Mounted, Tactical Quiet, 30 kW 50/60 Hz
MEP-815A	Generator Set, Skid Mounted, Tactical Quiet, 30 kW 400 Hz

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation	Definition
°C	Degrees Celsius
°F	Degrees Fahrenheit
AAL	Additional Authorization List
AOAP	Army Oil Analysis Program
BII	Basic Issue Item
BOI	Basis Of Issue
CAGE	Commercial And Government Entity
CAGEC	Commercial And Government Entity Code
COEI	Components Of End Item
CPC	Corrosion Prevention and Control
CTA	Common Table Of Allowance
DMWR	Depot Maintenance Work Requirement
DOD	Department Of Defense
EIR	Equipment Improvement Recommendation

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

FGC	Functional Group Code
ft•lbf	Foot-Pound Force
Hz	Hertz
JTA	Joint Table Of Allowances
kg	Kilogram
kPa	Kilopascals
kVA	Kilovolt-ampere
kW	Kilowatt
m	Meter (Metric Measure)
MTOE	Modified Table of Organization and Equipment
NATO	North Atlantic Treaty Organization
NHA	Next Higher Assembly
NIIN	National Item Identification Number
NSN	National Stock Number
N•m	Newton-Meter
P/N	Part Number
PMCS	Preventive Maintenance Checks and Services
SMR	Source, Maintenance, and Recoverability
TAMMS	The Army Maintenance Management System
UOC	Usable On Code

END OF WORK PACKAGE

MAINTENANCE

EQUIPMENT DESCRIPTION AND DATA

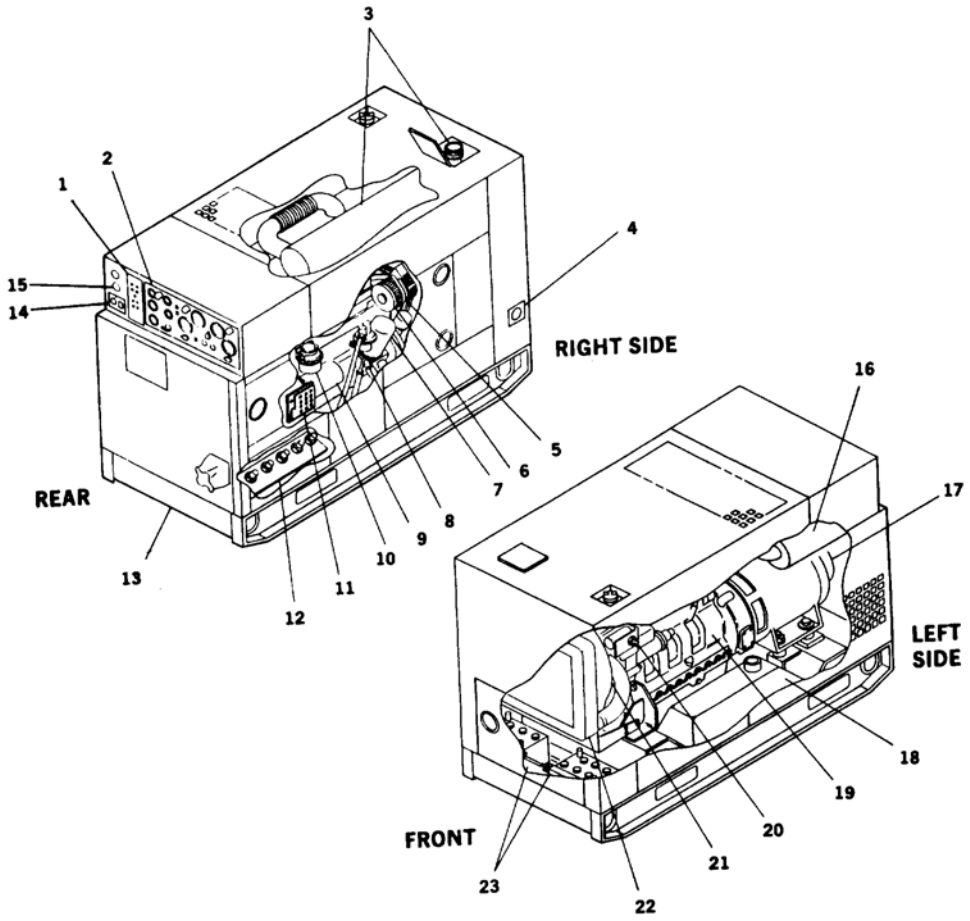
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The generator sets, models MEP-805A and MEP-815A (Figure 1), are fully enclosed, self-contained, skid mounted, portable units. They are equipped with controls, instruments and accessories necessary for operation as single units or in parallel with another unit of the same class and mode. The generator sets consist of a diesel engine, brushless generator, excitation system, speed governing system, fuel system, 24 VDC starting system, control system and fault system.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

NOTE

All locations (index numbers) referenced in Figure 1 are given facing the control panel assembly (rear) of the generator set.



Legend

1	Malfunction Indicator Panel	9	Starter	17	AC Generator
2	Control Panel Assembly	10	Fuel filter/Water Separator	18	Fuel Tank
3	Muffler	11	Voltage Reconnection Terminal Board	19	Engine
4	NATO Slave Receptacle	12	Load Output Terminal Board	20	Dead Crank Switch
5	Fan Belt	13	Skid Base	21	Water Pump
6	Battery charging Alternator	14	Convenience Receptacle	22	Radiator
7	Oil Filter	15	Paralleling Receptacle	23	Batteries
8	Dipstick	16	Air Cleaner Assembly		

Figure 1. Generator Set Components.

Malfunction Indicator Panel (1)

The malfunction indicator panel is located to the left of the control panel assembly. It indicates malfunctions of the generator set components.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Control Panel Assembly (2)

The generator set control panel assembly is located at the rear of the generator set and contains controls and instruments for operating the engine and the generator.

Muffler (3)

The muffler and exhaust tubing are connected to the exhaust manifold on the engine. The exhaust exits from the top of the generator set housing. Gases are exhausted upward.

NATO Slave Receptacle (4)

The NATO slave receptacle is located on the right side (front) of the generator set. It is used for slave starting.

Fan Belt (5)

The fan belt is located in the engine compartment on the front of the engine. The belt drives the fan, water pump, and battery charging alternator.

Battery Charging Alternator (6)

The battery charging alternator is located on the right side of the engine. It is capable of maintaining the batteries in a state of full charge in addition to providing the required 24 VDC control power.

Oil Filter (7)

The oil filter is located in the engine compartment on the left side. The filter removes impurities from the engine lubricating oil.

Dipstick (8)

The dipstick is located in the engine compartment on the right side. The dipstick shows the lubricating oil level in the engine crankcase.

Starter (9)

The starter is located on the right side of the engine. The electric starter mechanically engages the engine flywheel in order to start the diesel engine.

Fuel Filter/Water Separator (10)

The fuel filter/water separator is located in the engine compartment on the right side. The element removes impurities and water from the diesel fuel.

Voltage Reconnection Terminal Board (11)

The voltage reconnection terminal board is located on the right side (rear) of the generator set. The board allows reconfiguration from 120/208 to 240/416 VAC output.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Load Output Terminal Board (12)

The load output terminal board is located on the right side (rear) of the generator set. There are four output terminals located on the board. They are marked L1, L2, L3 and L0. A fifth terminal, marked GND, is located next to the output terminals and serves as equipment ground for the generator set. A removable, solid copper bar is connected between the L0 and GND terminals.

Skid Base (13)

The skid base supports the generator set. It has fork lift access openings and cross members for short distance movement. The skid base has provisions in the bottom for installation of the generator set on a trailer.

Convenience Receptacle (14)

The convenience receptacle is a 10 Amp, 120 VAC receptacle used to operate small plug in type equipment. It is protected by a Ground Fault Circuit Interrupter located below the Malfunction Indicator Panel (Malfunction Indicator Panel (1)), an overload circuit breaker located inside the control box, and an in-line fuse on generator sets, contract number DAAK01-88-D-0082. The convenience receptacle power is available at all times during operation of the generator set.

Paralleling Receptacle (15)

The Paralleling receptacle is used to connect the paralleling cable between two generator sets of the same size and mode to operate in parallel.

Air Cleaner Assembly (16)

The air cleaner assembly is located on the left side behind the air cleaner access door. It consists of a dry-type, disposable paper element and canister. The air cleaner assembly features a dust collector which traps large dust particles. The air cleaner assembly has a restriction indicator which will indicate when the air cleaner element requires servicing.

AC Generator (17)

The AC generator is a single bearing, drip-proof, synchronous, brushless, three phase, fan-cooled generator. The generator is coupled directly to the rear of the diesel engine.

Fuel Tank (18)

The fuel tank is located below the engine and between the skid base side members. The fuel tank has a capacity of 23 gallons (87.1 liters) which will allow the generator set to operate for at least 8 hours without refueling.

Engine (19)

The generator is powered by a four cylinder, four cycle, fuel injected, turbocharged, liquid cooled diesel engine which occupies the front half of the generator set. The engine is also equipped with a fuel filter/water separator, oil filter, and an air cleaner assembly. Protection devices automatically stop the engine during conditions of high coolant temperature, low oil pressure, no fuel, over-speed, or over-voltage.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Dead Crank Switch (20)

The Dead Crank switch is located in the engine compartment on the left side. The switch allows the engine to be cranked without starting for maintenance purposes.

Water Pump (21)

The water pump is located in the engine compartment on the front of the engine. The pump circulates the engine coolant through the engine block and the radiator.

Radiator (22)

The radiator is located at the front of the generator set. It acts as a heat exchanger for the engine coolant.

Batteries (23)

Two batteries are located at front of the generator set. The batteries are electrolyte serviceable, lead acid, 12 volt type, connected in series. After starting, the generator set is capable of operating with batteries removed. A diode and a fuse, located behind the control panel assembly, protect the generator set if the batteries are incorrectly connected.

Winterization Kit

See WP 0018 through WP 0023 for detailed information and breakdown.

DIFFERENCES BETWEEN MODELS

The differences between models of the generator sets covered in this manual are as follows:

Model MEP-805A is equipped with a 50/60 Hz generator.

Model MEP-815A is equipped with a 400 Hz generator.

EQUIPMENT DATA

For a list of Leading Particulars refer to Table 1.

Table 1. Leading Particulars.

1. **Generator Set:**	
Model Number:	
30 kW 50/60 Hz Tactical Quiet	MEP-805A
30 kW 400 Hz Tactical Quiet	MEP-815A
National Stock Number (NSN):	
MEP-805A	6115-01-274-7389
MEP-815A	6115-01-274-7394
Overall Length:	
MEP-805A	79.7 in (202.5 cm)
MEP-815A	79.7 in (202.5 cm)

EQUIPMENT DATA – CONTINUED

Table 1. Leading Particulars. – Continued

Overall Width:	
MEP-805A	35.7 in (90.8 cm)
MEP-815A	35.7 in (90.8 cm)
Overall Height:	
MEP-805A	55 in (139.7 cm)
MEP-815A	55 in (139.7 cm)
Overall Weights (less Basic Issue Items):	
MEP-805A	2,732 lb (1,239.5 kg)
MEP-815A	2,732 lb (1,239.5 kg)
Wet Weights:	
MEP-805A	2,931 lb (1,329.5 kg)
MEP-815A	2,931 lb (1,329.5 kg)
2. **Engine:**	
Manufacturer	John Deere
Model	4039T
Type	Four cylinder, four cycle, turbocharged, diesel
Displacement	239 cu. in (3.9 liters)
Altitude Degradation, 4,000 ft (1,220 m) to 8,000 ft (2,440 m)	3.5% per 1,000 ft (305 m)
Firing Order	1, 3, 4, 2
Cold Weather Starting Aid System Use	40 °F (4 °C) or below
Valve Tappet Clearance Adjustment:	
Hot or Cold (Intake)	0.014 in (0.35 mm)
Hot or Cold (Exhaust)	0.018 in (0.45 mm)
3. **Cooling System:**	
Type:	Pressurized radiator and pump
Capacity:	15.5 qts (14.7 liters)
Normal Operating Temperature	170-200 °F (77-93 °C)
Temperature Indicating System Voltage Rating	24 VDC
4. **Lubricating System:**	
Type:	Full flow, circulating pressure
Oil Pump Type:	Positive displacement gear
Normal Operating Pressure	25-60 psi (172-414 kPa)
Oil Filter Type	Full flow, spin-on, replaceable element
Capacity	15 qts (14.2 liters)
Pressure Indicating System Voltage Rating	24 VDC
5. **Fuel System:**	

EQUIPMENT DATA – CONTINUED

Table 1. Leading Particulars. – Continued

Type of Fuel	DF-1, DF-2, DF-A, JP4, JP5, JP8		
Fuel Tank Capacity	23 gal (87.1 liters)		
Fuel Consumption Rate (50/60 Hz):	2.60 gal (9.8 liters) per hour		
Fuel Consumption Rate (400 Hz):	2.75 gal (10.4 liters) per hour		
Auxiliary Fuel Pump:			
Voltage Rating	24 VDC		
Delivery Pressure	5.0-6.5 psi (34.5-65.5 kPa) (max)		
Fuel Level Switch:			
Type	Float		
Current	3.0 amps at 6-32 VDC		
6. **Engine Starting System:**			
Batteries	Two 12 volt, connected in series		
Starter:			
Manufacturer	Nippondenso Co. Ltd		
Model	RE39930A		
Voltage Rating	24 VDC		
Drive Type	Gear reduction		
Battery Charging Alternator:			
Manufacturer	Prestolite		
Model	8EM3002GC		
Amperage Rating	42 amps at 24 VDC		
Protective Fuse	50 amps		
7. **AC Generator:**			
Manufacturer	Marathon Electric		
Type	Rotating field synchronous		
Load Capacity	30 kW		
Current Ratings:	50 Hz	60 Hz	400 Hz
120/208 volt connection	86 amps	104 amps	104 amps
240/416 volt connection	43 amps	52 amps	52 amps
Power Factor	0.8		
Cooling	Fan cooled		
Drive Type	Direct coupling		
Duty Classification	Continuous		
8. **Governing System:**			
Load Measuring Unit:			
Manufacturer	Technology Research		
Model	19310		

EQUIPMENT DATA – CONTINUED

Table 1. Leading Particulars. – Continued

Governor Control Unit:	
Manufacturer	Barber-Colman
Model	DYNA 10502-003-0-2
9. **Protection Devices:**	
Low Oil Pressure Switch:	
Trip Pressure	15±3 psi (103.4±20.7 kPa)
Operating Voltage	24 VDC
Current Rating	5 amps
Coolant High Temperature Switch:	
Trip Temperature	225±5 °F (107±3 °C)
Voltage Rating	12-120 VDC
Current Rating	2 amps
Overspeed Switch:	
Element Trip and Reset	2,200±40 RPM
Voltage Rating	28 VDC
Current Rating	1 amp
Overvoltage:	
Trip Point Conditions	153±3 VAC for no less than 200 milliseconds (120 VAC coil winding)
Trip Point	No more than 1.25 seconds after trip conditions exist

END OF WORK PACKAGE

MAINTENANCE

THEORY OF OPERATION

INTRODUCTION

This work package contains functional descriptions of the generator set and explains how the controls and indicators interact with the system.

ENGINE STARTING SYSTEM

The Engine Starting System (Figure 1), consists of two 12-volt batteries connected in series, a starter, a 24 volt battery charging alternator, a magnetic pickup (for sensing engine speed) and the related switches and relays required for control of the starting system. For engine cranking, battery power is supplied to the starter motor through the starter solenoid which in turn is controlled by the cranking relay. The starter then engages the engine flywheel causing the engine to turn over. For engine starting, the DEAD CRANK switch must be in the NORMAL position, the DC Control power circuit breaker must be pushed in, the EMERGENCY STOP switch must be in the OUT position and the MASTER SWITCH is moved to the START position. The cranking relay is then controlled by a circuit consisting of the start relay and crank disconnect switch. As the engine accelerates to the preset speed (sensed by the magnetic pickup), the crank disconnect switch opens and deenergizes the cranking relay to stop and disengage the starter. The starting sequence may also be stopped by moving the MASTER SWITCH to OFF. The engine may be cranked without starting by use of the DEAD CRANK switch. With the DEAD CRANK switch in the CRANK position, the cranking relay, starter solenoid and starter motor are energized without activating any other starting or control function. The batteries are charged by the battery charging alternator that is belt driven by the engine. Generator set control system power is also supplied by the battery charging alternator. The BATTERY CHARGE ammeter indicates the charge/discharge rate of the batteries, from -10 AMPS to +20 AMPS, in 5 AMPS increments. Normal operating indication depends on the state of charge in the batteries. A low charge, such as exists immediately after engine starting, will cause a high reading (needle moves toward CHARGE area). When the charge in the batteries has been restored, the indicator moves near zero.

ENGINE STARTING SYSTEM – CONTINUED

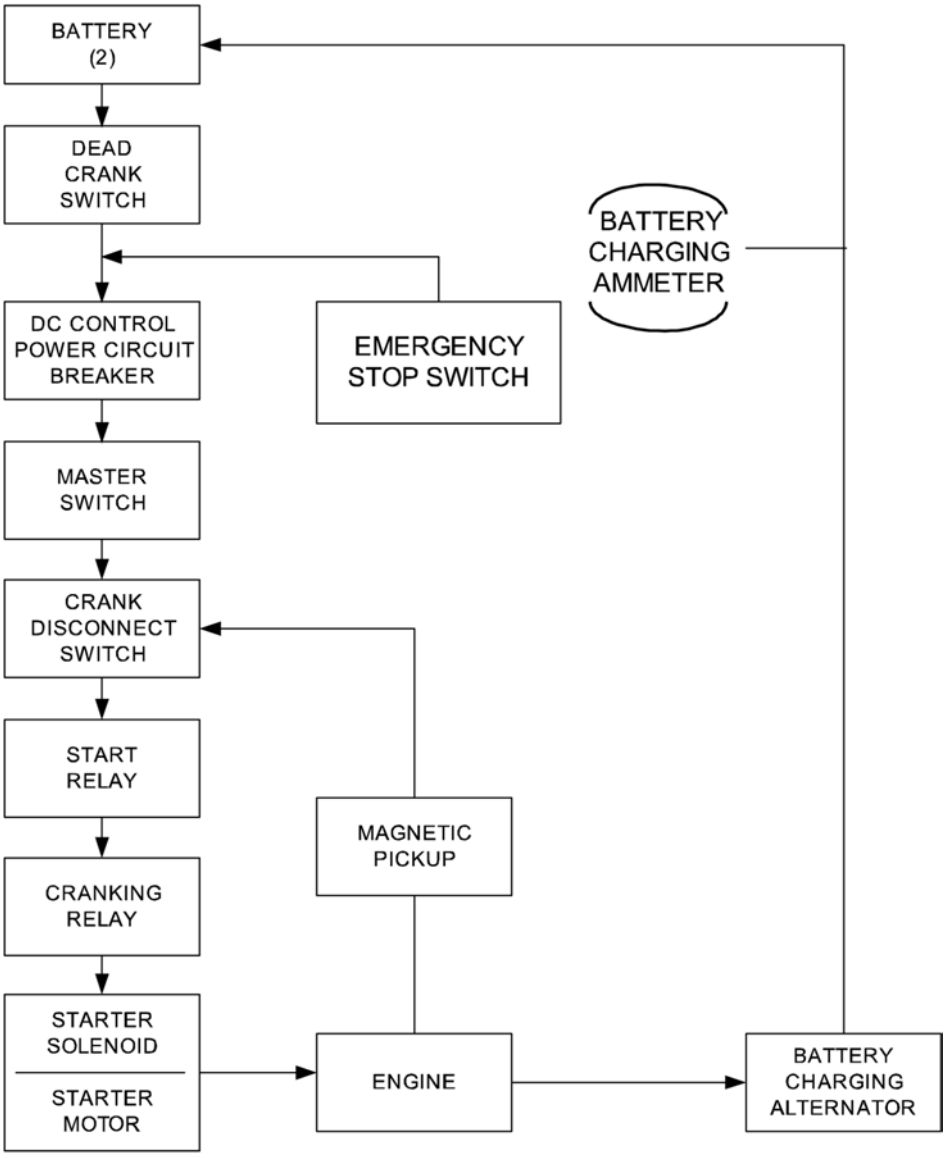


Figure 1. Engine Starting System.

FUEL SYSTEM

The Fuel System (Figure 2), consists of piping, fuel tank, transfer pump, fuel filter/water separator, injection pump and injectors. Fuel is drawn from the fuel tank by the transfer pump. After reaching the transfer pump, fuel passes through a fuel filter/water separator where water and small impurities are removed. The fuel then goes to an injection pump where it is pressurized and pushed into the injectors. Through the injectors fuel enters the diesel engine combustion chamber, where it is mixed with air and ignited. The fuel that is not used is returned to the fuel tank via an excess fuel return line.

FUEL SYSTEM – CONTINUED

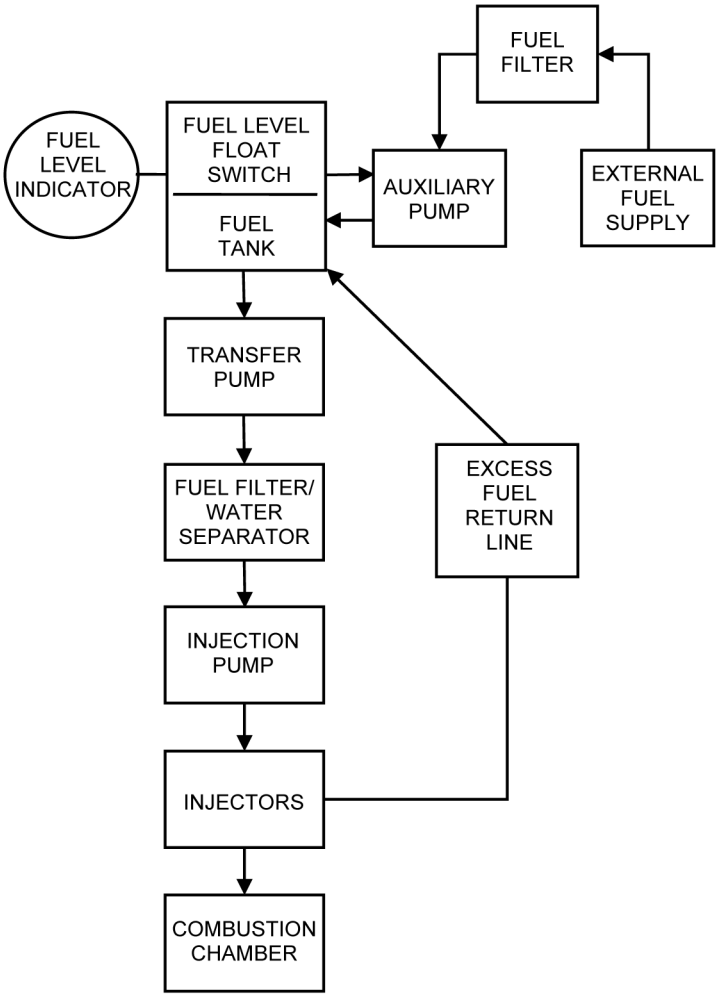


Figure 2. Fuel System.

The Auxiliary Fuel System consists of an external fuel supply, fuel filter, piping, a 24 VDC auxiliary fuel pump, and a fuel level float switch. When the MASTER SWITCH is set on PRIME & RUN AUX FUEL it actuates the auxiliary fuel pump and transfers fuel from the external fuel supply to the generator set fuel tank. The fuel level float switch shuts off the auxiliary fuel pump when the generator set fuel tank is full and reactivates the pump as the level drops. The FUEL LEVEL indicator indicates fuel level of generator set fuel tank from (E) empty to (F) full in quarter tank increments.

ENGINE COOLING SYSTEM

The Engine Cooling System (Figure 3) consists of a radiator, hoses, thermostat, water pump, a belt driven fan, cooling jackets, and oil cooler. The water pump forces coolant through passages (cooling jackets) in the engine block and cylinder head where the coolant absorbs heat from the engine. When the engine reaches normal operating temperature, the thermostat opens and the heated coolant flows through the upper radiator hose assembly into the radiator. The cooling fan circulates air through the radiator where the coolant temperature is reduced.

A coolant high temperature switch provides automatic shutdown in the event that coolant temperature exceeds 225±5 °F (107±3 °C). The COOLANT TEMP indicator indicates the engine coolant temperature, from 120 to 240 °F (48 to 115 °C).

