

TECHNICAL MANUAL

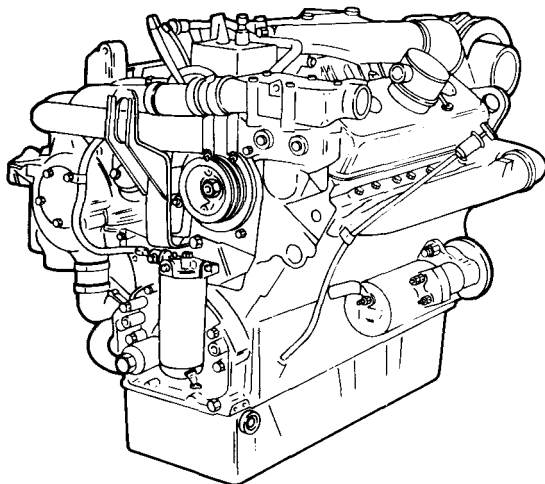
**DIRECT SUPPORT AND
GENERAL SUPPORT
MAINTENANCE**

ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7395 (2815-01-043-7092)
(2815-01-260-0211)

ENGINE, DIESEL W/CONTAINER
MODEL 7083-7396 (2815-01-040-3120)
(2815-01-260-0212)

ENGINE, DIESEL W/CONTAINER
MODEL 7083-7398 (2815-00-936-7659)

ENGINE, DIESEL W/CONTAINER
MODEL 7083-7399 (2815-00-134-4845)



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Technical Manual
No. 9-2815-202-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20 February 1990

**TECHNICAL MANUAL
DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE**

**ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7391 (2815-01-335-4579)**

**ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7395 (2815-01-043-7092)
(2815-01 -260-021 1)**

**ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7396 (2815-01-040-3120)
(2815-01-260-0212)**

**ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7398 (2815-00-196-7659)**

**ENGINE, DIESEL W/CONTAINER:
MODEL 7083-7399 (2815-00-134-4845)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications) should be mailed directly to: Commander, U.S. Army Tank-Automotive Command, ATTN: **AMSTA-MB**, Warren, MI 48397-5000. A reply will be furnished to you.

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HOW TO USE THIS MANUAL

Before starting a procedure, read HOW TO USE THIS MANUAL and Para 3-2, CLEANING AND GENERAL REPAIR INSTRUCTIONS.

WHAT IS IN THE MANUAL - FRONT TO BACK

SUMMARY OF WARNINGS AND FIRST AID lists the warnings and first aid information in this manual. These warnings contain additional information about hazards that could hurt or kill personnel.

TABLE OF CONTENTS lists the chapters, sections, and appendixes in this manual. It also lists the pages where chapters, sections, and appendixes can be found.

CHAPTER 1 covers general information and gives a quick review of major engine components and features.

CHAPTER 2 covers the instruction for direct support and general support (DS/GS) level troubleshooting of the engines in the vehicle

CHAPTER 3 tells how to remove/install the engine from the container and install/remove the engine from the maintenance stand. Chapter 3 also includes the cleaning and general repair instructions to use with every procedure.

CHAPTER 4 contains repair procedures to be performed on engine model 7083-7395.

CHAPTER 5 contains repair procedures to be performed on engine model 7083-7396. If a procedure is the same as for model 7083-7395, Chapter 5 will refer to the appropriate paragraph in Chapter 4.

CHAPTER 5.1 contains repair procedures to be performed on engine model 7083-7391. If a procedure is the same as for model 7083-7395 or 7083-7396, Chapter 5.1 will refer to the appropriate paragraph in Chapter 4 or 5.

CHAPTER 6 contains repair procedures to be performed on engine model 7083-7398. If a procedure is the same as for model 7083-7395 or 7083-7396, Chapter 6 will refer to the appropriate paragraph in Chapter 4 or 5.

CHAPTER 7 contains repair procedures to be performed on engine model 7083-7399. If a procedure is the same as for model 7083-7395, 7083-7396, or 7083-7398, Chapter 7 will refer to the appropriate paragraph in Chapter 4, 5, or 6.

