

UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
Training Command
PSC Box 20041
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LVSM 7102

STUDENT OUTLINE

LVS TECHNICAL PUBLICATIONS AND SPECIAL TOOLS

LEARNING OBJECTIVES: Learning Objectives are not specified for this lesson; however, instructions will be provided to teach the students to use those resources to obtain the following information related to Logistics Vehicle System:

1. Maintenance procedures,
2. Repair part requisitioning data, and
3. Special tool identification and utilization.

OUTLINE

1. GENERAL INFORMATION ABOUT THE ORGANIZATIONAL MAINTENANCE MANUAL, TM 2320-20/12 AND SUPPLEMENT

a. The technical manual is the fundamental means by which the Marine Corps communicates to the organizational maintenance mechanics the requirements and procedures to perform equipment operations and maintenance support of all vehicles in the LVS fleet. The Technical Manual, TM 2320-20/12 also known as TM 9-2320-297-20, describes in detail the organizational maintenance procedures prescribed by the Maintenance Allocation Chart (MAC) and Source, Maintenance, and Recoverability (SMR) Codes. TM 2320-20/12 is contained in two volumes.

b. There is also a TM 2320-20/12 Supplement. This is a separate manual and pertains only to organizational maintenance functions for the MK18. The format of the Supplement is basically the same as that of TM 2320-20/12.

(1) Accessing Information. There are three steps required to obtain information from the technical manual.

(a) First, turn to the Table of Contents and find the chapter that contains the general subject material you are interested in. Furthermore, note the section within the chapter that deals with the specific information you need.

(b) Next, turn to the beginning page of the section that the Table of Contents indicated you should turn to. The information provided on the first page of each section, except Chapter 1, General Information and the sections of Chapter II that pertain to preventive maintenance checks and services, will identify the specific page whereon the information you need is located.

(c) The third step is to turn to the page indicated and extract the information you need.

(d) The chapters and sections previously mentioned that do not contain breakdowns of the information contained therein are small and the information you need can be found by merely scanning through their content.

(2) Illustrations. There are various methods used to make locating and identifying related components easier. Locator illustrations with keyed text, exploded views, and cut-away diagrams make the information in this manual easier to understand.

(3) Keying Text Illustrations. The instructions for performing the tasks and the figures that illustrate those maintenance tasks are located together. In most cases, the task steps and figures are located side-by-side, making part identification and procedure sequence easier to follow.

c. General Features. Your TM is the best source available for providing information and data critical to vehicle maintenance.

(1) Warning Summary. This section of the manual lists the general warnings that inform the organizational mechanic on safer ways of performing the maintenance tasks and avoiding possible hazards. These warnings are grouped here but are repeated throughout the manual as the situation dictates. When time permits, you should read over each warning so as to become familiar with its content. Let's read a warning now.

(2) General Information, equipment descriptions and data; Chapter 1. This chapter lists general information on how to use the manual, what it was designed to do, how to report errors in the publication, how to recommend changes to the publication and a brief description of each vehicle in the LVS fleet.

(3) Preventive Maintenance Checks and Services; Chapter 2, Section II lists the preventive maintenance checks and services that are required to be performed on the LVS. This section also lists the abbreviations and identifies the columns used. This section will be covered in more detail in a later lesson.

(4) Systems Troubleshooting; Chapter 2, Section III. Section III of Chapter 2 provides detailed troubleshooting procedures for each item and system included on the vehicle. Section 2-6 of Section III lists the STE/ICE troubleshooting procedures, Section 2-7 of Section III lists the mechanical systems troubleshooting procedures.

(5) General Maintenance Instructions; Chapter 2, Section IV. Section IV of Chapter 2 lists the general maintenance procedures that apply to all parts. The organizational maintenance mechanic will refer to this section when there is not a specific procedure described in the maintenance paragraph.

(6) Detailed Maintenance Procedures; Chapter 3 through 24. Chapters 3 through 24 list the detailed maintenance procedures authorized to be performed on the LVS at the organizational maintenance level. Each chapter covers a different system.