ENGINE COOLING SYSTEM – CONTINUED

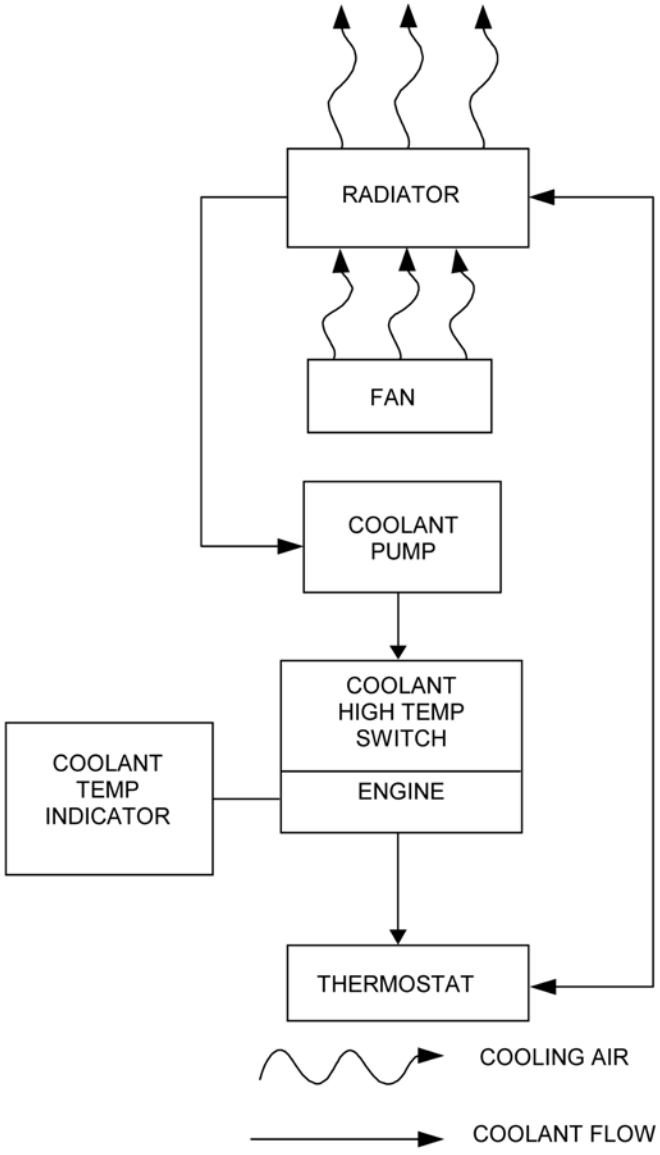


Figure 3. Engine Cooling System.

LUBRICATION SYSTEM

The Lubrication System (Figure 4) consists of an oil pan, dipstick, pump, oil pressure sender, AOAP sample valve, and filter. The oil pan is a reservoir for engine lubricating oil. The dipstick indicates oil level in the oil pan. A pump draws oil from the oil pan and through a screen removing large impurities. The oil then passes through a spin-on type filter where small impurities are removed. From the filter, oil enters the engine and is distributed to the engine's internal moving parts. After passing through the engine, the oil returns to the oil pan. The OIL PRESSURE indicator indicates oil pressure sensed by the oil pressure sender in the engine. The engine will shut off automatically if the oil pressure drops to a dangerously low level. The oil level can be checked with engine running.

LUBRICATION SYSTEM – CONTINUED

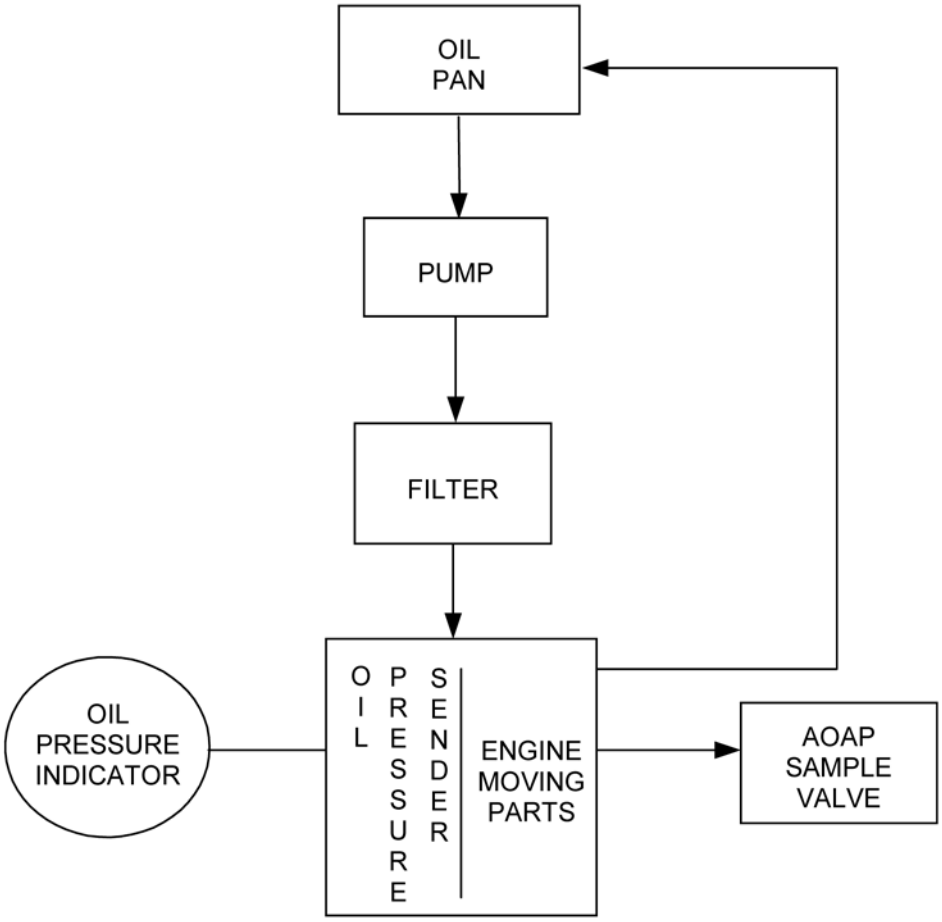


Figure 4. Engine Lubrication System.

AIR INTAKE AND EXHAUST SYSTEM

The Air Intake and Exhaust System (Figure 5), consists of an air cleaner assembly, intake manifold, turbocharger, exhaust manifold, and muffler. Ambient air is drawn into the air cleaner assembly where it passes through the air cleaner element. Airborne dirt is removed and trapped in the element. A restriction indicator, located on the air cleaner assembly housing, displays red when the air cleaner element should be serviced. Dirt can be removed from the air cleaner housing by pinching an evacuator valve.

Filtered air is drawn out of the air cleaner assembly through air intake tubes to the turbocharger where it is forced into the intake manifold where it passes into the combustion chambers and is mixed with fuel from the injectors.

The engine exhaust gases are released into the turbocharger. The exhaust gases drive the turbocharger forcing large amounts of air into the intake manifold. After passing through the turbocharger, the exhaust gases are channeled into the muffler that deadens the sound of the exhaust gases. The gases pass from the muffler through the muffler outlet and are vented upward from the generator set housing.

Cold outside temperatures make starting the engine difficult. To improve engine starting at temperatures above -25 °F (-31.6 °C), a cold weather starting aid has been provided that features an ether injection system. Ether is injected into the combustion chamber when the ETHER switch is ON and the MASTER SWITCH is in the START position. For engine starting at temperatures from -50 to -25 °F (-45.5 to -31.6 °C), a cold weather starting kit (Winterization Kit) can be installed. See WP 0018 through WP 0023 for Winterization Kit Operating Procedures.

AIR INTAKE AND EXHAUST SYSTEM – CONTINUED

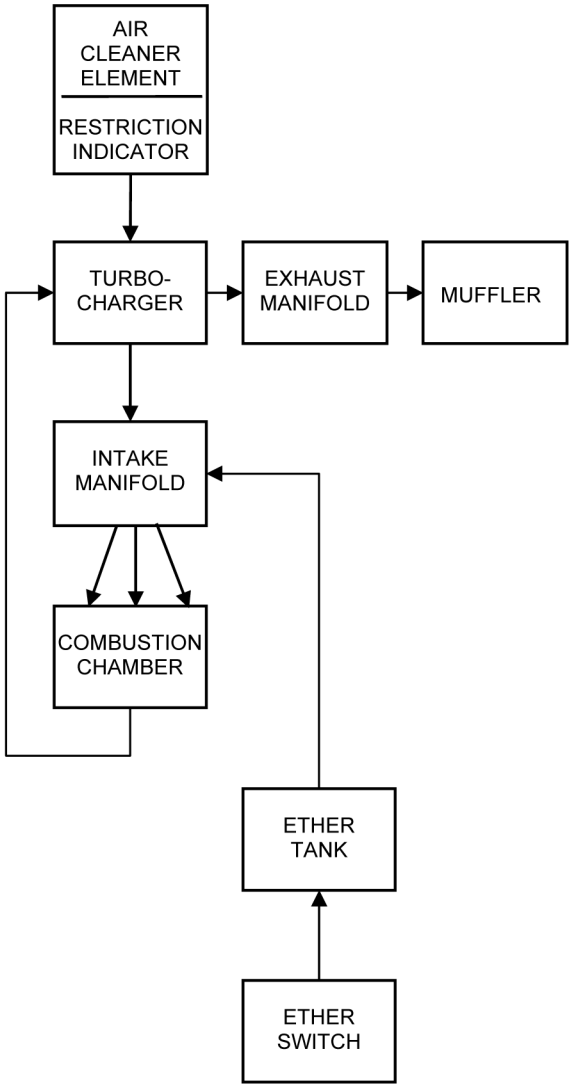


Figure 5. Air Intake and Exhaust System.

OUTPUT SUPPLY SYSTEM

The Output Supply System (Figure 6) consists primarily of the AC generator, the output load terminal board, the voltage reconnection terminal board, the VM-AM transfer switch, and the AC circuit interrupter relay. Power created by the AC generator is supplied through the voltage reconnection terminal board and the AC circuit interrupter relay to the output load terminals on the output load terminal board. The voltage reconnection terminal board allows configuration of the generator set for 120/208 volt connections or 240/416 volt connections.

The AC CIRCUIT INTERRUPTER switch closes and opens the AC circuit interrupter relay. This enables or interrupts the power flow between the voltage reconnection terminal board and the output load terminals. The AC circuit interrupter relay is also opened automatically during any of the specified set faults. The voltage regulator senses AC generator output voltage and provides control voltage to the AC generator exciter to maintain the desired AC generator output voltage. The position of the VM-AM transfer switch selects the output load terminals from which current and voltage are measured and are indicated on the AC voltmeter (VOLTS AC) and the ammeter (PERCENT RATED CURRENT).

OUTPUT SUPPLY SYSTEM – CONTINUED

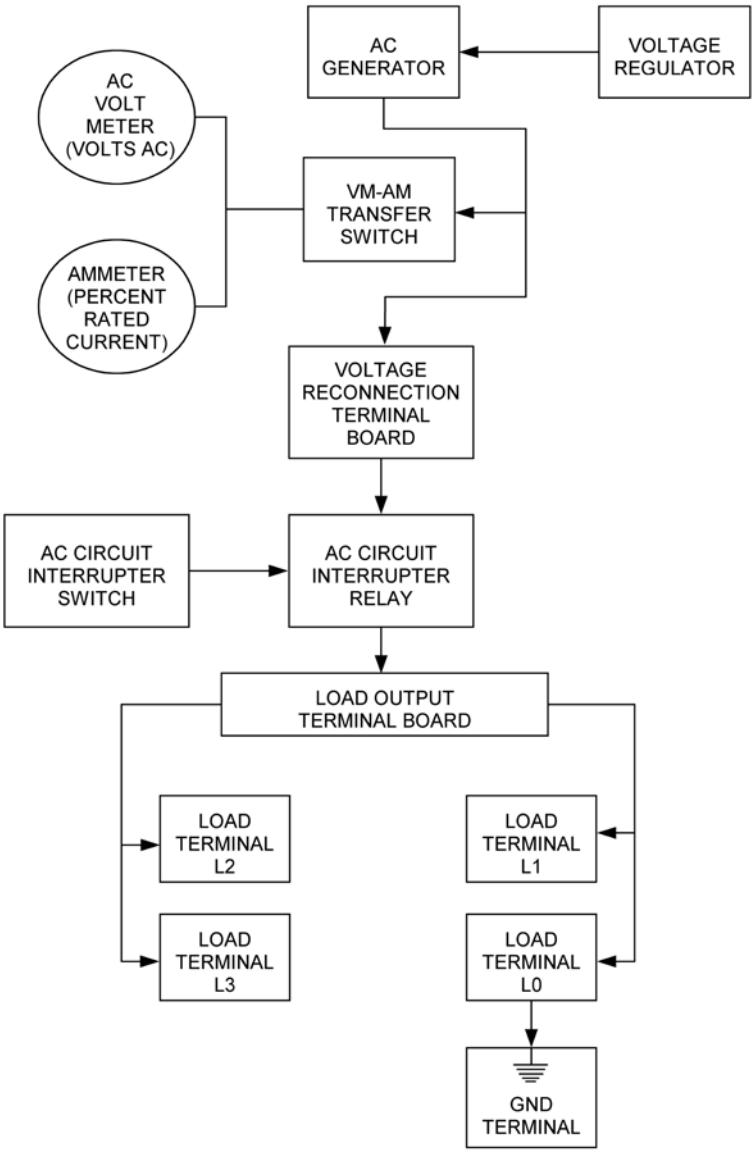


Figure 6. Output Supply System.

WINTERIZATION KIT

See WP 0018 through WP 0023 for Operating Procedures.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

FOR

30 kW GENERATOR SET (50/60 Hz AND 400 Hz), SKID MOUNTED, TACTICAL QUIET

CHAPTER 2

OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

GENERAL

This work package describes and illustrates the controls and indicators to ensure proper operation of the generator set.

CONTROL PANEL ASSEMBLY

The control panel assembly contains most of the operating controls and indicators for the generator set. Figure 1 shows the control panel assembly layout and Table 1 describes each control and indicator.

Table 1. Control Panel Controls and Indicators.

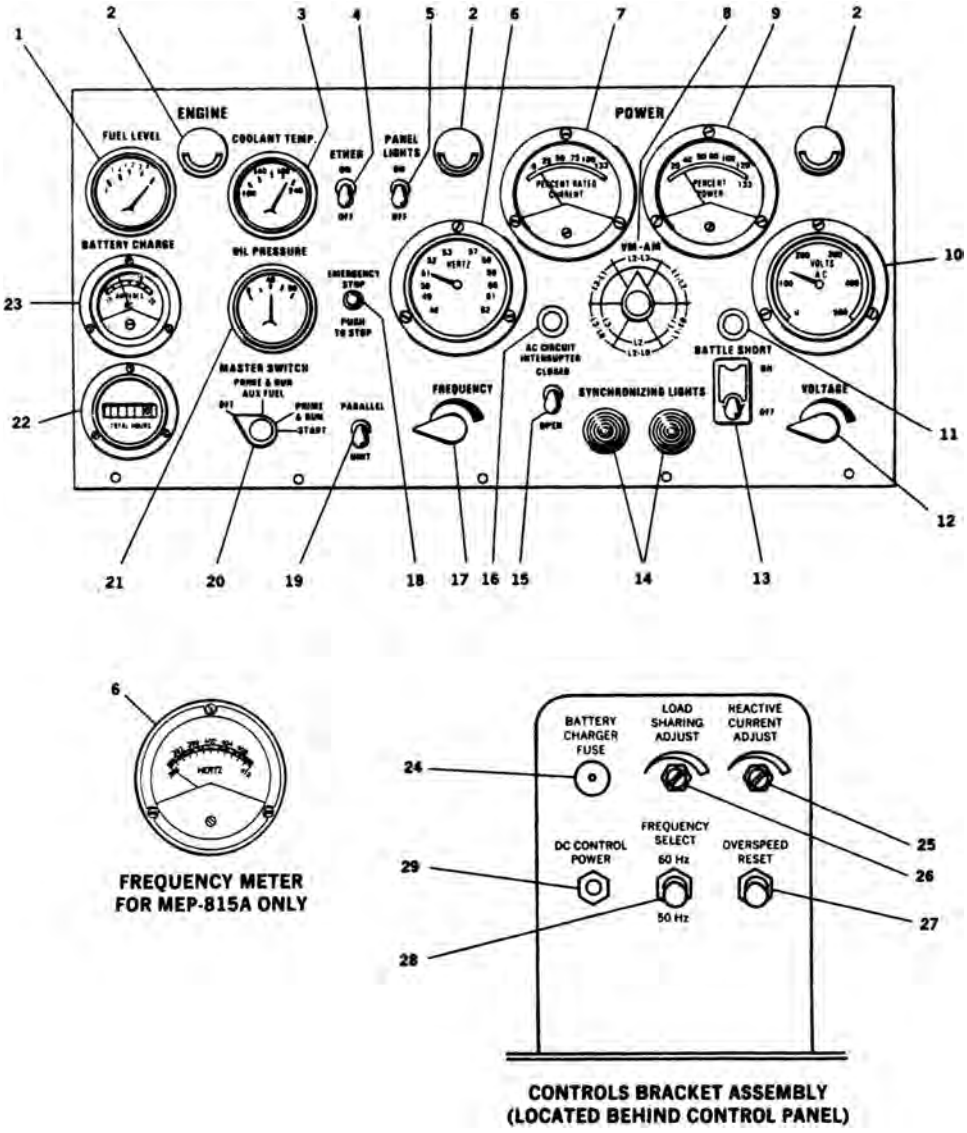


Figure 1. Control Panel/Controls Bracket Assembly.

CONTROL PANEL ASSEMBLY – CONTINUED

Table 1. Control Panel Controls and Indicators – Continued

KEY	CONTROL/INDICATOR	FUNCTION
1	FUEL LEVEL indicator	Indicates fuel level.
2	Panel lights	Illuminates control panel.
3	COOLANT TEMP indicator	Indicates engine coolant temperature.
4	ETHER switch	Activates or deactivates cold starting aid system.
5	PANEL LIGHTS switch	Activates or deactivates panel lights.
6	FREQUENCY meter (HERTZ)	Indicates generator set output frequency.
7	Ammeter (PERCENT RATED CURRENT)	Indicates generator set load current as a percent of rated current.
8	VM-AM transfer switch	Allows selection of current and voltage readings between output load terminals as follows:

SWITCH POSITION	VOLTAGE	CURRENT
L1-L0	120* 240**	L1
L2-L0	120* 240**	L2
L3-L0	120* 240**	L3
L1-L2	208* 416**	NONE
L2-L3	208* 416**	NONE
L1-L3	208* 416**	NONE

AC Reconnection Terminal Board Setting

* 120/208

** 240/416

9	Kilowattmeter (PERCENT POWER)	Indicates generator set output power as a percent of rated power.
10	AC Voltmeter (VOLTS AC)	Indicates output voltage of generator set.
11	BATTLE SHORT light	Amber light indicates switch on.
12	VOLTAGE adjust potentiometer	Adjusts generator set voltage.
13	BATTLE SHORT switch	Bypasses protective devices.
14	SYNCHRONIZING LIGHTS	Indicates synchronization of units to be paralleled.
15	AC CIRCUIT INTERRUPTER switch	Opens or closes AC circuit interrupter relay.
16	AC CIRCUIT INTERRUPTER light	Green light indicates AC circuit interrupter is closed.
17	FREQUENCY adjust potentiometer	Adjusts frequency of generator set.
18	EMERGENCY STOP pushbutton	Shuts down generator set.
19	PARALLEL UNIT switch	Energizes or deenergizes paralleling circuits.
20	MASTER SWITCH	OFF - De-energizes all circuits, except panel lights.

CONTROL PANEL ASSEMBLY – CONTINUED

Table 1. Control Panel Controls and Indicators – Continued

KEY	CONTROL/INDICATOR	FUNCTION
		PRIME & RUN AUX FUEL - Energizes generator set run circuits with auxiliary fuel pump operating.
		PRIME & RUN - Energizes generator set run circuits with auxiliary fuel system de-energized.
		START - Energizes starter
21	OIL PRESSURE indicator	Indicates oil pressure.
22	Time meter (TOTAL HOURS)	Indicates total engine operating hours.
23	BATTERY CHARGE ammeter	Indicates charge/discharge rate of batteries.
24	BATTERY CHARGER FUSE (Located on controls bracket assembly)	Protects battery charging alternator from overload.
25	REACTIVE CURRENT ADJUST rheostat (Located on controls bracket assembly)	Adjusts current for load sharing requirements (maintenance personnel only).
26	LOAD SHARING ADJUST rheostat (Located on controls bracket assembly)	Adjusts power for load sharing requirements (maintenance personnel only).
27	OVERSPEED RESET switch (Located on controls bracket assembly)	Resets generator set after an overspeed condition (maintenance personnel only).
28	FREQUENCY SELECT switch (MEP-805A only) (Located on controls bracket assembly)	Allows selection of 50 Hz or 60 Hz.
29	DC CONTROL POWER circuit breaker (Located on controls bracket assembly)	Energizes or de-energizes DC circuits.

MALFUNCTION INDICATOR PANEL

The malfunction indicator panel (Figure 2) is located to the left of the control panel. It contains a series of lights which indicate a generator set failure or abnormal operating condition. Table 2 describes each indicator light.

MALFUNCTION INDICATOR PANEL – CONTINUED

Table 2. Malfunction Indicator Panel.

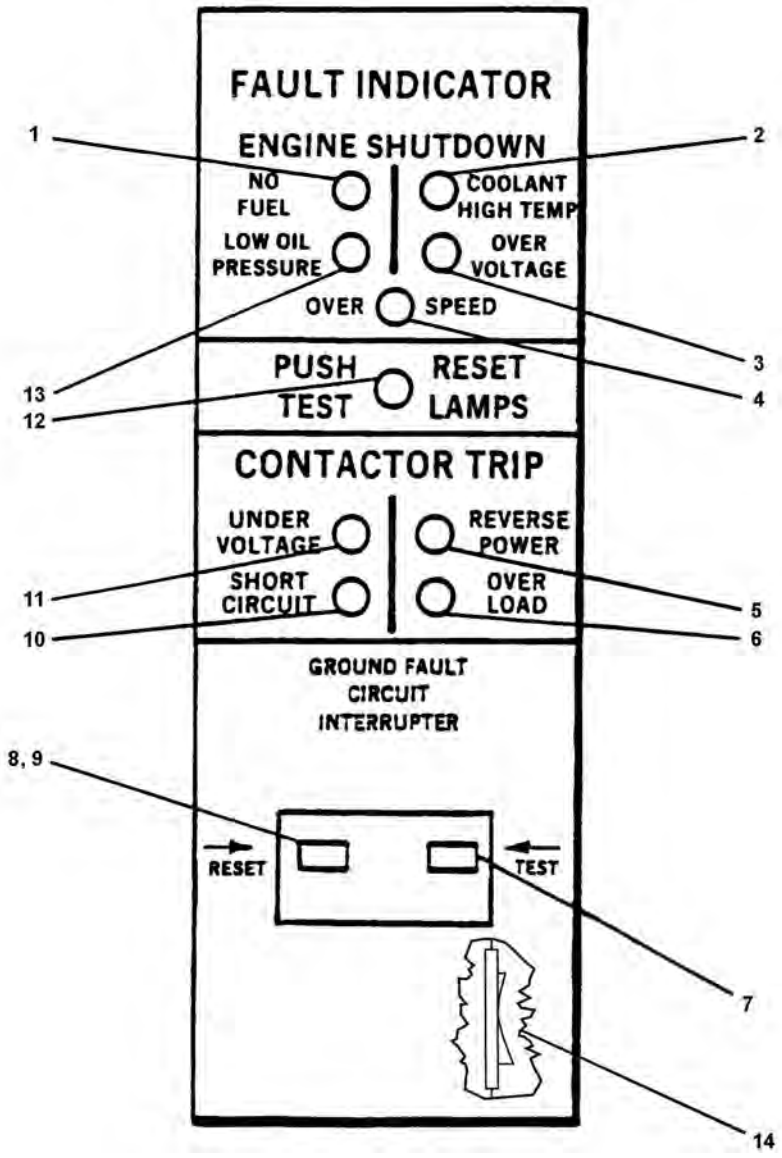


Figure 2. Malfunction Indicator Panel.

KEY	CONTROL/INDICATOR	FUNCTION
1	NO FUEL indicator	Lights when fuel level in fuel tank is below preset level.
2	COOLANT HIGH TEMP indicator	Lights when engine coolant temperature exceeds 225±5 °F (107±3 °C).
3	OVERVOLTAGE indicator	Lights when voltage in 120 volt generator coil exceeds 153±3 volts.
4	OVERSPEED indicator	Lights when engine speed exceeds 2,200±40 RPM.

MALFUNCTION INDICATOR PANEL – CONTINUED

Table 2. Malfunction Indicator Panel – Continued

KEY	CONTROL/INDICATOR	FUNCTION
5	REVERSE POWER indicator	Lights when power flow into generator set exceeds 20±3 percent of rated current.
6	OVER LOAD indicator	Lights when current in any phase exceeds 110 percent of rated current.
7	GROUND FAULT CIRCUIT INTERRUPTER TEST pushbutton	Tests GROUND FAULT CIRCUIT INTERRUPTER.
8	GROUND FAULT CIRCUIT INTERRUPTER indicator	Indicates a ground fault condition.
9	GROUND FAULT CIRCUIT INTERRUPTER RESET pushbutton	Resets GROUND FAULT CIRCUIT INTERRUPTER.
10	SHORT CIRCUIT indicator	Lights when generator set output in any phase exceeds 425±25 percent of rated current.
11	UNDERVOLTAGE indicator	Lights when voltage in 120 volt generator coil winding drops below 99±4 VAC.
12	PUSH TEST RESET LAMPS switch	Tests and resets fault indicator lamps.
13	LOW OIL PRESSURE indicator	Lights when engine lubrication systems pressure is less than 15±3 psi (103.4±20.7 kPa) during engine operation.
14	Convenience Receptacle Overload Circuit Breaker (10-amp in-line fuse on generator sets, contract number DAAK01-88-D-0082)	Circuit breaker trips when load on convenience receptacle exceeds 10 amps (fuse blows on generator sets, contract number DAAK01-88-D-0082).

END OF WORK PACKAGE

OPERATOR MAINTENANCE

OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

Personnel Required

Operator (1)

References

FM 5-424
(WP 0004, Figure 1)
(WP 0011, Table 1)

Equipment Condition

Engine OFF (Refer to Stopping Procedure)
Grounded
Operational

GENERAL

This work package provides information and guidance for generator set operation under normal conditions; refer to FM 5-424.

