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HEADQUARTERS, DEPARTMENT OF THE ARMY
TECHNICAL BULLETIN

ARMY OIL ANALYSIS PROGRAM

(AOAP)

Guide for Leaders and Users

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FOREWORD

The Army Oil Analysis Program (AOAP) is part of a Department of Defense program to detect impending equipment component failures and determine lubricant condition through on-line and laboratory evaluation of oil samples. Through application of laboratory non-destructive analytical techniques, flight safety is improved, equipment readiness is enhanced, and resources can be conserved. Program Manager (PM) AOAP provides operational management of the oil analysis program. The objectives, policies, and the responsibilities of commands participating in the AOAP are prescribed in AR 750-1, Army Materiel Maintenance Policy. This technical bulletin must not be interpreted to mean AOAP minimizes the need to employ good maintenance practices and strong maintenance discipline. AOAP is an effective maintenance diagnostic tool and not a maintenance substitute.

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SECTION I

GENERAL

1-1. Purpose. This technical bulletin identifies equipment enrolled in the AOAP, provides instructions on taking oil samples, and provides guidance for installation and unit management of AOAP operations. This publication also informs the equipment maintainer what supplies to obtain, how to prepare forms, where AOAP laboratories are located, and where to seek assistance when unusual situations are encountered and appropriate information is not contained herein.

1-2. Scope. These instructions are applicable to all commands, units (including US Army National Guard and US Army Reserve), installations, and activities that operate or provide maintenance support to Army aeronautical and nonaeronautical equipment. As outlined in AR 750-1, AOAP is mandatory for all AOAP enrolled equipment listed in appendices A (Aeronautical) and B (Nonaeronautical).

1-3. Abbreviations and Terms. Abbreviations and special terms used in this bulletin are explained in appendix E.

1-4. Program Description.

a. AOAP is an Army program using machine condition-monitoring technologies to analyze lubricant samples extracted from enrolled components on a scheduled basis. Worldwide laboratories equipped with advanced diagnostic instruments can detect and measure damaging part-wear particulate before it becomes visible to the human eye. The AOAP includes industry standard condition monitoring technologies, such as spectrometric oil analysis, ferrography, and online/in-line fault analysis, to determine the internal condition of engines, gearboxes, transmissions, and other lubricated systems or components. Like other maintenance tools, it must be used properly to be effective.

b. It doesn't take long to sample the lubricants in a piece of equipment, and that action can save hours of maintenance downtime through early detection of such problems as faulty air-induction systems, leaking cooling systems, loose crossover fuel lines, and abnormal wear rates of moving metal parts. That sample also allows laboratory technicians to determine the quality of the lubricant or hydraulic fluid, and that translates to savings through laboratory-recommended oil changes (on-condition). A sample, properly taken and sent to the laboratory, gives the commander information about equipment condition and maintenance quality. That is an investment in readiness, and it takes the cooperation of all concerned to make it pay off. Close contact among the laboratories, USAMC Logistics Assistance Office (LAO) representatives, and maintenance personnel concerning AOAP-identified equipment problems has improved maintenance throughout the Army. Equipment reliability is improved through AOAP. Design changes and product improvements have been made on the basis of oil analysis findings. By detecting the signs of impending failure at an early stage, maintenance can be performed at a lower level, thereby reducing the number of catastrophic failures and associated rebuild costs. In the short run, this decreases maintenance support costs. In the long run, it improves readiness by

reducing the number of not mission capable (NMC) equipment items and enhances safety.

c. Training/Familiarization Video.

(1) To assist commanders, equipment-owning units, and maintainers in understanding the AOAP mission and operations, PM AOAP, has produced a videotape covering everything from sampling to laboratory operations. The videotape is available through your installation training and audiovisual support center. Request video:

Army Oil Analysis Program (TVT 22-136/PIN 711439)

(2) The AOAP video may also be ordered through the Defense Visual Information web page at <http://dodimagery.afis.osd.mil/>. Once the web page has been accessed, select Central DoD Production Databases @ DAVIS/DITIS. Enter the word AOAP in the search box and the search will display available training videos. Select video 'Army Oil Analysis Program' (PIN 711439), dated 25 Jul 2002.

(3) The AOAP training video may also be viewed through the Internet by accessing the AOAP homepage at: <http://weblog.logsa.army.mil/aoap/relpub.htm>. Select 'AOAP training program video' and the video can be viewed online using a computer media player or downloaded to a unit computer.

SECTION II RESPONSIBILITIES

2-1. Commanders. Commanders of Major Army Commands (MACOM), equipment units, and PM AOAP, responsibilities are defined in AR 750-1. The oil analysis program is a maintenance diagnostics process that will enhance crew safety, increase readiness, and conserve lubricant resources. Through the use of the expertise your AOAP people provide, and informative maintenance data available on monthly reports provided by the laboratory, you have the capability to ensure the success of the AOAP. You should emphasize and actively promote the program and display firm command interest in this vital maintenance management tool. One of the most important tasks you have is to appoint a command representative to monitor the AOAP within assigned units. This command representative plays a key role.

2-2. Installation/Command AOAP Monitor.

a. Develop supplemental command directives and procedures applicable to subordinate units and activities.

b. Serve as the Commander's primary point of contact for coordination with the supporting AOAP regional laboratory and the AOAP Program Management Office.

c. Each unit, from company through division/installation, should have a monitor appointed by the appropriate commander. At company level, it might be the motor sergeant, although any responsible person can be given the job.

d. Assist unit AOAP monitors and equipment users to understand and comply with procedures, operations, and requirements of the AOAP.

e. Experience has shown the effectiveness of your program depends on you. Reports produced by the Oil Analysis Standard Interservice System (OASIS), (See Section XI) at the laboratory provide an excellent record of what is going on at your installation. Make sure your units receive the reports on time and use them in their daily routine.

f. You ensure the laboratory promptly notifies units of possible abnormal conditions by telephone and documented follow up. Make sure the laboratory has your name, address, and phone number. You, in turn, should maintain a complete list of the names, addresses, and phone numbers of the unit monitors in your support area. Work with the laboratory and your maintenance support facilities to make sure laboratory-recommended maintenance is being performed and feedback supplied.

g. Organize formal training for AOAP monitors and make AOAP performance part of your command inspection programs. You and your commander are the people who can make the program work for you.

2-3. Unit AOAP Monitor.

a. Serve as the Commander's representative to assure the AOAP is implemented within the equipment unit/organization.

b. Ensure AOAP designated equipment is enrolled in the program and component oil samples are submitted at the prescribed intervals. Equipment enrolled in the AOAP is listed in appendices A (Aeronautical) and B (Nonaeronautical).

c. Ensure oil samples are dispatched to the laboratory by the most expeditious means on the same day the sample is taken (do not hold or batch individual samples for long periods of time, waiting for the organization to take all samples). Oil samples held for long periods of time will allow the metal content in the oil to settle and may not be detected during some analytical tests.

d. Assure each AOAP sample submitted to the laboratory has a completed Oil Analysis Request form, DD Form 2026 or DA Form 5991-E, accompanying the oil sample. (See samples of forms at appendix D, figures 7 and 8). Forms are available through normal publications channels or the automated Unit Level Logistics System (ULLS).

e. Ensure information recorded on DD Form 2026 or DA Form 5991-E is complete and accurate. Incomplete information may cause laboratory tests to be matched to the wrong component, adversely influence test findings, and may be returned for incomplete information.

f. Assure units are reporting AOAP laboratory recommendations to maintenance personnel.

2-4. Unit Commander. As unit commander, you will be relying heavily on your maintenance officer and AOAP monitor, so your first job is to ensure you have well-trained personnel in those slots. Command actions that ensure success:

a. AOAP training is being performed.

b. Adequate samplings supplies are maintained.

c. Samples are taken as scheduled.

d. Samples are being forwarded either by courier or 1st class mail.

e. Prompt/proper action is taken when a report of a potential problem is received.

f. Maintenance feedback is being provided to the laboratory.

g. Proper forms are sent to support maintenance units for equipment being repaired.

2-5. Unit Maintenance Officer.

a. As maintenance officer, ensure your maintenance personnel review and comply with all AOAP publications and unit standing operating procedures, as they apply to the program.

b. When maintenance is performed on components at the recommendation of the laboratory, be sure your unit has entered deficiencies found and actions taken on the DA Form 3254-R. The form must be sent to the laboratory within 5 days of work completion.

c. When laboratory-recommended maintenance is above your level, be sure properly annotated DA Forms 3254-R and 2407 or ULLS DA Form 5990-E accompany the equipment to the next higher level of maintenance. If the component is placed in a container, AOAP labels (provided by the laboratory) should also be affixed to two opposite sides of the container for easy identification.

2-6. Unit Equipment Oil Sampler.

a. As the person taking the oil sample, you are the heart of the program. The success of the program at your unit rests squarely on your shoulders. It is your job to sample the equipment at prescribed intervals. Always take a reliable sample that is free from outside contamination. (NOTE: Make sure you observe all safety precautions when taking a sample.)

b. Requisition and maintain on hand adequate oil sampling kits and supplies. (See Section IV, Tables 1 and 2, for a list of AOAP sampling supplies).

c. Take oil samples IAW procedures outlined in Section VII.

d. In the remarks section of the Oil Analysis Request form, record any repairs affecting oil-lubricated parts of selected components and the odometer reading of the end-item in which the component is installed.

e. Complete a DD Form 2026 or ULLS DA Form 5991-E for each component sampled. Your TAMMS clerk should send your sample to the laboratory the same day it is taken. If the laboratory detects a problem, you may need to schedule samples at intervals shorter than normal to monitor its condition. If the laboratory requests a resample, follow laboratory instructions and get another sample to the servicing laboratory within 72 hours.

f. Your TAMMS clerk will clearly indicate your resample is a special AOAP sample by banding the sample bottle with red tape and marking the borders of the DD Form 2026 or ULLS DA Form 5991-E in red.

g. Writing SPECIAL in the Remarks block of the DD Form 2026/ULLS DA Form 5991-E.

h. Ensure laboratory recommendations are passed to maintenance personnel as soon as possible.

i. Attach a copy of the laboratory report, DA Form 3254-R, Oil Analysis Recommendation and Feedback, to DA Form 2407/DA Form 5990-E, Maintenance Request, when AOAP enrolled components are evacuated to support maintenance, based on an AOAP laboratory maintenance recommendation. (See sample of maintenance forms, appendix D, figure 10).

j. Affix AOAP labels to the components evacuated to support maintenance as a result of laboratory recommendations. The AOAP label will provide the means for ensuring logistics control of components removed as a result of oil analysis detection of impending failure. Two AOAP labels shall be affixed to different conspicuous areas of the component. If the component is placed in a container, labels shall be posted on two opposite sides of the container for easy identification. (See Section VI).

2-7. Maintenance Supervisor.

a. Your job is to make sure the people you assign to sample the oil know how to sample and do it in accordance with prescribed intervals. You check the entries made on the DD Form 2026 or ULLS DA Form 5991-E. Items especially important are hours since the last oil change, unit identification code, component and end item serial numbers, and usage.

b. If you have been notified some laboratory-recommended maintenance needs to be performed, make sure it is done. If the needed maintenance is performed at your level, be sure you inform the laboratory by returning the completed DA Form 3254-R within 5 days of finishing the work.

c. If maintenance is performed above your level, be sure the DA Forms 3254-R and 2407 or ULLS DA Form 5990-E are sent along with the equipment to support maintenance. Attach two AOAP labels to different conspicuous parts of the component. (Labels are provided by the laboratory along with the DA Form 3254-R.) If the component is placed in a container, labels should also be affixed to two opposite sides of the container for easy identification.

2-8. Support Unit Maintenance Officer.

a. Support maintenance shops get all AOAP repair actions that can't be accomplished at unit level. When repairs are made, be sure a copy of the completed DA Form 3254-R is sent back to the laboratory and the owning unit. List all discrepancies found and repairs made.

b. If the component is not repairable at your level, ensure AOAP labels are affixed to the component and the container in which it is being shipped. Your task is to be sure DA Forms 3254-R and 2407 or ULLS DA Form 5990-E have been shipped with the equipment.

c. When the repairs are completed, return the component to stock or send it back to the user. Annotate the two forms and note all discrepancies found and repairs completed. Send the DA Form 3254-R to the supporting laboratory and a copy to the owning unit.

d. The DA Form 3254-R report provides the materiel developer, engineers, and equipment manufacturer what material problems were actually found during maintenance repair. When necessary, support maintenance personnel are encouraged to contact the laboratory technician directly for further explanation or clarification of test findings.

