

This copy is a reprint which includes current pages from Changes 1 through 18.

ARMY TM-5-6115-545-12  
AIR FORCE T0-35C2-3-444-1  
NAVY NAVFAC P-8-626-12  
MARINE CORPS TM-00038G-12

TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL

MAINTENANCE MANUAL

## GENERATOR SET, DIESEL ENGINE DRIVEN, TACTICAL

SKID MTD., 60 KW, 3 PHASE, 4 WIRE, 120/208 AND 240/416 VOLTS

<u>DOD MODELS</u>	<u>CLASS</u>	<u>HERTZ</u>	<u>NSN</u>
MEP006A	UTILITY	50/60	6115-00-118-1243
MEP105A	PRECISE	50/60	6115-00-118-1252
MEP115A	PRECISE	400	6115-00-118-1253

### Including Optional Kits

<u>DOD MODELS</u>	<u>NOMENCLATURE</u>	<u>FSN</u>
MEP006AWF	WINTERIZATION KIT, FUEL BURNING	6115-407-8314
MEP006AWE	WINTERIZATION KIT, ELECTRIC	6115-455-7693
MEP006ALM	LOAD BANK KIT	6115-407-8322
MEP006AWM	WHEEL MOUNTING KIT	6115-463-9092

10 JUNE 1973

DEPARTMENT OF THE ARMY TECHNICAL MANUAL  
DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER  
DEPARTMENT OF THE NAVY PUBLICATION  
MARINE CORPS TECHNICAL MANUAL

TM-5-6115-545-12  
TO-35C2-3-444-1  
NAVFAC P-8-626-12  
TM-00038G-12

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, **10 June 1973**

## TECHNICAL MANUAL

### OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

Approved for public release; distribution is unlimited.

# GENERATOR SET, DIESEL ENGINE DRIVEN, TACTICAL

SKID MTD., 60 KW, 3 PHASE, 4 WIRE, 120/208 AND 240/416 VOLTS

<u>DOD MODELS</u>	<u>CLASS</u>	<u>HERTZ</u>	<u>FSN</u>
MEP006A	UTILITY	50/60	6115-118-1243
MEP105A	PRECISE	50/60	6115-118-1252
MEP115A	PRECISE	400	6115-118-1253