ASSEMBLY AND PREPARATION FOR USE

Installation of Ground Rod

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

1. Insert ground cable (Figure 1, Item 2) through slot on load output terminal board terminal marked GND (Figure 1, Item 1). Tighten terminal nut.
2. Connect coupling (Figure 1, Item 5) to ground rod (Figure 1, Item 4) and screw driving stud (Figure 1, Item 3) into coupling (Figure 1, Item 5). Make sure that driving stud (Figure 1, Item 3) seats on ground rod (Figure 1, Item 4).
3. Drive ground rod (Figure 1, Item 4) into ground until coupling (Figure 1, Item 5) is just above surface.
4. Remove driving stud (Figure 1, Item 3) and install another section of ground rod (Figure 1, Item 4).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

5. Install another coupling (Figure 1, Item 5) and driving stud (Figure 1, Item 3). Drive ground rod (Figure 1, Item 4) down until new coupling (Figure 1, Item 5) is just above ground surface.
6. Repeat Steps 4 and 5 until ground rod has been driven eight feet or deeper, providing an effective ground.
7. Connect clamp (Figure 1, Item 6) and ground cable (Figure 1, Item 2) to ground rod (Figure 1, Item 4) and tighten clamp screw.

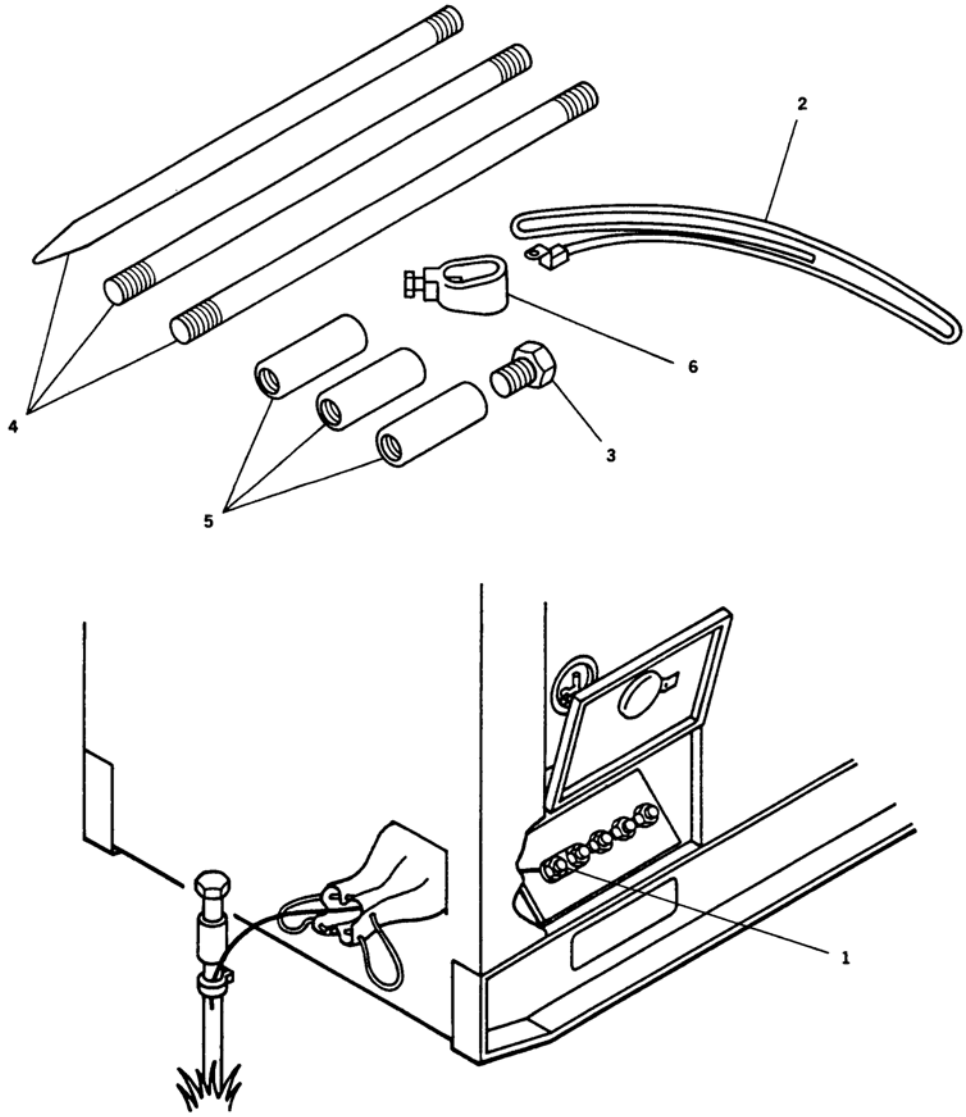


Figure 1. Grounding Connections.

END OF TASK

Installation of Load Cables

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Dangerous voltage exists on live circuits. Always observe precautions and never work alone. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. SHUTDOWN generator set and make sure it is free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

CAUTION

Do not connect the load cables to the convenience receptacle. Failure to observe this caution can result in damage to the generator set.

1. Shutdown generator set.
2. Select required output terminals from Table 1.
3. Open output load terminal door.

WARNING

Do not remove the Bonding Jumper between GND and N unless the Weapon System requires an ungrounded system. Failure to comply can cause death or serious injury to personnel. Refer to applicable Weapon System TM for specific guidance on power and connection requirements.

4. Ensure that jumper is securely fastened between L0 and ground.
5. Using terminal nut wrench (Figure 2, Item 3) loosen terminal nuts (Figure 2, Item 1) on terminals (Figure 2, Item 2) selected in Step 2.
6. Insert ends of load cables through load cable entrance box. Insert ends of cables into slots of load terminal studs (Figure 2, Item 2).
7. Tighten load terminal nuts (Figure 2, Item 1).
8. Secure wrench (Figure 2, Item 3) in bracket inside load terminal board door, and close door.

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

CAUTION

When using single phase connections, always attempt to balance loads between terminals (do not connect all loads between one terminal and L0). Failure to observe this caution can result in damage to the generator set.

Table 1. Load Terminal, AC Reconnection Board and VM-AM Transfer Switch Selection.

RECONNECTION BOARD POSITION	TERMINALS	VM-AM TRANSFER SWITCH POSITION	VOLTAGE READING	CURRENT READING (TERMINAL)
120/208	L1, L2, L3, L0	L1 - L0	120 VOLTS	L1
	3 PHASE. (SINGLE PHASE LOADS CAN BE SERVED USING ANY TERMINAL TO L0)	L2 - L0	120 VOLTS	L2
		L3 - L0	120 VOLTS	L3
		L1 - L2	208 VOLTS	NONE
		L2 - L3	208 VOLTS	NONE
		L3 - L1	208 VOLTS	NONE
240/416	L1, L2, L3, L0	L1 - L0	240 VOLTS	L1
	3 PHASE. (SINGLE PHASE LOADS CAN BE SERVED USING ANY TERMINAL TO L0)	L2 - L0	240 VOLTS	L2
		L3 - L0	240 VOLTS	L3
		L1 - L2	416 VOLTS	NONE
		L2 - L3	416 VOLTS	NONE
		L3 - L1	416 VOLTS	NONE

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

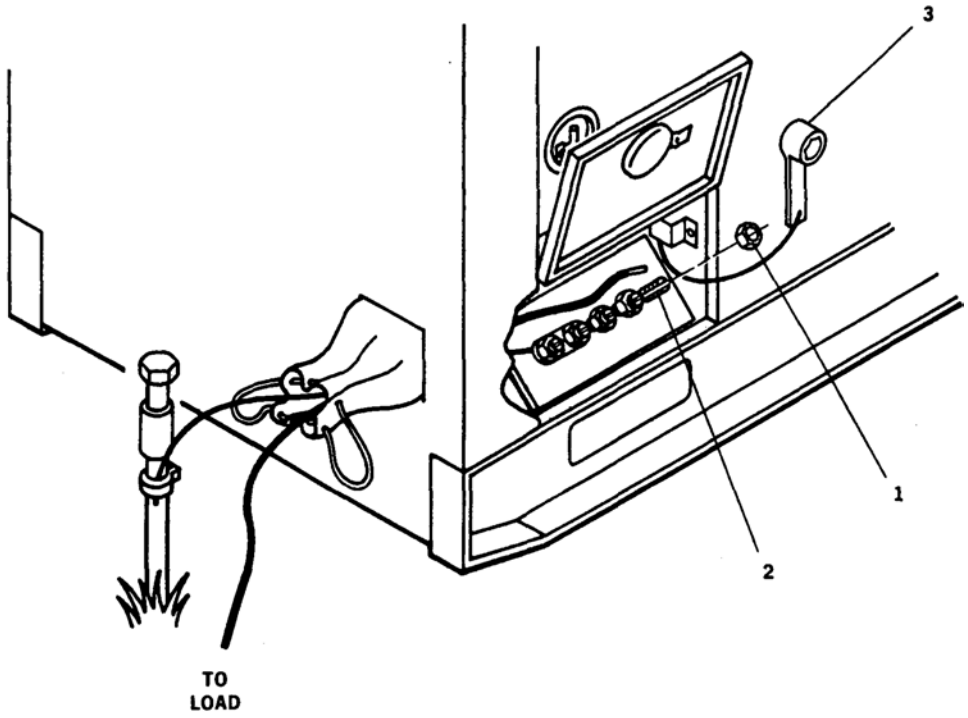


Figure 2. Installation of Load Cables.

END OF TASK

INITIAL ADJUSTMENTS BEFORE USE AND SELF TEST

Daily Checks

Perform all before (B) PMCS; refer to WP 0011, Table 1.

Initial Adjustments

1. Place DEAD CRANK switch in NORMAL position.
2. Push DC CONTROL POWER circuit breaker in.
3. Place FREQUENCY SELECT switch to required position (MEP-806A).
4. Ensure voltage reconnection terminal board is positioned to match voltage requirements. If voltage reconnection terminal board must be changed, notify next higher maintenance level.
5. Place VM-AM transfer switch in a position corresponding to output terminal load connections; refer to Table 1.
6. Place PARALLEL UNIT switch in UNIT position.

INITIAL ADJUSTMENTS BEFORE USE AND SELF TEST – CONTINUED

7. Pull out Emergency Stop Switch.

END OF TASK

Self Test

1. Place MASTER SWITCH to PRIME & RUN position.
2. Push PRESS TO TEST pushbutton on malfunction indicator panel. Ensure all indicator lights are lit. When PRESS TO TEST pushbutton is released, all lights should go out.
3. Press BATTLE SHORT press to test light on the control panel assembly. Ensure indicator light is lit. When press to test light is released, light should go out.
4. Press AC CIRCUIT INTERRUPTER press to test light on the control panel assembly. Ensure indicator light is lit. When press to test light is released light should go out.

END OF TASK

OPERATING PROCEDURES

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Exhaust discharge contains deadly gases including carbon monoxide. DO NOT operate generator set in enclosed areas unless exhaust discharge is properly vented outside. Failure to comply with this warning can cause injury or death to personnel.

NOTE

If generator set is to be operated in parallel with another unit, refer to Parallel Unit Operation (Load Sharing in this work package).

OPERATING PROCEDURES – CONTINUED

Starting Procedure

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel.

CAUTION

Do not crank engine in excess of fifteen seconds. Allow starter to cool at least fifteen seconds between attempted starts. Failure to observe this caution could result in damage to the starter.

NOTE

At temperatures below 40 °F (4 °C) it may be necessary to use the Cold Weather Starting Aid.

NOTE

Ensure all generator set access doors, except control panel access door, are closed.

1. Rotate MASTER SWITCH to START position.
2. In cold weather conditions, push ETHER switch to ON position as required, until engine accelerates to governed speed.
3. Hold MASTER SWITCH in START position until oil pressure reaches at least 25 psi (172 kPa), voltage has increased to its approximate rated value, and engine has reached stable operating speed.
4. Release MASTER SWITCH to PRIME & RUN position.
5. If operating with an auxiliary fuel source, rotate MASTER SWITCH to PRIME & RUN AUX FUEL position.

NOTE

Warm up engine without load for five minutes. (If required, load can be applied immediately).

6. Check COOLANT TEMP [170-200 °F (77-93 °C)] and OIL PRESSURE [25-60 psi (172-414 kPa)] indicators for normal readings.

OPERATING PROCEDURES – CONTINUED

7. Turn VOLTAGE and FREQUENCY adjust potentiometers to required values for voltage and frequency.
8. Press GROUND FAULT CIRCUIT INTERRUPTER TEST pushbutton. Ensure indicator window is clear. Press RESET pushbutton and ensure indicator is red.
9. Place AC CIRCUIT INTERRUPTER switch to CLOSED position.
10. Ensure voltage and frequency are still at rated values. Adjust if necessary.
11. Rotate VM-AM transfer switch to each phase position while observing ammeter (PERCENT RATED CURRENT). If more than rated load is indicated in any phase, reduce load.
12. Check kilowattmeter (PERCENT POWER). If indication is more than 100 percent rated load, reduce load.
13. Perform all DURING (D) OPERATION PMCS requirements in accordance with WP 0011, Table 1.

END OF TASK

Stopping Procedure

1. Place AC CIRCUIT INTERRUPTER switch in OPEN position.
2. Allow generator set to operate five minutes with no load applied.
3. Place MASTER SWITCH in OFF position.
4. Perform all AFTER (A) OPERATION PMCS requirements in accordance with WP 0011, Table 1.
5. Place DEAD CRANK switch in OFF position.

END OF TASK

PARALLEL UNIT OPERATION (LOAD SHARING)

CAUTION

Ensure generator sets are the same size and mode before attempting parallel operation.

General

The following method of parallel operation will be used to share the load between two generator sets. Refer to WP 0004, Figure 1 for location of operator controls and indicators mentioned below and Figure 3 for proper paralleling configuration.

PARALLEL UNIT OPERATION (LOAD SHARING) – CONTINUED

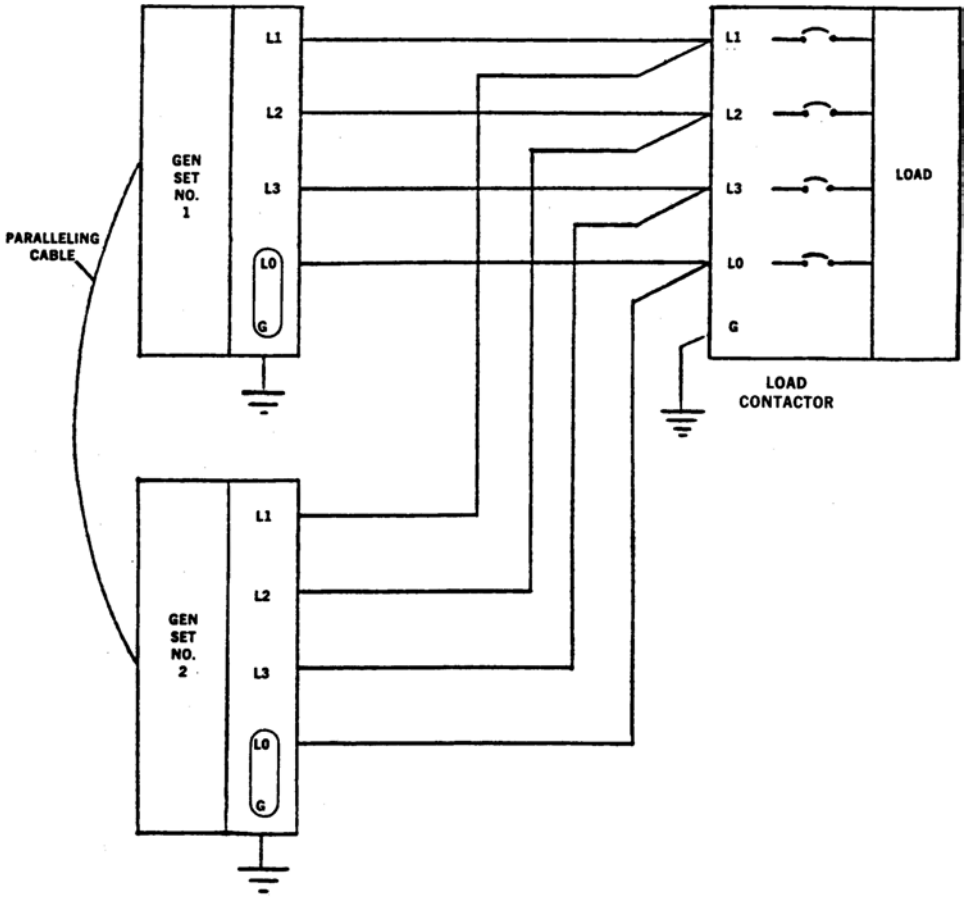


Figure 3. Parallel Operation Setup.

Pre-Operation

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. Make sure generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

PARALLEL UNIT OPERATION (LOAD SHARING) – CONTINUED

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Dangerous voltage exists on live circuits. Always observe precautions and never work alone. Failure to comply with this warning can cause injury or death to personnel.

1. Ensure that load requirement is equal or below the combined rated capacity of the two generator sets.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

2. Determine voltage requirements of load and position voltage reconnection terminal boards of the two generator sets to the required voltage connection. Ensure FREQUENCY SELECT switch (MEP-805A) for both generator sets are positioned for the same load requirements.
3. Identify one generator set as No. 1 and the other as No. 2.
4. Remove paralleling cable from storage box located inside battery compartment access door.
5. Connect the paralleling cable between the two generator sets. Connect the generator sets to the load observing the proper phase polarity.

END OF TASK

Operation

CAUTION

Do not close the AC CIRCUIT INTERRUPTER switch on either of the generator sets, nor close the load contactor at load until specifically directed to do so. Closing any of these devices at any other time may severely damage one or both of the generator sets.

1. Start each generator set; refer to Starting Procedure above.
2. Rotate both VOLTAGE adjust potentiometers to obtain the same voltage indication on each set.
3. Rotate both FREQUENCY adjust potentiometers to obtain the same frequency indication on both sets. Ensure load contactor at load is open.
4. Position and hold AC CIRCUIT INTERRUPTER switch, on generator set No. 1, to CLOSED until indicator lights.
5. Place the UNIT-PARALLEL switch on both units in PARALLEL position.

WARNING

Power is available when the main contactor is closed. Avoid accidental contact. Failure to comply with this warning can cause injury or death to personnel.

PARALLEL UNIT OPERATION (LOAD SHARING) – CONTINUED

CAUTION

If synchronizing lights on generator set No. 2 do not glow bright and dark in unison, the phasing is wrong. Shutdown generator sets and check that load cables are connected properly. Failure to observe this caution can result in damage to generator sets.

6. Observe synchronizing lights on generator set No. 2. The lights should be glowing bright and dark in unison.
7. Adjust frequency of generator set No. 2 until synchronizing lights glow bright and dark in unison at 2 to 3 second intervals.

CAUTION

Check that load contactor at load is open before attempting to place generator sets on line. Failure to observe this caution can result in damage to generator sets.

8. When both synchronizing lights are dark, position and hold AC CIRCUIT INTERRUPTER switch of generator set No. 2 to the CLOSED position until indicator lights.

NOTE

The generator sets are now operating in parallel with no load.

9. Rotate FREQUENCY adjust potentiometer of generator set No. 1 until kilowattmeter (PERCENT POWER) indicates approximately "0".
10. Rotate the VOLTAGE adjust potentiometer of generator set No. 1 until ammeter (PERCENT RATED CURRENT) reads approximately "0".
11. Close the load contactor at the load.

NOTE

If the REVERSE POWER indicator of either generator set lights, and the AC Circuit Interrupter relay opens, open the load contactor at load and resynchronize the generator sets. (Repeat the necessary Steps 4 through 11 above.)

12. Compare ammeter (PERCENT RATED CURRENT) readings of both generator sets. If readings are not within 10 percent, notify next higher level of maintenance.
13. Compare kilowattmeter (PERCENT POWER) readings of both generator sets. If readings are not within 10 percent, notify next higher level of maintenance.

END OF TASK

Removal from Parallel Operation

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

PARALLEL UNIT OPERATION (LOAD SHARING) – CONTINUED

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

If it is necessary to move a generator set which has been operating in parallel with another generator set, shutdown remaining generator set connected to the load, prior to removing load and ground cables. Failure to comply with this warning can cause injury or death to personnel.

CAUTION

Prior to removal of generator set from parallel operation, make sure load does not exceed full load rating of generator set remaining on line. Failure to observe this caution can result in damage to generator set.

1. Position AC CIRCUIT INTERRUPTER switch to OPEN until indicator goes out.
2. Return UNIT-PARALLEL switch to UNIT position.
3. Refer to Stopping Procedure to stop generator set.

END OF TASK

DECALS AND INSTRUCTION PLATES

There are identification and instruction plates on the generator set. Figure 4 through Figure 20 show the location and contents of each plate on the generator set.

DECALS AND INSTRUCTION PLATES – CONTINUED

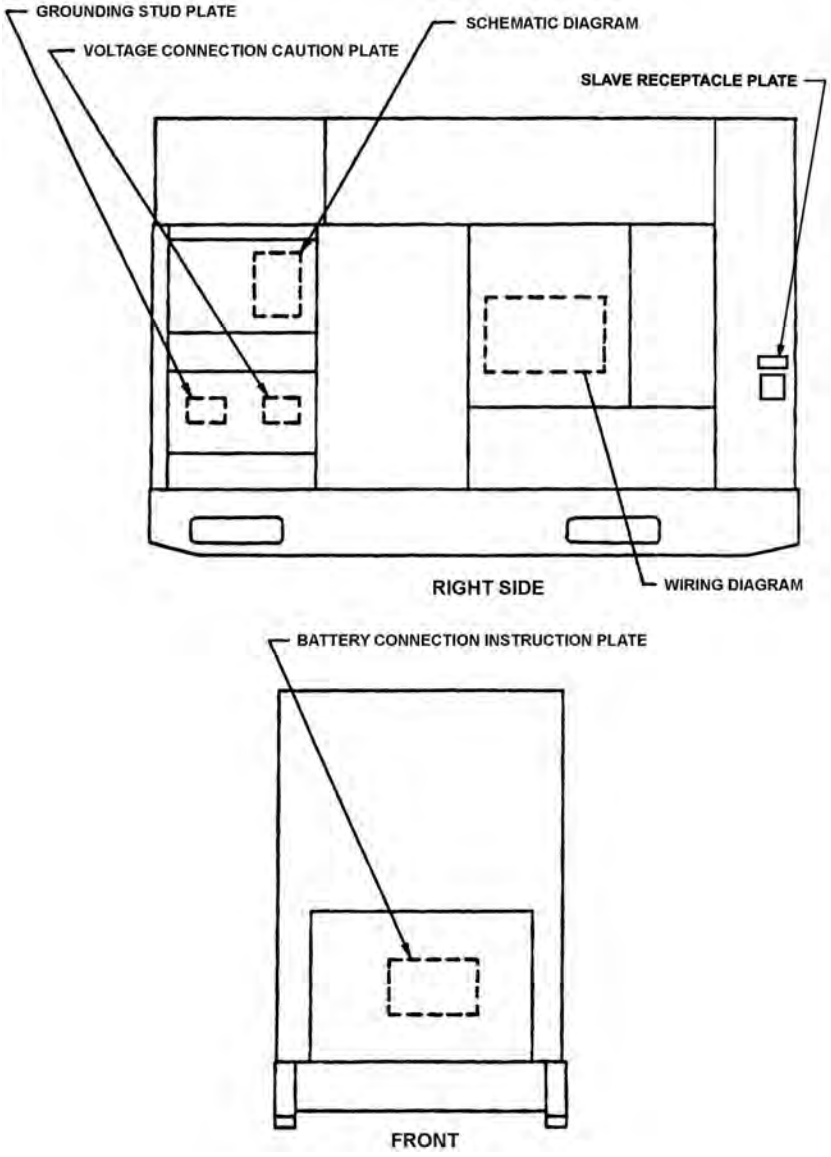


Figure 4. Operating Instructions Plates (Front and Right Side).