2-9. AOAP Regional Laboratory.

a. Personnel at your AOAP laboratory are there to help you, so get your sample to them as

quickly as possible.

b. In the case of normal samples, the DD Form 2026 or ULLS DA Form 5991-E will be returned to the unit stamped NORMAL.

c. The laboratory uses this priority sequence for analyzing samples:

- **SPECIAL AIRCRAFT**
- **ROUTINE AIRCRAFT**
- **SPECIAL NONAERONAUTICAL**
- **ROUTINE NONAERONAUTICAL**

d. If sample analysis indicates a problem, the laboratory will request another sample by telephone or fax and then return the annotated DD Form 2026 or ULLS DA Form 5991-E. When an impending failure is indicated, the laboratory will promptly notify the unit. Then they'll send a DA Form 3254-R in the mail. Units not on the same installation as the laboratory also receive a priority message as documentation. U.S. Army, Europe (USAREUR) units receive a message in DA Form 3254-R format.) NOTE: Priority messages are not needed for Army Reserve and National Guard nonaeronautical equipment.

e. Units participating in the AOAP are assigned to a specific laboratory by PM AOAP, in coordination with the MACOM. Laboratory designations will be based on location and workload of available facilities. Laboratories and areas of support are listed in Section X.

f. Laboratories provide customer/units with available computer generated reports containing information to assist units to manage internal AOAP operations and show the status of unit equipment serviced by the laboratory.

g. Request special samples from the unit when analyses indicate an apparent abnormal equipment condition, there is an inadequate amount of lubricant to conduct tests, or the source of the lubricant is suspected to be from a component other than the one identified for testing.

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SECTION III EQUIPMENT ENROLLMENT AND REMOVAL

3-1. Initial Weapon System/Component Enrollment. Enrollment of a weapon system or component in the AOAP will be recommended by the MACOM commander/materiel developer, and approved by PM AOAP. Enrollment responsibilities are listed in AR 750-1 and procedures are outlined in DA Pam 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS) and DA Pam 738-751, Functional Users Manual for The Army Maintenance Management System-Aviation (TAMMS-A).

3-2. Newly Assigned Equipment. When a unit is assigned an item of equipment already participating/enrolled in the AOAP and needs to register the equipment with their assigned AOAP support laboratory, complete an Oil Analysis Request form (DD Form 2026) and indicate in the 'Remarks' block the equipment is a newly assigned piece of equipment.

3-3. Equipment Removal from the AOAP. Equipment will be removed from the AOAP in accordance with procedures outlined in AR 750-1.

3-4. Enrolled Equipment Transferred. AOAP enrolled equipment is tracked and tested by the serial number of the tested item and the serial number of the end-item it is installed in. When an item of equipment is transferred from the unit, ensure the regional AOAP laboratory is notified.

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**SECTION IV
AOAP SAMPLING SUPPLIES**

4-1. Supplies. The equipment unit shall maintain an adequate supply of oil sampling stock on hand to meet routine and deployment requirements. The recommended AOAP supply items and sampling kit items are listed in Tables 1 and 2 below. For a sample of forms, see appendix D.

4-2. Sampling Tubes. Sampling tubes are polyethylene tubes sealed on both ends to prevent contamination. Three sizes are utilized to meet the requirements of the various equipment components. Tubes are issued in bags of 25.

4-3. Sampling Bottle. The aeronautical sampling bottle is a 5-dram (5/8 ounce) bottle with a plastic screw cap. The non-aeronautical sampling bottle is a 3-ounce plastic bottle.

Table 1. Aeronautical AOAP Sampling Kit

Item	NSN	Unit of Issue	Source
Sampling Tube, Plastic 15" long X 3/8" outside diameter	4710-00-933-4415	BG	S9C
Sampling Tube, Plastic 20" long X 3/8" outside diameter.	4710-00-933-4416	BG	B17
Sampling Tube, Plastic 30" long X 3/8" outside diameter	4710-01-087-1629	BG	B17
Sample Bottle, Glass	8125-00-933-4414	GR	S9I
Sack, Shipping 6" X 10" (250 ea per)	8105-00-290-0340	BX	GSA
Labels 3 1/2" X 15/16" (5000 ea per)	7530-00-082-2661	BX	GSA
Bag, Plastic (1000 ea per)	8105-00-837-7754	MX	GSA

Table 2. Nonaeronautical Sampling Kit

Item	NSN	Unit of Issue	Source
Sample Bottle Plastic	8125-01-082-9697	BX	S9I
Vampire Pump	4930-01-119-4030	EA	S9I
Nonmetallic Tubing (1/4" outside diameter/1000 ft/roll)	4720-00-964-1433	RL	S9C
Shipping Sack	8105-00-290-0340	BX	GSA
Plastic Bag	8105-00-837-7754	MX	GSA
Mailer Kit (24 each nonaeronautical sampling bottles, plastic shipping sacks and mailing cartons)	8125-01-193-3440	BX	S9I

SECTION V WHAT TO SAMPLE

5-1. AOAP participants will use this technical bulletin as the source reference for equipment components required to have lubricant samples analyzed in oil analysis laboratories. Refer to appendices A and B for equipment components and systems enrolled in the AOAP.

5-2. PM AOAP, will maintain a listing of enrolled equipment on the Internet at: <http://weblog.logsa.army.mil/index.shtml>. At the WebLog index, select AOAP Air Equipment or AOAP Ground Equipment in the Maintenance Management window.

5-3. The hydraulic fluid in sealed recoil mechanism/gun mounts on combat equipment is NOT to be sampled.

5-4. Reserve and National Guard equipment not operated for 180 days or more will be considered in a temporary inactive status. This equipment will not be sampled until removed for use. At that time, a sample will be taken and then normal AOAP sampling intervals will apply. A sample will also be taken before equipment is put back in an inactive status.

5-5. Warrantee Items. For equipment under manufacturer's warranty, the schedule for oil service outlined in the warrantee agreement will be complied with. However, if the laboratory recommends an oil change, the recommendation should be followed. The organization will also change oil at the appropriate hard time interval in order to keep the warranty valid. If the laboratory recommends that a warranty component be removed or have maintenance performed, the AOAP monitor will report the information to the supporting warranty control office and comply with the course of action outlined by that office.

5-6. Equipment in storage or has very low usage.

a. While equipment is in storage or has very low usage, no sampling is required. A sample must be taken before the equipment goes into storage and when it is scheduled to return to operational use. Equipment with very low usage/OPTEMPO, such as those stored at equipment concentration sites, are not required to be sampled. Low usage is defined in DA Pam 738-750 and DA Pam 738-751, under Administrative Storage.

b. Army prepositioned stock (APS) materiel. Refer to TM 38-470 for instructions as to what APS stored materiel will have AOAP oil samples taken and tested.

c. When equipment is used as a development item, a training aid, or as a static display, authorization to discontinue AOAP sampling or to sample at longer intervals may be granted by the appropriate major command. One copy of the written authorization should be submitted to PM AOAP.

d. Source oil. AOAP laboratories may request a sample of the source lubricant or new lubricant used to service the component under test, to verify the source lubricant is not the cause for abnormalities detected in test findings.

SECTION VI

WHEN TO SAMPLE

6-1. Routine Oil Samples. AOAP enrolled components will be sampled in accordance with the sampling interval indicated for the component in appendices A and B. The oil-sampling interval schedule for equipment will begin when the equipment was most recently sampled. Equipment owning units may use DD Form 314 (see Chapter 3, DA Pam 738-750 for preparation and disposition instructions) to schedule enrolled equipment for oil sampling.

6-2. Stored or Preserved Equipment. When aeronautical or nonaeronautical equipment is placed in storage, no sampling is required. The following procedures will apply.

- a. Equipment scheduled for storage and /or preservation will have an oil sample taken before the equipment is placed in storage and/or preservation.
- b. Equipment enrolled in AOAP that is removed from storage or a preserved state will be operated until normal operating temperatures are reached. At that point, an oil sample will be taken and submitted to the laboratory for analysis.
- c. Army Prepositioned Stock (APS) stored materiel. The schedule for AOAP oil sampling and testing of APS equipment lubricants is outlined in TM 38-470.

6-3. Special Samples and Laboratory Requested Samples. Special samples and laboratory requests for a sample (resample) should not be considered as a basis for removal of a component from service, recording the equipment as non-mission capable or as indication the aircraft is in any danger, unless the laboratory specifically states that it is. Special samples shall be submitted to the laboratory under the following circumstances:

- a. At the discretion of the maintenance officer at any time a component malfunctions or is suspected of being operated under abnormal conditions, which may adversely impact the normal operation of the component.
- b. After an aircraft accident or incident, regardless of the cause. Oil samples from all components enrolled in the AOAP shall be taken and submitted for immediate analysis.
- c. Prior to oil change, with a notation of the component operating hours at the time of the oil change and the reason for the oil change. A sample shall be taken after an oil change, following maintenance operational checks are made and the equipment has been operated at normal operating temperature.
- d. Immediately following any flight that results in a maintenance event recorded in the flight log, such as an in-flight failure, an overboost, or overspeed. Oil samples should also be taken when any abnormal flight condition or malfunction is suspected to have affected an oil or grease lubricated part.
- e. After any indication of internal damage to an oil or grease lubricated component, such as the presence of metal particles on the magnetic plug, oil filter, or oil screen. Contaminants

should be removed, placed in a clean sample bottle, and forwarded with oil sample to assist in evaluation.

f. Prior to performing maintenance on enrolled components and immediately after maintenance has been completed. The repairs and change of oil will establish a new pattern or rate of part-wear. This includes repair, replacement, or installation of any time-change parts or components enrolled in the AOAP.

g. Prior to a component removal, regardless of the reason for removal.

h. After engine overhaul/rework and at the completion of a test cell run, test track operation, or functional check flight.

i. Prior to transfer of equipment or overseas deployment of the components.

j. Special samples should be very clearly marked "SPECIAL" and banded with red tape or marked in some other conspicuous manner in order that they may be easily identified by the laboratory and processed on a priority basis

k. Special samples will satisfy requirement for routine sampling and will begin a new oil sampling interval schedule for the component. Care must be taken to assure the next scheduled sample is taken without exceeding the allowable range guidelines specified in paragraph 6-4.

l. Laboratory requested sample shall be submitted upon request. Resamples are requested either as a result of a sharp increase in the wear metal content in the lubricant or because of the amount of dirt and/or sludge in the lubricant indicates the sample was not taken properly.

NOTE: When unprotected aircraft are exposed to rain or high humidity for prolonged periods, a special sample may be sent for analysis at the discretion of the maintenance personnel.

6-4. Sample Interval Variation.

a. Appendices A and B prescribe the specific interval for each component. Samples should be taken as near the prescribed interval as possible. Owing to the difficulty of sampling at the precise interval, the following variation guidelines shall be used to plan when to sample:

Table 3 - Operating Hours

SAMPLING INTERVAL	ALLOWABLE RANGE
5 hours	4-6 hours
10 hours	8 - 12 hours
12 ½ hours	10 - 15 hours
25 hours	22 - 28 hours
30 hours	27 - 33 hours
50 hours	46 - 54 hours
100 hours	95-105 hours

Table 4 - Calendar Days

SAMPLING INTERVAL	ALLOWABLE RANGE
60 Days	54 - 66 Days
90 Days	81 - 99 Days
180 Days	162 - 198 Days
365 Days	329 - 401 Days

b. Occasionally, the laboratory will request samples be submitted more frequently in order to maintain a component under closer surveillance. When a special sampling interval has been instituted, it should be followed until the laboratory informs the operating unit to return the component to the normal sampling interval.

c. The allowable range above should not interfere with sampling on a scheduled basis. Scheduling should be established in accordance with the sampling intervals listed in appendices A and B. This should normally reduce equipment downtime by permitting sampling of components while performing other scheduled inspections or services. Scheduling will permit the operator, crew, AOAP monitor, and other interested individuals to easily determine when the next AOAP sampling is required.

d. If the equipment does not have a functioning hour meter use the formula, 10 miles or 16 kilometers = 1 hour of operation to calculate operating time. For example, a 2 1/2-ton truck should be sampled every 90 days or 100 hours, you should sample every 90 days or 1,000 miles if there is no hour meter. (The sampling interval varies for different categories of equipment.)

