TM 9-2350-222-20-1-1

TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE
VOLUME 1 0F 5
CHAPTERS 1 THRU 3

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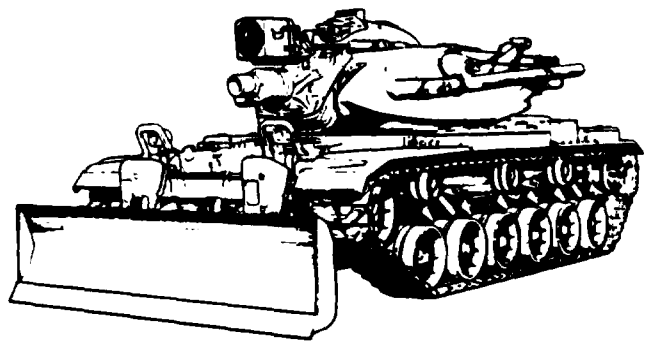

COMBAT ENGINEER VEHICLE, FULL-TRACKED, M728
2350-00-795-1797
(HULL)

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HEADQUARTERS, DEPARTMENT OF THE ARMY

FEBRUARY 1981

Technical Manual
No. 9-2350-222-20-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 20 February 1981

ORGANIZATIONAL MAINTENANCE
COMBAT ENGINEER VEHICLE
FULL TRACKED, M728
NSN (2350-00-795-1 797)
(HULL)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENT

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank-Automotive Cormmand, Attn: AMSTA-MBC, Warren, Michigan 48397-5000. A reply will be furnished to you.

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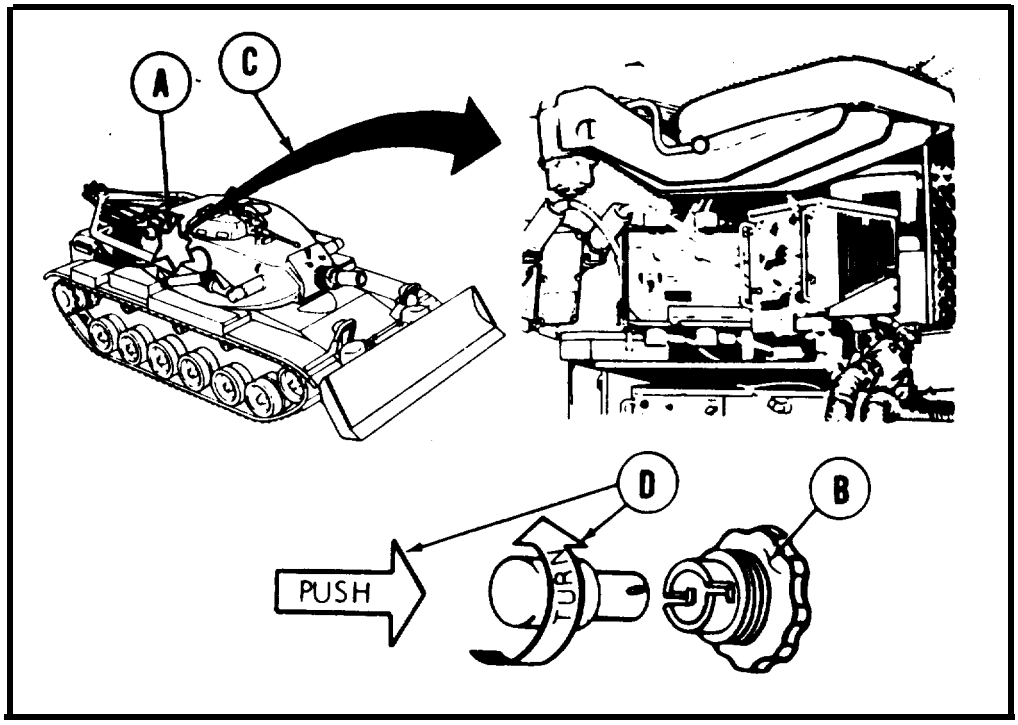
HOW TO USE THIS MANUAL:

- This manual is divided into chapters.
- Chapters are by functional group code and are presented in same order as the RPSTL (Repair Parts and Special Tool List).
- Procedure indexes are on procedures that are four pages or more, and indicate how the procedure is set up, i.e., disassembly, removal, cleaning and inspection, etc.
- All references within this technical manual refer to page numbers.
- Steps are numbered and are to be performed in that order.
- Be sure to read all NOTES, WARNINGS, AND CAUTIONS.
- Locator views are included wherever necessary. These will help you locate the item for which the procedure is referencing.
- Jagged circle ( ) on locator (A) indicates a cutout and means the item is inside the vehicle.
- A ( ) symbol represents the outside surface (B) of a piece of equipment that cannot be shown in its entirety.
- Callouts are shown by a circle with a letter inside.
- Locator arrows (C) are black and mechanical motion arrows (D) are white.
- Broken leader arrow (- - - →) indicates the item is either inside or under the vehicle and cannot be seen.