## INCLUDING OPTIONAL KITS

### DOD MODELS

MEP006AWF  
MEP006AWE  
MEP006ALM  
MEP006AWM

### NOMENCLATURE

WINTERIZATION KIT, FUEL BURNING  
WINTERIZATION KIT, ELECTRIC  
LOAD BANK KIT  
WHEEL MOUNTING KIT

### FSN

6115-407-8314  
6115-455-7693  
6115-407-8322  
6115-463-9092

---

TABLE OF CONTENTS

Chapter	Page	Chapter	Page
LIST OF ILLUSTRATIONS . . . . .	iii	XXV	Cooling Group . . . . . 3-81
LIST OF TABLES . . . . .	iv	XXVI	Hydraulic Actuator and Sump and Filter (Class 1 Sets Only Except MEP115A) . . . . . 3-84
1 INTRODUCTION . . . . .		XXVII	Engine Assembly . . . . . 3-87
I General . . . . .	1-1	XXVIII	Alternator and Related Parts . . . . . 3-87
II Description and Data . . . . .	1-1	XXIX	Speed Switch . . . . . 3-91
2 INSTALLATION AND OPERATION		XXX	Oil Level Gage and Filter . . . . . 3-92
INSTRUCTIONS . . . . .	2-1	XXXI	Electric Starter and Adapter . . . . . 3-93
I Service Upon Receipt of Material . . . . .	2-1	XXXII	Lube Oil Filters and Sensors . . . . . 3-93
II Movement to New Worksite . . . . .	2-10	XXXIII	Secondary Fuel Filter . . . . . 3-94
III Controls and Instruments . . . . .	2-10	XXXIV	Lube Oil Cooler . . . . . 3-96
IV Operation Under Usual Conditions . . . . .	2-18	XXXV	Nozzle Holder Assemblies and Lines . . . . . 3-96
V Operation Under Unusual Conditions . . . . .	2-27	XXXVI	Diffuser and Turbocharger . . . . . 3-100
VI Operation of Auxiliary Material Used in Conjunction with the Equipment . . . . .	2-32	XXXVII	Water Pump and Fan . . . . . 3-103
3 OPERATOR AND ORGANIZATIONAL		XXXVIII	Thermostat and Housing . . . . . 3-103
MAINTENANCE INSTRUCTIONS . . . . .	3-1	XXXIX	Crankshaft and Pulley and Vibration Dampener . . . . . 3-106
I Operator and organizational Maintenance Repair Parts, Tools and Equipment . . . . .	3-1	XL	Idler Pulley and Mounting Bracket . . . . . 3-106
II Lubrication . . . . .	3-1	XLI	Intake Manifold . . . . . 3-108
III Preventive Maintenance Checks and Services . . . . .	3-6	XLII	Exhaust Manifold . . . . . 3-110
IV Operator's Maintenance . . . . .	3-6	XLIII	Rocker Arm Shaft Assembly . . . . . 3-110
V Troubleshooting . . . . .	3-20	XLIV	Base Group and Related Components . . . . . 3-112
VI Field Expedient Repairs . . . . .	3-27	XLV	Accessory Items . . . . . 3-116
VII Radio Interference Suppression . . . . .	3-28	A AUXILIARY MATERIAL USED IN CONJUNCTION WITH THE EQUIPMENT . . . . .	4-1
VIII Organizational Maintenance Procedures . . . . .	3-29	I General . . . . .	4-1
IX Batteries and Related Parts . . . . .	3-29	II Fuel Burning Winterization Kit . . . . .	4-1
X Muffler, Exhaust and Breather Tubes . . . . .	3-31	III Electric Winterization Kit . . . . .	4-11
XI Convenience Receptacle . . . . .	3-32	IV Wheel Mounting Kit . . . . .	4-21
XII (Deleted)		V Load Bank . . . . .	4-29
XIII Plate and Sleeve Assembly . . . . .	3-35	APPENDIX	
XIV Paralleling Receptacles . . . . .	3-36	A REFERENCES . . . . .	A-1
XV Generator Set Controls . . . . .	3-37	B BASIC ISSUE ITEM LIST AND) ITEMS TROOP INSTALLED OR AUTHORIZED . . . . .	B-1
XVI Engine Generator Set-Housing Group . . . . .	3-60	I Introduction . . . . .	B-1
XVII Engine Generator and Chassis Interconnecting Wiring Harnesses . . . . .	3-60	II Basic Issue Items . . . . .	B-2
XVIII Load Connection Group . . . . .	3-60	III Items Troop Installed or Authorized List . . . . .	B-2
XIX Governor Control Unit (MEP115A) . . . . .	3-72	IV Maintenance and operating Supplies . . . . .	B-3
xx Air Cleaner Assembly . . . . .	3-72.3	C MAINTENANCE ALLOCATION CHART ( A R M Y and U S M C only )	C-1
XXI Relay Table Group . . . . .	3-72	I Introduction . . . . .	C-1
XXII Generator Assembly . . . . .	3-74	II Maintenance Allocation Chart . . . . .	C-2
XXIII Day Tank and Fuel Filter Assembly . . . . .	3-74	INDEX . . . . .	1-1
XXIV Lifting Frame Assembly, Start Aid Assembly and Fuel Transfer Pumps . . . . .	3-77		