6-5. Mailing and Delivery Instructions. When samples are to be mailed and the number is four or less, use the shipping sack. Insert the oil sample bottle(s) into the plastic bag and seal. Place the completed Oil Analysis Request forms into the shipping sack along with the plastic bag(s). Send it by first-class mail to your supporting laboratory. Do not use bulk mail or parcel post. When the number of samples is five or more, use the boxes from which the empty bottles came in. Place the Oil Analysis Request forms in a plastic bag and lay it on top of the bottles. When delivering a sample directly to the laboratory, fold the completed Oil Analysis Request form in half, wrap it around the sample bottle and secure it with a rubber band.

SECTION VII HOW TO SAMPLE

7-1. General. The success and effectiveness of the AOAP are dependent upon the testing and analysis of reliable oil and grease samples. A reliable sample is one that is truly representative of the lubricant oil in the component being evaluated. Special care is needed to ensure oil samples are not contaminated, either by external dirt or other foreign material.

a. Samples taken from a component immediately after the addition of new lubricant will not become representative of the oil system until complete mixing of the old and new lubricant has taken place.

b. The value of an oil sample is wholly dependent on whether the lubricant has circulated in the component long enough to accumulate and mix wear metal concentrations uniformly.

c. Always take aircraft samples while a component is still warm. Samples shall be taken within 15 minutes of an engine shutdown or aircraft landing. If a sample is to be taken from an aircraft that is cold, run the system until it reaches normal operating temperature; then shut off the system and sample it. If it is impossible to operate the system, as in the case of an aircraft that is down for maintenance, indicate that the sample is a “cold” sample on the accompanying DD Form 2026 and explain the circumstances.

d. If you operated the nonaeronautical equipment within the last 30 days, you can take a sample without bringing the equipment to operating temperature. If you have not operated the nonaeronautical equipment within the last 30 days, you need to bring the equipment to operating temperature for a “hot” sample. This applies to both routine and special samples.

e. Store unused sampling supplies in a clean, closed container. Remove them only when you are going to take a sample.

f. Avoid contamination of cut tubing and the inside of bottle caps by keeping them sealed until needed.

g. Use a new sampling tube to fill each sample bottle; discard tube after sampling.

h. Take the sample from approximately the same depth in the reservoir each time.

i. Do not use mouth suction to draw oil into a sampling tube.

j. To prevent contamination of the oil sample, avoid letting the sampling tube touch the sides and bottom of the oil reservoir.

k. Take special precautions at all times to avoid dropping sampling equipment into oil reservoirs since damage and failure may result.

7-2. Sampling Techniques.

a. Valve Method. (See appendix C, figure 2) To make sampling easier, many components in AOAP are equipped with a special sampling valve to simplify sample taking. These valves are installed according to instructions found in the equipment technical manual. To take a sample with a valve, you may need to start the engine to pressurize the system. Once the oil starts to flow, flush a small amount of oil from the line to clear out contamination. Then fill the sample bottle from the valve.

b. Pump Method. (See appendix C, figure 3)

(1) Sampling from equipment that has no sampling valve takes more time. First, cut the tubing about 10 inches longer than the dipstick (See appendix C, figure 4).

(2) Loosen the T-handle on the pump. Insert the plastic tubing about 2 inches into the bottle. Tighten the T-handle just enough to grip the tubing firmly.

(3) Remove the filler cap or dipstick from the oil reservoir. Insert the tubing into the reservoir, but **be careful not to let tubing touch bottom**. If the tube touches the bottom, sludge will be picked up, and the laboratory will request another sample.

(4) Pull the pump handle out slowly. Oil should flow into the sample bottle. Fill the sample bottle to the bottom of the neck or about 1/2 inch from the top of the bottle.

(5) Push the vacuum release button when you have enough oil. Do not let oil get into the pump. If oil does get into the pump, take the pump apart and clean each piece thoroughly with appropriate cleaning solvent. **Let it air dry**.

(6) Remove the tubing from the dipstick opening. Unscrew the sample bottle and replace the bottle cap. Use a clean rag or tissue to wipe off any oil on the tip of the tube. Then pull the tube out of the pump head and discard the tubing.

(7) Whether you take your sample by valve or pump, enter the end item and component serial numbers on the sample bottle and complete the DD Form 2026 or ULLS DA Form 5991-E. Then get the sample, along with the form, to the TAMMS clerk for processing. The TAMMS clerk will see that it is sent to your laboratory by the fastest means available.

(8) Replacement parts for the oil-sampling pump are provided in table 5.

Table 5. Oil Sampling Pump Parts

Item	NSN	Unit of issue
Replacement O-Rings for the Oil Sampling Pump are:		
Old-Style Pump (with stand)		
O-Ring	5331-00-579-8156	EA (1)
O-Ring	5331-01-231-5216	EA (1)
New-Style Pump (no stand)		
O-Ring	5331-00-579-8156	EA (1)
O-Ring	5331-01-133-5858	EA (1)
O-Ring	5331-01-226-8750	EA (1)
O-Ring	5331-01-231-5216	EA (1)

Replacement O-Rings for the Oil Sampling Pump are:

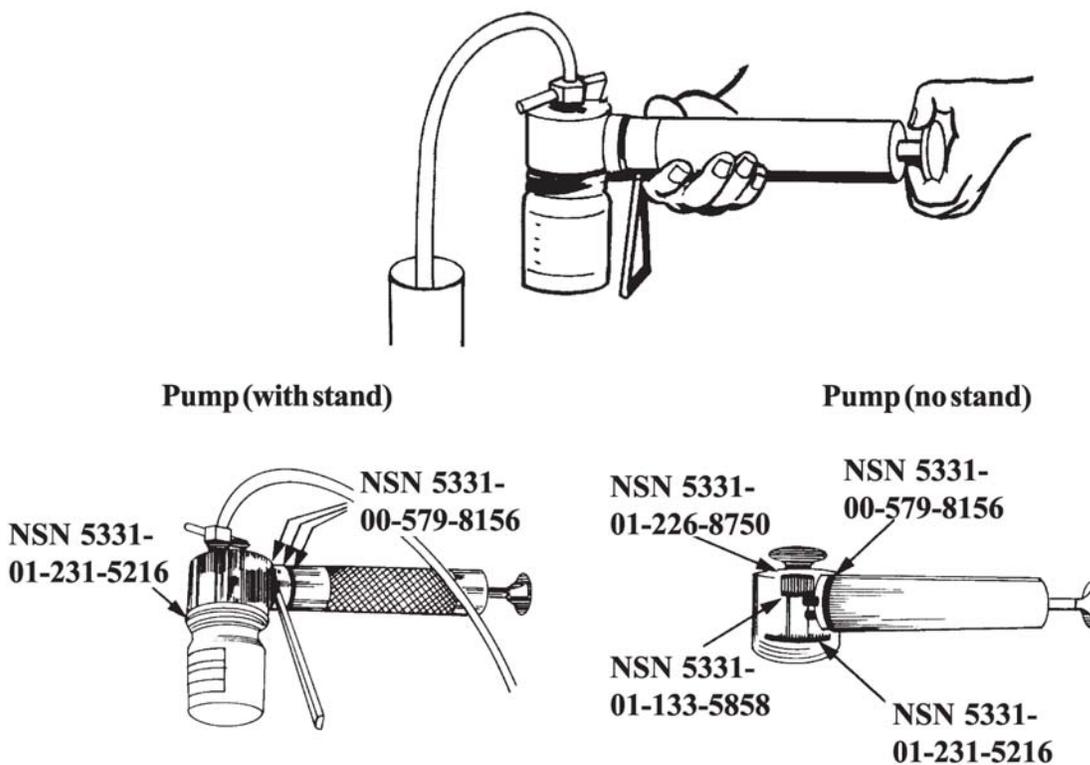


Figure 1. Oil Sampling Pump O-ring seals

c. Tube Method. (See appendix C, figure 5)

(1) Procedure is normally used in taking an aeronautical oil sample, but may be used for other equipment.

(2) A plastic tube for sampling aeronautical equipment oil is preferred. The tube is used through the oil filler neck or dipstick hole. Insert the tube into the reservoir. Be careful not to let the tube touch bottom. Allow the tube to fill with oil. Place a finger over the tip of the tube and withdraw it from the reservoir. The tube will be partially filled with oil. Insert the tube into the sample bottle. Release the oil by removing your finger from the top of the tube. Repeat until the bottle is filled within 1/2 inch of the top of the 5/8 ounce (5 dram) glass sample bottle.

NOTE: Replenish the fluid drained from the component with clean fluid.

(3) Enter the aircraft type/model/serial number, operating hours on the component, component serial number/type/model, type and grade of lubricant used, and date and time sample taken on the label of your oil sample bottle. Complete DD Form 2026 or ULLS DA Form 5991-E. Place the sample and the form in a plastic bag and send to the laboratory by the fastest means available; e.g., First Class mail or courier. Certain aircraft components require grease sampling (identified in appendix A). Grease samples will be submitted ONLY in the 3 ounce nonaeronautical plastic sampling bottle. To obtain grease samples, adhere to the individual aircraft technical manuals.

d. Drain Method. Use this method if a sampling valve is not installed or the tube method is not practicable. (See appendix C, figure 6)

(1) Obtain a bottle, a label, a DD Form 2026 or DA Form 5991-E, and a quart size waste oil container.

NOTE: A quart size container, such as a coffee can, can be fitted with a locally fabricated wire bracket designed to hold the sample bottle at the top of the can. This will allow the sample to be taken with one hand and will free the other hand to replace the drain plug.

(2) Open the sample bottle. Place the bottle cap on a clean surface with the open end up to avoid contaminating the inside of the cap.

(3) With the container underneath the drain point, open the drain plug and allow the initial stream of oil to flow into the quart can. This will eliminate obtaining oil that has been trapped at the drain port and may not be representative of the oil normally flowing through the component. (See appendix C, figure 6A)

(4) Allow about one pint of oil to drain into the container to obtain oil representative of the system. Allow the oil to drain into the sample bottle to within 1/2 inch of top. **CAUTION:** The oil sample may easily be contaminated with sludge or water if approximately one pint of oil is not drained prior to sampling. (See appendix C, figure 6B)

(5) After the sample bottle is filled to the required level, close the drain. Allow any excess or overflow to drain into the 'catch can'. (See appendix C, figure 6C)

(6) Replace and tighten cap on sample bottle.

(7) Replenish the quantity of oil drained from the component with clean new oil, if necessary.

(8) Complete the Oil Analysis Request form in accordance with the instructions in Section VIII.

(9) Wrap it around the oil sample bottle. Secure with a rubber band and send sample to the laboratory the same day as the sample is taken.

7-3. Special Sampling.

a. Hydraulic Systems. If an oil-sampling valve is not installed, one of following three locations may be used to sample hydraulic systems. They are listed in order of preference.

(1) Use the tube method to sample the reservoir, provided the reservoir is part of the circulating system.

(2) Use the drain method to drain the oil sample from the filter housing.

(3) Draw the sample from a line that circulates fluid. Be careful while disconnecting the line in order to avoid contamination of the fluid.

b. Transmissions and Gearboxes. These can be sampled using the tubing method with the following variations:

(1) Remove the magnetic plug and insert one end of the tubing into a clean sample bottle.

(2) Displace the check valve with the other end of the tube and draw off enough oil through the tube to fill the bottle.

c. Swashplate Assembly.

(1) Disconnect the scissors and sleeve drive links from the swashplate outer ring assembly. Lift the drive link out of the way and secure it.

(2) Using a soft, clean, lint-free cloth dampened with cleaning solvent, clean the inner and outer ring assembly at the upper shield. Ensure all surface grit, sand, and other foreign materials are removed. This will ensure an uncontaminated grease sample.

(3) Using a grease gun with a flexible hose to purge and lubricate the swashplate at approximately 30-degree intervals until the assembly has rotated one full turn (360 degrees) to

ensure thorough purging of the bearing. Ensure all the old grease is purged from the assembly. Immediately collect a swab of the purged grease using a tongue depressor and a sampling bottle. The sampling bottle should be filled from one half to full for an adequate sample. Failure of a swashplate to accept grease requires investigation and correction prior to releasing aircraft for flight.