HOW TO USE THIS MANUAL - Continued

- Certain sections of the manual have detailed "how to use " instructions at the beginning of the section - for example, troubleshooting.

- A maintenance information index is located in back of this manual. It is set up in alphabetical order and maintenance function, for example, disassemble, clean, inspect, repair, remove, install, assemble, and test.

- An illustrated list of manufactured items, or better known as fabricated tools, is located in back of this manual. It is nothing more than direction on how to fabricate tools that are listed throughout the manual.

- **LO 9-2350-222-12, M728 lubrication order, has been rescinded. All crew lubrication tasks have been incorporated into TM 9-2350-222-10, Appendix G, and are to be performed as required or as a part of crew PMCS. All organizational maintenance lubrication tasks have been incorporated into PMCS contained in this manual and are to be performed as required and as a part of organizational maintenance PMCS. Any reference to LO 9-2350-222-12 must be considered a reference to either TM 9-2350-222-10, Appendix G, or organizational PMCS, and must be performed in accordance with instructions provided in the applicable PMCS.**

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

SCOPE

Type of Manual: Organizational Maintenance

Model Number and Equipment Name: M728 Combat Engineer Vehicle, Full-Tracked, 165-mm Gun

Purpose of Equipment: Provide a mobile and maneuverable weapon for combat support of ground troops and vehicles. It is equipped with a hydraulically-operated bulldozer mounted to the front of the hull. A winch and a boom are mounted to the turret for lifting, carrying, and winching. The M728 vehicle is used for breaching, obstacle removal, transportation of demolition teams, and pioneering operations.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's)

If your M728 Combat Engineer Vehicle needs improvement, let us know. Send us a EIR. You, the user, are the only one who can tell us what you don't like about our equipment. Let us know why you don 't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to: Commander, U.S. Army Tank-Automotive Command, AMSTA-QRT, Warren, Michigan 48397-5000, We'll send you a reply,

USE OF ENGLISH AND METRIC SYSTEM UNITS

Torque values specified in this manual are expressed in pound-feet (lb-ft) or pound-inches lb-in) followed by the metric equivalent in parentheses. The metric equivalent is expressed in system international units Newton meters (N.m). The metric system and equivalents conversion table is located on inside back cover of this manual.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-6 for instructions on destruction of materiel to prevent enemy use,

ADMINISTRATIVE STORAGE

Refer to TM 740-90-1 for instructions on administrative storage.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

a. No particular quality assurance or quality control manual pertains specifically to the M728 Combat Engineer Vehicle.

b. Defective material received through the supply system should be reported on quality Deficiency Report (QDR) SF 368. Instructions for preparing QDR's are provided in AR 702-7, Reporting of Quality Deficiency Data. QDR's should be mailed to Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-Q, Warren, MI 48397-5000. A reply will be furnished directly to you.

Section II. EQUIPMENT DESCRIPTION AND DATA

LOCATION AND DESCRIPTION OF EXTERNAL COMPONENTS

(A) FIXED FIRE EXTINGUISHER HANDLE.

Permits crew to release a first and second shot of CO2 into the engine compartment in the event of a powerplant fire.

(B) GRILLE DOORS.

Provides access to engine and powerplant.

(C) PINTLE.

Permits attaching tow bar for towing or recovery of disabled vehicles.

(D) TRACKS AND SUSPENSION.