DECALS AND INSTRUCTION PLATES – CONTINUED

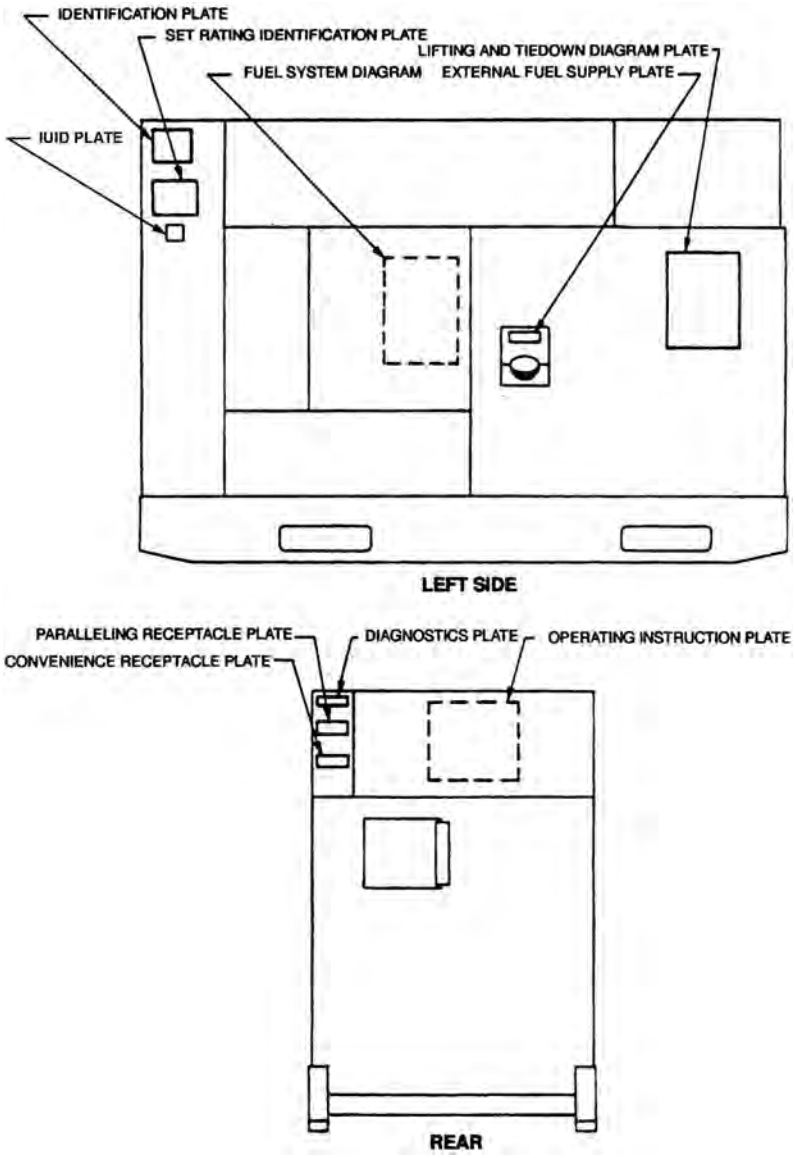
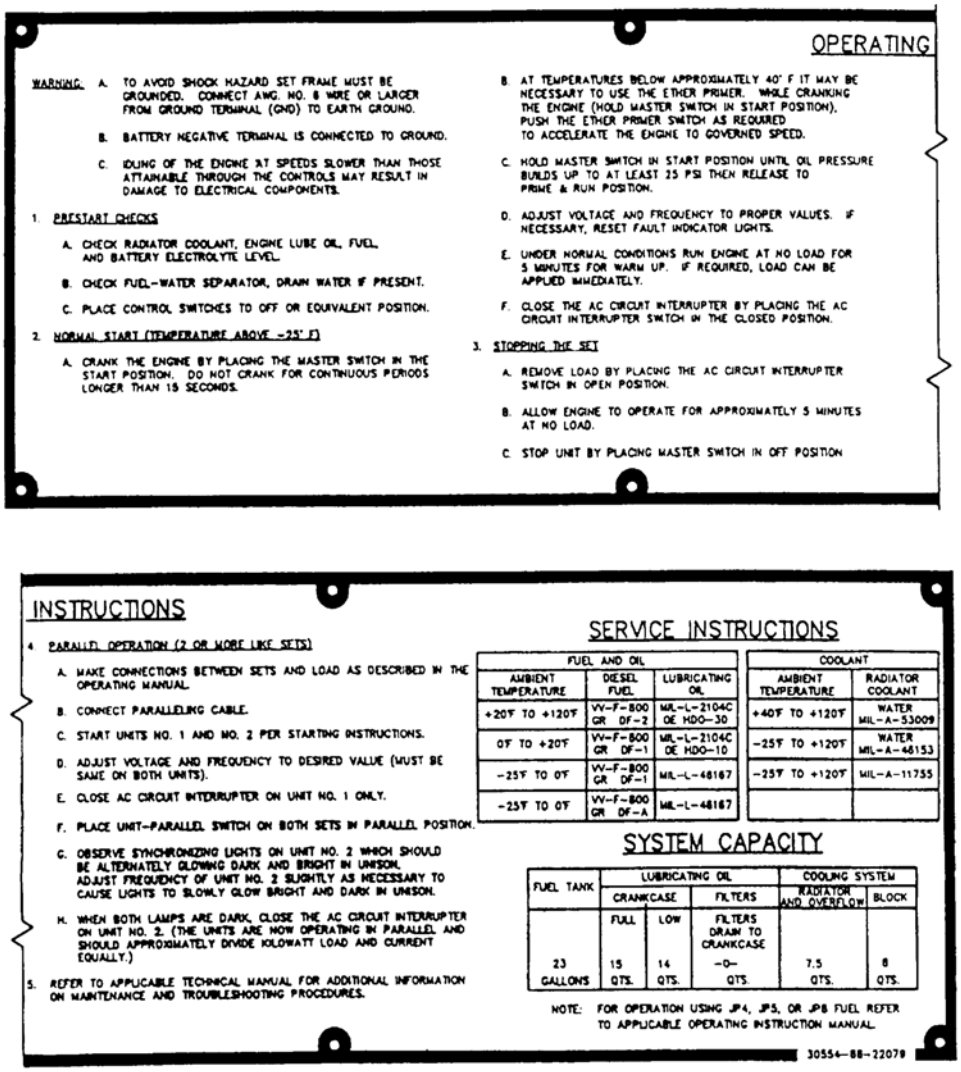


Figure 5. Operating Instructions Plates (Rear and Left Side).

DECALS AND INSTRUCTION PLATES – CONTINUED



OPERATING

WARNING A. TO AVOID SHOCK HAZARD SET FRAME MUST BE GROUNDED. CONNECT AWG. NO. 8 WIRE OR LARGER FROM GROUND TERMINAL (GND) TO EARTH GROUND.

B. BATTERY NEGATIVE TERMINAL IS CONNECTED TO GROUND.

C. IDLING OF THE ENGINE AT SPEEDS SLOWER THAN THOSE ATTAINABLE THROUGH THE CONTROLS MAY RESULT IN DAMAGE TO ELECTRICAL COMPONENTS.

1. PRESTART CHECKS

A. CHECK RADIATOR COOLANT, ENGINE LUBE OIL, FUEL, AND BATTERY ELECTROLYTE LEVEL.

B. CHECK FUEL-WATER SEPARATOR, DRAIN WATER IF PRESENT.

C. PLACE CONTROL SWITCHES TO OFF OR EQUIVALENT POSITION.

2. NORMAL START (TEMPERATURE ABOVE -25° F)

A. CRANK THE ENGINE BY PLACING THE MASTER SWITCH IN THE START POSITION. DO NOT CRANK FOR CONTINUOUS PERIODS LONGER THAN 15 SECONDS.

B. AT TEMPERATURES BELOW APPROXIMATELY 40° F IT MAY BE NECESSARY TO USE THE ETHER PRIMER. WHILE CRANKING THE ENGINE (HOLD MASTER SWITCH IN START POSITION), PUSH THE ETHER PRIMER SWITCH AS REQUIRED TO ACCELERATE THE ENGINE TO GOVERNED SPEED.

C. HOLD MASTER SWITCH IN START POSITION UNTIL OIL PRESSURE BUILDS UP TO AT LEAST 25 PSI THEN RELEASE TO PRIME & RUN POSITION.

D. ADJUST VOLTAGE AND FREQUENCY TO PROPER VALUES. IF NECESSARY, RESET FAULT INDICATOR LIGHTS.

E. UNDER NORMAL CONDITIONS RUN ENGINE AT NO LOAD FOR 5 MINUTES FOR WARM UP. IF REQUIRED, LOAD CAN BE APPLIED IMMEDIATELY.

F. CLOSE THE AC CIRCUIT INTERRUPTER BY PLACING THE AC CIRCUIT INTERRUPTER SWITCH IN THE CLOSED POSITION.

3. STOPPING THE SET

A. REMOVE LOAD BY PLACING THE AC CIRCUIT INTERRUPTER SWITCH IN OPEN POSITION.

B. ALLOW ENGINE TO OPERATE FOR APPROXIMATELY 5 MINUTES AT NO LOAD.

C. STOP UNIT BY PLACING MASTER SWITCH IN OFF POSITION

INSTRUCTIONS

4. PARALLEL OPERATION (2 OR MORE LIKE SETS)

A. MAKE CONNECTIONS BETWEEN SETS AND LOAD AS DESCRIBED IN THE OPERATING MANUAL.

B. CONNECT PARALLELING CABLE.

C. START UNITS NO. 1 AND NO. 2 PER STARTING INSTRUCTIONS.

D. ADJUST VOLTAGE AND FREQUENCY TO DESIRED VALUE (MUST BE SAME ON BOTH UNITS).

E. CLOSE AC CIRCUIT INTERRUPTER ON UNIT NO. 1 ONLY.

F. PLACE UNIT-PARALLEL SWITCH ON BOTH SETS IN PARALLEL POSITION.

G. OBSERVE SYNCHRONIZING LIGHTS ON UNIT NO. 2 WHICH SHOULD BE ALTERNATELY GLOWING DARK AND BRIGHT IN UNISON. ADJUST FREQUENCY OF UNIT NO. 2 SLIGHTLY AS NECESSARY TO CAUSE LIGHTS TO SLOWLY GLOW BRIGHT AND DARK IN UNISON.

H. WHEN BOTH LAMPS ARE DARK, CLOSE THE AC CIRCUIT INTERRUPTER ON UNIT NO. 2. (THE UNITS ARE NOW OPERATING IN PARALLEL AND SHOULD APPROXIMATELY DIVIDE KILOWATT LOAD AND CURRENT EQUALLY.)

5. REFER TO APPLICABLE TECHNICAL MANUAL FOR ADDITIONAL INFORMATION ON MAINTENANCE AND TROUBLESHOOTING PROCEDURES.

SERVICE INSTRUCTIONS

FUEL AND OIL		
AMBIENT TEMPERATURE	DIESEL FUEL	LUBRICATING OIL
+20°F TO +120°F	VV-F-800 GR DF-2	MIL-L-2104C OE HDO-30
0°F TO +20°F	VV-F-800 GR DF-1	MIL-L-2104C OE HDO-10
-25°F TO 0°F	VV-F-800 GR DF-1	MIL-L-46167
-25°F TO 0°F	VV-F-800 GR DF-A	MIL-L-46167

COOLANT	
AMBIENT TEMPERATURE	RADIATOR COOLANT
+40°F TO +120°F	WATER MIL-A-53009
-25°F TO +120°F	WATER MIL-A-46153
-25°F TO +120°F	MIL-A-11755

SYSTEM CAPACITY

FUEL TANK	LUBRICATING OIL			COOLING SYSTEM	
	CRANKCASE		FILTERS	RADIATOR AND OVERFLOW	BLOCK
	FULL	LOW	FILTERS DRAIN TO CRANKCASE		
23 GALLONS	15 QTS.	14 QTS.	-0- QTS.	7.5 QTS.	8 QTS.

NOTE: FOR OPERATION USING JP4, JP5, OR JP8 FUEL REFER TO APPLICABLE OPERATING INSTRUCTION MANUAL.

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Figure 6. Operating Instructions Plate.

DECALS AND INSTRUCTION PLATES – CONTINUED

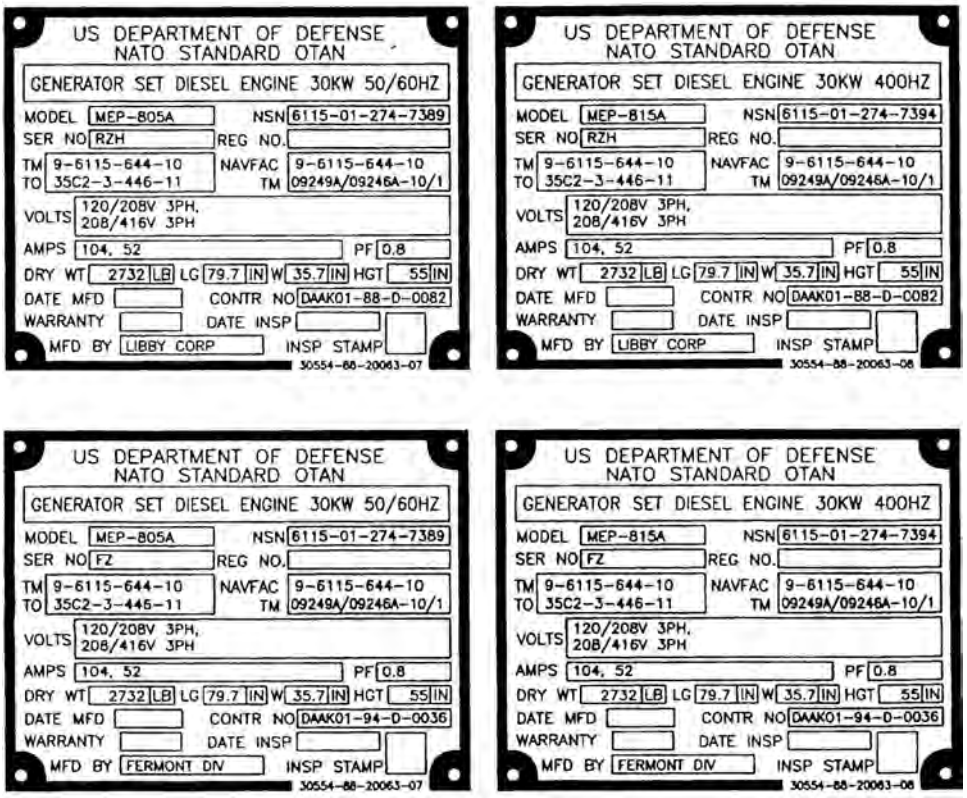

Figure 7. Identification Plates.

DECALS AND INSTRUCTION PLATES – CONTINUED

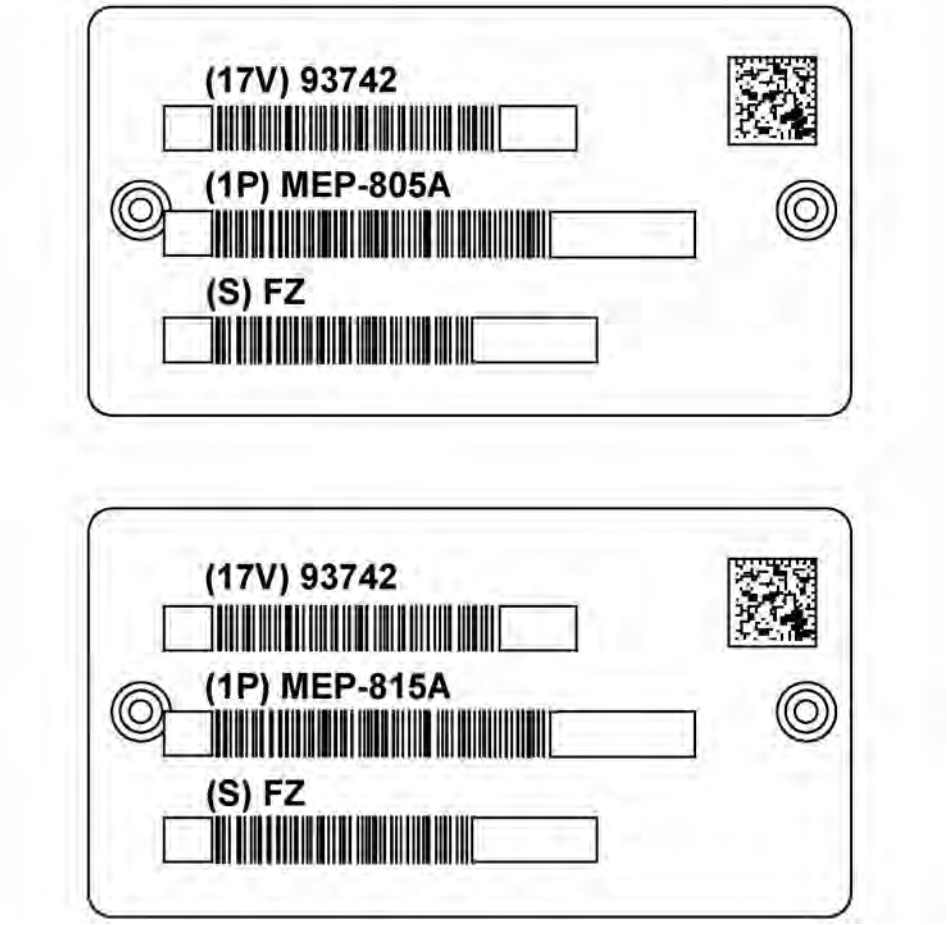

Figure 8. IUID Identification Plates.

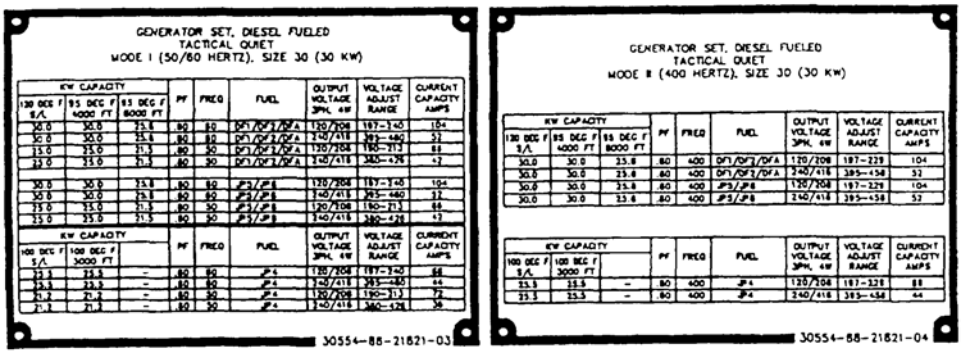

Figure 9. Set Rating Identification Plates.

DECALS AND INSTRUCTION PLATES – CONTINUED

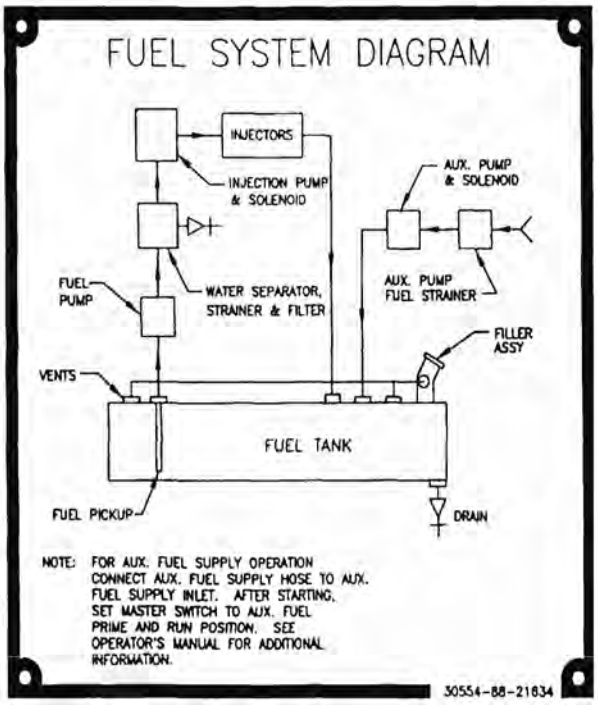

Figure 10. Fuel System Diagram Plate.

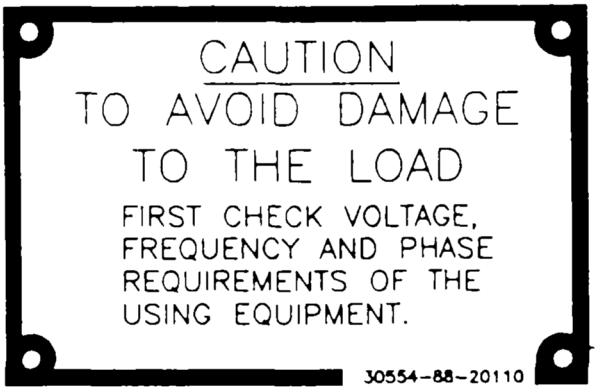

Figure 11. Voltage Connection Caution Plate.

DECALS AND INSTRUCTION PLATES – CONTINUED

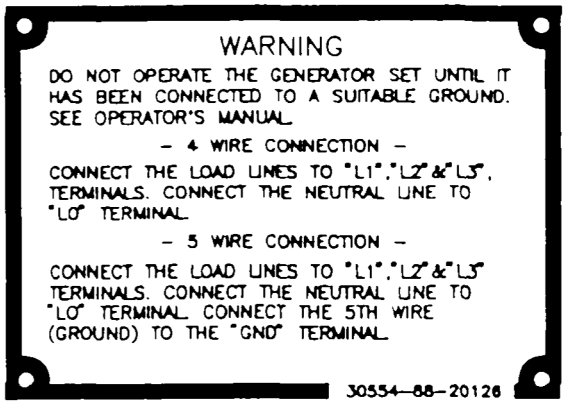

Figure 12. Grounding Stud Plate.

Figure 13. NATO Slave Receptacle Plate.

Figure 14. Paralleling Receptacle Plate.

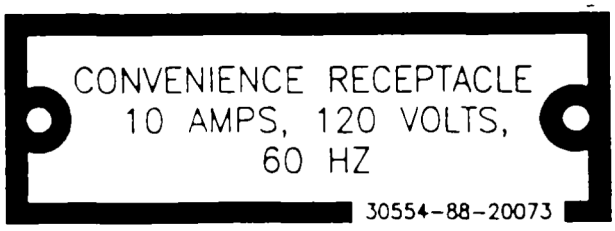

Figure 15. Convenience Receptacle Plate.

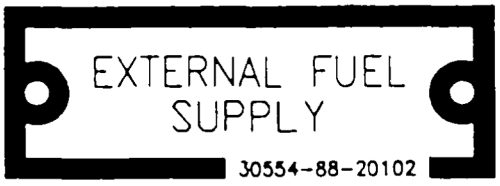

Figure 16. External Fuel Supply Plate.

DECALS AND INSTRUCTION PLATES – CONTINUED

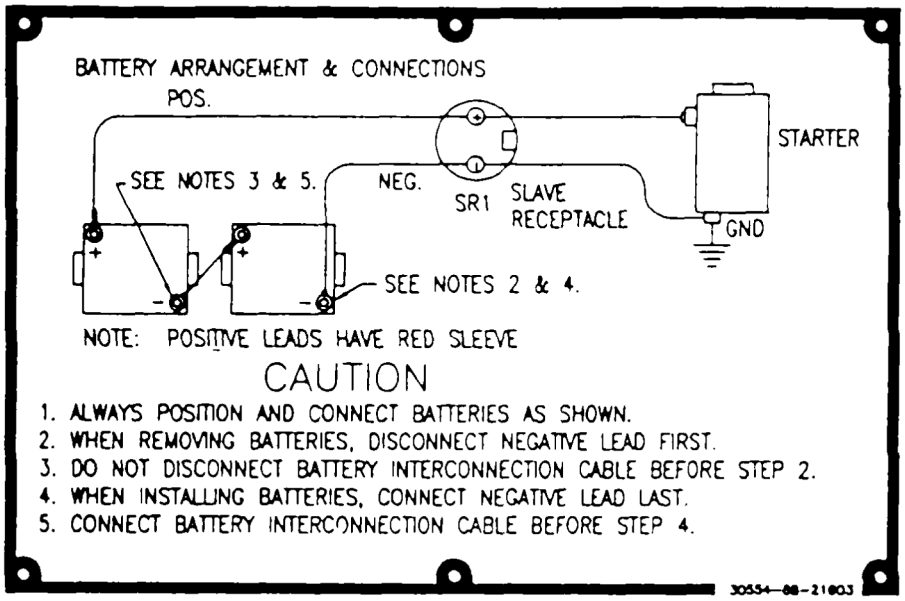

Figure 17. Battery Connection Instruction Plate.

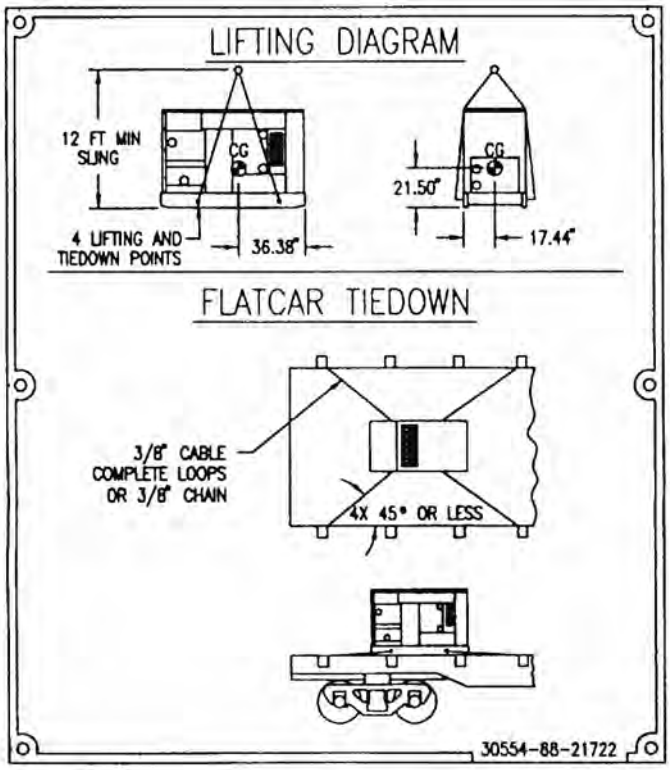

Figure 18. Lifting and Tiedown Diagram Plate.

DECALS AND INSTRUCTION PLATES – CONTINUED

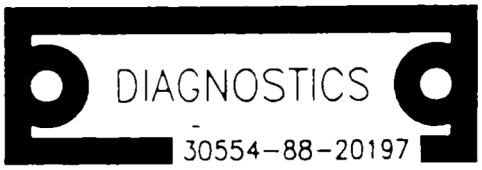

Figure 19. Diagnostics Plate.

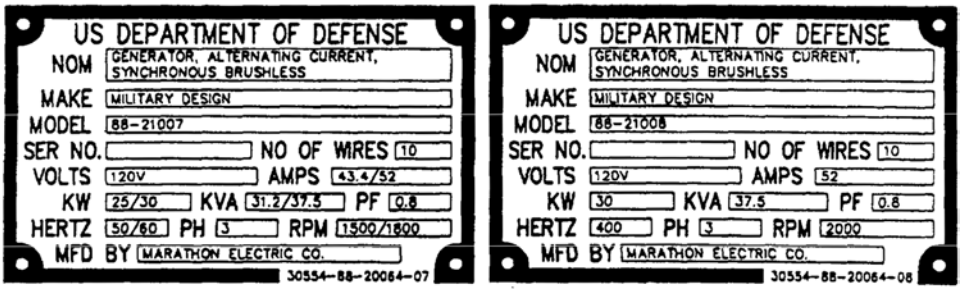

Figure 20. Generator Identification Plates.

