

TECHNICAL MANUAL

OPERATOR AND UNIT MAINTENANCE MANUAL

**LOCOMOTIVE, DIESEL-ELECTRIC,
56-1/2-INCH GAGE, 60 TON, 500 HP,
0-4-4-0 WHEEL, MODEL RS-4-TC-1A
NSN 2210-01-158-2978**

Approved for public release; distribution is unlimited.

TECHNICAL MANUAL

NO. 55-2210-223-12

HEADQUARTERS
DEPARTMENTS OF THE ARMY AND AIR FORCE
WASHINGTON, D.C., 8 January 1987

OPERATOR AND UNIT MAINTENANCE MANUAL

**LOCOMOTIVE, DIESEL-ELECTRIC:
56-1/2-INCH GAGE, 60-TON, 500 HP,
0-4-4-0 WHEEL, MODEL RS-4-TC-1A
NSN 2210-01-158-2978**

REPORTING OF 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. 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, US Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you.

TABLE OF CONTENTS

	Page
CHAPTER 1 INTRODUCTION	
Section I General Information	1-1
Section II Equipment Description and Data	1-3
Section III Technical Principles of Operation	1-11
CHAPTER 2 OPERATING INSTRUCTIONS	
Section I Description and Use of Operators Controls and Indicators	2-1
Section II Operator/Crew Preventive Maintenance Checks and Services (PMCS)	2-19
Section III Operation Under Usual Conditions	2-26
Section IV Operation of Auxiliary Equipment	2-46
Section V Operation Under Unusual Conditions	2-47
CHAPTER 3 OPERATOR/CREW MAINTENANCE INSTRUCTIONS	
Section I Lubrication Instructions	3-1
Section II Operator Troubleshooting	3-1
Section III Operator/Crew Maintenance Procedures	3-6

TABLE OF CONTENTS (cont)

	Page
CHAPTER 4 UNIT MAINTENANCE INSTRUCTIONS	
Section I Repair Parts, Special Tools, TMDE, and Support Equipment	4-1
Section II Service Upon Receipt	4-1
Section III Unit Preventive Maintenance Checks and Services (PMCS)	4-2
Section IV Unit Troubleshooting	4-10
Section V Unit Maintenance Procedures	4-18
Section VI Preparation for Storage or Shipment	4-109
APPENDIX A REFERENCES	A-1
APPENDIX B MAINTENANCE ALLOCATION CHART (MAC)	B-1
APPENDIX C COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST	C-1
APPENDIX D ADDITIONAL AUTHORIZATION LIST	D-1
APPENDIX E EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST	E-1
APPENDIX F WIRING SCHEMATICS	F-1
ALPHABETICAL INDEX.....	I-1

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

MODEL NUMBER AND NAME: RS-4-TC-1A, 60-ton diesel-electric locomotive.

PURPOSE OF EQUIPMENT: Used for yard switching. Can be used as a single unit or connected in multiple unit operation under one operator.

TYPE OF MANUAL: Operator and Unit Maintenance.

- a. This manual is published for the use of personnel engaged in the operation, inspection, and maintenance of the 60-ton diesel-electric locomotive. It shall be used as a guide for regulations, standards, and procedures governing such work assignments.
- b. Operation covers normal locomotive movement in usual and unusual conditions, inspections and precautions to be observed before and after operations in order to avoid damage to the equipment or personnel injury, and maintenance as it pertains to the engine crew's responsibilities.
- c. Maintenance portion of this manual provides guidance to unit level maintenance personnel. The purpose of each assembly, subassembly, and general overall locomotive maintenance procedure is given. Also included is a general troubleshooting guide to aid in removal, disassembly, cleaning, inspection, repair, assembly, and installation of components. General functions of the main features are given as an aid to provide a concise understanding of major and minor components.

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 (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use, for information and instructions covering destruction of Army materiel.

1-4. PREPARATION FOR STORAGE OR SHIPMENT

Refer to chapter 4, section VI, for information pertaining to the preparation for storage or shipment.

1-5. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

- a. The daily, 92-day, and semi-annual inspection will be performed by the using organization's qualified maintenance personnel.
- b. Refer to DD Form 862, Daily Inspection Worksheet for Diesel-Electric Locomotives, and DD Form 863, Monthly and Semi-Annual Inspection Worksheet for Diesel-Electric Locomotives, for unit maintenance and inspection checklist required of the using organization. Records of the above forms shall be retained for a period of 1 year.
- c. Refer to Federal Railroad Administration (FRA) Form 6180-49A, Locomotive Inspection and Repair Record, to document 92-day Locomotive Inspection and Repair Record in accordance with Locomotive Inspection Act, 36 State, 913. The form must be completed and signed by the personnel conducting the inspection. The completed form shall be placed in the card holder in the locomotive cab. A copy shall be retained for a period of 2 years. Refer to TB 55-2200-207-15/1, Inspection and Maintenance Checklist for Diesel-Electric Locomotive, for unit maintenance's 92-day inspection of the locomotive. The checklist and DA Form 2407, Maintenance Request, will be used as prescribed in DA PAM 738-750.
- d. Intermediate direct support and intermediate general support maintenance tasks should not be performed by unit maintenance personnel. If intermediate direct support and intermediate general support maintenance should be required before normally scheduled, contact: Commander, US Army Troop Support Command, ATTN: AMSTR-MCFR, 4300 Goodfellow Blvd. , St. Louis, MO 63120-1798, AUTOVON: 693-0747.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your locomotive needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to: Commander, US Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd. , St. Louis, MO 63120-1798. We'll send you a reply.

1-7. WARRANTY INFORMATION.

The 3508 diesel engine is warranted by Caterpillar Tractor Company for 12 months or 1000 hours of operation, whichever comes first. Warranty starts on the date found on DA Form 2408, Equipment Log Assembly, or DA Form 2410, Component Removal and Repair/Overhaul Record, in the logbook. Report defects in material or workmanship to your supervisor, who will take appropriate action.