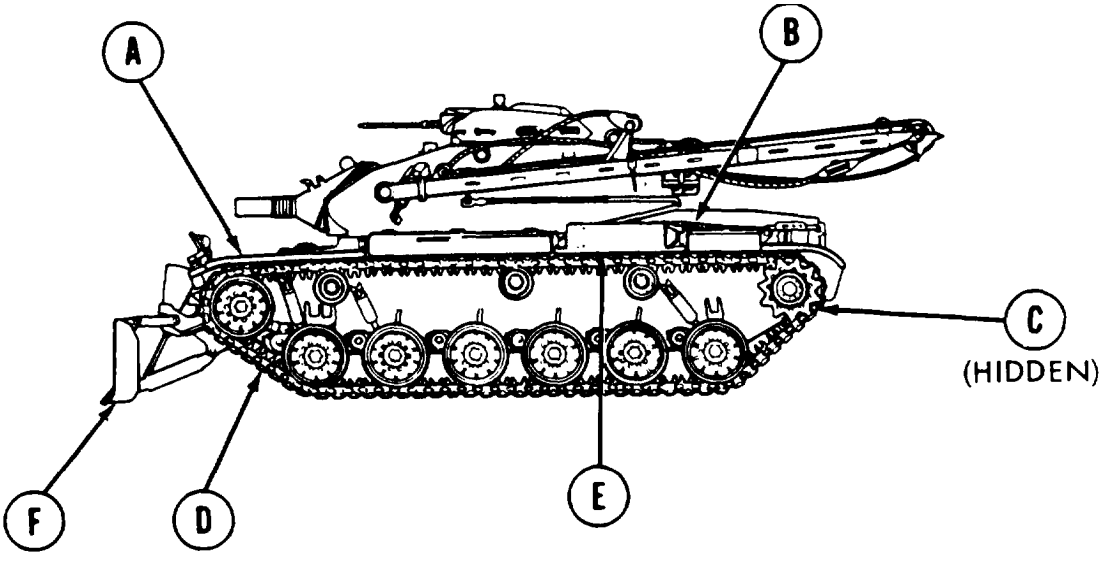
Includes transverse torsion bar type suspension which by means of individually suspended roadwheels that are supported by support arms splined to torsion bars, gives optimum riding characteristics over all types of terrain.

(E) AIR CLEANER.

Filters engine combustion air prior to delivery to engine turbocharger. Draws air through air intake screen. Removes larger dust particles in precleaned section and exhausts them by blower motor. Removes fine particles by surface-type air filter.

(F) BULLDOZER.

Earth moving capability is provided by the hydraulically operated moldboard. Two carrying hooks hold the moldboard in a raised position for vehicle travel.



LOCATION AND DESCRIPTION OF INTERNAL COMPONENTS (1 of 2)

(A) HULL-TO-TURRET INFLATABLE SEAL.

Provides a water-tight seal between hull and turret during fording operations. The driver inflates the rubber seal by using a hand pump.

(B) TRANSMISSION.

Transmits engine power to the final drives to move the vehicle. The transmission has two forward ranges, low and high, and one reverse range.

(C) UNIVERSAL JOINT.

Transmits power from transmission to final drives. There is one universal joint on each side of the transmission.

(D) ENGINE.

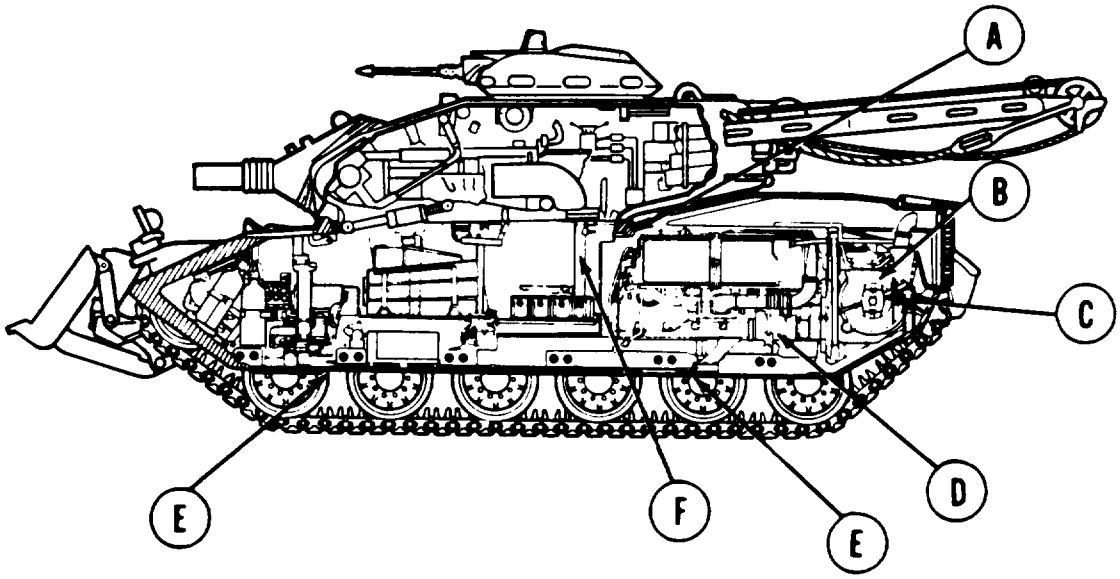
Provides power to move vehicle.