CHAPTER 8 tells how to adjust, prepare, and test the engine for operation after the engine has undergone repair.

APPENDIX A lists references, such as technical manuals and other publications, to be used by personnel.

APPENDIX B lists the tools used in the procedures, their part numbers, and the correct catalog or tool list where each tool may be found.

APPENDIX C lists expendable/durable supplies and materials used to maintain or repair the engine.

APPENDIX D lists manufactured items that are used to support the procedures.

APPENDIX E gives the general torque limits required for standard fasteners on the engine.

APPENDIX F lists the mandatory replacement parts used to maintain or repair the engine.

APPENDIX G lists the engine repair specifications for repairing the engine.

GLOSSARY gives the meaning of unusual terms found in the procedures.

ALPHABETICAL INDEX lists the major engine parts that can be repaired or replaced at the DS or GS level. Each entry in the index includes the procedure paragraph number.

DA FORM 2028-2 is used to report an error found in this manual.

METRIC CONVERSION CHART converts U.S. measurements to their metric equivalents. Measurements in the procedures are given in both U.S. and metric units.

HOW TO USE YOUR MANUAL ON THE JOB

The best way to learn about this manual is to practice using it. Knowing how to use this manual will save time and effort.

Where do you start?

Entry to a repair procedure in this manual may come from observation, troubleshooting, or the Army Oil Analysis Program (AOAP). The problem will help identify the item that needs repair or replacement.

How do you fix the problem?

1. Find the correct repair procedure in the manual. Pick a key word from the item to be repaired or replaced. Look up the word in the Alphabetical Index, which gives the paragraph number of the procedure.
2. Turn to the procedure and read it carefully before starting. Pay attention to warnings and cautions. Get the equipment, supplies, and any other personnel needed. Parts which will be destroyed or should not be reused are listed in the setup as Mandatory Replacement Parts.
3. Start with step a in the procedure and do each step in order. In some referenced procedures, one or more steps may have been completed. If so, proceed to the next step. If a part fails inspection and requires replacement, refer to the Repair Parts and Special Tools List (RPSTL) TM 9-2815-202-24P.

HOW TO USE THIS MANUAL (cont)

HOW TO USE A MAINTENANCE PROCEDURE

The first page of a repair procedure lists everything needed to perform that procedure. The following paragraphs describe all the blocks of information found there.

APPLICABILITY. The data under this heading identifies those specific models to the procedure applies.

TOOLS AND SPECIAL TOOLS. Individual tools from your mechanic's tool kit are not listed under this heading. If any tools from this kit are required, the tool kit itself is listed as the first item. Special tools, manufactured tools, and tools from any other source are listed with a reference to a specific item number and appendix letter. The referenced appendix provides the necessary information to find or make the tool. App B lists all special tools, tools from supply catalog sets, kits and outfits, and tools which must be acquired through the GSA catalog. App D lists the manufactured tools with complete fabricating instructions.

MANDATORY REPLACEMENT PARTS. Any repair parts that are destroyed in disassembly or not normally reused are listed under this heading with reference to App F and specific item number. App F gives the detailed information necessary to requisition the parts if they are not on hand. This heading will appear only if new parts are always required for the procedure.

EXPENDABLE/DURABLE SUPPLIES. Any expendable or consumable supplies needed to perform the procedure are listed under this heading with reference to App C and specific item number. App C gives the detailed information necessary to requisition the parts if they are not on hand. This heading will appear only if such supplies are required for the procedure.

PERSONNEL REQUIRED. The number of personnel required to perform the procedure are listed here. This heading only appears in procedures that require more than one person.

EQUIPMENT CONDITION. This heading describes the condition the equipment must be in before starting the procedure. The paragraph for each conditions is listed followed by a description of the part removed, repaired, or adjusted.

FEATURES OF THE NEW PROCEDURE FORMAT

WARNINGS. General warnings are placed both within the procedure right before the step where they apply and in the list of WARNINGS found on the inside of the front cover of this TM. They call attention to hazards that could kill or injure personnel.

