

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

FOR

**ENGINE W/CONTAINER:
MODEL 5063-5299 (2815-00-124-5390)
(2815-01-295-7458)**

**ENGINE W/CONTAINER:
MODEL 5063-5392 (2815-01-246-0903)**

**ENGINE W/CONTAINER:
MODEL 5063-5393 (2815-01-248-7644)**

**ENGINE W/CONTAINER:
MODEL 5063-5395 (2815-01-031-6154)**

**ENGINE W/CONTAINER:
MODEL 5063-5398 (2815-00-909-5949)**

**ENGINE W/CONTAINER:
MODEL 5063-539F (2815-01-316-6617)**

**ENGINE W/CONTAINER:
MODEL 5063-539L (2815-01-412-2715)**

This manual supersedes TM 9-2815-205-34 dated March 1975, including all changes.

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TECHNICAL MANUAL
No. 9-2815-205-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 21 August 1992

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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 and Armaments Command, ATTN: AMSTA-IM-MMAA, Warren, MI 48397-5000. A reply will be furnished to you.

You may also provide DA Form 2028/2028-2 information to TACOM via E-mail or datafax. Our fax number is DSN 786-6323. Our E-mail address is: amsta-mmaa@cc.tacom.army.mil

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HOW TO USE THIS MANUAL

Before starting a procedure, read HOW TO USE THIS MANUAL and Para 2-2, 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 things 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 contains the following: Cleaning and general repair instructions, removing/installing the engine from/in the container, removing/installing exterior components, install/remove the engine on/from the maintenance stand, and unit component repair procedures.

CHAPTER 3 contains direct support and general support replacement and repair procedures. Direct support and general support procedures are in separate sections.

CHAPTER 4 explains preparation for testing, tune-up, testing, and preparation for storage of the engine after it 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 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 to 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 Materials/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 9-2815-205-34P.

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 which 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.

MATERIALS/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. Refer to the RPSTL (TM 9-2815-205-34P) for the NSN or part number and CAGE code.

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 condition is listed followed by a description of the part removed, repaired, or adjusted.

HOW TO USE THIS MANUAL (Cont))

FEATURES OF WE 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 behind the front cover of this TM. They call attention to things that could kill or injure personnel.

CAUTIONS. Cautions are found within the procedure immediately before the step to which they apply. They call attention to things 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 common 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 authorize 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 JSN. If the item has no NSN, return to the illustration listing and order the item by the part number and CAGE code.

CHAPTER 1

INTRODUCTION

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1-1. SCOPE

a. **Type of Manual:** Direct Support and General Support Maintenance.

b. **Model Number and Equipment Name.** Detroit Diesel Corporation (formerly Detroit Diesel Allison) Series 6V53 diesel engine, models 5063-5299, 5063-5392, 5063-5393, 5063-5395, 5063-5398, 5063-539F, and 5063-539L.

c. **Purpose of Equipment:** Powers the M113 and M551 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, The Army Maintenance Management System.

1-3. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE. For general destruction procedures, refer to Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use listed in App A.

1-4. PREPARATION OF ENGINE FOR STORAGE OR SHIPMENT. Preparation for storage or shipment is provided in Para 4-10 and 4-11.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If any M113 or M551 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 and Armaments Command, ATTN: AMSTA-MMAA, Warren, Michigan 48397-5000. We'll send a reply.

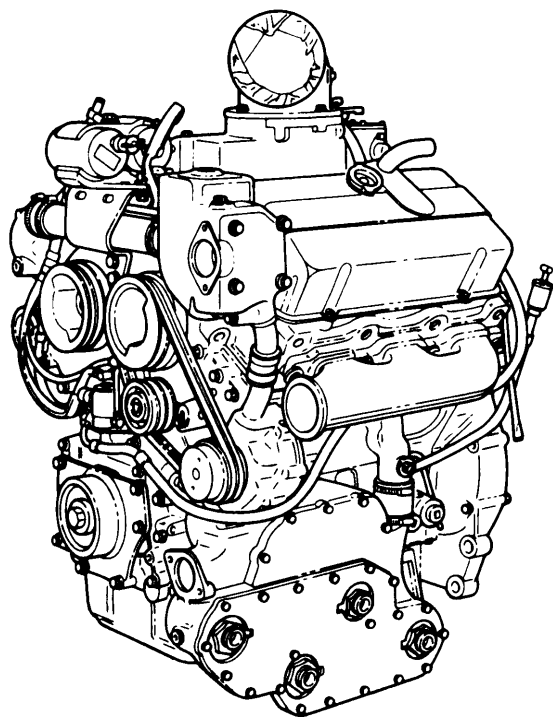
1-6. WARRANTY INFORMATION. The Series 6V53 diesel engine is warranted by Detroit Diesel Corporation for 12 months. Warranty starts on the date found on DD Form 250. Report all defects in material or workmanship to your supervisor who will take appropriate action.

Section II. EQUIPMENT DESCRIPTION

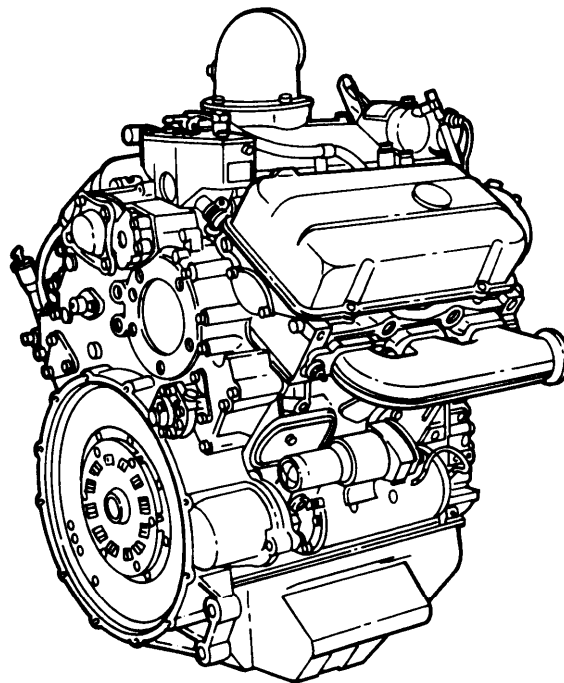
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Equipment Information

1-7. EQUIPMENT DESCRIPTION. All the engine models are two cycle, fuel injected, V-type, liquid cooled, six cylinder diesel engines with wet cylinder liners. The cylinders are numbered one, two, and three 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.



LEFT FRONT VIEW



RIGHT REAR VIEW

MODEL 5063-5299