(4) Once the sample is taken, the bottle label should be filled out as completely as possible to avoid confusion with other grease samples.

(5) Submit the grease sample to the AOAP laboratory with a completed DD Form 2026 or DA Form 5991-E.

(6) Record the AOAP sampling action on DA Form 2408-20, Oil Analysis Log, maintained for the swashplate, in accordance with DA Pamphlet 738-751.

d. Scissors and Sleeve Assembly. Visually inspect parts of the scissors hub assembly and boot for signs of heat. Any heat discoloration or distortion of components should be reported immediately to maintenance personnel. After the visual inspection, follow the same procedures outlined above for the swashplate.

e. New Oil Samples. When a unit begins to use a new 'lot' or batch number of oil, a sample of the clean, new oil shall be submitted to the AOAP laboratory for analysis. This will enable the laboratory to make adjustments for any changes in the lubricant chemical formulation of metallic compounds that may have been introduced at the refinery as oil additives. Indicate on the accompanying Oil Analysis Request form that the sample is new oil and not a sample from a component. Also indicate which operating units will be using the new oil supply.

SECTION VIII AOAP FORMS

8-1. Oil Analysis Request, DD Form 2026 or DA Form 5991-E (Automated ULLS Form).

a. The DD Form 2026 (See appendix D, figure 7) is the standard Department of Defense form used to request an oil sample be analyzed. The DA Form 5991-E, ULLS, may be used to request oil sample analysis for Army aeronautical and nonaeronautical oil sample analysis

b. DA Form 5991-E is an automated form produced by the unit ULLS system. This form requires no soldier entries, though it should be routinely checked for accuracy.

c. Aeronautical or nonaeronautical equipment departing from home station on an extended mission will be accompanied with a completed Oil Analysis Record (reverse side of DD Form 2026) (see appendix D, figure 8). Prior to departing from home station, the backside of the form will be completed by equipment user with assistance from the AOAP laboratory. The form will be included in the aeronautical and nonaeronautical equipment folders for use when the equipment is scheduled for an AOAP sample during the mission.

d. DD Form 2026 Preparation Instructions:

BLOCK NUMBER:

(1) To: Oil Analysis Lab. Enter the name of the laboratory supporting your unit.

(2) From:

(a) Major Command. Enter the Major Army Command the equipment-owning unit is assigned to.

(b) Operating Activity. Enter the full unit designation, address, UIC, and telephone number.

(3) Equipment Model/APL. Enter nomenclature and model number of the component from which the oil sample was extracted; e.g.; #2 Engine (NHC-250), Aft Xmsn, 40 Degree Gearbox, etc.

(4) Equipment Serial No. Enter the complete serial number of the component.

(5) End Item Model/Hull No. Enter the complete model number of the end item; e.g.; UH-1H, OH-58, M1A1, etc.

(6) End Item Serial No./EIC. Enter the complete serial number of the end item.

(7) Date sample taken (Day, Mo, Yr). Enter the day, month, and year; e.g.; 23 Feb 01.

(8) Local Time Sample Taken. Not applicable to Army units.

(9) Hours/Miles Since Overhaul. Enter cumulative number of hours on the component since last overhaul or if applicable delete the word "overhaul" and pencil in the word "new."

(10) Hours/Miles Since Oil Change. Enter the number of operating hours since last oil change for the component.

(11) Reason for Sample. Check the block that is applicable. When the reason is 'other', explain in the 'Remarks' block; e.g.; prior to oil change, loss of engine power, metal on plug or screen, excessive vibration, etc.

(12) Oil Added Since Last Sample. Enter the amount of oil added since the last oil change. Designate number of pints, quarts, or gallons.

(13) Action Taken. Leave blank.

(14) Discrepant Item. Leave blank.

(15) How Malfunctioned. Leave blank.

(16) How Found. Leave blank.

(17) How Taken. Indicate by checking appropriate block whether sample was taken by drain or tube and indicate whether sample was hot or cold. Record the type of oil.

(18) Remarks/Misc.

(a) Record the end item odometer or hour-meter at the time the oil sample was taken. Indicate whether the reading represents miles (MI), hours (HR), or kilometers (KM). Do not convert readings from miles to kilometers or kilometers to miles. For aircraft, enter the airframe hours of the aircraft.

(b) If the end item has both an odometer and hour-meter, only record the odometer reading.

(c) If the hour-meter/odometer has been replaced, make sure total operating time between oil samples is shown; i.e., the current meter reading plus usage from replaced meter. DD Form 314 (REMARKS block) should indicate if the equipment had a meter replaced and the usage from the old meter.

NOTE: If the component is not installed in an end item, enter "uninstalled". Odometer/hour-meter entries are **NOT REQUIRED** for end items not having meters installed.

(d) Use this block to explain reason for sample, when 'other' in the Reason for Sample block (para d(11) above) is selected, and any field maintenance performed since last sample that may affect the laboratory evaluation.

(Reverse Side of DD Form 2026 - See appendix D, figure 8)

(19) The reverse side of DD Form 2026 will be completed when the equipment deploys away from home station and must have an oil sample analyzed enroute or service may be provided by a non-automated oil analysis laboratory. When equipment historical data is electronically transferred to an automated AOAP laboratory servicing the deployment site, the reverse side of the form need not be filled out.

(20) Assigned Oil Analysis Laboratory. Enter the complete message address of assigned support AOAP laboratory.

(21) Laboratory Telephone No. Self-explanatory.

(22) End Item Model/Serial No. Self-explanatory.

(23) Equipment Model/Serial No. Self-explanatory.

(24) Enter the last three analytical AOAP results in designated columns. If required, the AOAP regional laboratory may be contacted for technical data and assistance.

(25) Date Departed. Home station will enter date aircraft departs on transient mission.

NOTE: Transient laboratories will enter subsequent analytical results and ensure DD Forms 2026 and DA Forms 5991-E are returned to home station with equipment. However, if the equipment unit departs prior to completion of DD Form 2026 or DA Form 5991-E, it shall be mailed to the home station.

8-2. Oil Analysis Log, DA Form 2408-20

a. A semi-permanent historical record of oil/grease samples taken and results of the laboratory tests for all equipment components in the AOAP.

b. Each oil sample extracted from the component and the results received from the AOAP laboratory will be recorded on DA Form 2408-20 (Refer to DA Pam 738-750 or DA Pam 738-751 for preparation and disposition instructions) for both aviation and nonaeronautical equipment.

c. Unless directed by local requirements, AOAP participating units receiving and maintaining OASIS laboratory reports with data normally listed on DA Form 2408-20, are not required to maintain DA Form 2408-20.

8-3. Oil Analysis Recommendation and Feedback; DA Form 3254-R. AOAP laboratory technicians initiate this form when they detect a potentially serious component problem.

a. AOAP laboratories will use this form to recommend performance of maintenance on oil-or grease-lubricated components. The laboratory shall prepare and forward one copy of the DA Form 3254-R (see appendix D, figure 9) to the following:

(1) The AOAP customer/unit submitting the oil sample for analysis.

(2) (AMSAM-MMC-AV-CCP) (STOP 55), 308 Crecy Street, Corpus Christi Army Depot, Corpus Christi, TX 78419-5260 for Aeronautical components "ONLY".

(3) Army Oil Analysis Program Office, (AMXLS-LA), USAMC Logistics Support Activity, Building 3661. Redstone Arsenal, AL 35898-7466.

b. After the field unit or maintenance activity has accomplished the laboratory recommended inspection or maintenance action, the unit completing the action shall complete the lower block of DA Form 3254-R. Record what evaluation actions were taken, what problems were discovered, and what maintenance actions were taken to return the equipment to service. Be as specific and complete as possible in describing what action was taken. If a component was removed and sent to a depot overhaul/rework facility, DA Form 3254-R shall accompany it.

c. Depot facilities shall record the results of teardown investigation, findings, and repairs accomplished on the accompanying DA Form 3254-R (block 14). The completed form should be returned to the originating AOAP laboratory and one copy should be forwarded to PM AOAP. For aeronautical equipment, one copy should be sent to CCAD within five workdays of completion of the maintenance action.

d. DA Form 3254-R may be locally reproduced on 8 1/2" by 11" paper.

e. Feedback to the laboratory is essential to refine evaluation criteria, increase the accuracy of laboratory predictions, and to recommend design changes in those major components showing an abnormal failure rate through AOAP.

f. Instructions for completing DA Form 3245-R.

BLOCK NUMBER:

(1) through (11) To be completed by the laboratory technicians.

(12) No entry required.

(13) Record "aviation" QDR number prepared as a result of this maintenance recommendation.

(14) Feedback.

(a) Explain any diagnostics performed, discrepancies found, and actions taken to return the component to a serviceable condition.

(b) Include in this block the following information, when applicable, the Quality Deficiency Report (QDR)/ Equipment Improvement Report (EIR) number and/or the Maintenance Request (DA Form 2407) number.

(15) From. The Field Depot Maintenance representative preparing the report will enter his/her signature in this block.

(16) Date. Enter the calendar date (DDMMYY) the report was completed.

(17) To. Enter the address of AOAP regional laboratory. In addition, a copy of reports on aviation equipment will be sent to Corpus Christie Army Depot (address on right side of block).

8-4. Maintenance Feedback Data. Success of the oil analysis program is measured with the maintenance feedback information provided by the unit and maintenance activities. Maintenance findings validate laboratory test 'alarm' levels and indicators, thereby avoiding unnecessary maintenance actions or equipment servicing. Establishment or refinement of normal and abnormal wear-metal trending patterns is an ongoing process as the fleet matures and is completely dependent on the correlation of test data with actual part conditions found in the inspection of the engine, transmission, or other component at disassembly.

8-5. Maintenance Request, DA Form 2407 or DA Form 5990-E (ULLS).

a. When a Maintenance Request form is prepared to request support from a higher level of maintenance for an AOAP recommended evaluation, attach the DA Form 3254-R, Oil Analysis Recommendation and Feedback, to the request. (See appendix C, figure 10)

b. Enter "See attached DA Form 3452-R" in the 'Remarks' block of the Maintenance Request.

c. Refer to DA Pam 738-750, DA Pam 738-751, or ULLS Manual for preparation and disposition instructions.

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SECTION IX AOAP LABELS

9-1. Instructions for Use of AOAP Labels. AOAP pressure sensitive labels shall be affixed to component containers sent to overhaul or tear down analysis facilities as a result of a laboratory recommendation.

9-2 AOAP laboratories:

a. Provide the equipment unit a minimum of four AOAP labels with every DA Form 3254-R containing a laboratory recommendation for the removal of a component for overhaul or repair actions.

b. Instruct the equipment unit to affix two AOAP labels on different conspicuous areas of the component to be overhauled and two AOAP labels on opposite sides of the outside of the shipping container.

9-3. Maintenance/Overhaul/Rework activity:

a. Remove the “AOAP” labels from the outside of the shipping container only when the component is unpacked for overhaul so that the shipping container can be reused.

b. Prior to inspection and maintenance, review AOAP DA Form 3254-R for laboratory test and analytical findings indicating impending failure.

c. After maintenance inspections and actions, complete the lower portion of the form and mail one copy of DA Form 3254-R to the originating laboratory, one copy to PM AOAP. AERONAUTICAL ONLY, send one copy to (AMSAM-MMC-AV-CCP) (STOP 55), 308 Crecy Street, Corpus Christi Army Depot, Corpus Christi, TX 78419-5260.

9-4. Teardown Inspection and Analysis Activity (CCAD) (AERONAUTICAL ONLY):

a. Correlate equipment maintenance/overhaul analysis from components recommended for maintenance by AOAP.

b. Submit findings and conclusions to the appropriate AMCOM engineering authority.

c. Advise PM AOAP, of conclusions or findings.