CAUTIONS. Cautions are found within the procedure immediately before the step where they apply. They call attention to hazards or actions that could damage equipment.

NOTES. Notes are found within a procedure immediately before the appropriate step. They contain important facts or instructions to make the procedure easier or to modify the procedure for a similar model.

USE OF TOOLS AND PERSONNEL. Each procedure lists the tool kits and tools that are needed for the procedure. The procedure steps tell how and where to use special tools. However, the procedure steps do not tell which persons do which steps in the procedures needing more than one person. The mechanic responsible for the procedure should direct the rest of the personnel on what to do.

REFERENCES. References from one procedure to another within the TM are by paragraph number. References to other Technical Manuals are by the TM number only and the user needs to use the Alphabetical Index of that TM to find the information needed.

PROCEDURE ORGANIZATION. Most procedures in this TM fall into the category of removal /Installation, replacement, repair, or adjustment. Replacement can contain removal, disassembly, inspection, assembly, and installation in the same procedure. Repair generally contains disassembly, inspection, and assembly in the same procedure.

HOW TO USE THE REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) WITH THIS MANUAL

The RPSTL gives the National Stock Number (NSN) required to order parts which fail inspection in the repair procedures. To use the RPSTL to identify and order a part, do the following:

1. In this manual, turn to the page of the procedure where the part is installed.
2. Go to the RPSTL and find the same illustrated part. That part will have an item number assigned to it. Find the SMR code for the item.
3. If the SMR code does not authorize your level to repair the item, reassemble it and send it to the authorized level of maintenance.
4. If the SMR code does authorized your level to repair the item, look this figure and item number up in the figure and item number cross-reference index in the back of the RPSTL to find the NSN of the item to be ordered.

CHAPTER 1

INTRODUCTION

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Section I. GENERAL

1-1. SCOPE

- a. **Type of Manual:** Direct Support and General Support Maintenance.
- b. **Model Number and Equipment Name.** Series 8V71T diesel engine, models 7083-7391, 7083-7395, 7083-7396, 7083-7398, and 7083-7399. ■
- c. **Purpose of Equipment:** Powers the M109/M992 and M110/M578 Family of Vehicles (FOV).

1-2. 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.

1-3. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE. For general destruction procedures, refer to TM 750-244-6.

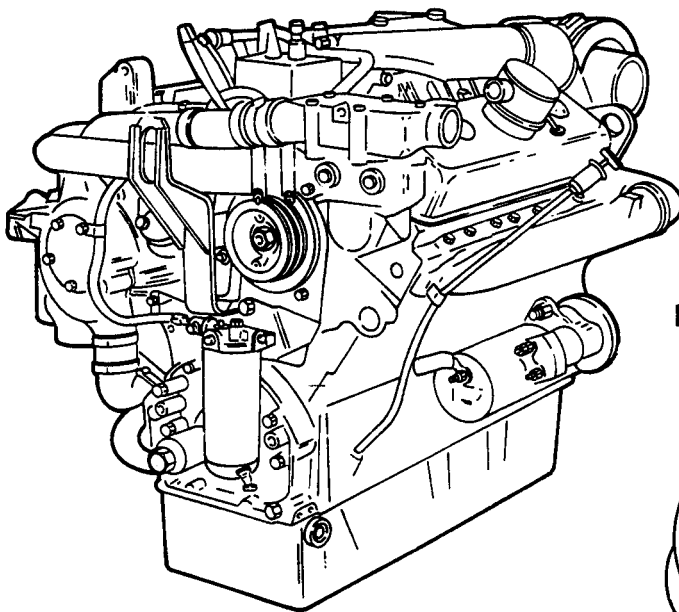
1-4. PREPARATION FOR STORAGE OR SHIPMENT. Preparation for storage or shipment is provided in Paragraph 3-3 or 3-4.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If any M109/M992 or M110/M578 FOV diesel engine needs improvement, let us know. Send us an EIR. The user is the only one who can tell us how the equipment might be improved. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-QRT, Warren, Michigan 48397-5000. We'll send a reply.