(E) HULL DRAIN VALVES.

Provides means for draining any water accumulated.

(F) ENGINE AIR CLEANER INTAKE.

Provides means of drawing air from crew compartment for air cleaners. This is usually done during fording or during operation under dusty or sandy conditions.



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LOCATION AND DESCRIPTION OF INTERNAL COMPONENTS (2 of 2)

(G) DRIVER'S CONTROL PANELS.

Provides driver with means of monitoring all systems during vehicle operation. The panels are mounted on the right hull ammunition rack.

(H) BATTERIES.

The six vehicle batteries are located on the hull floor beneath the turret platform. They supply a 24-volt power source for the vehicle electrical system.

(J) GAS PARTICULATE HEATER.

Provides driver and crew with heated, filteed air during chemical and biological warfare conditions. Each crew member is provided with a mask which is connected tothe system.

(K) FIXED FIRE EXTINGUISHER HANDLE.

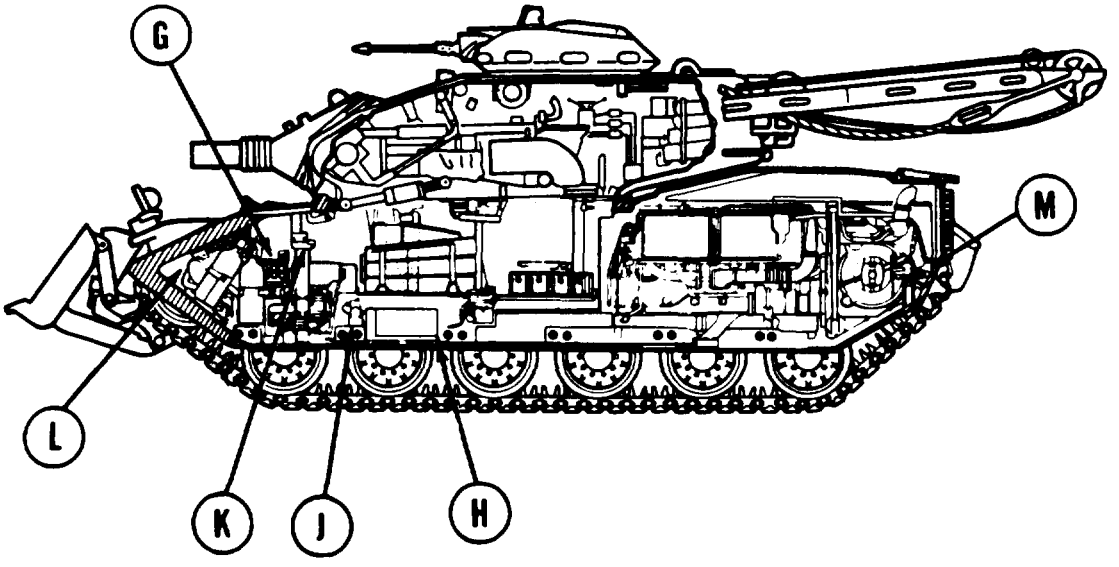
Allows operator to release a first and second shot of CO2 into the engine compartment in the event of a powerplant fire.

(L) PERSONNEL HEATER.

Provides heated air to hull and turret for crew comfort during cold temperatures. Heater is turned on by a switch located on driver's control panel.

(M) HYDRAULICS.

The hydraulic pump mounted on the transmission provides pressure for the bulldozer and boom. A 50-gallon reservoir is located in the left rear of the driver's compartment.