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**SECTION X
LABORATORIES**

10-1. AOAP Laboratory Service Locations.

a. The AOAP has 23 laboratories located at worldwide locations. Seventeen of the laboratories are located in CONUS, 6 are in OCONUS, and 2 mobile laboratories are maintained by the US Army National Guard on standby to be deployed to areas of contingency operations. Additional laboratories shall be established as required.

b. In accordance with AR 700-132, Joint Oil Analysis Program (JOAP), Army equipment may be tested in Navy and Air Force oil analysis program laboratories. Due to the limitations of technology in some JOAP laboratories, PM AOAP will advise Army units which JOAP laboratories have the appropriate technology and are approved to test Army equipment. Inter-service oil analysis support will be limited to those joint service laboratories to accomplish the necessary testing for Army equipment. Army laboratories have the capability to test equipment from all military departments.

c. In CONUS mobile AOAP laboratories and selected (CONUS) laboratories are limited to providing oil analysis only to selected command customers. Routine oil analysis service is available at the following AOAP locations for the geographic areas indicated:

Table 6. AOAP Laboratories

	LABORATORY	GEOGRAPHIC AREA OF SUPPORT	LABORATORY ADDRESS
1.	Fort Bliss, TX	Fort Bliss, New Mexico, Arizona, Oklahoma, Texas (west of a line between Wichita Falls and Del Rio, TX).	AOAP Laboratory (ATZC-ISL-M) U.S. Army Air Defense Artillery Center and Fort Bliss Building 2588, Room 116 Fort Bliss, TX 79916-0058
2.	Fort Bragg, NC	Fort Bragg, North Carolina, and South Carolina	AOAP Laboratory (AFZA-DL-MC-AOAP) XVIII Airborne Corps and Fort Bragg P.O. Box 70539 Fort Bragg, NC 28310
3.	Fort Campbell, KY	Fort Campbell, Wisconsin, Illinois, Tennessee, and Kentucky (west of a line between Owensboro and Bowling Green	Petroleum Lab Fort Campbell (AFZB-RB-AD), Building 7137, RBC Aviation Division Fort Campbell, KY 42223-5128

4.	Fort Carson, CO	Fort Carson, Colorado, Montana, Wyoming, Utah	AOAP Laboratory (AFZC-DL-OAP) Building 8000, Door 44 4300 O'Connell Boulevard Fort Carson, CO 80913-5000
5.	Fort Drum	New York, Vermont, New Hampshire, Maine, Rhode Island, Connecticut and Massachusetts	AOAP Laboratory (AFZS-DL-M) 10 th Mountain Div (LT) & Fort Drum Building P4530 Fourth Street East, Fort Drum, NY 13602-5250
6.	Fort Hood, TX	Fort Hood ONLY	AOAP Laboratory (AFZF-DL-IMM), III Corps and Fort Hood, Building 7046, Hood Army Airfield , PO Box 968 Fort Hood, TX 76544
7.	Fort Irwin, CA	Fort Irwin ONLY	AOAP Laboratory (AFZJ-MCX-SPO-AOAP) National Training Center and MMC Support & Operations Division, Building 625/ PO Box 105106 Fort Irwin, CA 92310
8.	Fort Knox, KY	Fort Knox, Michigan, Indiana, Ohio, West Virginia, Kentucky (east of a line between Owensboro and Bowling Green), Pennsylvania, New Jersey, Maryland, and District of Columbia	AOAP Laboratory (ATZK-OSL-CE-AOAP) US Army Armor Center and Fort Knox 2770 Frazier Road Fort Knox, KY 40121-5000
9.	Fort Lewis, WA	Fort Lewis, Washington, Oregon, Idaho, Nevada, and California	Director of Logistics (AFZH-DLP-O), MS-18, Box 339500, Building 9500, Door #12 Fort Lewis, WA 98433-9500
10	Fort Polk, LA	Fort Polk, Arkansas, Louisiana, Mississippi, Texas (east of a line between Wichita Falls, and Del Rio, TX) Honduras, Puerto Rico, Virgin Islands, Haiti	DOL Maintenance Division (AFZX-DL-M-AOAP), Joint Readiness Training Center and Fort Polk Building 4386, Room A102 2650 Louisiana Avenue Fort Polk, LA 71459-5442

11.	Fort Richardson, AK	Alaska	Director of Logistics, Maintenance Division, (APVR-RDL-MG, AOAP Lab), Building 796 Fort Richardson, AK 99505-7000
12.	Fort Riley, KS	Fort Riley, North Dakota, South Dakota, Nebraska, Kansas, Iowa, Missouri, and Minnesota	AOAP Laboratory (AFZN-GL-CBC AOAP), Headquarters Fort Riley Building 8100, Room 137 Fort Riley, KS 66442-5956
13.	Fort Rucker, AL	Alabama, Virginia, Delaware, and Georgia (west of I-75)	AOAP Laboratory (ATZQ-DOL-M), US Army Aviation Center and Fort Rucker Building 800 N Avenue Fort Rucker, AL 36362-5115
14.	Fort Stewart, GA	Fort Stewart, Florida, and Georgia (east of I-75)	Maintenance Division DLM, (AFZP-DLM-OPS) Building 1128, Hunter Army Air Field, GA 31400-5022
15.	Goose Creek, SC	Goose Creek and South Carolina National Guard	792d QM TM, AOAP Laboratory, South Carolina Army National Guard, Building 318 103 Guidance Road Goose Creek, SC 29445-6060
16.	Anniston Army Depot, AL	Station Equipment and Depot QA mission only.	Anniston Army Depot, (AMSTA-AN-PEWL JOAP Lab), 7 Frankford Avenue, Building 140, Anniston, AL 36201-4199
17.	Corpus Christi Army Depot, TX	Station Equipment and Depot QA mission only.	Chemical Materiel Process Branch (SIOCC-MA-QM-CM (Stop 27)) Corpus Christi Army Depot, Building 8, 308 Crecy Street, Corpus Christi, TX 78419-5260
18.	Red River Army Depot, TX	Station Equipment and Depot QA mission only.	Environmental Division (AMSTA-RR-OL), Red River Army Depot, Building 300, 100 Main Drive, Texarkana, TX 75507-5000
19.	Bamberg, Germany	Nonaeronautical equipment only.	Bamberg Activity (AERSC-ML-BA), Mannheim Laboratory Center, Unit 27535 Box 23661, APO AE 09139-7535
20.	Coleman Barracks, Germany	Aeronautical in theater. Nonaeronautical in western portion of theater	(AERSC-MLC), (Coleman Bks Bldg 50), Mannheim Laboratory Center, Unit 29702, Box 301, CMR 418, APO AE 09028

21.	Eagle Base, Bosnia	Area of operation	AOAP Laboratory, Bosnia Operation Joint Forge/Eagle Base, APO AE 09789
22.	Camp Bondsteel, Kosovo	Area of operation	FSB AMC-LSE ATTN: AOAP Laboratory Task Force Falcon Camp Bondsteel, Kosovo APO AE 09340
23	Camp Stanley, Korea	Korea and Japan	Camp Stanley (EANC-MQ AOAP Lab), US Army Materiel Support Command-Korea, Unit 15564, APO AP 96257-5564
24	Pearl Harbor Navy Shipyard, Hawaii (JOAP Lab)	Alaska, Hawaii and Eastern Pacific Region	Commander (Code 134.5) Pearl Harbor NSY & IMF 667 Safeguard Street, Suite 100 Pearl Harbor, HI 96860

10-2. Pearl Harbor Navy Shipyard. The US Navy oil analysis laboratory at Pearl Harbor, Hawaii, provides joint service oil analysis support to Army units in the South Pacific region.

10-3. Assignments. PM AOAP shall make AOAP laboratory regional support area assignments. Units with equipment enrolled in the AOAP shall be supported by the laboratory assigned to support the region the unit is located. When necessary, PM AOAP, will coordinate with joint service oil analysis program managers for additional support.

SECTION XI
OIL ANALYSIS STANDARD INTERSERVICE SYSTEM (OASIS)

11-1. Each AOAP laboratory is equipped with a computer network as part of the OASIS data system (Army and Navy). The system interfaces with all test instruments, testing parameters, and unit equipment administrative files. The OASIS speeds up the sample processing cycle and contains a limited onsite data bank of laboratory and equipment information.

11-2. With AOAP history information onsite, each laboratory is currently providing commanders and maintenance personnel at all levels computer-generated reports on a monthly basis and upon request.

11-3. Most communication between the unit, the laboratory, and various maintenance echelons is with forms and computer-generated monthly reports.

11-4. Laboratory equipment files and test data can be transferred between laboratories electronically or provided to the equipment-owning unit on electronic media.

11-5. Correctly completed forms are the essential requirement for accurate monthly reports. These reports help manage equipment participation in the program more efficiently. Units should contact the AOAP laboratory for more information on what reports are available and the frequency they are produced.

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SECTION XII FREQUENTLY ASKED QUESTIONS

12-1. Q. How do I know if my equipment is enrolled in the AOAP?

A. If it is listed in this technical bulletin, or authorized by the PD, AOAP.

12-2. Q. If enrolled, what is the next step for submitting samples for my equipment?

A. Submit a sample and a completed DD Form 2026 or ULLS DA Form 5991-E to your supporting laboratory.

12-3. Q. Can I sample equipment not listed in appendix A or B?

A. Only equipment/components listed in this technical bulletin, or other equipment/components authorized by the PM AOAP, will be sampled. Exceptions to sampling policy will be through letters of authorization from MACOM level.

12-4. Q. Who should take the sample?

A. Anyone may take samples. For best results, a local SOP should provide for training and designating of sampling teams at unit level.

12-5. Q. How much oil do I put in the sample bottle?

A. The bottle should be filled to the bottom of the neck (1/2 inch from top of bottle).

12-6. Q. Do I always have to take a routine sample at the scheduled date, hour, or miles?

A. You should always try to sample as near the prescribed interval as possible. If it is not possible, a 10 percent variance prior to or after the schedule date, hour, or miles for sampling is permissible for nonaeronautical equipment. For example, the engine in your M35A2 is to be sampled every 90 days. If this falls on 1 Apr, you may sample that component up to 9 days (10 percent of 90 days) prior to 1 Apr or up to 9 days after 1 Apr and still be within prescribed guidance. (see Section IV, Tables 3 and 4)

12-7. Q. Is there a sampling interval variance for aeronautical equipment?

A. Yes. An example of aeronautical allowable tolerance is if the sampling interval is 25 hours, the allowable sampling range is 22-28 hours. When sampling hour intervals are performed within the plus or minus allowable range, the schedule for the next sampling intervals will not be affected. For example, a sample with a 25 hour interval, due at 100 aircraft hours and taken at 97 hours or 103, the next sample will still be due at 125 hours. However, when the plus or minus range is exceeded, scheduling of the next sample will be affected. That is, a sample with the oil analysis request is already filled out. This reduces the chance of submitting incorrect management information to the laboratory. Always file your most recently processed DD Form 2026 or ULLS DA Form 5991-E, the one with laboratory results, and discard the previous one. (see Section IV, Tables 3 and 4)

12-8. Q. Must I always take a "hot" sample?

A. No. If you operated the nonaeronautical equipment within the last 30 days, you can take a sample without bringing the equipment to operating temperature. If you have not operated the nonaeronautical equipment within the last 30 days, you need to bring the equipment to operating temperature for a “hot” sample. This applies to both routine and special samples. However, if your supporting laboratory recommends a component be operated prior to sampling, you must comply with this recommendation. If the weather is cold, the oil in your equipment may be too thick for the oil sampling pump to draw oil into the sample bottle or for the oil to flow freely through the sampling valve into the sample bottle. If so, warm up the equipment to get the oil flowing so that you can take the sample. (See para 7-1c for taking cold aviation oil samples)

12-9. Q. What is laboratory response time?

A. The laboratory response time for routine samples, excluding weekends and holidays, is the interval of time that begins when the laboratory gets the oil sample and ends when the unit that submitted the oil sample gets the results.

12-10. Q. Should sampling be a part of scheduled routine maintenance services.

A. Yes, for both aeronautical and nonaeronautical equipment.

12-11. Q. How long does it actually take to obtain a sample?

A. That depends on the method used. In general, the only method that should take more than 5 minutes is the tube method.

12-12. Q. Why and how long should I hold onto a processed DD Form 2026 or ULLS DA Form 5991-E after I receive it from the laboratory?

A. The processed DD Form 2026 or ULLS DA Form 5991-E is your proof that a sample has been taken and analyzed (as of a certain date). It contains accurate maintenance information, such as the component/end item model/serial number/hours since overhaul and oil change. When it is time to take your oil sample, simply pull out your old DD Form 2026 or ULLS DA Form 5991-E, copy the end item and update the hours since overhaul and oil change on a new form. That way half of the form is already filled out. This reduces the chance of submitting incorrect management information to the laboratory. Always file your most recent DD Form 2026 or ULLS DA Form 5991-E, the one with laboratory results, and discard the previous one.