1-6. WARRANTY INFORMATION. The Series 8V71T diesel engine is warranted for 12 months. Report all defects in material or workmanship in accordance with TB 9-2815-202-34.

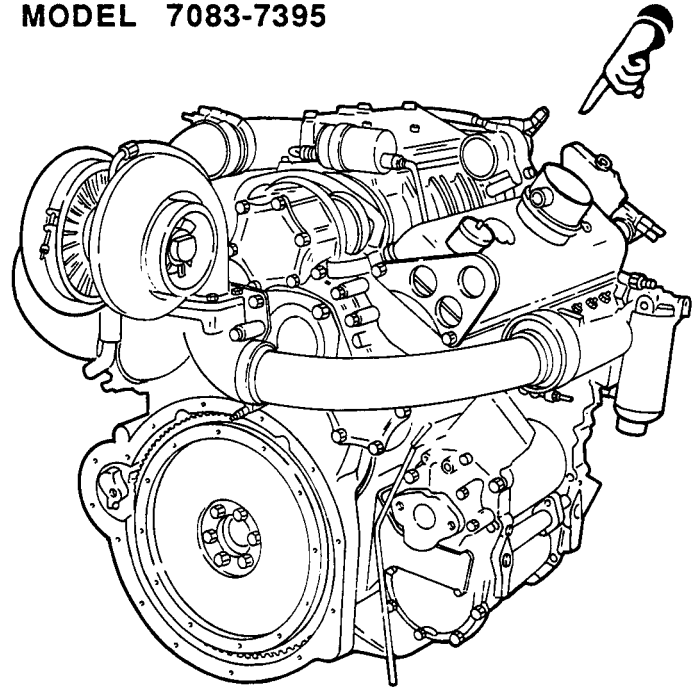
Section II. EQUIPMENT INFORMATION

1-7. EQUIPMENT DESCRIPTION. All the engine models are two cycle, fuel injected, V-type, liquid cooled, and eight cylinder diesel engine with dry cylinder liners. The cylinders are numbered one, two, three, and four on the left and right starting from the front of the engine. The terms "right", "left", "front", and "rear" are defined as viewed from the rear or flywheel end of the engine. The engine serial number and model are stamped on the right side, upper front corner of the cylinder block. On model 7083-7391, an option label is affixed to one valve rocker arm cover which carries the engine serial number, model number, tune-up specifications, and a list of optional equipment used on the engine.