LIST OF ILLUSTRATIONS

Number	Title	Page	Number	Title	Page
1-1.	Engine Generator Set, Right Front. Three Quarter View .	1-2	2-2.	Grounding Procedures (3 Sheets) . . . . .	2-5
1-2.	Engine Generator Set, Left Rear. Three Quarter View . .	1-3	2-3.	Generator Load Terminal Board Connections. . . . .	2-8
1-3.	Data Instruction Plate Locations (2 Sheets) . . . . .	1-4	2-4.	Voltage Conversion . . . . .	2-9
1-4.	Fuel System Diagram Instruction Plate . . . . .	1-6	2-5.	Generator Set Controls and Instruments (6 Sheets) . . . . .	2-11
1-5.	Lifting Instructions Instruction Plate . . . . .	1-7	2-6.	Preparation for Starting (2 Sheets) . . . . .	2-19
1-6.	Operating Instructions Instruction Plate . . . . .	1-8	2-7.	Starting Instructions (2 Sheets) . . . . .	2-23
1-7.	Service Instruction and System Capacities Instruction Plate . .	1-9	2-8.	Stopping Instructions . . . . .	2-23
1-8.	Voltage Reconnection Instruction Plate . . . . .	1-10	2-9.	Single Generator Unit, Operating Instructions . . . . .	2-24
1-9.	Operational Data Information Plate (Mode I) . . . . .	1-11	2-10.	Parallel Generator Units Operating Instructions . . . . .	2-25
1-10.	Operational Data Information Plate (Mode II) . . . . .	1-12	2-11.	Fuel Burning Winterization Kit Operating Instructions (2 Sheets) . . . . .	2-28
1-11.	Battery Arrangement and Connections Instruction Plate . . . . .	1-13	2-12.	Electric Winterization Kit Operating Instructions (2 Sheets) . . . . .	2-30
1-12.	Set I.D. Plate. . . . .	1-14	2-13.	Wheel Mounting Kit Operation	2-33
1-13.	AC Troubleshooting Diagram (Mode I) and Plate. . . . .	1-17	2-14.	Load Bank Operating Instructions	2-34
1-14.	AC Troubleshooting Diagram (Mode II) and Plate . . . . .	1-19	3-1.	Lubrication Order (2 Sheets) . . . . .	3-2
1-15.	DC Troubleshooting Diagram (Mode I) and Plate. . . . .	1-21	3-2.	Oil Level Gage and Filler . . . . .	3-4
1-16.	DC Troubleshooting Diagram (Mode II) and Plate . . . . .	1-23	3-3.	Engine Lube Oil Filters . . . . .	3-5
1-17.	Schematic Wiring Diagram Class 1, AC and Plate . . . . .	1-25	3-4.	Batteries and Slave Receptacles. . . . .	3-11
1-18.	Schematic Wiring Diagram Class 1, DC and Plate . . . . .	1-27	3-5.	Air Cleaner Service . . . . .	3-14
1-19.	Schematic Wiring Diagram Class 2, AC and Plate . . . . .	1-29	3-6.	Fuel Filter and Strainer. . . . .	3-15
1-20.	Schematic Wiring Diagram Class 2, DC and Plate . . . . .	1-31	3-7.	Main Fuel Tank . . . . .	3-16
1-21.	Kit Data and Instruction Plate Location (2 Sheets) . . . . .	1-33	3-8.	Hydraulic Sump and Filter . . . . .	3-18
1-22.	Fuel Burning Winterization System Diagram and Heater Control Schematic Diagram Instruction Plate . . .	1-35	3-9.	Secondary Fuel Filter . . . . .	3-19
1-23.	Electric Winterization System Diagram and Electric Heater Control Schematic Diagram Instruction Plate . . . . .	1-37	3-10.	Backwire of Fuel Injector Pump for Class 2 Operation . . . . .	3-29
1-24.	Load Bank Connection and Operation Instruction Plate . . . . .	1-39	3-11.	Interference Suppression Components Removal and Installation . . . . .	3-30
1-25.	Shipping Crate . . . . .	1-39	3-12.	Exhaust and Breather System. . . . .	3-32
1-26.	50/60 Hz Precise and Utility Interconnecting Diagram . . . . .	1-41	3-13.	Convenience Receptacle . . . . .	3-33
1-27.	400 Hz Precise Interconnecting Diagram. . . . .	1-43	3-14.	(Deleted) . . . . .	3-34
1-28.	Hydraulic Flow Diagram . . . . .	1-45	3-15.	Plate and Sleeve Assembly . . . . .	3-35
1-29.	Interconnection Wiring Diagram 50/60 Hz Precise and Utility	1-47	3-16.	Paralleling Receptacles . . . . .	3-36
1-30.	Interconnection Wiring Diagram 400 Hz. Precise and Utility . . . . .	1-49	3-17.	Generator Set Controls . . . . .	3-38
2-1A.	Noise Level Warning . . . . .	2-4	3-18.	Control Cubicle Assembly (2 Sheets) . . . . .	3-29
2.1.	Installation Plan . . . . .	2-4	3-19.	Control Cubicle Schematic Diagram . . . . .	3-51
			3-20.	Control Cubicle Wiring Diagram (sheets) . . . . .	3-55
			3-21.	Ammeter-Voltmeter Selector Switch Schematic . . . . .	3-59
			3-22.	Housing Group (2 Sheets) . . . . .	3-63
			3-23.	Engine Generator and Chassis Wiring Harness (2 Sheets) . . . . .	3-68
			3-24.	Load Connection Group . . . . .	3-70
			3-24.1	Terminal Clip Replacement . . . . .	3-72
			3-24.2	Governor Control Unit (MEP-115A) . . . . .	3-72.2
			3-25.	Reconnections Board . . . . .	3-72.3
			3-26.	Air Cleaner and Related Parts . . . . .	3-73
			3-27.	Day Tank and Fuel Filter Assembly . . . . .	3-75
			3-28.	Center Support and Related Parts . . . . .	3-79
			3-29.	Cooling Group and Related Parts . . . . .	3-80
			3-30.	Shutter Thermostat Replacement . . . . .	3-82
			3-31.	Cooling Groups . . . . .	3-83
			3-32.	Hydraulic Actuator Servicing . . . . .	3-85
			3-33.	Hydraulic Sump and Filter . . . . .	3-86