12-13. Q. What is the sample turn-around time?

A. Sample turn-around time is the interval of time that begins when the oil sample is taken and includes sample delivery, analysis, evaluation of analytical results, and ends when the submitting unit is notified of sample results (normal or abnormal). NOTE: Laboratory response time (receipt, analysis, evaluation and notification) is a part of the sample turn-around time.

12-14. Q. If a tactical wheeled vehicle is scheduled for a mission, which would cause it to exceed its 100 hrs/1000 miles sampling interval, when should the equipment be sampled?

A. An oil sample should be taken before departure and submitted to your regularly assigned laboratory with a note in the remarks block of the DD Form 2026 or ULLS DA Form 5991-E requesting priority analysis. The laboratory will provide your unit with the results and an oil

analysis historical record. Prior to departure your unit should coordinate its oil analysis requirements with the laboratory nearest its destination. Upon arrival at your destination, if your 1,000-mile interval has been reached, send an oil sample (and the component's oil analysis historical record) to the new servicing laboratory.

Put a note in the remarks block of the DD Form 2026 or ULLS DA Form 5991-E stating that your vehicle is on a mission away from its home station and that priority consideration is requested in the analysis. The AOAP laboratory will provide you with an oil analysis record for your deployed vehicle. This procedure should be reversed when returning to home base. The oil analysis records should be turned in to your regular laboratory.

12-15. Q. Can the laboratory 'dead line' a vehicle?

A. A laboratory recommendation to remove equipment from service is administrative in nature. The removal gives maintenance the chance to evaluate the condition of the suspect component. Compliance with a laboratory recommendation may or may not involve deadlining the equipment. The decision to deadline a vehicle is the responsibility of the unit commander.

12-16. Q. What happens if we do not comply with laboratory recommendations?

A. Laboratory recommendations are not made unless something serious appears to be wrong with your equipment. Maintenance should make every effort should be made to investigate the potential problems noted in the AOAP test findings and review those findings with the unit commander. It is possible you might lose an engine or have an aircraft system or component/module failure and possibly increase the safety risk to equipment crews.

12-17. Q. Can the laboratory detect if maintenance is performed?

A. Yes. When the oil is changed, for example, the concentration of wear elements is cut approximately in half for some components. When air induction system leaks are fixed, dirt levels decrease. If several samples are taken from the same piece of equipment or from an oil drum instead of from the equipment, resamples will be requested since the combination of wear elements won't match previous samples.

12-18. Q. Are DA Forms 3254-R issued for resamples and oil changes.

A. No. DD Forms 2026 or ULLS DA Form 5991-E are used for this purpose.

12-19. Q. When are DA Forms 3254-R issued?

A. When maintenance actions are recommended such as to clean/service air filters, inspect/repair fuel injection nozzles, inspect/repair engine and transmission assemblies, etc.

12-20. Q. What if an item of ground equipment has no hour meter? How do I schedule my samples and report usage to the laboratory?

A. Use the formula, 10 miles or 16 kilometers = 1 hour of operation. For example, a 2 1/2-ton truck should be sampled every 90 days or 100 hours, you should sample every 90 days or 1,000 miles if there is no hour meter. (The sampling interval varies for different categories of equipment.)

12-21. Q. May we hold samples until we get a full box?

A. No. The sooner the laboratory gets your sample, the better, especially aircraft samples. If you are experiencing delays beyond your control, contact your installation AOAP monitor.

12-22. Q. Just how important is the installation AOAP monitor?

A. The monitor very important. That role is critical to a successful program. The installation monitor is the point of contact between the command group and the laboratory. From a management point of view, the AOAP monitor means the difference between an effective and an ineffective program. Monitoring the AOAP process at an installation is a full-time job.

12-23. Q. Should equipment be sampled if it is not used? Equipment in administrative storage, for example.

A. No. AOAP is for operational equipment. Equipment should be sampled prior to storage and immediately before activation for use.

12-24. Q. How do I mark a special sample?

A. Band the bottle with red tape or something similar, as instructed in paragraph 2-7. Mark the border of the DD Form 2026 or ULLS DA Form 5991-E with red felt tip marker and write SPECIAL in the remarks block. This gives a sample priority at the laboratory.

12-25. Q. Who can I contact for assistance and improvements for AOAP operations at my command?

A. The most readily available source for information and assistance is your local AOAP installation monitor. If additional information is needed, call the AOAP Program Management Office Hot Line at DSN 645-0869 or Commercial (256) 955-0869. You may also send an email to: aoap@logsa.redstone.army.mil .

APPENDIX A AERONAUTICAL EQUIPMENT

General. Aeronautical routine sampling intervals are provided below. For variation from the listed sampling intervals and additional sampling requirements, see Section 6 (When to Sample).

Rotary Wing		Sampling Interval	
Aircraft Designation	Component Model	Hours	Days
AH-64A	Hyd Sys 1	50	100
	Hyd Sys 2	50	100
	#1 Nose Gbx	25	0
	#2 Nose Gbx	25	0
	APU	75	0
	Main Xmsn	25	0
	PTO	0	0
AH-64D	Hyd Sys 1	50	100
	Hyd Sys 2	50	100
	#1 Nose Gbx	25	0
	#2 Nose Gbx	25	0
	GTCP 36-55H	25	0
	INTMDT GB	0	0
	Main Xmsn	25	0
	PTO	0	0
	T700-GE-701	0	0
	Tail RTR Gbx	0	0
CH-47D	Hyd Sys 1	50	100
	Hyd Sys 2	50	100
	Hyd Sys UTIL	50	100
	1 EngMecXmsn	25	0
	2 EngMecXmsn	25	0
	AFT SP	0	0
	Aft Xmsn	25	0
	Eng CombXmsn	25	0
	FWD SP	0	0
	T55-L-712	25	0
T55-L-714	25	0	
CH-47F	Aft Xmsn	25	0
	Eng CombXmsn	25	0
	Fwd Xmsn	25	0
	1 EngMecXmsn	25	0
	2 EngMecXmsn	25	0
	T55-L-712	25	0
	T55-L-714	25	0
	Hyd Sys 1	50	100

Aircraft Designation	Rotary Wing Component Model	Sampling Intervals	
		Hours	Days
	Hyd Sys 2	50	100
	Hyd Sys 3	50	100
EH-60L	Main Xmsn/073	500	0
	Main Xmsn/074	500	0
	Main Xmsn/076	500	0
HH-60L	T62T-40-1	100	0
	Int Gbx	25	0
	Main Xmsn	500	0
	Tail Gbx	25	0
	GTCP36-150BH	100	0
	Hyd Sys 1	25	0
	Hyd Sys 2	25	0
	Hyd Sys 3	25	0
H-1	42/Int	25	0
	90/Tail Gbx	25	0
	Main Xmsn	25	0
	T53-L-11-D	25	0
	T53-L-13	25	0
	T58-GE-3	25	0
	MH-47D	Aft Xmsn	25
Eng CombXmsn		25	0
Fwd Xmsn		25	0
1 EngMecXmsn		25	0
2 EngMecXmsn		25	0
T55-L-712		25	0
T55-L-714		25	0
Hyd Sys 1		50	100
Hyd Sys 2		50	100
Hyd Sys 3		50	100
MH-47E	Hyd Sys 1	50	100
	Hyd Sys 2	50	100
	Hyd Sys 3	50	100
	1 EngMecXmsn	30	0
	2 EngMecXmsn	30	0
	Aft Xmsn	30	0
	Eng CombXmsn	30	0
	Fwd Smsn	30	0
	T55-L-714	30	0
	MH-6H	Main Xmsn	100
90/Tail Gbx		100	365
MH-6J	Main Xmsn	100	365
	90/Tail Gbx	100	365
MH-6N	Main Xmsn	100	365

Rotary Wing		Sampling Intervals	
Aircraft Designation	Component Model	Hours	Days
	90/Tail Gbx	100	365
MH-60L	T62T-40-1	100	0
	Int Gbx	25	0
	Tail Gbx	25	0
	Main Xmsn	500	0
	GTCP36-150BH	100	0
	Hyd Sys 1	25	0
	Hyd Sys 2	25	0
	Hyd Sys 3	25	0
MH-60K	Main Xmsn	500	0
OH-58A	90/Tail Gbx	25	0
	Hyd Sys	0	0
	Main Xmsn	25	0
	T63-A-700	13	0
	T63-A-720	13	13
OH-58C	90/Tail	25	0
	Hyd Sys	0	0
	Main Xmsn	25	0
	T63-A-720	13	0
OH-58D	Engines	100	365
	Main Xmsn	160	0
	Hyd Sys	40	0
TH-67	90/Tail Gbx	25	0
	250-C-30	13	0
	Hyd Sys	40	14
	Main Xmsn	25	0
UH-1H	42/Int Gbx	25	0
	90/Tail Gbx	25	0
	Hyd Sys	0	0
	Main Xmsn	25	0
	T53-L-13B	13	0
UH-IV	42/Int Gbx	25	0
	90/Tail Gbx	25	0
	Hyd Sys	0	0
	Main Xmsn	25	0
	T53-L-11	13	0
	T53-L-13B	13	0
UH-60A	Main Xmsn /073	500	0
	Main Xmsn /074	500	0
	Main Xmsn /076	500	0
	Hyd Sys1	0	0
	Hyd Sys2	0	0
	Hyd Sys3	0	0

Rotary Wing		Sampling Intervals	
Air Designation	Component Model	Hours	Days
	Int Gbx	25	0
	Tail Bx	25	0
	T62T-40-1	100	0
UH-60L	Main Xmsn	500	0
	GTCP36-150BH	100	0
	Hyd Sys1	0	0
	Hyd Sys2	0	0
	Hyd Sys3	0	0
	Int Gbx	25	0
	T62T-40-1	100	0
	Tail Gbx	25	0
UH-60Q	T62T-40-1	100	0
	Int Gbx	25	0
	Main Xmsn /073	500	0
	Main Xmsn /074	500	0
	Main Xmsn /076	500	0
	Tail Gbx	25	0
	Hyd Sys 1	25	0
	Hyd Sys 2	25	0
	Hyd Sys 3	25	0
Fixed Wing		Sampling Intervals	
Air Designation	Component Model	Hours	Days
C-12	PT6A-27	100	365
	PT6A-34	100	365
	PT6A-38	100	365
	PT6A-41	100	365
	PT6A-42	100	365
C-12C	PT6A-41	100	365
C-12D	PT6A-41	100	365
C-12J	PT6A-65B	100	365
O-5A	PT6A-50	100	365
RC-7B	Pt6a-50	100	365
RC-12D	PT6A-41	100	365
RC-12G	PT6A-41	100	365
RC-12K	PT6A-67	100	365
RF-8G	J57-P-420	100	365
U-21F	PT6A-28	100	365

APPENDIX B
NONAERONAUTICAL EQUIPMENT

General. Routine sampling intervals are provided below. For variation from the listed sampling intervals and additional sampling requirements, see Section 6 (When to Sample).