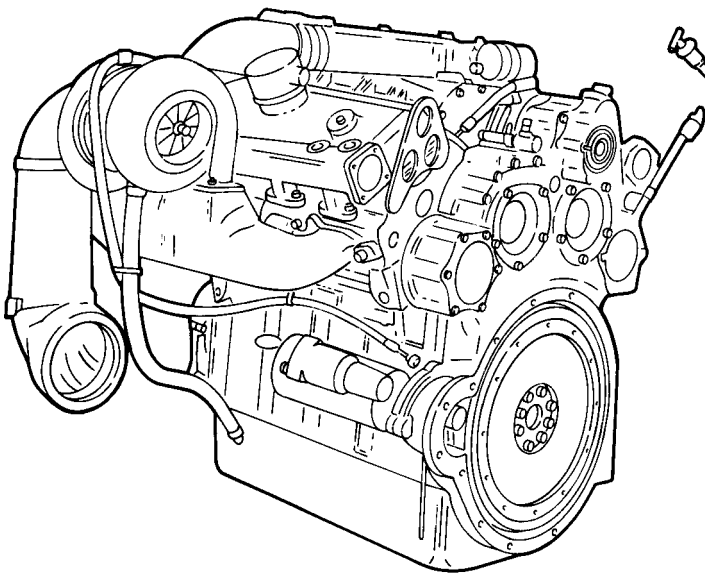


LEFT FRONT VIEW

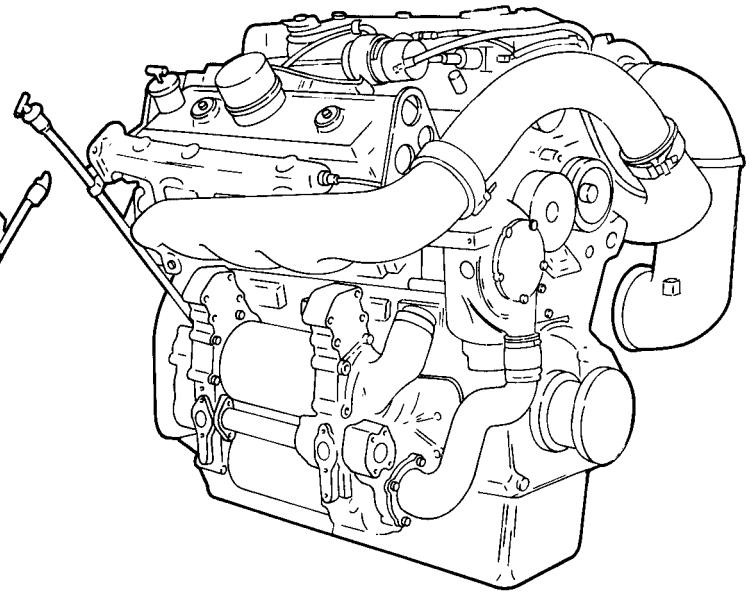
MODEL 7083-7395



RIGHT REAR VIEW

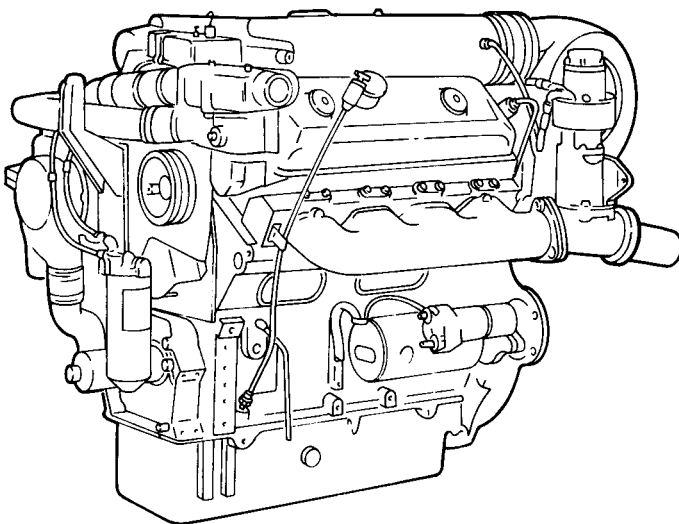


LEFT REAR VIEW

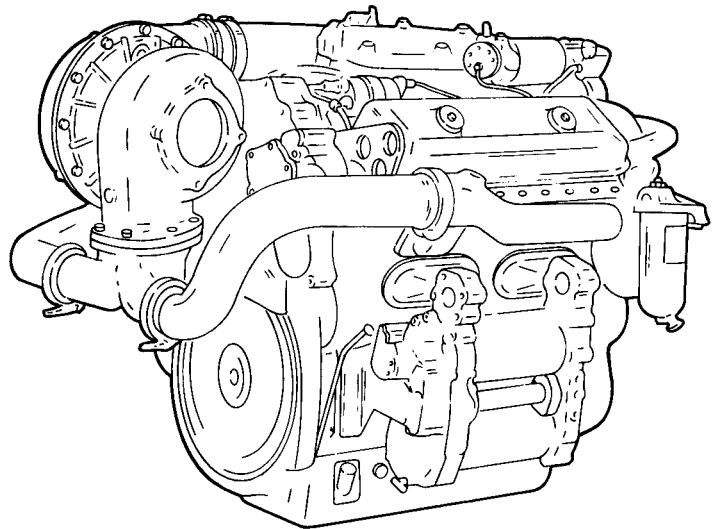


RIGHT FRONT VIEW

MODEL 7083-7396



LEFT FRONT VIEW



RIGHT REAR VIEW

MODEL 7083-7398