LIST OF ILLUSTRATIONS (Cont)

Number	Title	Page	Number	Title	Page
3-34.	Drain Hose Removed . . . . .	3-88	4-2.	Fuel Burning Winterization Kit Control Box Lamp Replacement . . . . .	4-8
3-35.	Belt Adjustment and Replacement . . . . .	3-89	4-3.	Fuel Regulator Valve Adjustment . . . . .	4-9
3-36.	Alternator and Related Parts . . . . .	3-90	4-4.	Adjusting Flame Switch . . . . .	4-10
3-37.	Speed Switch . . . . .	3-91	4-5.	Thermostat Switch Replacement . . . . .	4-10
3-38.	Oil Level Gage and Adapter and Filler Elbow and Cap . . . . .	3-92	4-6.	Electric Winterization Kit Schematic Wiring Diagram . . . . .	4-12
3-38.1.	Electrical Starter Removal . . . . .	3-94	4-7.	Electric Winterization Kit (3 Sheets) . . . . .	4-13
3-39.	Secondary Fuel Filter Assembly . . . . .	3-95	4-8.	Coolant Pump Motor - Brush and Connector Replacement . . . . .	4-18
3-40.	Lube Oil Cooler . . . . .	3-97	4-9.	Electric Winterization Kit Control Box Fuse and Lamp Replacement . . . . .	4-20
3-41.	Nozzle Holder and Line Assemblies. . . . .	3-99	4-10.	Running Gear Assembly . . . . .	4-22
3-42.	Diffuser and Turbocharger . . . . .	3-101	4-11.	Hand Lever and Bracket Assembly . . . . .	4-24
3-43.	Water Pump and Fan . . . . .	3-104	4-12.	Hub and Brake and Front Unit Axle Assemblies (2 Sheets) . . . . .	4-26
3-44.	Thermostat and Housing . . . . .	3-105	4-13.	Load Bank Schematic Diagram . . . . .	4-31
3-45.	Idler Pulley and Mounting Bracket . . . . .	3-107	4-14.	Load Bank (2 Sheets) . . . . .	4-33
3-46.	Intake Manifold . . . . .	3-109	4-15.	Fan and Motor Assembly . . . . .	4-36
3-47.	Exhaust Manifold . . . . .	3-109	4-16.	Wiring Diagram Load Bank . . . . .	4-39
3-48.	Rocker Arm Shaft Assembly . . . . .	3-111	4-17.	Voltage Selector Switch Contact Positions . . . . .	4-41
3-49.	Valve Locations . . . . .	3-111	4-18.	Load Selector Switch Contact Positions . . . . .	4-41
3-50.	Base Group and Related Components . . . . .	3-113			
3-51.	Base Group . . . . .	3-114			
3-52.	Fuel Quantity Transmitter Set . . . . .	3-115			
3-53.	Accessory Items with Attaching Hardware . . . . .	3-116			
4-1.	Fuel Burning Winterization Kit (2 Sheets) . . . . .	4-3			

LIST OF TABLES

Number	Title	Page
1-1	Difference in Performance Characteristics . . . . .	1-40
2-1	Freezing Points, Composition, and Specific Gravities of Military Anti-freeze Materials . . . . .	2-2
2-2	Fault Indicator Function . . . . .	2-17
3-1	Preventive Maintenance Checks and Services . . . . .	3-7
3-2	Fault Indicator Test Points. . . . .	3-13
3-3	Troubleshooting . . . . .	3-21
4-1	Preventive Maintenance Checks and Services . . . . .	4-2
4-2	Fuel Burning Winterization Kit Troubleshooting . . . . .	4-7
4-3	Electric Winterization Kit Preventive Maintenance Checks and Services . . . . .	4-17
4-4	Electric Winterization Kit Troubleshooting . . . . .	4-19
4-5	Wheel Mounting Kit Preventive Maintenance Checks and Services . . . . .	4-23
4-6	Wheel Mounting Kit Troubleshooting . . . . .	4-25
4-7	Load Bank Preventive Maintenance Checks and Services . . . . .	4-35
4-8	Load Bank Troubleshooting . . . . .	4-37