Combat Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
M1	Tank, Combat, Full	AGT-1500	25	60	25	180
		X1100-3B	75	90	75	180
		HYD SYS		365		365
M1 IP	Tank, Combat, Full	AGT-1500	25	60	25	180
		X1100-3B	75	90	75	180
		HYD SYS		365		365
M1A1	Tank, Combat, Full	AGT-1500	25	60	25	180
		X1100-3B	75	90	75	180
		HYD SYS		365		365
M1A2	Tank, Combat, Full	AGT-1500	25	60	25	180
		X1100-3B	75	90	75	180
		HYD SYS		365		365
M1059	Carrier, Smoke Generator	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M1059A3	Carrier, Smoke Generator	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M1064	Carrier, Mortar	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M1064A3	Carrier, Mortar	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M1068	Carrier, Standardized, Integrated Command Post	DD6V53T	25	60	25	180
		TX-100	25	60	25	180
M1068A3	Carrier, Standardized, Integrated Command Post	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M106A1	Self Propelled Howitzer	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M106A2	Carrier, Mortar	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M109A5	Self Propelled Howitzer	DD8V71T	25	60	25	180
		XTG-411-2A	25	60	25	180
		HYD SYS		365		365

Combat Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
M109A6	Self Propelled Howitzer	DD8V71T	25	60	25	180
		XTG-411-4	25	60	25	180
		HYD SYS		365		365
M113A2	Personnel Carrier	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M113A3	Personnel Carrier	DD6V53T	25	60	25	180
		DD6V53	25	60	25	180
		X200-4	25	60	25	180
		TX-100-1	25	60	25	180
M113A3BMP-2	Personnel Carrier	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M2	Infantry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-B	25	60	25	180
M2A1	Infantry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-B	25	60	25	180
M2A2	Infantry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-3TE	25	60	25	180
M2A3	Infantry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500-3EC	25	60	25	180
M270	Carrier, Multiple Launch Rocket System (MLRS)	VTA-903T	25	60	25	180
		HMPT-500-3EC	25	60	25	180
		HYD SYS		365		365
M3	Cavalry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-B	25	60	25	180

Combat Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
M3A1	Cavalry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-B	25	60	25	180
M3A2	Cavalry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-3TE	25	60	25	180
M3A3	Cavalry Fighting Vehicle	VTA-903T	25	60	25	180
		HMPT-500-3EC	25	60	25	180
M4	Carrier, Command and Control (C2V)	VTA-903T	25	60	25	180
		6BT5.9	25	60	25	180
		HMPT-500-3E	25	60	25	180
M48A5AVLB	Armored Vehicle, Launcher Bridge (AVLB)	AVDS-1790-2DA	25	60	25	180
		CD850-6A	25	60	25	180
		CD850-6A1	25	60	25	180
		HYD SYS		365		365
M548	Cargo Carrier	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M548A1	Cargo Carrier	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M548A3	Cargo Carrier	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M551A1	Armor Reconnaissance Vehicle	DD6V53T	25	60	25	180
		DD6V53	25	60	25	180
		G250-1A	25	60	25	180
M5510PFOR	Armor Reconnaissance Vehicle	DD6V53T	25	60	25	180
		G250-1A	25	60	25	180
M577A2	Personnel Carrier, Command Post	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M577A3	Personnel Carrier, Command Post	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M578	Tank, Recovery Vehicle	DD8V71T	25	60	25	180
		XTG-411-2A	25	60	25	180
		HYD SYS		365		365
M58	Carrier, Personnel, Full Tracked, Smoke	DD6V53T	25	60	25	180
		X200-4A	25	60	25	180

Combat Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
M6	Linebacker - Air Defense Carrier	VTA-903T600	25	60	25	180
		HMPT-500-3EC	25	60	25	180
M60A1AVLB	Tank, Combat, Full	AVDS-1790-2DA	25	60	25	180
		CD850-6A	25	60	25	180
		CD850-6A1	25	60	25	180
		HYD SYS		365		365
M60A3	Tank, Combat, Full	AVDS-1790-2C	25	60	25	180
		CD850-6A	25	60	25	180
		CD850-6A1	25	60	25	180
		HYD SYS		365		365
M7	BFIST, Fire SPT TM VEH	VTA-903T	25	60	25	180
		HMPT-500-3	25	60	25	180
M88A1	Tank, Recovery Vehicle	1790-2DR	25	60	25	180
		XT-1410-4	25	60	25	180
		HYD SYS		365		365
M88A2	Tank, Recovery Vehicle (HERCULES)	1790-8CR	25	60	25	180
		XT-1410-5A	25	60	25	180
		HYD SYS		365		365
M901A1	Combat, Vehicle, TOW	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M93A1FOX	Nuclear-Biological-Chemical Reconnaissance System	OM402A	25	60	25	180
		HP500 TYPE 6	25	60	25	180
		HYD SYS		365		365
M981	Fire Support Team Vehicle (FIST-V)	DD6V53	25	60	25	180
		TX-100-1	25	60	25	180
M981A1	Fire Support Team Vehicle (FIST-V) Carrier, Personnel	DD6V53T	25	60	25	180
		TX-100-1	25	60	25	180
M981A3	Fire Support Team Vehicle (FIST-V) Carrier, Personnel	DD6V53T	25	60	25	180
		X200-4	25	60	25	180
M992A2	20 T, FAASV, Carrier, Ammunition	DD8V71TLHR	25	60	25	180
		XTG-411-4	25	60	25	180
		HYD SYS		365		365
M993	Carrier, Multiple Launch Rocket System (MLRS)	VTA-903T	25	60	25	180
		HMPT-500	25	60	25	180
		HMPT-500-3	25	60	25	180
		HMPT-500-3E	25	60	25	180
		HMPT-500-B	25	60	25	180

Combat Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
XM104	Armored Vehicle,	AGT-1500	75	90	75	180
	Heavy Assault Bridge	X1100-3B	75	90	75	180
	(Wolverine)	HYD SYS		365		365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
2500L	Truck, Fire	DD6V92	3000	180	3000	180
		HT750DRD	6000	365	6000	365
M1000	70 T, Semi-trailer, Tank Transporter	HYD SYS	0	365	0	365
M1025	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1025A1	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1025A2	1-1/4 T, Truck, Expanded Capacity Vehicle (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1026	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1026A1	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1035	1 1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1035A2	1-1/4 T, Truck, Expanded Capacity Vehicle (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M1036	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1037	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1038	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1038A1	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1042	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M1043	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1043A2	1-1/4 T, Truck, Expanded Capacity Vehicle (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M1044	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1046	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1065	1-1/2 T, Truck, Cargo	OM603.950	3000	180	3000	180
		W4A040	6000	365	6000	365
M1067	2 T, Carrier, Cargo	OM603.950	3000	180	3000	180
		W4A040	6000	365	6000	365
M1069	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1070	22-1/2 T, Truck, Tractor (HET)	DD8V92TA	3000	180	3000	180
		CLT-754	6000	365	6000	365
		HYD SYS		365		365
M1074	Palletized Load System (PLS)	DD8V92TA	3000	180	3000	180
		CLT-755	6000	365	6000	365
		HYD SYS		365		365
M1075	Palletized Load System (PLS)	DD8V92TA	3000	180	3000	180
		CLT-755	6000	365	6000	365
		HYD SYS		365		365
M1078	5 T, Cargo, Vehicle, Family of Medium Tactical (FMTV- LMTV)	CAT-3116-225	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1078A1	5 T, Cargo, Vehicle, Family of Medium Tactical (FMTV- LMTV)	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1079	2-1/2 T, LMTV, Van	CAT-3116-225	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1079A1	2-1/2 T, LMTV, Van	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M1080	2-1/2 T, FMTV, Chassis	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1080A1	2-1/2 T, FMTV, Chassis	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1081	2-1/2 T, FMTV, Cargo/LVAD	CAT-3116-225	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1081A1	2-1/2 T, FMTV, Cargo/LVAD	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1083	5 T, FMTV, Cargo	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1083A1	5 T, FMTV, Cargo	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1084	5 T, FMTV, Cargo w/MHE	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1084A1	5 T, FMTV, Cargo w/MHE	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1085	5 T, FMTV, Cargo LWB	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1085A1	5 T, FMTV, Cargo LWB	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1086	5 T, FMTV Cargo, LWB w/MHE	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1086A1	5 T, FMTV Cargo, LWB w/MHE	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1087	5 T, FMTV, Cargo, Expandable	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M1087A1	5 T, FMTV, Cargo, Expandable	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1088	5 T, Truck, Tractor FMTV	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1088A1	5 T, Truck, Tractor FMTV	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1089	5 T, FMTV, Truck, Wrecker	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1089A1	5 T, FMTV, Truck, Wrecker	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1090	5 T, FMTV, Truck, Dump	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1090A1	5 T, FMTV, Truck, Dump	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1091	5 T, FMTV, Cargo	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1091A1	5 T, FMTV, Cargo	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1092	5 T, FMTV, Cargo	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1092A1	5 T, FMTV, Cargo	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1093	5 T, FMTV, Cargo/LVAD	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1093A1	5 T, FMTV, Cargo/LVAD	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M1094	5 T, FMTV, Truck, Dump/LVAD	CAT-3116-290	3000	180	3000	180
		MD-3070PT	6000	365	6000	365
		HYD SYS		365		365
M1094A1	5 T, FMTV, Truck, Dump/LVAD	CAT-3126	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1096	5 T, FMTV, Cargo	CAT-3116-290	3000	180	3000	180
		MD3070PT	6000	365	6000	365
		HYD SYS		365		365
M1097	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1097A1	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1097A2	1-1/4 T, Truck, Cargo, Expanded Capacity Vehicle (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M109A1	2-1/2 T, Truck, Shop Van	LDT-465-1D	3000	180	3000	180
M109A2	2-1/2 T, Truck, Shop Van	LDT-465-1D	3000	180	3000	180
M109A3	2-1/2 T, Truck, Shop Van	LDT-465-1D	3000	180	3000	180
M1109	1-1/4 T, Truck, Up-Armored Heavy (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M1113	1-1/4 T, Truck, Utility, Up-Armored (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M1114	1-1/4 T, Truck, Utility, Up-Armored (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M1123	1-1/4 T, Truck, Utility, Heavy Variant (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365
M1977	22-1/2 T, Truck, Bridge Transporter	DD8V92TA	3000	180	3000	180
		HT740D	6000	365	6000	365
		HYD SYS		365		365
M291A1	2-1/2 T, Truck, Expandable Van	LDT-465-1D	3000	180	3000	180
M291A2	2-1/2 T, Truck, Expandable Van	LDS-465-1D	3000	180	3000	180
M292A1	2-1/2 T, Truck, Expandable Van	LDT-465-1D	3000	180	3000	180
M292A2	2-1/2 T, Truck, Expandable Van	LDT-465-1D	3000	180	3000	180

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M292A4	2-1/2 T, Truck, Expandable Van	LDT-465-1D	3000	180	3000	180
M292A5	2-1/2 T, Truck, Expandable Van	LDT-465-1D	3000	180	3000	180
M34A2	2-1/2 T, Truck, Cargo	LDT-465-1D	3000	180	3000	180
M35A2	2-1/2 T, Truck, Cargo	LDT-465-1D	3000	180	3000	180
M35A2C	2-1/2 T, Truck, Cargo	LDT-465-1D	3000	180	3000	180
M35A3	2-1/2 T, Truck, Cargo, Fixed Side	3116ATAAC AT1545	3000 6000	180 365	3000 6000	180 365
M35A3C	2-1/2 T, Truck, Cargo	CAT-3116 AT1545	3000 6000	180 365	3000 6000	180 365
M36A2	2-1/2 T, Truck, Cargo	LDT-465-1D	3000	180	3000	180
M36A3	2-1/2 T, Truck, Cargo, Long Wheel Base	CAT-3116 AT1545	3000 6000	180 365	3000 6000	180 365
M49A1C	2-1/2 T, Truck, Fuel, Tank	LDT-465-1D	3000	180	3000	180
M49A2C	2-1/2 T, Truck, Fuel, Tank	LDT-465-1D	3000	180	3000	180
M51A2	5 T, Truck, Dump	LDS-465-1 HYD SYS	3000	180 365	3000	180 365
M809	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M809A1	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M810	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M811	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M811A1	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M811A2	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M812	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M812A1	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
M813	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
M813A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
M814	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
M815	5 T, Truck, Bolster	NHC-250	3000	180	3000	180
M816	5 T, Truck, Wrecker	NHC-250 HYD SYS	3000	180 365	3000	180 365
M817	5 T, Truck, Dump	NHC-250 HYD SYS	3000	180 365	3000	180 365
M818	5 T, Truck, Tractor	NHC-250	3000	180	3000	180
M819	5 T, Truck, Tractor	NHC-250 HYD SYS	3000	180 365	3000	180 365
M820	5 T, Truck, Expandable Van	NHC-250	3000	180	3000	180
M820A1	5 T, Truck, Expandable Van	NHC-250	3000	180	3000	180
M820A2	5 T, Truck, Cargo	NHC-250	3000	180	3000	180