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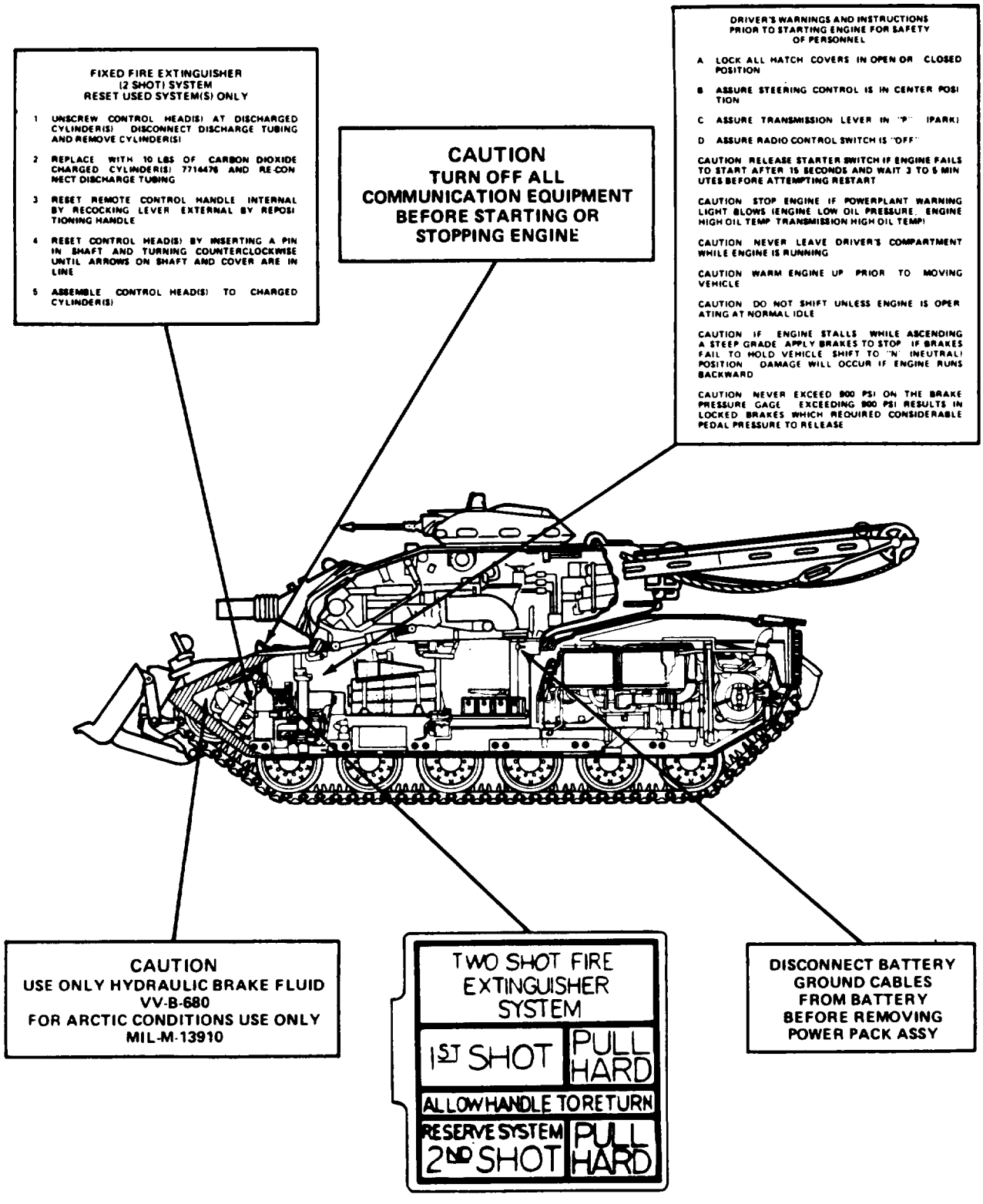
LOCATION OF DATA PLATES



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EQUIPMENT DATA

Engine Characteristics

Manufacturer	Teledyne Continental
Model	AVDS-1790-2A or AVDS-1790-2D
speed:	
Governed, full load	2400 rpm
Governed, no load	2550 rpm
Idle	700-750 rpm
Horsepower, gross	750 bhp at 2400 rpm
Cooling system	Engine driven fans for cylinders, transmission and engine oil coolers
Induction system	Supercharged by two exhaust driven turbochargers
Oil pressure:	
At 700 rpm idle	20 psi with SAE 30 at 180°F
At 2400 rpm full load	50 to 70 PSi with SAE 30 at 180°F
Oil temperature:	
Normal	180°F at 60°F ambient
Maximum	245°F
Lubricating oil:	
Type	LO 9-2350-222-12
Capacity	2A engine Initial fill -18 gallons (approx) Refill -13 gallons (approx) 2D engine: Initial fill -20 gallons (approx) Refill -17 gallons (approx)
Fuel:	
Type	Diesel
Grade 3	40 cetane min
Specification 3	VV-F-800
Consumption	48.5 gal/hr at 2400 rpm and 750 bhp