# CHAPTER 1

## INTRODUCTION

### Section I. GENERAL

#### 1-1. Scope.

a. These instructions are published for use by personnel to whom the 60 KW Diesel Engine Driven Generator Sets are issued. The 50/60 Hertz (Mode I) Tactical Utility (Class 2) Set is used in application where exact frequency is not required. The 50/60 Hertz, (Mode I) Tactical Precise (Class 1) and 400 Hertz, (Mode II) Tactical Precise Sets are used in applications which demand precise frequency control. This manual provides information on the operation and organizational maintenance of the equipment. Also included are descriptions of main units and their functions in relationship to other components.

b. Demolition of material to prevent enemy use will be in accordance with the requirement of TM 750-244-3. (Procedures For Destruction of Equipment to Prevent Enemy Use for U.S. Army).

c. Preservation for shipment and storage for U. S. Air Force will be in accordance with T. O. 35-1-4. Shipment and storage for U.S. Army will be in accordance with TB 740-97-2.

#### 1-2. Forms and Records.

THIS TECHNICAL MANUAL IS USED BY THE ARMY, AIR FORCE, NAVY AND MARINE CORPS. THE USE OF FORMS IN COMPLIANCE WITH DIRECTIVES AS STATED HEREIN WILL BE ACCOMPLISHED ONLY BY THE PERSONNEL OF THE SERVICE TO WHICH THEY APPLY.

a. Forms and Records used by the Army will be only those prescribed by DA Pam 738-750. Those used by the Marine Corps will be those prescribed by TM 4700-15/1. Other Service users should refer to ap-

### Section II DESCRIPTION AND DATA

#### 1-3. Description.

a. General. The generator sets, military models MEP105A, MEP006A and MEP115A (fig. 1-1 and 1-2), are portable skid mounted self contained units. They are provided with controls, instruments and accessories necessary for operation as a single unit or in parallel with up to two other units of the same Class and Mode. Each set is equipped with engine oil pan heating elements and necessary connections for field installation of winterization kits. The generator sets may be mounted on trailers or wheel kits if desired. In addition, to extend their capability, the sets have been designed to accept and operate with the following kits: (See chapter 4 for Items 1 thru 4.)

appropriate specification/publications for equipment maintenance forms and records.

b. Report of errors, omissions, and recommendations for improvement of this publication by the individual users is encouraged. Reports should be submitted as follows.

(1) Air Force-AFTO Form 22 direct to: Commander, Sacramento Air Materiel Area, McClellan Air Force Base, ATTN: MMST, California, 95652, in accordance with T0-00-5-1.

(2) Army-DA Form 2028 directly to: Commander, U. S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Good fellow Boulevard, St. Louis, MO 63120-1798.

(3) Marine Corps- NAVMC Form 10772 direct to: Commandant, U.S. Marine Corps, ATTN: Code LMO, Washington, D. C., 20380.

