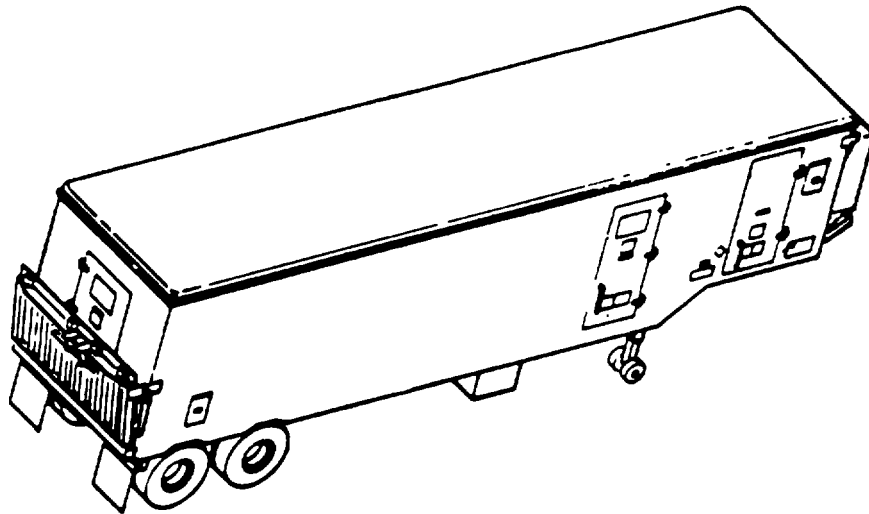


TECHNICAL MANUAL

**OPERATOR'S MANUAL
FOR**

**ARMY OIL ANALYSIS PROGRAM
(AOAP)
MOBILE LABORATORY
SEMI-TRAILER MOUNTED
NSN 6640-01-254-1699**

This technical manual is an authentication of the manufacturer's commercial literature and does not conform with the format and the content requirements normally associated with Army technical manuals. This technical manual does, however, contain all essential information required to operate and maintain the equipment.



Approved for public release; Distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY
26 OCTOBER 1990

TECHNICAL MANUAL

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DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 26 October 1990