(7) Maintenance Allocation Chart or MAC; Appendix B. The Maintenance Allocation Chart lists each maintenance task that may be performed on the vehicle. The tasks are listed by group and identified to the echelon that is responsible for performing the maintenance.

(8) Repair parts, special tools, and equipment; Appendix B and C. Appendix C refers you to TM 2320-24P/14.

(9) Expendable Supplies and Materials; Appendix D. This appendix lists all the expendable materials that are required to operate, service, and maintain the LVS fleet.

(10) Manufactured Items; Appendix E. An illustrated list of manufactured items is not applicable to this manual.

(11) Torque Limits; Appendix F. Appendix F lists the torque specifications for threaded fasteners that do not have a specified torque in the detailed maintenance procedures. The torque specifications given for the accomplishment of a specific task within the technical manual take precedence over the standard torque specifications listed in this appendix.

(12) Schematic and Wiring Diagrams; Appendix G. Appendix G shows complete schematic and wiring diagrams for the LVS to include the air, electrical, and hydraulic systems.

(13) Warning Summary. Typical of most technical manuals we use, the first thing we see once we open the cover is the Warning Summary. Remember, it's there for your safety and the safety of those around you.

(14) Table of Contents. Use this to quickly guide you to the required information.

(15) Organizational Preventive Maintenance Checks and Services. This section provides procedure and intervals for performing PMCS on the MK18.

(16) Troubleshooting Index. The index contains a list of malfunctions and the beginning page number where the troubleshooting procedures for that malfunction begin. The index is divided into three systems; electrical, lift, and winch.

(17) Maintenance Procedures. This section contains general maintenance procedures.

(18) The rest of the manual consists of malfunction troubleshooting procedures and maintenance procedures, including a hydraulic schematic and wiring diagrams.

2. DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL, TM 2320-34/13 AND SUPPLEMENT

a. TM 2320-34/13 contains intermediate maintenance and troubleshooting procedures for all the LVS series vehicles except the MK18.

b. This manual is used extensively for troubleshooting malfunctions within the hydraulic system.

c. The format of TM 2320-34/13 is very similar to that of TM 2320-20/12 and it also consists of two volumes.

d. Direct and general support maintenance instructions for the MK18 are contained in TM 2320-34/13 Supplement.

3. ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR THE LVS TM 2320-24P/14 AND SUPPLEMENT

a. Parts Manual. TM 2320-24P/14 lists the repair parts, special tools, test, measurement, and diagnostic equipment (TMDE), and other support equipment required for the performance of maintenance on the LVS. The manual has four basic parts.

(1) Introduction. The introduction contains general information concerning the use of the technical manual, pertinent references and a detailed key that explains the abbreviations and codes used in Section II of the repair parts list.

(2) Section II, Repair Parts List. Section II contains a list of repair parts authorized for use in the performance of maintenance. The parts list is grouped into functional groups the same as the MAC, in ascending numerical sequence. The functional group and the nomenclature are also listed in the table of contents. Figures are also included to make part identification easier.

(3) Section III Special Tools List. The Special Tools List identifies the special tools that are authorized for use by maintenance mechanics. Each of the special tools will be covered in this lesson.

(4) Section IV National Stock Number and Part Number Index. The National Stock Number and Part Number Index lists all parts or materials in the technical manual that are ordered by national stock number or part number. The NSNs and part numbers are cross referenced to the figure and item number where they appear in Sections II and III of the repair parts and special tools list.

b. The Supplement for this manual contains parts and special tools for the MK18.

4. THE LVS LUBRICATION INSTRUCTION, LI 2320-12/9 AND SUPPLEMENT

a. LI 2320-12/9, as it is designated by the Marine Corps, provides instructions pertaining to the lubrication of the Logistics Vehicle System; it has six basic parts. The Army identifies the same publication as IO 9-2320-297-12.