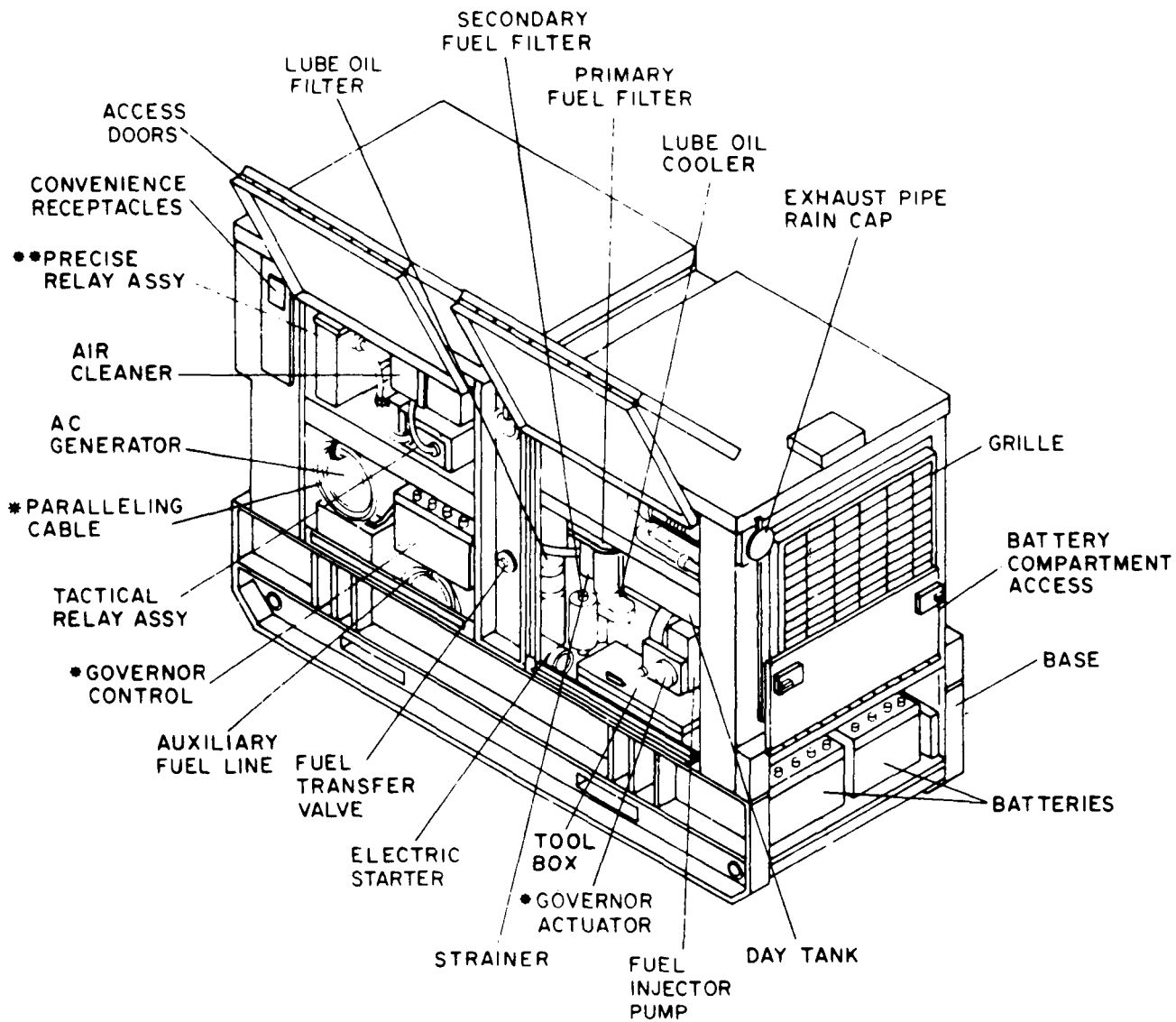
(4) Navy-by letter direct to: Commanding Officer, U.S. Navy, Ships Parts Control Center, ATTN: Code 783, Mechanicsburg, Pa., 17055.

#### NOTE (Army only)

Applicable Army Forms, excluding Standard Form 46 (United States Government Motor Vehicles Operator's Identification Card) which is carried by the operator, shall be kept in manual compartment mounted on equipment.

- (1) Load Bank.
- (2) Fuel Burning Winterization.
- (3) Electric Winterization.
- (4) Wheel Mounting.

(5) Automatic Transfer Panel 50/60 Hz. Provides a means to monitor 60 Hz primary power and automatically start and transfer the load to a standby generator set in the event of abnormal primary power fluctuation. (See Appendix A for technical manual.)



- \*USED ON PRECISE GENERATOR SETS ONLY
- USED ON 50/60 HZ PRECISE GENERATOR SETS ONLY

Figure 1-1. Engine Generator Set. Right Front, Three Quarter View

(6) Automatic Transfer Panel 400 Hz. Provides the capacity to start and transfer the load from an operating 400 Hz generator set to a like standby set in the event the operating sets load contactor opens due to a fault condition (See Appendix A for technical manual).

(7) Remote Control Box. Permits starting, stopping and voltage adjustment of the generator set from a remote location. (See Appendix A for technical manual).

(8) Auxiliary Fuel Burning Winterization. Provides a dependable external source of battery power for starting of generator set in ambient temperatures from -25°F. to -65°F. (See Appendix A for technical manual. )

(9) Auxiliary Electric Winterization. Provides a dependable external source of battery power for starting of generator set in ambient temperatures from -25°F. to -65°F. (See Appendix A for technical manual).