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NSN 6640-01-2541699

REPORTING 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 or DA Form 2028 (Recommended Changes to Publications and Blank Forms), on DA Form 2028-2 located in back of this book to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MMTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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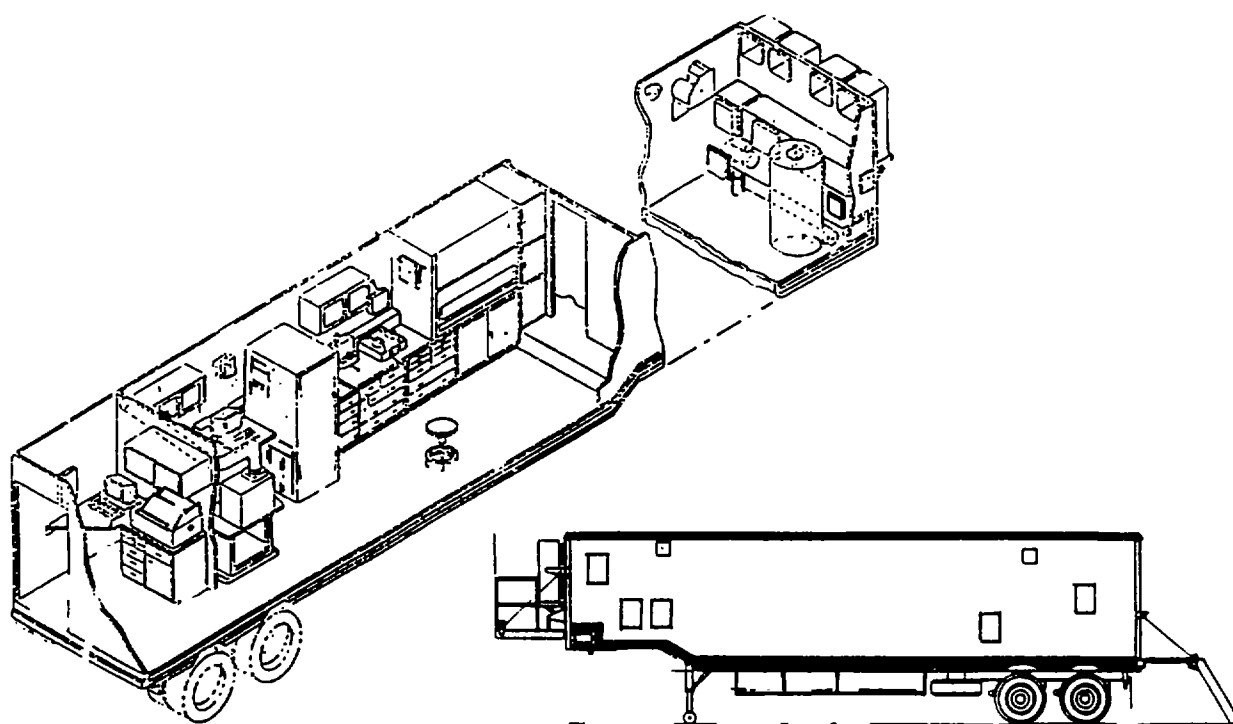
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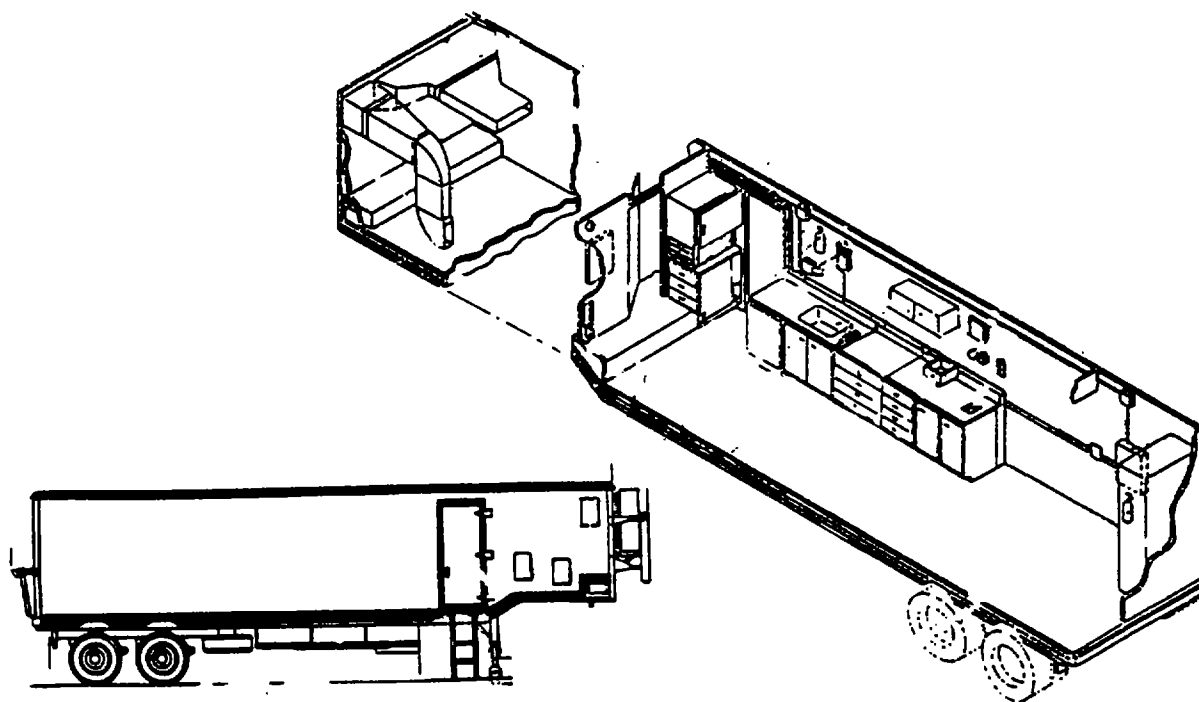
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ROADSIDE



CURBSIDE

Figure 1-1. Army Oil Analysis Program (AOAP) Mobile Laboratory

CHAPTER 1

INTRODUCTION

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Section I. GENERAL INFORMATION

1-1. Scope. This manual provides operating procedures and operator maintenance for the Army Oil Analysis Program (AOAP) Mobile Laboratory, Model Number PD6640-0043 (NSN 6640-01-254-1699). The purpose and intended use of the AOAP Mobile Laboratory is to provide mobile oil analysis capability for aeronautical and selected nonaeronautical equipment in a theater of operations. Present capabilities of on-line aviation maintenance preclude the ability to monitor internal wear of lubrication and hydraulic systems. When assigned to, or deployed with, an aviation maintenance support unit, the AOAP Mobile Laboratory is able to analyze a minimum of 2500 used oil samples per month for wear metal content.

1-2. Maintenance Forms and Records. 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) (Maintenance Management Update).

1-3. Hand Receipt (-HR) Manuals. Not applicable.

1-4. Reporting of Equipment Improvement Recommendations (EIR). If your AOAP Mobile Laboratory needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-QS, 4300 Goodfellow Boulevard, St. Louis, Missouri 63120-1798. We will send you a reply.

1-5. Warranty Information. The AOAP Mobile Laboratory is warranted for one year. The warranty starts on the date found in block 23, DA Form 2408-9 in the logbook. Report all defects in material and workmanship to your supervisor who will take appropriate action.

1-6. Safety, Care, and Handling. Safe and efficient AOAP Mobile Laboratory operations depend on the observance of well established safety practices and a thorough knowledge of testing procedures. The testing procedures often involve using equipment and materials that are potentially hazardous. Injury to personnel and damage to equipment caused by fire, chemicals, dangerous pressures and vacuums, and misuse of equipment can be avoided by alert and responsible laboratory technicians. Strict observance to established safety, care, and handling practices and procedures will allow the laboratory personnel to perform their duties in a safe and hazard free environment.

1-7. General Precautions. The following are general safety precautions that need to be observed by all operators of the AOAP Mobile Laboratory.