(1) Cover. The cover indicates the models covered by the lubrication instruction including their nomenclature and national stock number. Also, on the cover is a brief summary of how to use the lubrication instruction.

(2) Key. The lubrication instruction key, on cards 2 and 3, is referenced in the lubrication point entry diagram. It not only explains all of the abbreviations in the LI, it indicates the fluid capacities of all LVS

components and specifies the lubricant type for operation during varying environmental conditions.

(3) Lubrication point entry diagram. The lubrication point entry diagrams on cards 4 through 12, illustrate all lubrication fill or drain points, lubrication type, service interval and identifies all components that need lubrication service.

(4) Localized view illustration. The localized view illustrations, on Cards 13 through 21 show the specific component lubrication points in greater detail. This helps the mechanic identify the specific lube points on the vehicle. The localized lubrication points shown are referenced in the component identification column of the lubrication point entry diagram.

(5) The note sections on cards 23 and 24 are referenced in the lubrication point entry diagram. The notes provide supplemental information and explanatory notes concerning the lubrication and service of specific components.

(6) LI 2320-12/9 Supplement is in the same format but pertains only to the MK18.

5. LVS SERIES VEHICLE SPECIAL TOOLS

a. Identification and Purpose of the LVS Component Special Tools

(1) Fuel pump tool set. The fuel pump tool set is used during the repair of the fuel pump assembly. The set contains a holding fixture, seal remover, and adapter for installing the oil seals.

(2) Cooling system tester. The cooling system tester is used to pressurize the cooling system to check for leaks. The tester is also used to test the radiator cap.

(3) Front wheel bearing wrench. The front wheel bearing wrench is used to remove and install the locknuts on the front No. 1 axle assembly.

(4) Cramp angle tool. The cramp angle tool is used during steering system alinement. The purpose of this tool is to measure the cramp angle on the front No. 1 axle assembly.

(5) Run flat tool.

(a) The run flat tool is used to install a tire on the wheel whenever a run flat assembly is installed.

(b) The purpose of this tool is to compress the tire to install the side ring. The conventional tire machine cannot compress the tire due to the run flats attached to the wheel assembly.

(6) Seal installer, handle, adapter and pilot. The seal installer tools are used to install the rear axle seals.

(7) Pressure test kit, stabilizer. The stabilizer pressure test kit is used to test the stabilizer lock valves and the stabilizer legs.

(8) Pressure test kit. The pressure test kit is used to read the hydraulic pressures at specific test ports within the vehicle's hydraulic system.

(9) Pressure gage, hose assembly, and adapter. This gage, with the hose assembly and adapter, is a 0-4000 psi gage and is designed to fit special hydraulic fittings on the MK18.

b. Identification and Purpose of the LVS Common Special Tools

(1) Jack stands. The jack stands have a capacity of 10 tons.

(2) Seven eighth inch torque adapters, 1/2 inch drive. The 7/8 inch torque adapter is used to tighten the upper drag link castle nut to the pitman arm.

(3) Crimping tool. The crimping tool is used to attach the wire terminals to the wiring.

(4) Carpenter square. The carpenter square is used during the steering alinement.

(5) Chalk line. The chalk line is used for making the necessary patterns for steering alinement.

(6) Plumb bob. The plumb bob is also used during the steering alinement.

(7) Extraction tool. The extraction tool is used to remove the wire terminals from a deutsch connector.

(8) Vacuum pump kit. The vacuum pump kit is used to create a vacuum in the hydraulic system for the purpose of removing small hydraulic lines. This will enable you to remove a hydraulic line without draining the hydraulic oil.

(9) Reservoir cap. The reservoir cap is used in conjunction with the vacuum pump.

REFERENCES:

LI 2320-12/9B
MCO P4790.2
TM 09470B-10/1
TM 09470B-34/3
TM 09470B-20/2
TM 2320-10/11A
TM 2320-10/11 SUP 1
TM 2320-20/12A
TM 2320-20/12 SUP 1
TM 2320-34/13A
TM 2320-34/13 SUP 1