END OF TASK

PREPARATION FOR MOVEMENT

1. Shutdown generator set; refer to Stopping Procedure. If generator set is operating in parallel, refer to Removal from Parallel Operation.
2. Disconnect load cables.
3. Disconnect paralleling cable, if used, and store in storage box.
4. When using auxiliary fuel line, disconnect line, drain excess fuel from line and store line in storage box.
5. Disconnect ground cable and remove ground rods. Store ground rods in holding clips located inside housing left side generator set. Store cable and couplings in storage box.
6. Secure all generator set access doors and panels.
7. For assembly and preparation for use, refer to Assembly and Preparation For Use.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

Materials/Parts

Antifreeze Coolant (WP 0027, Table 1, Item 2) P/N A-A-52624 (NSN 6850-00-181-7929)

Personnel Required

Operator (1)

References

FM 3-3

References - cont'd

FM 3-4

FM 3-5

WP 0005 (Starting Procedures)

Equipment Condition

Operational

UNUSUAL ENVIRONMENT/WEATHER

Operation in Extreme Cold Weather Below -25 °F (-31 °C)

The generator set operates in ambient temperatures as low as -25 °F (-31 °C) without special winterization equipment. To ensure satisfactory operation under extreme cold weather the following steps must be taken:

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

In extreme cold weather, skin can stick to metal. Avoid contacting metal items with bare skin in extreme cold weather. Failure to comply with this warning can cause injury to personnel.

1. Keep generator set and surrounding area as free of ice and snow as practical.
2. Keep fuel tank full to protect against moisture, condensation, and accumulation of water.
3. Ensure that proper grade diesel fuel is used.
4. Keep batteries free from corrosion and in a well charged condition.

END OF TASK

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

Operation in Extreme Heat Above 120 °F (48.8 °C)

1. Check vents and radiator air passages frequently for obstructions.
2. Check coolant temperature indicator frequently for any indication of overheating.
3. Allow sufficient space for fuel expansion when filling fuel tank.
4. Keep generator set clean and free of dirt. Clean obstructions from generator set intake and outlet screens.
5. Clean external surface of engine when generator set is not operating.

END OF TASK

Operation in Dusty or Sandy Areas

1. If possible, provide a shelter for generator set. Use available natural barriers to shield generator set from blowing dust or sand.
2. Wet down dusty and sandy surface areas around generator set frequently if water is available.
3. Keep all access doors closed, as much as possible, to prevent entry of dust and sand into housing assembly.
4. Wipe dust and sand frequently from the generator set external surface and components. Wash exterior surfaces frequently with clean water when generator set is not operating.
5. Service engine air cleaner assembly frequently to compensate for intake of additional dust or sand.
6. Drain sediment frequently from fuel filter/water separator. When servicing fuel tank be careful to prevent dust or sand from entering fuel tank.
7. Change engine oil and oil filter frequently.
8. Store oil and fuel in dust-free containers.
9. Ensure that generator set ground connections are free of dust and sand and connections are tight before starting the unit.

END OF TASK

Operation Under Rainy or Humid Conditions

CAUTION

Failure to remove waterproof material before operating generator set could result in equipment damage.

1. If possible, provide a shelter for generator set. Cover generator set with canvas or other waterproof material when it is not being operated.
2. Provide adequate drainage to prevent water from accumulating on operation site.
3. Keep all generator set access doors closed, as much as possible, to prevent entry of water into housing assembly.
4. Drain water frequently from fuel filter/water separator.

WARNING

Dangerous voltage exists on live circuits. Always observe precautions and never work alone. Failure to comply with this warning can cause injury or death to personnel.

5. Remove moisture from generator set components before and after each operating period.
6. Keep fuel tank full to protect against moisture, condensation and accumulation of water.

END OF TASK

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

Operation in Salt Water Areas

CAUTION

Failure to remove waterproof material before operating generator set could result in equipment damage.

1. If possible, provide a shelter for the generator set. Locate generator set so that radiator faces into prevailing winds. Use natural barriers or, if possible, construct a barrier to protect generator set from salt water. Cover generator set with canvas or other waterproof material when it is not being operated.
2. Keep all generator access doors closed, as much as possible, to prevent entry of salt water into housing assembly.
3. Wash exterior surfaces frequently with clean water when generator set is not operating.
4. Check wiring connections for corrosion and wire insulation for signs of deterioration.

END OF TASK

Operation at High Altitudes

The generator set will operate at elevations up to 4,000 feet (1,219.1 meters) above sea level without special adjustment or reduction in load. At elevations greater than 4,000 feet (1,219.1 meters) above sea level, the kilowatt rating is reduced approximately 3.5 percent for each additional 1,000 feet (304.8 meters).

OPERATION WHILE IN CONTAMINATED AREAS

The generator set is capable of being operated by personnel wearing nuclear, biological or chemical (NBC) protective clothing without special tools or supporting equipment. Refer to FM 3-5, NBC Decontamination for information on decontamination procedures. Specific procedures for the generator set are the following:

1. Control panel indicators sealing gasket, rubber sleeves, and rope draw cords at output terminal access ports, control panel door gaskets, access door gaskets, rubber tubing, and belts within the engine compartment, coverings for electrical conduits, external water drain tubing, and retaining cords for slave receptacle covers will absorb and retain chemical agents. Replacement of these items is the recommended method of decontamination.
2. Lubricants, fuel, coolant, or battery fluids may be present on the external surfaces of the generator set or components due to leaks or normal operation. These fluids will absorb NBC agents. The preferred method of decontamination is removal of these fluids using conventional decontamination methods in accordance with FM 3-5.
3. Continued decontamination of external generator set surfaces with supertropical bleach (STB)/ decontamination solution number 2 (DS2) will degrade clear plastic indicator coverings to a point where reading indicators will become impossible. This problem will become more evident for soldiers wearing protective masks. Therefore, the use of STB or DS2 decontamination in these areas should be minimized. Indicators should be decontaminated with warm soapy water.
4. External surfaces of the control panel that are marked with painted or stamped lettering will not withstand repeated decontamination with STB or DS2 without degradation of this lettering. Therefore, the recommended method of decontamination for these areas is with warm soapy water.
5. Areas that will entrap contaminants, making efficient decontamination extremely difficult, include the following:
   a. Exposed heads of screws.

OPERATION WHILE IN CONTAMINATED AREAS – CONTINUED

b. Areas adjacent to and behind exposed wiring conduits.

c. Hinged areas or access doors.

d. Retaining chains for external receptacle covers.

e. Areas around the tiedown/lifting rings, crevices around access doors, external screens covering ventilation areas, the external oil drain valve, and areas adjacent to the external fuel drain valve.

f. Areas behind knobs and switches on the control panel, externally mounted equipment specification data plates, external receptacle covers, access doors, access door locking mechanisms, recessed wells for access door handles, fuel cap, load terminal board, slave receptacles, and frequency adjustment controls.

NOTE

Replacement of these items, if available, is the preferred method of decontamination. Conventional methods of decontamination should be used on these areas, while stressing the importance of thoroughness and the probability of some degree of continuing contact and vapor hazard.

6. In an NBC contaminated environment, the generator set should be operated with all access doors closed to reduce the effects of contamination.
7. The use of overhead shelters or chemical protective covers is recommended as an additional means of protection against contamination in accordance with FM 3-5. However, if using covers, care should be taken to provide adequate space for air flow and exhaust.
8. For additional NBC information, refer to FM 3-3 and FM 3-4. Other services use applicable publications for NBC.

END OF TASK

USE OF THE CONVENIENCE RECEPTACLE

WARNING

Power is available when the main contactor is open. Avoid accidental contact. Failure to comply with this warning can cause injury or death to personnel.

CAUTION

The maximum power rating for the convenience receptacle is 10 Amps. Continuous operation above 10 Amps can result in damage to the generator set.

1. Start the generator set if it is not operating; refer to WP 0005, Starting Procedure.
2. Ensure the load does not exceed the maximum rating.
3. Reset the Ground Fault Circuit Interrupter.
4. Plug appropriate connector into convenience receptacle.

END OF TASK

END OF WORK PACKAGE

MAINTENANCE

EMERGENCY INFORMATION

INITIAL SETUP:

Materials/Parts

Antifreeze Coolant (WP 0027, Table 1, Item 2) P/N null / (NSN)

Oil (WP 0027, Table 1, Item 7) P/N null / (NSN)

Gloves P/N null / (NSN)

Fuel P/N null / (NSN)

Cloth (WP 0027, Table 1, Item 5) P/N null / (NSN)

References

WP 0005 (Starting Procedures)

Equipment Condition

Engine Off (Refer to Stopping Procedure)

Grounded

Operational

Personnel Required

Operator (1)

NATO SLAVE RECEPTACLE START OPERATION

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Slave receptacle (NATO connector) is electrically live at all times and is unfused. The Battery Disconnect Switch does not remove power from the slave receptacle. NATO slave receptacle has 24 VDC even when Battery Disconnect Switch is set to OFF. This circuit is only dead when the batteries are fully disconnected. Disconnect the batteries before performing maintenance on the slave receptacle. Failure to comply with this warning can cause injury or death to personnel.

General

The NATO slave receptacle can be used to start the generator set when batteries are discharged.

NATO SLAVE RECEPTACLE START OPERATION – CONTINUED

NATO Slave Emergency Starting Procedure

1. Connect one end of NATO slave cable to fully charged 24 VDC system and other end to discharged generator set's NATO SLAVE RECEPTACLE.
2. Start discharged generator set; refer to WP 0005, Starting Procedure.
3. Remove NATO slave cable after generator set starts.

EMERGENCY STOPPING

Depressing the EMERGENCY STOP pushbutton will stop the generator set.

NOTE

The generator set cannot be restarted without resetting the EMERGENCY STOP pushbutton and turning the MASTER SWITCH to the OFF position.

OPERATION USING BATTLE SHORT SWITCH

CAUTION

Continued operation using the BATTLE SHORT switch can result in damage to the generator set.

NOTE

If any emergency situation requires continued operation of the generator set, the BATTLE SHORT switch is used to override all protection devices and EMERGENCY STOP functions.

NOTE

BATTLE SHORT switch must be OFF to start the generator set.

1. Start generator set if set is not running; refer to WP 0005, Starting Procedure.
2. Lift cover on BATTLE SHORT switch and position switch to ON position.

END OF WORK PACKAGE

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES

FOR

30 kW GENERATOR SET (50/60 Hz AND 400 Hz), SKID MOUNTED, TACTICAL QUIET

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

TROUBLESHOOTING INDEX

GENERAL

This work package lists common malfunctions you may find during operation of the generator set. You should perform the tests/inspections and corrective actions in the order listed observing all notes, cautions and warnings.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. Make sure generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.

NOTE

Air Force users and Marine Corps users may perform maintenance only as authorized.

SYMPTOM TROUBLESHOOTING PROCEDURES INDEX

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
COOLING SYSTEM	
COOLANT TEMPERATURE Indicator Indicates Engine Overheating	Symptom 11
ELECTRICAL SYSTEM	
AC CIRCUIT INTERRUPTER Light Fails to Come on Generator Set No. 2 in Parallel Operation	Symptom 21
AC CIRCUIT INTERRUPTER Light Fails to Light When AC CIRCUIT INTERRUPTER Switch is Closed	Symptom 18

SYMPTOM TROUBLESHOOTING PROCEDURES INDEX – CONTINUED

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
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AC VOLTMETER (VOLTS AC) Indicates Low Voltage	Symptom 14
AC VOLTMETER (VOLTS AC) Voltage Fluctuates	Symptom 16
BATTERY CHARGE Ammeter Shows Excessive Charge	Symptom 13
BATTERY CHARGE Ammeter Shows Low or No Charge	Symptom 12
CONVENIENCE RECEPTACLE; No Voltage at Convenience Receptacle	Symptom 22
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SYNCHRONIZING LIGHTS Do Not Glow Bright and Dark in Unison on Generator Set No. 2 During Parallel Operation	Symptom 20
SYNCHRONIZING LIGHTS Fail to Light	Symptom 19
ENGINE	
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Engine Does Not Develop Full Power	Symptom 6
Engine Fails to Crank	Symptom 1
Engine Knocks	Symptom 7
Engine Runs Erratically or Misfires	Symptom 5
Engine Stops Suddenly	Symptom 4
Engine Stops When Master Switch is Released From START Position	Symptom 3
EXHAUST SYSTEM	
Black Exhaust Smoke	Symptom 9
Blue or White Exhaust Smoke	Symptom 8
LUBRICATION SYSTEM	
Low oil pressure	Symptom 10

END OF WORK PACKAGE

OPERATOR MAINTENANCE

TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

Not Applicable

TROUBLESHOOTING PROCEDURE(S)

ENGINE

SYMPTOM

1. Engine fails to crank.

TEST OR INSPECTION

Step 1. Check that DEAD CRANK switch is in the NORMAL position.

CORRECTIVE ACTION

Place switch in NORMAL position.

TEST OR INSPECTION

Step 2. Check that DC CONTROL POWER circuit breaker is energized (in).

CORRECTIVE ACTION

If DC CONTROL POWER circuit breaker is de-energized (out), go to Step 4.

TEST OR INSPECTION

Step 3. Check that Emergency Stop Switch is out.

CORRECTIVE ACTION

Pull Emergency Stop Switch out.

TEST OR INSPECTION

Step 4. Defect is Engine Starting/Electrical System. Check battery connections.

CORRECTIVE ACTION

If loose or corroded, notify next higher maintenance level.

SYMPTOM

2. Engine cranks but fails to start.

TROUBLESHOOTING – CONTINUED

TEST OR INSPECTION

Step 1. Cold ambient temperature.

CORRECTIVE ACTION

If ambient temperature is below 40 °F (4 °C) turn MASTER SWITCH to START and position ETHER switch to ON; refer to WP 0005, Starting Procedures.

TEST OR INSPECTION

Step 2. Check for dirty air cleaner element.

CORRECTIVE ACTION

Service air cleaner assembly; refer to WP 0013, Servicing.

TEST OR INSPECTION

Step 3. Check for dirty fuel filter/water separator.

CORRECTIVE ACTION

Service fuel filter/water separator; refer to WP 0016, Servicing. If engine still fails to start, notify next higher maintenance level.

SYMPTOM

3. Engine starts but stops when MASTER SWITCH is released from START position.

TEST OR INSPECTION

Step 1. Check for proper starting procedure.

CORRECTIVE ACTION

Hold MASTER SWITCH in START position until 25 psi (172 kPa) is reached; refer to WP 0005, Starting Procedures.

TEST OR INSPECTION

Step 2. Check to see if any FAULT INDICATOR lights are lit.

CORRECTIVE ACTION

NO FUEL light is lit; refer to WP 0014, Servicing. If any other lights are lit, notify next higher maintenance level.

SYMPTOM

4. Engine stops suddenly.

TROUBLESHOOTING – CONTINUED

TEST OR INSPECTION

Step 1. Check to see if any FAULT INDICATOR lights are lit.

CORRECTIVE ACTION

NO FUEL light is lit; refer to WP 0014, Servicing. If any other lights are lit, go to Step 2.

TEST OR INSPECTION

Step 2. Check that DC CONTROL POWER circuit broker is energized (in).

CORRECTIVE ACTION

If DC CONTROL POWER circuit breaker is de-energized (out), notify next higher maintenance level.

SYMPTOM

5. Engine runs erratically or misfires.

TEST OR INSPECTION

Step 1. Check for dirty air cleaner element.

CORRECTIVE ACTION

Service air cleaner assembly; refer to WP 0013, Servicing.

TEST OR INSPECTION

Step 2. Check for contaminated fuel.

CORRECTIVE ACTION

Service fuel filter/water separator; refer to WP 0016, Servicing.

TEST OR INSPECTION

Step 3. Check for improper type of fuel.

CORRECTIVE ACTION

If improper type of fuel is suspected, refer to WP 0015, Table 1, notify next higher maintenance level.

SYMPTOM

6. Engine does not develop full power.

TEST OR INSPECTION

Step 1. Check for dirty air cleaner element.

TROUBLESHOOTING – CONTINUED

CORRECTIVE ACTION

Service air cleaner assembly; refer to WP 0013, Servicing.

TEST OR INSPECTION

Step 2. Check for contaminated fuel.

CORRECTIVE ACTION

Service fuel filter/water separator; refer to WP 0016, Servicing.

TEST OR INSPECTION

Step 3. Check for restricted exhaust system.

CORRECTIVE ACTION

Make sure exhaust opening is free from obstructions. If no obstructions are found, notify next higher maintenance level.

TEST OR INSPECTION

Step 4. Check for improper type of fuel.

CORRECTIVE ACTION

If improper type of fuel is suspected, refer to WP 0015, Table 1, notify next higher maintenance level.

SYMPTOM

7. Engine knocks.

TEST OR INSPECTION

Step 1. Check for low lubrication oil level.

CORRECTIVE ACTION

If necessary add oil; refer to LO 9-6115-644-12.

TEST OR INSPECTION

Step 2. Check for loose parts or foreign objects in engine compartment.

CORRECTIVE ACTION

If no loose parts or foreign objects are found, go to Step 3.

TEST OR INSPECTION

Step 3. Check for improper type of fuel.

TROUBLESHOOTING – CONTINUED

CORRECTIVE ACTION

If improper type of fuel is suspected, refer to WP 0015, Table 1, notify next higher maintenance level.

EXHAUST SYSTEM

SYMPTOM

8. Blue or white exhaust smoke.

TEST OR INSPECTION

Check for improper type of fuel.

CORRECTIVE ACTION

If improper type of fuel is suspected, refer to WP 0015, Table 1, notify next higher maintenance level.

SYMPTOM

9. Black exhaust smoke.

TEST OR INSPECTION

Step 1. Check for improper type of fuel.

CORRECTIVE ACTION

If improper type of fuel is suspected, refer to WP 0015, Table 1, notify next higher maintenance level.

TEST OR INSPECTION

Step 2. Check for dirty air cleaner element.

CORRECTIVE ACTION

Service air cleaner assembly; refer to WP 0012, Servicing.

TEST OR INSPECTION

Step 3. Check for generator set overload

CORRECTIVE ACTION

Check for generator set overload by checking the ammeter (PERCENT RATED CURRENT) and the kilowattmeter (PERCENT POWER) on the control panel assembly; refer to WP 0004, Figure 1. If unable to adjust, notify next higher maintenance level.

TROUBLESHOOTING – CONTINUED

LUBRICATION SYSTEM

SYMPTOM

10. Low oil pressure.

TEST OR INSPECTION

Step 1. Check for low lubrication oil level.

CORRECTIVE ACTION

If necessary add oil; refer to LO 9-6115-644-12.

TEST OR INSPECTION

Step 2. Check for high coolant temperature, above 200 °F (93 °C), refer to WP 0004, Figure 1.

CORRECTIVE ACTION

If coolant temperature is high, go to Step 3.

TEST OR INSPECTION

Step 3. Check coolant level.

CORRECTIVE ACTION

If low, add coolant; refer to WP 0014, Servicing. If full, go to Step 4.

TEST OR INSPECTION

Step 4. Check for obstruction in air intake system.

CORRECTIVE ACTION

If obstructions are found, remove debris. If no obstructions are found, go to Step 5.

TEST OR INSPECTION

Step 5. Check for loose fan belt.

CORRECTIVE ACTION

If loose, notify next higher maintenance level.

COOLING SYSTEM

SYMPTOM

11. COOLANT TEMPERATURE indicator indicates engine overheating.

TROUBLESHOOTING – CONTINUED

TEST OR INSPECTION

Step 1. Check for generator set overload.

CORRECTIVE ACTION

Check for generator set overload by checking the ammeter (PERCENT RATED CURRENT) and the kilowattmeter (PERCENT POWER) on the control panel assembly; refer to WP 0004, Figure 1. If unable to adjust, notify next higher maintenance level.

TEST OR INSPECTION

Step 2. Check coolant level.

CORRECTIVE ACTION

If low, add coolant; refer to WP 0014, Servicing. If full, go to Step 3.

TEST OR INSPECTION

Step 3. Check for low lubrication oil level.

CORRECTIVE ACTION

If necessary add oil; refer to LO 9-6115-644-12. If full, go to Step 4.

TEST OR INSPECTION

Step 4. Check for obstruction in air intake system.

CORRECTIVE ACTION

If obstructions are found, remove debris. If no obstructions are found, go to Step 5.

TEST OR INSPECTION

Step 5. Check for loose fan belt.

CORRECTIVE ACTION

If loose, notify next higher maintenance level.

ELECTRICAL SYSTEM

SYMPTOM

12. BATTERY CHARGE ammeter shows low or no charge.

TEST OR INSPECTION

Step 1. Check BATTERY CHARGER FUSE.

TROUBLESHOOTING – CONTINUED

CORRECTIVE ACTION

If BATTERY CHARGER FUSE (WP 0004, Figure 1) is blown, notify next higher maintenance level.

TEST OR INSPECTION

Step 2. Check fan belt.

CORRECTIVE ACTION

If loose (WP 0002, Figure 1), notify next higher maintenance level.

TEST OR INSPECTION

Step 3. Check for loose or broken wires.

CORRECTIVE ACTION

Check for loose or broken wires at the back of the battery charging alternator (WP 0002, Figure 1) and BATTERY CHARGE ammeter (WP 0004, Figure 1). If wires are loose or broken, notify next higher maintenance level.

SYMPTOM

13. BATTERY CHARGE ammeter shows excessive charge.

TEST OR INSPECTION

Step 1. Check batteries for low electrolyte level.

CORRECTIVE ACTION

If low, refer to WP 0012, Servicing. If level is correct, go to Step 2.

TEST OR INSPECTION

Step 2. Check battery connection.

CORRECTIVE ACTION

If loose or corroded, notify next higher maintenance level.

SYMPTOM

14. AC VOLTMETER (VOLTS AC) indicates low voltage.

TEST OR INSPECTION

Step 1. Check that VM-AM transfer switch position corresponds to readings on the AC voltmeter (VOLTS AC); refer to WP 0005, Table 1.

TROUBLESHOOTING – CONTINUED

CORRECTIVE ACTION

Set VOLTAGE adjust potentiometer.

TEST OR INSPECTION

Step 2. Check for loose or broken wires at back of AM-VM transfer switch VOLTAGE adjust potentiometer. and AC voltmeter (VOLTS AC).

CORRECTIVE ACTION

If wires are loose or broken, notify next higher maintenance level.

SYMPTOM

15. AC VOLTMETER (VOLTS AC) indicates correct voltage, but FREQUENCY meter (HERTZ) is off scale.

TEST OR INSPECTION

Step 1. Check FREQUENCY adjust potentiometer.

CORRECTIVE ACTION

Set FREQUENCY adjust potentiometer.

TEST OR INSPECTION

Step 2. Check for loose or broken wires at back of FREQUENCY adjust potentiometer.

CORRECTIVE ACTION

If wires are loose or broken, notify next higher maintenance level.

SYMPTOM

16. AC VOLTMETER (VOLTS AC) voltage fluctuates.

TEST OR INSPECTION

Check back of AC voltmeter (VOLTS AC) for loose or broken wires.

CORRECTIVE ACTION

If wires are loose or broken, notify next higher maintenance level.

SYMPTOM

17. Frequency meter (HERTZ) frequency fluctuates.

TROUBLESHOOTING – CONTINUED

TEST OR INSPECTION

Check back of frequency meter (HERTZ) for loose or broken wires.

CORRECTIVE ACTION

If wires are loose or broken, notify next higher maintenance level.

SYMPTOM

18. AC CIRCUIT INTERRUPTER light fails to light when AC CIRCUIT INTERRUPTER switch is closed.

TEST OR INSPECTION

Step 1. TEST AC CIRCUIT INTERRUPTER light by depressing.

CORRECTIVE ACTION

If light fails to light, refer to next higher maintenance level.

TEST OR INSPECTION

Step 2. Check load cables for proper connection.

CORRECTIVE ACTION

For proper connection of the load cables, refer to WP 0005, Installation of Load Cables.
If correct go to Step 3.

TEST OR INSPECTION

Step 3. Ensure load does not exceed generator rating.

CORRECTIVE ACTION

Decrease load. If load is correct, refer to next higher maintenance level.

SYMPTOM

19. SYNCHRONIZING LIGHTS fail to light.

TEST OR INSPECTION

Step 1. Check that parallel cable is connected.

CORRECTIVE ACTION

Connect paralleling cable; refer to WP 0005, Pre-Operation.

TEST OR INSPECTION

Step 2. Check PARALLEL UNIT switch.

TROUBLESHOOTING – CONTINUED

CORRECTIVE ACTION

Place PARALLEL UNIT switch in correct position.

SYMPTOM

20. SYNCHRONIZING LIGHTS do not glow bright and dark in unison on generator set No. 2 during parallel operation.

TEST OR INSPECTION

Step 1. Check that load cables are connected properly.

CORRECTIVE ACTION

For proper connection of load cables, refer to WP 0005, Installation of Load Cables. If properly connected, go to Step 2.

TEST OR INSPECTION

Step 2. Ensure FREQUENCY SELECT switches are in correct positions.

CORRECTIVE ACTION

Frequency must be the same on both generator sets (MEP-805A).

SYMPTOM

21. AC CIRCUIT INTERRUPTER light fails to come on generator set No. 2 in parallel operation.

TEST OR INSPECTION

Step 1. Test light by depressing. If light fails to light, notify next higher maintenance level.