- Always be mindful to tests in progress. Never allow horseplay or loud talking that would divert the attention of laboratory technicians. If it is necessary to leave the laboratory or to leave a test in progress, make certain no safety hazard will result because of your absence.
- Do not attempt to perform tests simultaneously unless each test can be given the required attention.
- Whenever in doubt concerning any operation, consult your supervisor.
- Do not attempt unauthorized shortcuts to save time, as they generally are not in accordance with safe laboratory procedures.
- Be prepared for any emergencies which may arise, and be familiar with the proper action to take in event of emergencies.
- When ending daily operations, make a thorough and orderly check of laboratory, equipment, and facilities to ensure that no hazards may develop during the time the laboratory is unattended.

1-8. Preventing Fires. The following fire prevention rules must be observed in all laboratory procedures:

- Do not smoke in the laboratory.
- Never leave open flames or heating elements unattended.
- Never pour hot liquids into drain. Set aside hot liquids to cool thoroughly in covered containers before discarding.
- Make sure that chemicals which may react together to produce dangerous fumes, fires, or explosion are stored in their proper places.
- Make sure that volatile liquids and flammable products are kept away from heat sources, open flames, direct sunlight, and electrical switches.
- Make certain that there is no open flame or exposed heating element nearby when pouring highly volatile liquids.
- Clean up chemical and liquid spills immediately.
- Always pour acid into water; never pour water into acid.
- Keep oily rags in a metal, airtight, closed container. Do not store oily rags in cabinets or drawers.
- Make certain laboratory is adequately ventilated.
- Check fire fighting equipment periodically to make certain it is properly serviced and ready for use. This is done by checking seals, tags, pressure gages, and hoses.

1-9. Extinguishing Fires. Be familiar with the nature of petroleum fires; with procedures for fighting fires; and with the fire extinguishing equipment in the laboratory. Do not use water for extinguishing oil fires because it will spread the fire. Also, water is a conductor of electricity and should not be used on electrical fires.

1-10. Handling Chemicals. The following safety precautions need to be observed by all personnel while handling chemicals.

- Store heavy and large containers of chemicals on or as near the floor as possible.
- Never fill a container with materials other than that indicated on the label. Make sure that every container is properly labeled.
- Never place bottles containing acids or alkalis on high shelves or on top of equipment.
- Always wear goggles when breaking up solid chemicals which might chip, or when handling quantities of corrosive liquids such as strong acids and strong bases.
- When opening new bottles of acid, always wear goggles.
- When pouring a sample from a container, hold the container cap or stopper in the hand. Never place the cap or stopper on a counter where it may come in contact with a contaminating agent.
- Always wipe up any acid that spills or splashes on benches, tables, or floors.
- If any chemical is spilled or splashed on the body, immediately wash the contaminated area thoroughly with water.
- Keep all sample containers that are in use capped or stoppered at all times except when pouring out test portions. Always replace the same cap or stopper in the container from which it was removed.
- Never handle mercury with bare hands; never heat mercury in an open container; and never shake more than 20 milliliters of mercury in a glass container.
- Never taste laboratory chemicals. Smell a chemical only when necessary and then only by wafting a small amount of vapor with the hand toward the nose.
- Dispose of all unlabeled chemicals.

1-11. Controlling Pressure and Vacuum. The following safety precautions should be observed by all personnel while operating the air/vacuum systems.

- Do not use faulty copper, plastic, or rubber tubing when performing operations requiring pressure or vacuum.
- Make sure that glass vacuum apparatus is properly shielded when it is in use.
- Always wear goggles when opening air valves that are close to the face.

- Make sure that chemical containers having vent caps are inspected, and that containers which do not have vent caps are vented periodically.
- Keep containers of volatile liquids as cool as possible. Exercise caution in releasing any pressure which may have formed in the container; always release the pressure gradually. Remove caps or stoppers periodically to vent the vapor. The practice of venting containers of volatile liquids does not apply to those samples collected for vapor pressure tests.
- Vent separator funnels frequently when shaking volatile liquids. Always wrap the funnel with a rag when shaking an extremely volatile liquid.
- Store propane cylinders in the safety storage cabinet for flammable liquids.

1-12. Controlling Fumes. The following safety precautions are presented to aid operators of the laboratory in controlling toxic fumes.

- Make certain the laboratory is properly ventilated at all times.
- Perform all gas alarm system tests and calibrations as specified to ensure proper operation of system.
- If any material is spilled which gives off toxic fumes, all personnel should leave the area immediately and return only after the area has been adequately purged.

1-13. Electrical Safety. The following electrical safety precautions apply to all operators and maintenance personnel for the laboratory.

- Equipment producing a tingle sensation will be reported promptly for repair.
- Keep the use of extension cords to a minimum and the cords as short as possible. Be sure insulation and wire size are adequate for the voltage and current to be carried.
- Work on electrical devices should be done after the power has been disconnected or shut off, and suitable precautions taken to keep the power off during the work.
- Never use metallic pencils or rulers, or wear rings or watches when working on electrical equipment.
- Avoid using or storing flammable liquids near electrical equipment.