CORRECTIVE ACTION

If light comes on, go to Step 2.

TEST OR INSPECTION

Step 2. FREQUENCY adjust potentiometer is not properly adjusted.

CORRECTIVE ACTION

Set FREQUENCY adjust potentiometer.

SYMPTOM

22. Convenience Receptacle; No voltage at the Convenience Receptacle.

TROUBLESHOOTING – CONTINUED

TEST OR INSPECTION

Step 1. Open control panel and inspect circuit breaker on side of Ground Fault Circuit Interrupter device.

CORRECTIVE ACTION

If tripped, reset device. Check fuse on black wire of Ground Fault Circuit Interrupter for generator sets, contract number DAAK01-88-D-0082.

TEST OR INSPECTION

Step 2. Check the Ground Fault Circuit Interrupter.

CORRECTIVE ACTION

If the indicator is BLACK, reset by pressing the reset button. If the indicator is ORANGE, refer to next higher maintenance level.

END OF WORK PACKAGE

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

FOR

30 kW GENERATOR SET (50/60 Hz AND 400 Hz), SKID MOUNTED, TACTICAL QUIET

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

PMCS INTRODUCTION

INTRODUCTION TO OPERATOR PMCS TABLE

WP 0011, Table 1 (PMCS table) has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

NOTE

For general location of the items to be inspected in WP 0011, Table 1, refer to WP 0002, Figure 1 and WP 0004, Figure 1.

Warnings, Cautions, and Notes

Always observe the ***WARNINGS, CAUTIONS,*** and ***NOTES*** appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these ***WARNINGS*** to prevent serious injury to yourself and others. You must observe ***CAUTIONS*** to prevent your equipment from being damaged. You must observe ***NOTES*** to ensure procedures are performed properly.

Explanation of Table Entries

The PMCS table is divided into five columns. Each column is explained in the following paragraphs.

Item No. Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.

Interval Column. This column tells you when you must do the procedure in the procedure column. "Before" procedures must be done before you operate the equipment for its intended mission. "During" procedures must be done during the time you are operating the equipment for its intended mission. "After" procedures must be done immediately after you have operated the equipment, or immediately after shutting down the equipment. Perform "Weekly" procedures at the listed interval.

Item to be Checked or Serviced Column. This column lists the location and the item to be checked or serviced. The item location is underlined.

Procedure Column. This column gives the procedure for checking or servicing the item listed in the location, item to check/service column. You must perform the procedure to know if the equipment is ready or available for its intended mission or operation. You must do the procedure at the time stated in the interval column.

Equipment Not Ready/Available if: Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make checks or services that show faults listed in this column, do not operate the equipment.

Other Table Entries

Be sure to observe all special information and notes that appear in your table.

Special Instructions

Preventive maintenance is not limited to performing the checks and services listed in the PMCS Table. Covering unused receptacles, stowing unused accessories and performing other routine procedures such as equipment inventory, cleaning components, and touch-up painting are not listed in the table. These are things you should do any time you see that they need to be done. If a routine check is listed in the PMCS Table, it is because experience has shown that problems may occur with this item. Take along tools and cleaning cloths needed to perform the required checks and services. Use the information in the following paragraphs to help you identify problems at any time and to help identify potential problems before and during checks and services.

INTRODUCTION TO OPERATOR PMCS TABLE – CONTINUED

Routine Inspections. Use the following information to help identify potential problems before and during checks and Services.

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. Make sure the generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Solvent used to clean parts is potentially dangerous to personnel and property. Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes. Wear goggles and rubber gloves to protect eyes and skin. Wash exposed skin thoroughly. Do not smoke or use near open flame or excessive heat. Failure to comply with this warning can cause injury to personnel, and damage to the equipment.

CAUTION

Keep cleaning solvents, fuels and lubricants away from rubber or soft plastic parts. They will deteriorate material.

1. Keep it clean. Dirt, grease, and oil get in the way and may cover up a serious problem. Use dry cleaning solvent to clean metal surfaces.
2. Use soap and water to clean rubber or plastic parts and material.
3. Check all bolts, nuts, and screws to make sure they are not loose, missing, bent, or broken. Do not try to check them with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find one loose, report it to the next higher level of maintenance.
4. Inspect welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If a broken weld is found, report it to the next higher level of maintenance.
5. Inspect electrical wires, connectors, terminals, and receptacles. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good condition. Examine terminals and receptacles for serviceability. If deficiencies are found, report them to the next higher level of maintenance.
6. Inspect hoses and fluid lines. Look for wear, damage, and leaks. Make sure that clamps and fittings are tight. Wet spots and stains around a fitting or connector can mean a leak. If a leak comes from a loose connector, or if something is broken or worn out, report it to the next higher level of maintenance.

Leakage Definitions

You must know how fluid leakage affects the status of your equipment. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your equipment. Learn and be familiar with them. When in doubt, notify your supervisor.

INTRODUCTION TO OPERATOR PMCS TABLE – CONTINUED

LEAKAGE CLASS	LEAKAGE DEFINITION
Class I	Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
Class II	Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the item being checked/inspected.
Class III	Leakage of fluid great enough to form drops that fall from the item being checked/ inspected.

Operation of Generator Set with Minor Leaks

CAUTION

Equipment operation is allowable with minor leakage (Class I or II) of any fluid except fuel. Fluid capacity must be considered before deciding to continue operation of the equipment with minor leaks. When operating with Class I or II leaks, fluid level must be checked more often than required by the PMCS table. Parts without fluid will stop working and/or cause equipment damage.

1. Consider the equipment's capacity for the fluid that is leaking. If the capacity is small, the fluid level may soon become too low for continued operation. If in doubt, *notify your supervisor.*
2. Check the fluid level more often than required in the PMCS table. Add fluid as needed.
3. All leaks should be reported to the next higher level of maintenance.

Corrosion Prevention and Control (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Removal of Assemblies/Equipment to Perform PMCS

There is no requirement to remove assemblies/equipment prior to performing the PMCS.

Winterization Kit

See WP 0022 for PMCS Procedures.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

PMCS, INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP:

Materials/Parts

Expendable and Durable Items List (WP 0027) P/N (NSN)

Personnel Required

Operator (1)

References

LO 9-6115-644-12

Equipment Condition

OFF

Grounded

Operational

Table 1. Operator Preventative Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			WARNING In extreme cold weather, skin can stick to metal. Avoid contacting metal items with bare skin in extreme cold weather. Failure to comply with this warning can cause injury to personnel. **NOTE** The generator set can be operated continuously at any load from no load up to and including rated load. However, at light loads (less than 25% of set rating), an oily residue (unburned fuel oil) may occasionally be noticed In the exhaust system outlet and around connection joints in the exhaust system. This residue is caused by the inability of the fuel injection system to consistently meter the small amount of fuel required to operate at these low load levels and is not a defect in the fuel system. The oily residue could affect engine performance and create a cosmetic problem on and around the generator set. Operation at rated load will burn off this oily residue. The length of time required at rated load depends on the amount of residue. The muffler may also need to be removed and cleaned if excessive build up occurs. This oily residue can be prevented by increasing the electrical load on the set. **NOTE** If the equipment must be kept in continuous operation, check and service only those Items that can be checked and serviced without disrupting operations. Complete all checks and services when equipment is shutdown.	
		GENERATOR SET EXTERIOR		
1	Before	HOUSING	1. Check doors, panels, hinges, and latches for damage, loose, or corroded items.	Cannot secure doors.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			2. Inspect air intake and exhaust grills for debris.	
2	Before	IDENTIFICATION PLATES	Check to ensure identification plates are secure.	
3	Before	SKID BASE	Inspect skid base for cracks and/or corrosion.	Skid base is cracked or shows signs of structural damage.
4	Before	ACOUSTICAL MATERIALS	Ensure that acoustical materials are free of damage and not missing.	
		ENGINE ASSEMBLY	**WARNING** Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel. **WARNING** Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.	
5	Before	ENGINE ASSEMBLY	Inspect for loose, damaged, or missing hardware.	Any loose, damaged, or missing hardware.
6	Before	FUEL SYSTEM	Inspect for leaks, damaged, loose, or missing hardware.	Any fuel leaks, damaged, loose or missing parts.
7	Before	FUEL FILTER/WATER SEPARATOR	1. Inspect for leaks, cracks, damage, proper mounting, loose or missing parts. 2. Drain water from fuel filter/water separator.	Any fuel leaks. Water not drained.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before	ETHER START SYSTEM	Inspect for deteriorated, loose or missing parts.	Any deteriorated, loose or missing parts
9	Before	LUBRICATION SYSTEM	**NOTE** Pull dipstick from oil dipstick tube and take reading. If recheck is desired: Wipe dipstick clean. Reinsert dipstick into oil dipstick tube (dipstick must remain in oil dipstick tube for 5 seconds minimum). Pull dipstick from oil dipstick tube and take reading.	
			1. Inspect for leaks, damage, loose or missing parts.	Class III leaks, damage, loose or missing parts.
			2. Inspect oil level.	Oil level is low.
			3. Inspect for contamination.	Oil shows signs of contamination.
		COOLING SYSTEM	**WARNING** Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.	
10	Before	RADIATOR	Inspect for leaks, damage, loose or missing parts.	Class III leaks or missing radiator cap.
11	Before	HOSES	Inspect for leaks, cracks, or missing parts.	Class III leaks or missing clamps or hoses.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before	COOLING FAN	1. Inspect for obstruction, damage, or looseness. 2. Inspect for unusual noise in fan area.	Damaged or loose. Unusual noise from area.
13	Before	WATER PUMP	Inspect for leaks.	
14	Before	FAN BELTS	Inspect for cracks, fraying, or looseness.	Broken or missing belt(s).
15	Before	OVERFLOW BOTTLE	Inspect for proper mounting, leaks, or missing hardware.	Class III leaks or missing hardware.
		EXHAUST/ INTAKE SYSTEM	**WARNING** Exhaust discharge contains deadly gases including carbon monoxide. DO NOT operate generator set in enclosed areas unless exhaust discharge is properly vented outside. Failure to comply with this warning can cause injury or death to personnel.	
16	Before	EXHAUST SYSTEM	Inspect for leaks, corrosion, and missing parts.	Leaks, damaged, or missing parts.
17	Before	AIR CLEANER ASSEMBLY	1. Inspect for loose, damaged, or missing parts. 2. Inspect restriction indicator for clogged air cleaner element.	Loose or missing parts. Clogged air cleaner element.
		GROUNDING ROD ASSEMBLY	**WARNING** High voltage is produced when the generator set is in operation. Never attempt to start the generator set unless it is properly grounded. Failure to comply with this warning can cause injury or death to personnel.	

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			WARNING Ensure nuts on ground terminals are properly secured creating a good ground. Failure to comply with this warning can cause injury or death to personnel.	
18	Before	GROUND ROD CABLE AND CONNECTIONS	Inspect for damage, corrosion, and loose connections.	Damaged, corroded, or loose connections.
		ELECTRICAL SYSTEM	**WARNING** Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set. **WARNING** Battery acid can cause burns to unprotected skin. Wear safety goggles and chemical gloves and avoid acid splash while working on batteries. Failure to comply with this warning can cause injury to personnel. **WARNING** Dangerous voltage exists on live circuits. Always observe precautions and never work alone. Failure to comply with this warning can cause injury or death to personnel.	
19	Before	BATTERIES	Inspect electrolyte level.	Electrolyte is below battery plates.
20	Before	BATTERY CABLES	Inspect for corrosion, damage, loose connections, or missing parts.	Damaged, loose, or missing parts.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Before	OUTPUT BOX ASSEMBLY	1. Inspect cables for damage or loose connections. 2. Inspect output terminals for damage or missing hardware.	Damaged, loose, or missing parts. Damaged or missing hardware.
		CONTROL BOX ASSEMBLY		
22	Before	CONTROLS AND INDICATORS	Inspect for damage or missing parts.	Damaged or missing parts.
23	Before	CONTROL BOX HARNESS	**WARNING** High voltage is produced when this generator set is in operation. Make sure generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel. Inspect for damage and looseness.	Damaged or loose.
		GENERATOR SET EXTERIOR	**WARNING** Operating the generator set exposes personnel to a high noise level. Hearing protection must be worn when operating or working near the generator set when the generator set is running. Failure to comply with this warning can cause hearing damage to personnel.	

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			WARNING Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set. **WARNING** Top housing panels and exhaust system can get very hot. When performing DURING PMCS, wear gloves and additional protective clothing as required. Failure to comply with this warning can cause severe burns and injury to personnel. **WARNING** Exercise extreme caution DURING PMCS checks inside engine compartment. Avoid contact with moving or hot engine parts. Failure to comply with this warning can cause injury or death to personnel. **NOTE** If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disrupting operations. Complete all checks and services when equipment is shutdown.	
24	During	HOUSING	Check doors, panels, hinges, and latches for damage, loose, or corroded items.	Cannot secure doors.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
		ENGINE ASSEMBLY		
25	During	ENGINE ASSEMBLY	Inspect for loose, damaged, or missing hardware.	Any loose, damaged, or missing hardware.
26	During	FUEL SYSTEM	Inspect for leaks, damaged, loose, or missing hardware.	Any fuel leaks, damaged, loose or missing parts.
27	During	LUBRICATION SYSTEM	**NOTE** Pull dipstick from oil dipstick tube and take reading. If recheck is desired: Wipe dipstick clean. Reinsert dipstick into oil dipstick tube (dipstick must remain in oil dipstick tube for 5 seconds minimum). Pull dipstick from oil dipstick tube and take reading. 1. Inspect for leaks, damage, loose or missing parts. 2. Inspect oil level. 3. Inspect for contamination.	Class III leaks, damage, loose or missing parts. Oil level is low. Oil shows signs of contamination.
		COOLING SYSTEM		
28	During	COOLING FAN	1. Inspect for obstruction, damage, or looseness. 2. Inspect for unusual noise in fan area.	Damaged or loose. Unusual noise from area.
29	During	OVERFLOW BOTTLE	Inspect for proper mounting, leaks, or missing hardware.	Class III leaks or missing hardware.
		GROUNDING ROD ASSEMBLY		
30	During	GROUND ROD CABLE AND CONNECTIONS	Inspect for damage, corrosion, and loose connections.	Damaged, corroded, or loose connections.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
		CONTROL BOX ASSEMBLY	**WARNING** High voltage is produced when the generator set is in operation. DO NOT touch live voltage connections. Never attempt to connect or disconnect load cables or paralleling cables while the generator set is running. Failure to comply with this warning can cause injury or death to personnel.	
31	During	CONTROLS AND INDICATORS	Inspect indicators are operating properly. **NOTE** If the equipment must be kept in service continuous operation, check only those items that can be checked and serviced without disrupting operations. Complete all checks and services when equipment is shutdown.	Indicators are not operating properly.
		GENERATOR SET EXTERIOR	**WARNING** Top housing panels and exhaust system can get very hot. Shutdown generator set, and allow system to cool before performing checks, services and maintenance. Failure to comply with this warning can cause severe burns and injury to personnel.	
32	After	HOUSING	Check door panels, hinges, and latches for damage, loose, or corroded items.	Cannot secure door.
33	After	IDENTIFICATION PLATES	Check to ensure identification plates are secure.	
34	After	SKID BASE	Inspect skid base for cracks and/or corrosion.	Skid base is cracked or shows signs of structural damage.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
35	After	ENGINE ASSEMBLY	**WARNING** Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set. **WARNING** Diesel fuel is flammable and toxic to eyes, skin, and respiratory tract. Skin and eye protection are required when working in contact with diesel fuel. Avoid repeated or prolonged contact. Provide adequate ventilation. Operators are to wash exposed skin and change chemical soaked clothing promptly if exposed to fuel. Failure to comply with this warning can cause injury or death to personnel. Inspect for loose, damaged, or missing hardware.	Loose, damaged, or missing hardware.
		FUEL SYSTEM		
36	After	FUEL SYSTEM	Inspect for leaks, damage, loose, or missing hardware.	Any fuel leaks, damage, loose or missing parts.
37	After	FUEL FILTER/ WATER SEPARATOR	1. Inspect for leaks, cracks, damage, proper mounting, loose or missing parts. 2. Drain water.	Any fuel leaks. Water not drained.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
38	After	LUBRICATION SYSTEM	**NOTE** Pull dipstick from oil dipstick tube and take reading. If recheck is desired: Wipe dipstick clean. Reinsert dipstick into oil dipstick tube (dipstick must remain in oil dipstick tube for 5 seconds minimum). Pull dipstick from oil dipstick tube and take reading. 1. Inspect for leaks, damage, loose or missing parts. 2. Inspect oil level. 3. Inspect for contamination.	Class III leaks, damage, loose or missing parts. Oil level is low. Oil shows signs of contamination.
		COOLING SYSTEM	**WARNING** Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.	
39	After	RADIATOR	Inspect for leaks, damage, loose or missing parts.	Class III leaks or missing radiator cap.
40	After	HOSES	Inspect for leaks, cracks, or missing parts.	Class III leaks or missing clamps or hoses.
41	After	FAN BELT	Inspect for cracks, fraying, or looseness.	Broken or missing belt.

Table 1. Operator Preventative Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
		CONTROL BOX ASSEMBLY		
42	After	CONTROLS AND INDICA-TORS	Inspect for damaged or missing parts.	Damaged or missing parts.

MANDATORY REPLACEMENT PARTS

There are no replacement parts required for these PMCS procedures.

LUBRICATION INSTRUCTIONS

Refer to LO 9-6115-644-12 for lubrication information.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, BATTERIES: INSPECTION, SERVICE

INITIAL SETUP:

Personnel Required

Operator (1)

References

WP 0004
WP 0005
WP 0013
WP 0014
WP 0015
WP 0016
WP 0017

Equipment Condition

OFF
Grounded
Operational

INTRODUCTION

WP 0012 through WP 0017 contain operator maintenance procedures. Deficiencies noted during inspection which are beyond the maintenance scope of the operator shall be reported to next higher maintenance level.

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Battery acid can cause burns to unprotected skin. Wear safety goggles and chemical gloves and avoid acid splash while working on batteries. Failure to comply with this warning can cause injury to personnel.

WARNING

Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

INSPECTION

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open battery access door.
3. Disconnect negative battery cable.

INSPECTION – CONTINUED

4. Inspect for damaged battery case, corrosion, or damaged and loose connections on terminal cable, and damaged or missing battery caps.

WARNING

Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

5. Remove battery caps.

CAUTION

Electrolyte level must cover battery plates in all cells. Failure to observe this caution can cause damage to the battery.

NOTE

Electrolyte level should be at bottom of each cap cylinder.

6. Inspect electrolyte level.
7. Perform service procedures if required.
8. Install battery caps.
9. Reconnect negative battery cable.
10. Close battery access door.

END OF TASK

SERVICING

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open battery access door.
3. Disconnect negative battery cable.

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Batteries give off a flammable gas. Do not smoke or use open flame when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

4. Remove battery caps.

SERVICING – CONTINUED

NOTE

Electrolyte level should be at bottom of each cap cylinder.

5. Add distilled water to each battery cell as required.
6. Replace battery caps.
7. Reconnect negative battery cable.
8. Close battery access door.
9. If necessary contact next higher level of maintenance to clean or replace batteries or battery terminals.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, AIR CLEANER ASSEMBLY: INSPECTION, SERVICE

INITIAL SETUP:

Materials/Parts

Cloth (WP 0027, Table 1, Item 5) P/N (NSN)

Personnel Required

Operator (1)

References

WP 0005 (Stopping Procedures)

References - cont'd

WP 0027

Equipment Condition

OFF
Grounded
Operational

INSPECTION

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open air cleaner access door (rear of generator set).
3. Open left side engine compartment access door.
4. Inspect air cleaner housing (Figure 1, Item 5) for dents, corrosion, missing hardware and other damage.
5. Inspect restriction indicator (Figure 1, Item 6) for indication of a clogged air cleaner element Figure 1, Item (4).
6. Close air cleaner access door.

INSPECTION – CONTINUED

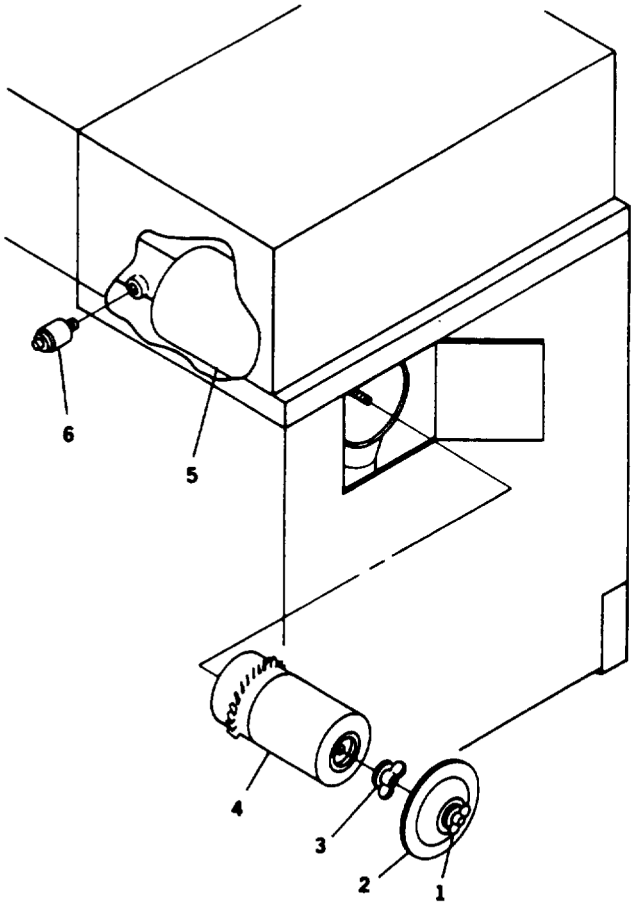

Figure 1. Air Cleaner Element Replacement.

END OF TASK

SERVICING

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open air cleaner access door (rear of generator set).
3. Loosen wing nut (Figure 1, Item 1) and remove end cap (Figure 1, Item 2) on air cleaner housing (Figure 1, Item 5).
4. Remove wing nut (Figure 1, Item 3) and air cleaner element (Figure 1, Item 4). If fouled, discard air cleaner element.
5. Inspect inside of air cleaner housing (Figure 1, Item 5) for debris. Wipe housing interior with clean lint-free cloth (WP 0027, Item 5).
6. Install air cleaner element (Figure 1, Item 4), wing nut (Figure 1, Item 3), end cap (Figure 1, Item 2) and hand tighten wing nut (Figure 1, Item 1).

SERVICING – CONTINUED

7. Close air cleaner access door.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, COOLING SYSTEM: INSPECTION, SERVICE

INITIAL SETUP:

Materials/Parts

Antifreeze Coolant (WP 0027, Table 1, Item 2) P/N A-A-52624 (NSN 6850-00-181-7929)

Personnel Required

Operator (1)

References

WP 0005 (Stopping Procedures)

Equipment Condition

Engine OFF
Grounded
Operational

INSPECTION

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open both engine access doors.

WARNING

Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.

3. Check radiator for dirt, leaves, insects, etc. blocking air flow.
4. Check radiator and hoses for leaks, loose connections, loose mountings, corrosion, chafing, and missing parts.
5. Check coolant level at coolant recovery (overflow) bottle.

INSPECTION – CONTINUED

6. Close both engine access doors.

END OF TASK

SERVICING

WARNING

Cooling system operates at high temperature and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.

Table 1. Coolant.

COOLANT			
AMBIENT TEMPERATURE	**RADIATOR COOLANT**		**RATIO**
+40 to +120 °F (+4 to +49 °C)	Water:	MIL-A-53009A (1) INHIBITOR, CORROSION	35:1
-25 to +120 °F (-32 to +49 °C)	Water:	A-A-52624A ANTIFREEZE	1:1
-25 to +120 °F (-32 to +49 °C)		A-A-52624A ANTIFREEZE	N/A

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open right side engine access door.
3. Remove cap on coolant recovery (overflow) bottle.
4. Fill coolant recovery (overflow) bottle to HOT line if coolant is hot or to COLD line if coolant is cold with proper coolant/antifreeze in accordance with Table 1.
5. Install coolant recovery (overflow) bottle cap.
6. Close right side engine access door.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, FUEL TANK: INSPECTION, SERVICE

INITIAL SETUP:

Materials/Parts

Fuel P/N (NSN)

References

WP 0005 (Stopping Procedures)

Personnel Required

Operator (1)

Equipment Condition

Engine OFF

Operational

INSPECTION

WARNING

Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

1. Place MASTER SWITCH in PRIME & RUN or PRIME & RUN AUX FUEL position.
2. Check fuel level by observing FUEL LEVEL indicator.
3. Remove fuel cap and ensure strainer is free of dirt and other foreign material.

END OF TASK

SERVICING

WARNING

Fuels used in the generator set are flammable. Do not smoke or use open flames when performing maintenance. Failure to comply with this warning can cause injury or death to personnel, and damage to the generator set.

CAUTION

Use only specified diesel fuel to service the fuel tank; refer to Table 1. Otherwise, equipment damage could result.

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Remove fuel cap.
3. Remove fuel strainer, clean as necessary, and reinstall.

NOTE

Fuel tank holds 23 gallons (87.1 liters).

4. Add diesel fuel to fuel tank.

SERVICING – CONTINUED

5. Install fuel cap.

Table 1. Diesel Fuel.

FUEL	
AMBIENT TEMPERATURE	**DIESEL/TURBINE FUEL**
+20 to +120 °F (-7 to +49 °C)	A-A-52557A, GRADE 2-D MIL-DTL-83133E, JP-8
-25 to +20 °F (-32 to +7 °C)	A-A-52557A, GRADE 1-D MIL-DTL-5624T, JP-5

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, FUEL FILTER/WATER SEPARATOR: INSPECTION, SERVICE

INITIAL SETUP:

Personnel Required

Operator (1)

Equipment Condition

Engine OFF

Operational

References

WP 0005 (Stopping Procedures)

INSPECTION

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open right side engine access door.
3. Inspect fuel filter/water separator assembly for proper mounting, cracks, dents, leaks, loose fuel lines and other damage.
4. Close right side engine access door.

INSPECTION – CONTINUED

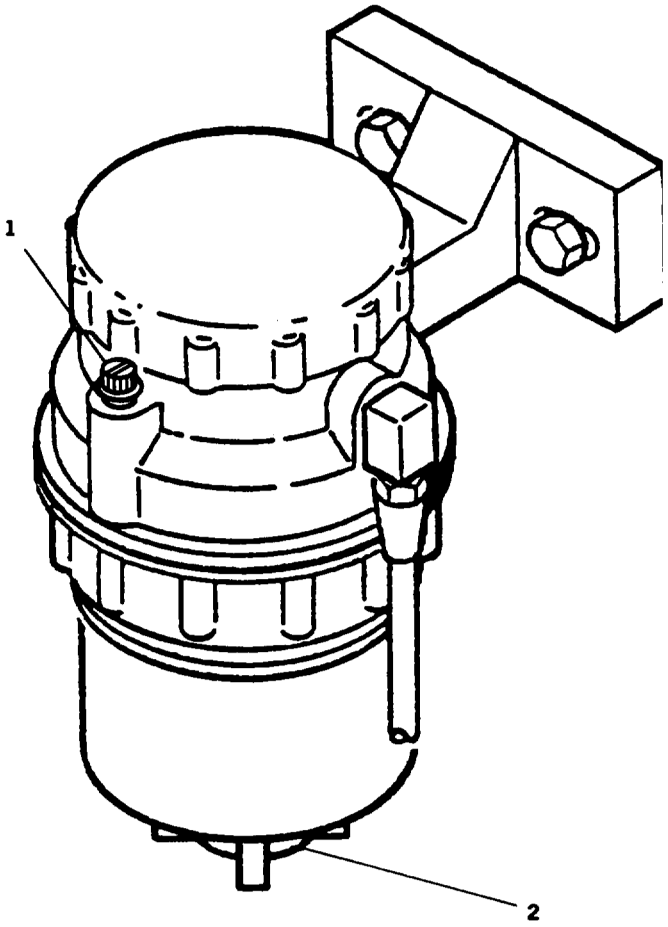

Figure 1. Draining Fuel Filter/Water Separator.

END OF TASK

SERVICING

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open right side engine access door.
3. Open fuel drain cock (Figure 1, Item 2) and air vent (Figure 1, Item 1) on fuel filter/water separator assembly and drain any sediment and water into a suitable container.
4. Close drain cock (Figure 1, Item 2) and air vent (Figure 1, Item 1).
5. Close right side engine access door.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE

GENERATOR SET, LUBRICATION SYSTEM: INSPECTION, SERVICE

INITIAL SETUP:

Personnel Required

Operator (1)

Equipment Condition

Engine OFF

Operational

References

LO 9-6115-644-12

WP 0005 (Stopping Procedures)

INSPECTION

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open both engine access doors.
3. Inspect engine assembly for oil leaks.
4. Check for damage, proper mounting, or missing parts.

CAUTION

The dipstick is marked so that the crankcase oil can be checked while engine is stopped or running. Always make sure correct side of dipstick is checked. Remove oil filler cap when checking oil with engine running.

5. Check engine crankcase oil level; refer to LO 9-6115-644-12.
6. Close both engine access doors.

END OF TASK

SERVICING

1. Shutdown generator set; refer to WP 0005, Stopping Procedure.
2. Open right side engine access door.
3. Remove oil filter cap.
4. Add oil to engine crankcase; refer to LO 9-6115-644-12.
5. Install oil filter cap.
6. Close right side engine access door.

END OF TASK

END OF WORK PACKAGE

CHAPTER 5

OPERATOR AUXILIARY EQUIPMENT MAINTENANCE INSTRUCTIONS

CHAPTER 5

OPERATOR AUXILIARY EQUIPMENT MAINTENANCE INSTRUCTIONS

WORK PACKAGE INDEX

MAINTENANCE

WINTERIZATION KIT, GENERAL INFORMATION

INITIAL SETUP:

Not Applicable

SCOPE

This Winterization Kit (NSN 6115-01-474-8354) is designed to be mounted in 30 kW Tactical Quiet Generator (TQG) Sets where extreme cold temperatures are anticipated. The kit contains a coolant heater that allows the generator set to operate to -50 °F (-45.6 °C). The kit heater pump circulates the generator set coolant through the heater pump, heats the coolant and then returns the coolant back through the radiator of the generator set. This cycle continues in high heat mode until the temperature reaches 176 °F (80 °C). The heater then switches into a low heat mode. If the coolant temperature drops to 158 °F (70 °C) the heater will automatically switch to the high heat mode.

END OF WORK PACKAGE

MAINTENANCE

WINTERIZATION KIT, EQUIPMENT DESCRIPTION AND DATA

INITIAL SETUP:

Not Applicable

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

Characteristics

The Winterization Kit contains a coolant heater that heats the coolant and allows the generator set to operate to -50 °F (-45.6 °C).

Capabilities and Features

The heater burns fuel from the generator set fuel tank to heat the coolant that is pumped back through the engine block. The kit consists of a heater and coolant pump, a control unit, an ON-OFF switch, a fuel pump and line, coolant circulating lines, a wiring harness and mounting hardware to ensure operation to -50 °F (-45.6 °C).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Figure 1 illustrates the major components of the kit and shows their locations on the 30 kW TQG Set. (Refer to Table 1 for item names).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

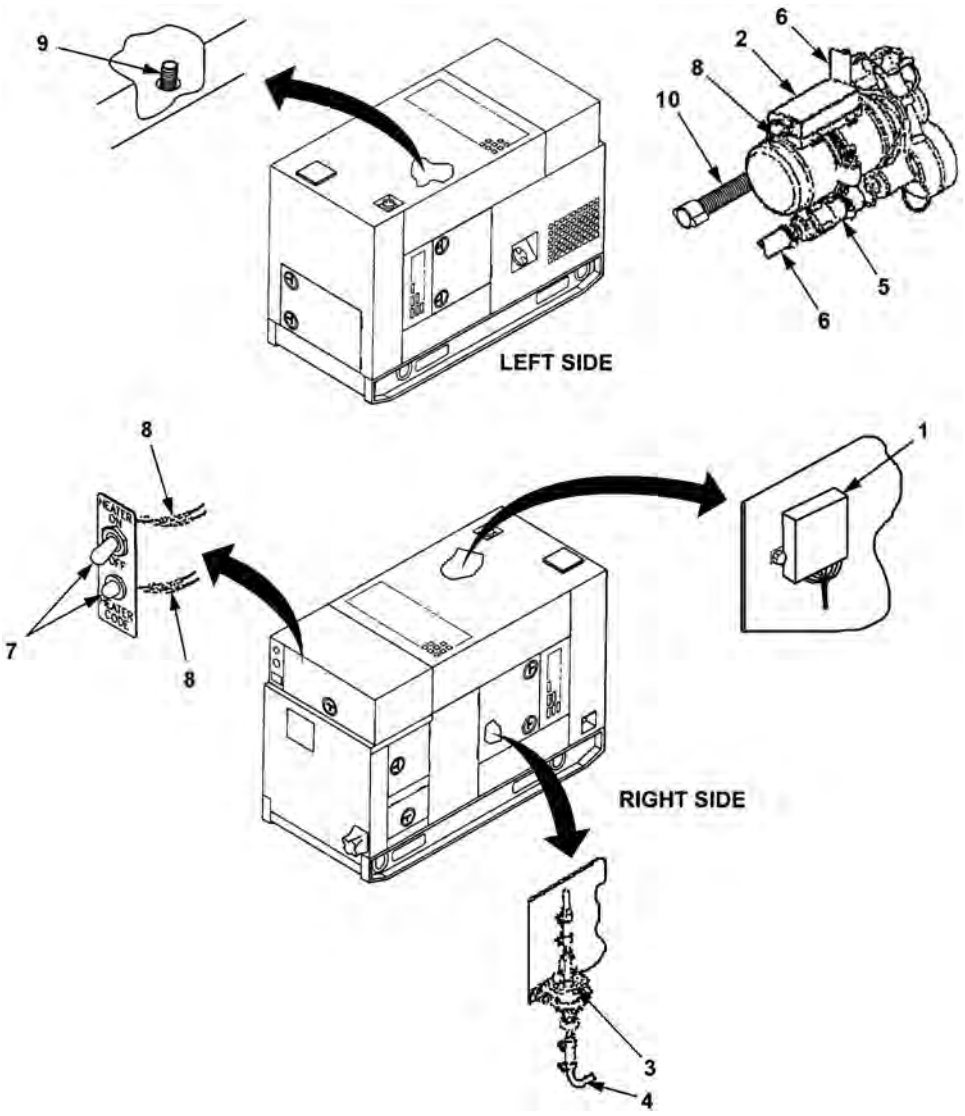

Figure 1. Location of Major Winterization Kit Components.

Table 1. Description of Major Winterization Kit Components.

ITEM NO.	ITEM NAME	DESCRIPTION
	Winterization Kit	A fuel-burning heater, pre-heats engine coolant permitting generator set operation to -50 °F (-45.6 °C).
1	Control Unit	Controls heater operations.
2	Heater	Heats coolant for operation in extreme cold temperatures.
3	Fuel Pump	Pumps fuel from the generator set fuel tank to the heater.
4	Fuel Lines	Provides a means of transporting fuel to heater.
5	Coolant Pump	Circulates coolant from generator set through the heater.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 1. Description of Major Winterization Kit Components. – Continued

ITEM NO.	ITEM NAME	DESCRIPTION
6	Coolant Lines	Provides a means of transporting coolant for circulation.
7	Switch / Lamp	Switches heater on or off / indicates heater function codes.
8	Wiring Harness	Electrically connects Winterization Kit components.
9	Exhaust Hose	Provides a means of exhausting combustion gases from heater.
10	Air Inlet Hose	Provides intake air to winterization heater.

TABULATED/ILLUSTRATED DATA

Tabulated data for the heater is located in Table 2.

Table 2. Heater Operating Data.

ITEM NAME	DATA
1. Winterization Kit	
a. Part Number (National Stock Number)	P/N 98-2030 (NSN 6115-01-474-8354)
b. Overall Length	10.787 in (273.9 mm)
c. Overall Width	5.984 in (151.9 mm)
d. Overall Height	7.815 in (198.5 mm)
e. Weight	15 lbs (6.8 kg)
2. Heater	
a. Manufacturer	Active Gear
b. Model	D5W
3. Heating	Water Coolant
a. Capacity	High: 17,000 BTU/Hr
	Low: 4,250 BTU/Hr
4. Rated Voltage	24 VDC
a. Operating Voltage Range	20-28 VDC
b. Current at 24 VDC	Start: 20 Amps/Hr
	Running High: 1.8 Amps/Hr
	Running Low: 1.2 Amps/Hr
5. Fuel	Diesel
a. Fuel Consumption	High: 0.06 Gal/Hr (227.1 ml/Hr)
	Low: 0.04 Gal/Hr (151.4 ml/Hr)
6. Coolant Pump Flow	250 Gal/Hr (946.3 L/Hr)

END OF WORK PACKAGE

MAINTENANCE

WINTERIZATION KIT, TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

References

WP 0008

WP 0009

GENERAL

Refer to Chapter 3, WP 0008 and WP 0009 for generator set troubleshooting procedures. This work package lists common malfunctions you may find during operation of the generator set with the Winterization Kit installed and the generator set is running. You should perform the tests/inspections and corrective actions in the order listed. The troubleshooting symptom index cannot list all faults that may occur, nor all the tests or inspections and corrective actions. If a malfunction is not listed or cannot be corrected by listed corrective actions, notify your supervisor.

Code Light Troubleshooting

The indicator light near the heater switch is designed to blink on codes sequences to signal malfunctions in the system; refer to Code Light Pulses below.

Code Light Pulses

The indicator light near the heater ON-OFF switch will blink in different sequences of long and short to indicate malfunctions. A plate (Figure 1) mounted on the generator control panel access door lists the malfunctions and shows each sequence of pulses. If you see any of these series of pulses, notify the next-higher level of maintenance.

NOTE

Before performing troubleshooting procedures, turn off heater and attempt restart.

SYMPTOM INDEX, WINTERIZATION KIT

NOTE

When the heater is switched on, the light will perform one of the sequences of light pulses shown visually on the Function Codes Plate mounted inside the generator control panel cover (Figure 1). Before each symptom, this index lists in parentheses the light sequence associated with it.

(long dash, short dash, long dash) - Start, glow period

(continuous dash) - Normal Function

(long dash, long dash) - Purge Cycle and Restart

(dash, dash) - Heater Restart Attempted During Purge Cycle

(dash, 5 dots, dash) - Warning: Power Supply

SYMPTOM INDEX, WINTERIZATION KIT – CONTINUED

(10 dots) - Overheating

(dot, dot) - Flame Sensor Short-Circuit

(2 dots, 2 dots) - Flame Cutout-LOW

(3 dots, 3 dots) - Flame Cutout-HIGH

(4 dots, 4 dots) - Glow Plug Defect

(dash, dash) - Burner Motor Defect

(dash, dot, dash, dot) - Under Voltage

(dash, 2 dots, dash, 2 dots) - Over Voltage

(dash, 3 dots, dash, 3 dots) - Non-Start

(2 dots, dash, 2 dots, dash) - Temperature Sensor Defective

(3 dots, dash, 3 dots, dash) - Fuel Pump Short Circuit

(2 dots, dash, 3 dots, dash, dot) - Temperature Switch Defective

(4 dashes) - Control Unit Defective

(dot, dash, 3 dots, dash, 2 dots) - Connection Error

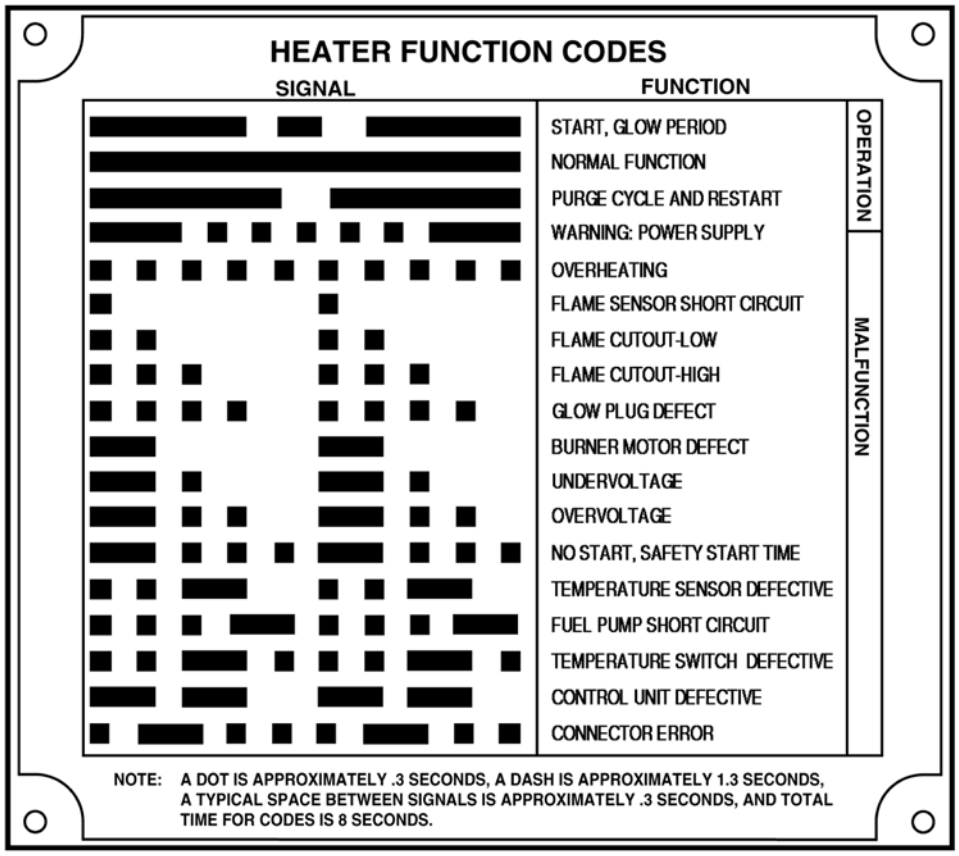

Figure 1. Heater Function Codes Plate.

END OF WORK PACKAGE

MAINTENANCE

WINTERIZATION KIT, PMCS INTRODUCTION

INITIAL SETUP:

Not Applicable

INTRODUCTION TO WINTERIZATION KIT PMCS TABLE

WP 0022, Table 1 (PMCS Table) has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

Warnings, Cautions, and Notes

Always observe the ***WARNINGS, CAUTIONS,*** and ***NOTES*** appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these ***WARNINGS*** to prevent serious injury to yourself and others. You must observe ***CAUTIONS*** to prevent your equipment from being damaged. You must observe ***NOTES*** to ensure procedures are performed properly.

Explanation of Table Entries

The PMCS table is divided into five columns. Each column is explained in the following paragraphs.

Item No. Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.

Interval Column. This column tells you when you must do the procedure in the procedure column. "Before" procedures must be done before you operate the equipment for its intended mission. "During" procedures must be done during the time you are operating the equipment for its intended mission. "After" procedures must be done immediately after you have operated the equipment, or immediately after shutting down the equipment. Perform "Weekly" procedures at the listed interval.

Item to be Checked or Serviced Column. This column lists the location and the item to be checked or serviced. The item location is underlined.

Procedure Column. This column gives the procedure for checking or servicing the item listed in the location, item to check/service column. You must perform the procedure to know if the equipment is ready or available for its intended mission or operation. You must do the procedure at the time stated in the interval column.

Equipment Not Ready/Available if: Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make checks or services that show faults listed in this column, do not operate the equipment.

Reporting and Correcting Deficiencies

If Winterization Kit does not perform as required, refer to Chapter 3, WP 0009 Troubleshooting Procedures.

Other Table Entries

Be sure to observe all special information and notes that appear in your table.

Special Instructions

Preventive maintenance is not limited to performing the checks and services listed in the PMCS Table. Covering unused receptacles, stowing unused accessories and performing other routine procedures such as equipment inventory, cleaning components, and touch-up painting are not listed in the table. These are things you should do

INTRODUCTION TO WINTERIZATION KIT PMCS TABLE – CONTINUED

any time you see that they need to be done. If a routine check is listed in the PMCS Table, it is because experience has shown that problems may occur with this item. Take along tools and cleaning cloths needed to perform the required checks and services. Use the information in the following paragraphs to help you identify problems at any time and to help identify potential problems before and during checks and services.

Routine Inspections. Use the following information to help identify potential problems before and during checks and Services.

WARNING

All metal jewelry can conduct electricity and become entangled in generator set components. Remove all jewelry when working on generator set. Failure to comply with this warning can cause injury or death to personnel.

WARNING

DO NOT wear loose clothing when performing checks, services and maintenance. Failure to comply with this warning can cause injury or death to personnel.

WARNING

High voltage is produced when this generator set is in operation. Make sure the generator set is completely shutdown and free of any power source before attempting any repair or maintenance on the set, or when connecting or disconnecting load cables. Failure to comply with this warning can cause injury or death to personnel.

WARNING

Solvent used to clean parts is potentially dangerous to personnel and property. Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes. Wear goggles and rubber gloves to protect eyes and skin. Wash exposed skin thoroughly. Do not smoke or use near open flame or excessive heat. Failure to comply with this warning can cause injury to personnel, and damage to the equipment.

CAUTION

Keep cleaning solvents, fuels and lubricants away from rubber or soft plastic parts. They will deteriorate material.

1. Keep it clean. Dirt, grease, and oil get in the way and may cover up a serious problem. Use dry cleaning solvent to clean metal surfaces.
2. Use soap and water to clean rubber or plastic parts and material.
3. Check all bolts, nuts, and screws to make sure they are not loose, missing, bent, or broken. Do not try to check them with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find one loose, report it to the next higher level of maintenance.
4. Inspect welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If a broken weld is found, report it to the next higher level of maintenance.
5. Inspect electrical wires, connectors, terminals, and receptacles. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good condition. Examine terminals and receptacles for serviceability. If deficiencies are found, report them to the next higher level of maintenance.
6. Inspect hoses and fluid lines. Look for wear, damage, and leaks. Make sure that clamps and fittings are tight. Wet spots and stains around a fitting or connector can mean a leak. If a leak comes from a loose connector, or if something is broken or worn out, report it to the next higher level of maintenance.

INTRODUCTION TO WINTERIZATION KIT PMCS TABLE – CONTINUED

Leakage Definitions

You must know how fluid leakage affects the status of your equipment. The following are definitions of the types/ classes of leakage you need to know to be able to determine the status of your equipment, Learn and be familiar with them. When in doubt, notify supervisor.

LEAKAGE CLASS	LEAKAGE DEFINITION
Class I	Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
Class II	Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the item being checked/inspected.
Class III	Leakage of fluid great enough to form drops that fall from the item being checked/ inspected.

Corrosion Prevention and Control (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Order in Which PMCS Will Be Done

Figure 1 shows the order in which you are to perform your PMCS. The figure shows a generator set to which a kit has been added. The number call outs on Figure 1 correspond to the numbers in the Item No. column of WP 0022, Table 1 (for BEFORE/DURING/AFTER PMCS).

INTRODUCTION TO WINTERIZATION KIT PMCS TABLE – CONTINUED

NOTE

Be sure Generator Set PMCS is completed first in accordance with WP 0011 PMCS.

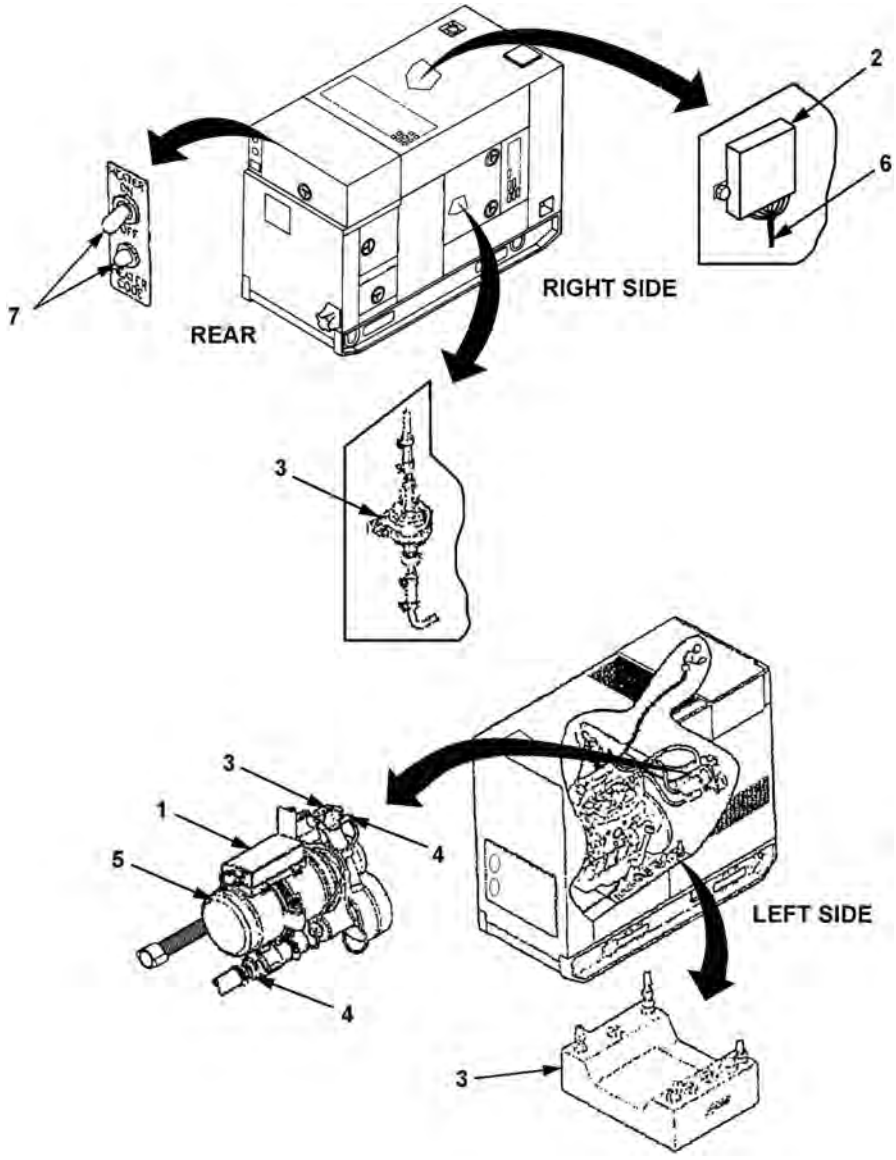

Figure 1. Operator PMCS Routing Diagram.

END OF WORK PACKAGE

MAINTENANCE

WINTERIZATION KIT, PMCS INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP:

Materials/Parts

Expendable and Durable Items List (WP 0027) P/N (NSN)

Personnel Required

Operator (1)

References

WP 0011

Equipment Condition

Operational

Table 1. Operator Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
NOTE Be sure Generator Set PMCS is completed first in accordance with WP 0011.				
		VISUAL INSPECTION		
1	Before	HEATER ASSEMBLY	a. Check for damage.	Damage that renders equipment unsafe.
			b. Ensure that heater assembly is mounted securely.	Heater not mounted securely.
2	Before	CONTROL UNIT	Check for loose or broken wires or damage.	Wires loose or broken or control unit damaged.
3	Before	FUEL PUMP	Inspect fuel pump for leaks	Any fuel leak.
4	Before	FUEL TANK	Check for sufficient fuel.	Insufficient fuel.
5	Before	FUEL LINES	Inspect winterization kit fuel lines for kinks, leaks, loose or damaged clamps.	Fuel lines damaged; clamps missing.
6	Before	HEATER	Inspect heater for signs of leaks.	Class III coolant or any class fuel leak is detected.
7	Before	EXHAUST HOSE	Inspect for obstruction, missing or damaged mounting clamp.	Hose obstructed; hose or clamp missing or damaged.
8	Before	AIR INLET HOSE	Inspect for obstruction, missing or damaged mounting clamp.	Inlet hose obstructed.

Table 1. Operator Preventive Maintenance Checks and Services. – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			WARNING Cooling system operates at high temperatures and pressure. Contact with high pressure steam and/or liquids can result in burns and scalding. Shutdown generator set, and allow system to cool before performing checks, services, and maintenance, or wear gloves and additional protective clothing and goggles as required. Failure to comply with this warning can cause injury or death to personnel.	
9	Before	WINTERIZATION KIT COOLANT LINES	a. Inspect for loose, damaged, or missing clamps. b. Inspect for leaks.	Class III leaks or missing clamps or hoses. Class III leaks or missing clamps or hoses.
10	Before	COOLANT PUMP	Inspect for leaks.	Class III leaks or missing clamps or hoses.
11	Before	COOLANT LINES	Check on, around, and under equipment for coolant leaks.	Class III coolant leak is detected.
12	Before	WIRE HARNESS	Inspect wiring for burned or frayed insulation or loose terminals.	Wiring is loose or damaged.
13	Before	HEATER CONTROL AND SWITCH LAMP	a. Check that indicator light is on when heater is operating. b. Check Heater Function Code Plate.	Light blinks showing failure in accordance with Heater Function Code Plate.
14	During	HEATER ASSEMBLY	Check for leaks.	
15	During	ALL FUEL CONNECTIONS	Check for leaks.	Any class fuel leak detected.
16	During	ALL COOLANT CONNECTIONS	Inspect for leaks.	
17	After	HEATER ASSEMBLY	Check for damage.	
18	After	CONTROL UNIT	Loose or broken wires or damage.	
19	After	ALL FUEL CONNECTIONS	Check for leaks.	
20	After	FUEL PUMP	Inspect fuel pump for leaks.	
21	After	HEATER	Inspect heater for signs of leaks.	
22	After	EXHAUST HOSE	Inspect for obstruction, missing or damaged mounting clamp.	
23	After	AIR INLET HOSE	Inspect for obstruction, missing or damaged mounting clamp.	

Table 1. Operator Preventive Maintenance Checks and Services. – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
24	After	ALL COOLANT CONNECTIONS	Inspect for leaks.	
25	After	WIRE HARNESS	Inspect wiring for burned or frayed insulation or loose terminals.	

MANDATORY REPLACEMENT PARTS

There are no replacement parts required for these PMCS procedures.

LUBRICATION INSTRUCTIONS

Not applicable.

END OF WORK PACKAGE

MAINTENANCE

WINTERIZATION KIT, MAINTENANCE PROCEDURES

INITIAL SETUP:

References

WP 0012
WP 0013
WP 0014
WP 0015

References - cont'd

WP 0016
WP 0017
WP 0022

MAINTENANCE

Refer to Chapter 4, Operator Maintenance Instructions, WP 0012 through WP 0017 for generator set maintenance procedures. Operator maintenance functions for the kit are limited to those described in WP 0022, Table 1, Operator Preventive Maintenance Checks and Services.

END OF WORK PACKAGE

CHAPTER 6

OPERATOR SUPPORTING INFORMATION

CHAPTER 6

OPERATOR SUPPORTING INFORMATION

WORK PACKAGE INDEX

MAINTENANCE

REFERENCES

SCOPE

This work package lists all forms, regulations, pamphlets, specifications, standards, technical manuals, technical bulletins, lubrication orders, field manuals, and miscellaneous publications referenced in this TM.

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2028-2	Recommended Changes to Equipment Technical Publications
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2407	Maintenance Request
DA Form 2408	Equipment Log Assembly (Records)
DA Form 2408-9	Equipment Control Record
DA Form 2408-20	Oil Analysis Log
DA Form 5988-E	Equipment Inspection and Maintenance Worksheet
DD Form 314	Preventive Maintenance Schedule and Record
SF Form 364	Report of Discrepancy
SF Form 368	Product Quality Deficiency Report

ARMY REGULATIONS

AR 310-25	Dictionary of United States Army Terms

DEPARTMENT OF THE ARMY PAMPHLETS

DA PAM 750-8	The Army Maintenance Management System (TAMMS)

MILITARY SPECIFICATIONS

MIL-A-53009A(1)	Additive, Antifreeze Extender, Liquid Cooling Systems
MIL-DTL-5624T	Turbine Fuel, Aviation, Grades JP-4, JP-5, and JP-5/JP-8 ST
MIL-DTL-83133E	Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO F-35 and JP-8+100

COMMERCIAL ITEM DESCRIPTIONS

A-A-52557A	Fuel Oil, Diesel; for Posts, Camps, and Stations
A-A-52624A	Antifreeze, Multi Engine Type
ASME-Y14.38M	Abbreviations for Use on Drawings, and in Specifications, Standards and Technical Documents

MILITARY STANDARDS

None	N/A

TECHNICAL MANUALS

TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command)
TM 4700-15/1	Marine Corps Forms

TECHNICAL BULLETINS

TB 9-6115-644-24	Warranty Technical Bulletin
TB 43-0125	Installation of Communications Electronic Equipment: Hookup of Electrical Cables to Mobile Generator Sets on Fielded Equipment to Meet Electrical Safety Standards

LUBE ORDERS

LO 9-6115-644-12	Generator Set, Skid Mounted, Tactical Quiet 30 kW, 50/60 and 400 Hz MEP-805A, Tactical Quiet, 50/60 Hz, NSN 6115-01-274-7389 MEP-815A, Tactical Quiet, 400 Hz, NSN 6115-01-274-7394

FIELD MANUALS

FM 3-3	Chemical and Biological Contamination Avoidance
FM 3-4	NBC Protection
FM 3-5	NBC Decontamination
FM 4-25.11	First Aid
FM 5-424	Theater of Operations, Electrical Systems
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather (0 ° to -65 °)
FM 21-6	Techniques of Military Instruction
FM 21-30	Military Symbols
FM 21-40	Chemical, Biological, Radiological, and Nuclear Defense
FM 31-70	Basic Cold Weather Manual
FM 31-71	Northern Operations
FM 90-6	Mountain Operations

MISCELLANEOUS PUBLICATIONS

AFR 66-1	Air Force Maintenance Forms and Records
AR 700-138	Army Logistics Readiness and Sustainability
AR 735-11-2	Reporting of Supply Discrepancies
AR 750-1	Army Materiel Maintenance Policy and Retail Maintenance Operations
AR 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use
CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable Items (Except Medical Class V, Repair Parts, and Heraldic Items)

END OF WORK PACKAGE

MAINTENANCE

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

Scope

This work package lists COEI and BII for the Skid Mounted, Tactical Quiet Generator Sets to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the Skid Mounted, Tactical Quiet Generator Sets. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the Skid Mounted, Tactical Quiet Generator Sets) in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the Skid Mounted, Tactical Quiet Generator Sets during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) Illus Number. Gives you the number of the item illustrated.

Column (2) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (3) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (4) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) Qty Rqr. Indicates the quantity required.

Figure 1. Not Applicable.

Table 1. Component of End Items (COEI) List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
		NONE			-

Table 1. Component of End Items (COEI) List – Continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
		(00000)			

LUBRICATION ORDER
30 OCTOBER 1996

LO 9-6115-644-12
LI 09249A/09246A-12

This Lubrication Order supersedes LO 9-6115-644-12/LI 09249A/09246A-12, dated 30 December 1992.

GENERATOR SET, SKID MOUNTED
TACTICAL QUIET 30kW, 50/60 AND 400 Hz

DOD MODEL	CLASS	HERTZ	NSN
MEP-805A	TACTICAL QUIET	50/60	6115-01-274-7389
MEP-815A	TACTICAL QUIET	400	6115-01-274-7394

Reference: TM 9-6115-644-10.

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

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(A) Commander, U.S. Army Aviation and Troop Command AU7N: AMSAT-1-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%avma28@st-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this publication.

(MC) Commander, Marine Corps Logistics Bases (Code 850), Albany, GA 31704-5000. A reply will be furnished to you.

NOTES

Intervals (on-condition or hard time) and the related man-hour times are based on normal operation. The man-hour time specified is the time you need to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hard time interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The hard time interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available.

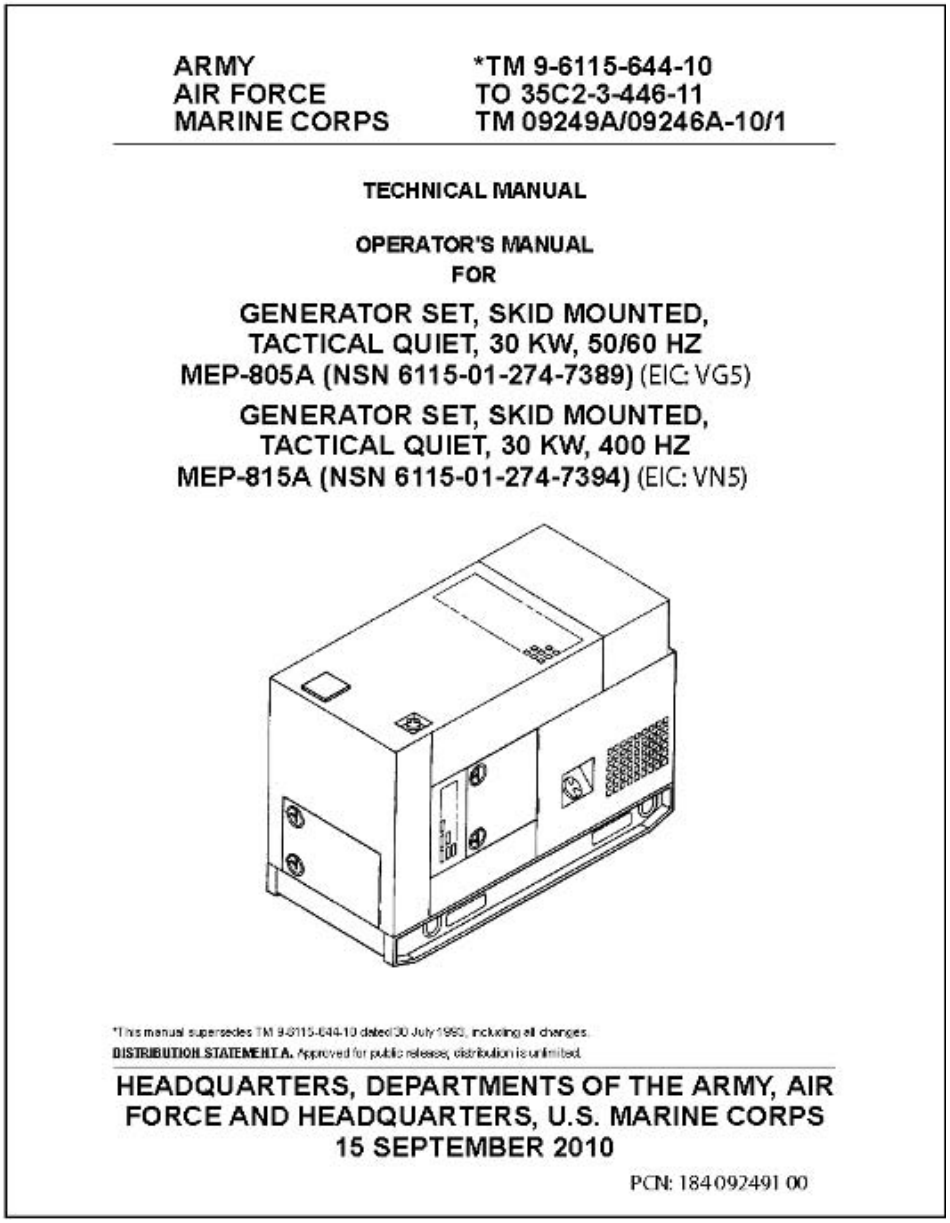
Lubrication points are indicated by arrow shafts on the equipment.

The lowest level of maintenance authorized to lubricate a point is Unit Maintenance (C).

Warm engine oil by running engine for approximately 5 minutes prior to draining crankcase.

Card 1 of 4

Figure 2. Item 1. Basic Issue Items Lubrication Order LO 9-6115-644-12.



ARMY *TM 9-6115-644-10
AIR FORCE TO 35C2-3-446-11
MARINE CORPS TM 09249A/09246A-10/1

TECHNICAL MANUAL

OPERATOR'S MANUAL
FOR

GENERATOR SET, SKID MOUNTED,
TACTICAL QUIET, 30 KW, 50/60 HZ
MEP-805A (NSN 6115-01-274-7389) (EIC: VG5)

GENERATOR SET, SKID MOUNTED,
TACTICAL QUIET, 30 KW, 400 HZ
MEP-815A (NSN 6115-01-274-7394) (EIC: VN5)

*This manual supersedes TM 9-6115-644-10 dated 30 July 1993, including all changes.
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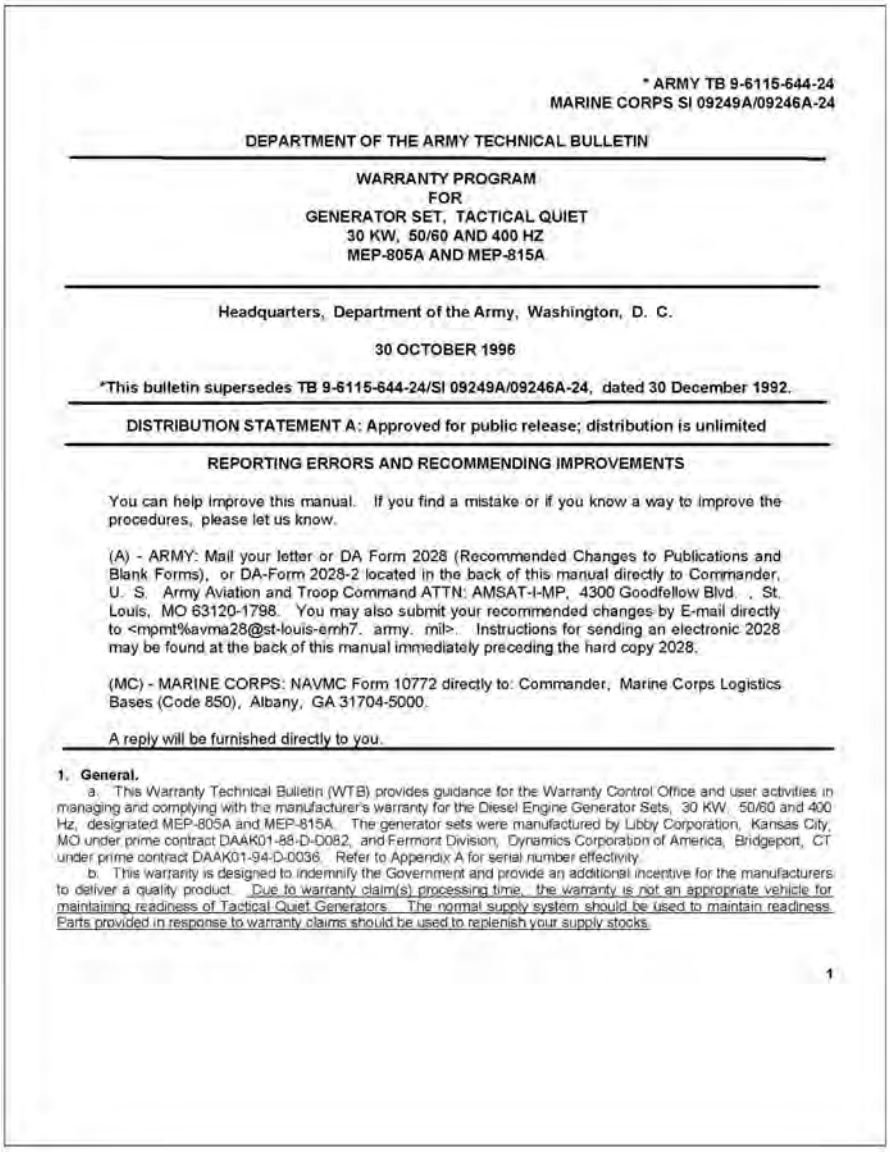
HEADQUARTERS, DEPARTMENTS OF THE ARMY, AIR FORCE AND HEADQUARTERS, U.S. MARINE CORPS
15 SEPTEMBER 2010

PCN: 184092491 00

Figure 3. Item 2. Basic Issue Items Technical Manual TM 9-6115-644-10.



* ARMY TB 9-6115-644-24
MARINE CORPS SI 09249A/09246A-24

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

WARRANTY PROGRAM
FOR
GENERATOR SET, TACTICAL QUIET
30 KW, 50/60 AND 400 HZ
MEP-805A AND MEP-815A

Headquarters, Department of the Army, Washington, D. C.

30 OCTOBER 1996

*This bulletin supersedes TB 9-6115-644-24/SI 09249A/09246A-24, dated 30 December 1992.

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(MC) - MARINE CORPS: NAVMC Form 10772 directly to: Commander, Marine Corps Logistics Bases (Code 850), Albany, GA 31704-5000.

A reply will be furnished directly to you.

1. General.

a. This Warranty Technical Bulletin (WTB) provides guidance for the Warranty Control Office and user activities in managing and complying with the manufacturer's warranty for the Diesel Engine Generator Sets, 30 KW, 50/60 and 400 Hz, designated MEP-805A and MEP-815A. The generator sets were manufactured by Libby Corporation, Kansas City, MO under prime contract DAAK01-88-D-0082, and Fermont Division, Dynamics Corporation of America, Bridgeport, CT under prime contract DAAK01-94-D-0036. Refer to Appendix A for serial number effectivity.

b. This warranty is designed to indemnify the Government and provide an additional incentive for the manufacturers to deliver a quality product. Due to warranty claim(s) processing time, the warranty is not an appropriate vehicle for maintaining readiness of Tactical Quiet Generators. The normal supply system should be used to maintain readiness. Parts provided in response to warranty claims should be used to replenish your supply stocks.

1

Figure 4. Item 3. Basic Issue Items Warranty Technical Bulletin TB 9-6115-644-24.

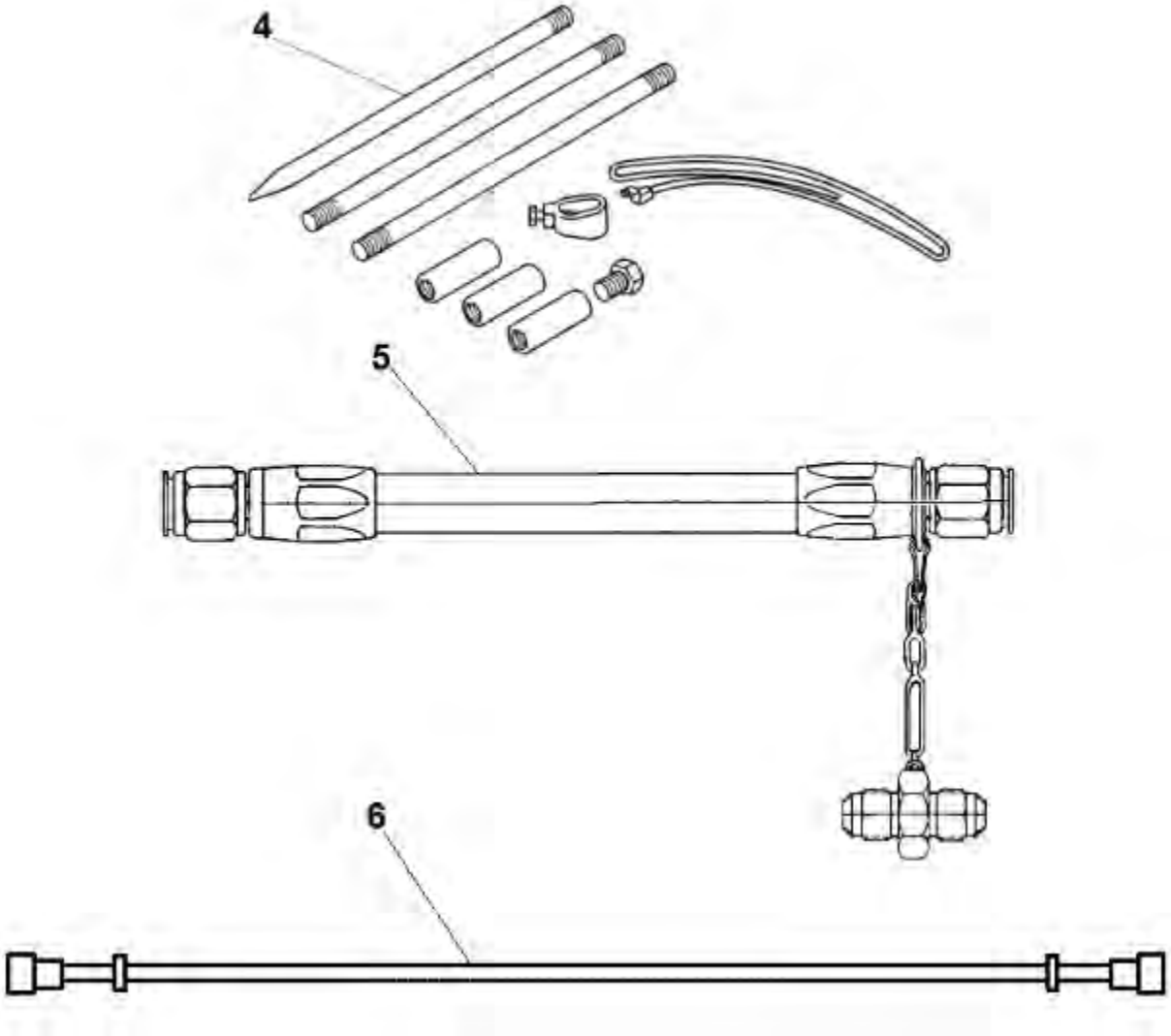

Figure 5. Items 4, 5 and 6. Basic Issue Items.

Table 2. Basic Issue Items (BII).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1		LUBRICATION ORDER, L0 9-6115-644-12		EA	1
2		TECHNICAL MANUAL, TM 9-6115-644-10		EA	1
3		WARRANTY TECHNICAL BULLETIN, TB 9-6115-644-24		EA	1
4	5975-00-878-3791	GROUND ROD ASSEMBLY W-R-550 TYPE III (81348)		EA	1
4	4720-00-021-3320	AUXILITARY FUEL LINE 69-668 (30554)		EA	1
4	6150-01-406-9533	PARALLELING CABLE 88-22209 (30554)		EA	1

END OF WORK PACKAGE

MAINTENANCE

ADDITIONAL AUTHORIZATION LIST (AAL)

INTRODUCTION

Scope

This work package lists additional items you are authorized for the support of the Skid Mounted, Tactical Quiet Generator Sets.

General

This list identifies items that do not have to accompany the Skid Mounted, Tactical Quiet Generator Sets and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Entries in the AAL

Column (1) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) Qty Recm. Indicates the quantity recommended.

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/(CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
5342-00-066-1235	ADAPTER, CONTAINER 13211E7541 (97403)		EA	1
4210-00-361-6921	EXTINGUISHER, FIRE, CARBON DIOXIDE, 5 LB 322 (54905)		EA	1
7240-00-177-6154	FLEXIBLE SPOUT MIL-S-1285 (81349)		EA	1
7240-01-337-5269	FUEL CAN		EA	1
5120-01-013-1676	HAMMER, SLIDE, GROUND 0116-1810 (93742)		EA	1

END OF WORK PACKAGE

MAINTENANCE

EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the Skid Mounted, Tactical Quiet Generator Sets. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, item 5)).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item.

Column (3) National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) U/I. Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
1	O	8040-00-664-4318	Adhesive, 9995460 (18876)	EA
2	O	6850-00-181-7929	Antifreeze, A-A-52624 (81349)	GL
3	O	6850-01-331-3349	Cleaning compound, solvent, P-D-680 (81348)	EA
4	O	6850-01-331-3350	Cleaning compound, solvent, P-D-680 (81348)	EA
5	O	7920-01-338-3329	Cloth, Cleaning, (00000)	EA
6	O	9150-00-190-0904	Grease, Automotive/artillery GAA, MIL-PRF-10924 (81349)	EA
7	O	9150-00-189-6727	Oil, Lubrication OE/HDO-10, MIL-PRF-2104 (81349)	EA

Table 1. Expendable and Durable Items List – Continued

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
8	O		Solder, Sn60Pb40 (81348)	EA
9	O	6810-00-107-1510	Water, Distilled, (00000)	GL

END OF WORK PACKAGE

INDEX

W

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE 30 August 2002
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* Commander, US Army CECOM LCMC ATTN: AMSEL-LC-LEO-E-CM Fort Monmouth, NJ 07703-5006	**FROM:** *(Activity and location) (Include ZIP Code)* Jane Q. Doe, SFC 1234 Any Street Anytown, AL 34565	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 11-1234-567-14	16 Sep 2001	Operator, Field and Sustainment Support Maintenance Manual for Radio, AN/ABC-123

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON
1	WP0005 PG 3		2			Test or Correctiive Action col[illegible]hould identify a different WP number.

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Jane Q. Doe, SFC	123-4567	

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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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