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M821	5 T, Truck, Expandable Van	NHC-250	3000	180	3000	180
M876	5 T, Truck, Telephone Maintenance	IHD190	3000	180	3000	180
		MT650	6000	365	6000	365
		HYD SYS		365		365
M915	10 T, Truck, Tractor (LET)	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
M915A1	10 T, Truck, Cargo	NTC-400	3000	180	3000	180
		HT754CRD	6000	365	6000	365
M915A2	10 T, Truck, Cargo	DD12.7L	3000	180	3000	180
		DDHT740	6000	365	6000	365
M915A3	10 T, Truck, Cargo	DDEC IV	3000	180	3000	180
		HD4560P	6000	365	6000	365
M915A4	10 T, Truck, Cargo	BIG CAM I	3000	180	3000	180
		HD4560P	6000	365	6000	365
M916	10 T, Truck, Tractor (MET)	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
		HYD SYS		365		365
M916A1	22-1/2 T, Truck, Tractor (HET)	DD12.7L	3000	180	3000	180
		DDHT740	6000	365	6000	365
		HYD SYS		365		365
M916A2	22-1/2 T, Truck, Tractor (HET)	DDEC III	3000	180	3000	180
		HT740	6000	365	6000	365
		HYD SYS		365		365
M917	20 T, Truck, Dump	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
		HYD SYS		365		365
M917A1	20 T, Truck Dump	DDC III	3000	180	3000	180
		HT740	6000	365	6000	365
		HYD SYS		365		365
M917A1MCS	20 T, Truck Dump w/MCS	DDEC III	3000	180	3000	180
		HD456P	6000	365	6000	365
M918	20 T, Truck, Bituminous Distributor	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
		HYD SYS		365		365
M919	20 T, Truck, Mixer, Concrete (MET)	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
		HYD SYS		365		365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M920	20 T, Truck, Tractor (HET)	NTC-400	3000	180	3000	180
		CAT-D7155	6000	365	6000	365
		HYD SYS		365		365
M923	5 T, Truck Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M923A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M923A2	5 T, Truck, Cargo	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
M924	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M924A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M925	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M925A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M925A2	5 T, Truck, Cargo	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M926	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M926A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M927	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M927A1	5 T, Truck, Cargo	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M927A2	5 T, Truck, Cargo	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
M928	5 T, Truck, Cargo (VLNB)	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M928A1	5 T, Truck, Cargo (VLNB)	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M928A1 (cont'd)		HYD SYS		365		365
M928A2	5 T, Truck, Cargo	6CTA-8.3 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M929	5 T, Truck, Dump	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M929A1	5 T, Truck, Dump	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M929A2	5 T, Truck, Dump	6CTA-8.3 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M930	5 T, Truck, Dump	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M930A1	5 T, Truck, Dump	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M930A2	5 T, Truck, Dump	6CTA-8.3 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M931	5 T, Truck, Tractor	NHC-250 MT654	3000 6000	180 365	3000 6000	180 365
M931A1	5 T, Truck, Tractor	NHC-250 MT654	3000 6000	180 365	3000 6000	180 365
M931A2	5 T, Truck, Tractor	6CTA-8.3 MT654	3000 6000	180 365	3000 6000	180 365
M932	5 T, Truck, Tractor	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M932A1	5 T, Truck, Tractor	NHC-250 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M932A2	5 T, Truck, Tractor	6CTA-8.3 MT654 HYD SYS	3000 6000	180 365 365	3000 6000	180 365 365
M934	5 T, Truck, Van Expandable	NHC-250 MT654	3000 6000	180 365	3000 6000	180 365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M934A1	5 T, Truck, Van Expandable	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M934A2	5 T, Truck, Van Expandable	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
M936	5 T, Truck, Wrecker	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M936A1	5 T, Truck, Wrecker	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M936A2	5 T, Truck, Wrecker	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
		HYD SYS		365		365
M939	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M939A2	5 T, Truck, Chassis	6CTA-8.3	3000	180	3000	180
		MT654	6000	365	6000	365
M940	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M941	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M942	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M943	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M944	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M945	5 T, Truck, Chassis	NHC-250	3000	180	3000	180
		MT654	6000	365	6000	365
M966	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M966A1	1-1/4 T, Truck, Utility (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M973	1-1/2 T, Small Unit Support Vehicle (SUSV)	OM617952	3000	180	3000	180
		W4A018	6000	365	6000	365
M973A1	1 1/2 T, Truck, Cargo (SUSV)	OM603.950	3000	180	3000	180
		W4A040	6000	365	6000	365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M977	10 T, Truck, Cargo	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M978	10 T, Truck, Tanker	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M983	10 T, Truck, Tractor	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M984	10 T, Truck, Wrecker	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M984A1	10 T, Truck, Wrecker	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M985	10 T, Truck, Cargo	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M985E1	10 T, Truck, Cargo	DD8V92TA	3000	180	3000	180
		DDA-HT740D	6000	365	6000	365
		HYD SYS		365		365
M996	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M996A1	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M997	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M997A1	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M997A2	Truck, Ambulance, 4-Litter (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M998	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365

Tactical Wheeled Vehicles			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Miles	Active Army Days	Reserve/National Guard Miles	Reserve/National Guard Days
M998A1	1-1/4 T, Truck, Cargo (HMMWV)	6.2 L DIESEL	3000	180	3000	180
		6.5 L DIESEL	3000	180	3000	180
		THM-3L80	6000	365	6000	365
M998A2	2 1/2 T, Expanded Capacity Vehicle (HMMWV)	6.5 L DIESEL	3000	180	3000	180
		THM-4L80E	6000	365	6000	365

Locomotives			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
LOCO100T	100 T, Locomotive, Diesel Electric	EMD8-567B	25	90	25	90
		AMER 539	25	90	25	90
LOCO10T	10 T, Locomotive, Diesel Electric	DD3080	25	90	25	90
LOCO115T	115T, Locomotive, Diesel Electric	AMER 539S	25	90	25	90
LOCO120T	120 T, Locomotive, Diesel Electric	BALDWIN 606A	25	90	25	90
		38D-81/8	25	90	25	90
		FM-H12-44	25	90	25	90
		EMD16-567B	25	90	25	90
		AMER 244F	25	90	25	90
		EMD16-645E	25	90	25	90
LOCO25T	25 T, Locomotive, Crane	HBI-600	25	90	25	90
LOCO44T	44 T, Locomotive, Diesel Electric	CAT-D17000	25	90	25	90
LOCO45T	45 T, Locomotive, Diesel Electric	HBI-600	25	90	25	90
LOCO60T	60 T, Locomotive, Diesel Electric	CAT-D397	25	90	25	90
		CAT-3508	25	90	25	90
LOCO80T	80 T, Locomotive, Diesel Electric	NTA-855L4	25	90	25	90
		LI-600	25	90	25	90
LOCO80T-470	80 T, Locomotive, Diesel Electric	NHBIS-600	25	90	25	90
LOCO80T-550	80 T, Locomotive, Diesel Electric	NHBIS-600	25	90	25	90
RAIL C 25T	25 T, Crane	D13,000	25	90	25	90
RAIL C 40T	40 T, Crane	DD671	25	90	25	90

Watercraft			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
BBEUSCSBMK1	Boat Bridge Erection, USCSBMK1	SABRE 212	100	90	50	180
		10-18-002	100	90	50	180
BBEUSCSBMK2	Boat Bridge Erection, USCSBMK2	SABRE 212	100	90	50	180
		10-18-002	100	90	50	180
BD-264B	100 T, Crane, Barge, Design 264B	CO-GAB4	100	90	50	180
		CO-6EN668	100	90	50	180
		CO-DSM-6	100	90	50	180
		FM-31A6	100	90	50	180
		CO-5EN668	100	90	50	180
BD-6802	115 T, Barge, Derrick	NTA-855-63	100	90	50	180
		KTA-38-G2	100	90	50	180
		HYD SYS ANC1		365		365
		HYD SYS ANC2		365		365
		HYD SYS ANC3		365		365
		HYD SYS		365		365
BP	Boat Picket	4003	100	90	50	180
BP	Boat Picket	4002	100	90	50	180
BRIDGE-MA	Bridge, Mobile Assault	DD8V71	100	90	50	180
		HT70	100	90	50	180
HSPB	High Speed Patrol Boat	400MERLIN	100	90	50	180
LCM8	Landing Craft, Mechanized, 69 FT.	671LD63A	100	90	50	180
		DD12V71T	100	90	50	180
		671LB63A	100	90	50	180
		671RD63A	100	90	50	180
		671RB63A	100	90	50	180
LCM8MOD1	Landing Craft, Mechanized, 69 FT.	DD12V71T	100	90	50	180
LCM8MOD1SL	Landing Craft, Mechanized, 69 FT.	DD12V71T	100	90	50	180
LCM8-SLEP	Landing Craft, Mechanized	7122	100	90	50	180
		7000	100	90	50	180
LCU1646	Landing Craft, Utility	GM1043-7000	100	90	50	180
		GM7122-7000	100	90	50	180
		1033-7005	100	90	50	180
		MG514	100	90	50	180

Watercraft			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
LCU2000	Landing Craft, Utility	KTA-50M	100	90	50	180
		NTA-855	100	90	50	180
		4B3.9	100	90	50	180
		NT-855-M	100	90	50	180
		WAV850PT	100	90	50	180
		WAV850SB	100	90	50	180
LSV	Logistics Support Vessel	EMD16-645E6	100	90	50	180
		3406-B	100	90	50	180
		3304-B	100	90	50	180
		3306-B	100	90	50	180
		MG509	100	90	50	180
		WAV630-2240	100	90	50	180
LT	Large Tug 1200 Horsepower	LS6DRT	100	90	50	180
		HS400-3	100	90	50	180
		EMD12645F7B	100	90	50	180
		3408DITAJW	100	90	50	180
		CAT-3304NA	100	90	50	180
		CAT-3306TA	100	90	50	180
LVTC-7	Landing Craft, Assault Vehicle	DD8V53T	100	90	50	180
		HS400-3	100	90	50	180
LVTC-7A1	Landing Craft, Assault Vehicle	VT-400	100	90	50	180
		HS400-3	100	90	50	180
LVTP-7	Landing Craft, Assault Vehicle	DD8V53T	100	90	50	180
		HS400-3	100	90	50	180
LVTP-7A1	Landing Craft, Assault Vehicle	VT-400	100	90	50	180
		HS400-3	100	90	50	180
LVTR-7	Landing Craft, Assault Vehicle	DD8V53T	100	90	50	180
		HS400-3	100	90	50	180
LVTR-7A1	Landing Craft, Assault Vehicle	VT-400	100	90	50	180
		V903	100	90	50	180
		HS400-3	100	90	50	180
TUG-900	Tug 900 Horsepower, Series 900, 60 Feet	6B5.9-G1	100	90	50	180
		KTA19-M3	100	90	50	180
T-449	Boat, Passenger and Cargo	CAT-D375	100	90	50	180
		180DAC	100	90	50	180

Material Handling Equipment			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
10000M	10,000 LB, All Terrain Lifter Army System (ATLAS)	6BT5.9	50	90	50	180
		FUNK-1723-M110B	50	90	50	180
		HYD SYS		365		365
50K		CAT-3408T	50	90	50	180
		5R3855 11083	50	90	50	180
		HYD SYS		365		365
544E	10,000 LB, Truck, Lift	JD6059TDW04	50	90	50	180
		WG-120	50	90	50	180
		HYD SYS		365		365
6000M	6,000 LB, Rough Terrain Fork Lift (RTFL)	6BT 5.9	50	90	50	180
		FUNK-1723	50	90	50	180
		HYD SYS		365		365
AP308	Crane, Truck, Warehouse	4B3.96	50	90	50	180
		FORD C-6	50	90	50	180
ARTFT6	Truck, Lift	DD453N	50	90	50	180
		ALS 3331-1	50	90	50	180
		HYD SYS		365		365
H40XL-MIL (MHE265)	4,000 LB, Fork Lift	ISUZU-C240	50	90	50	180
		360311	50	90	50	180
		HYD SYS		365		365
H60XL-ML	6,000 LB, Fork Lift	ISUZU-C240	50	90	50	180
		360311	50	90	50	180
		HYD SYS		355		365
HC-238A (MHE248)	140T. Crane	DD671N	50	90	50	180
		DD6V92TC	50	90	50	180
		HYD SYS		365		365
M10A (MHE236)	10,000 LB, Fork Lift	IHC DT-466B	50	90	50	180
		IHCS-700	50	90	50	180
		HYD SYS		365		365
M4K (MHE237)	4,000 LB, Fork Lift	CASE-207D	50	90	50	180
		CLK18340	50	90	50	180
		HYD SYS		365		365
M487	4,000 LB, Wheeled Warehouse Fork Lift	TMD27	50	90	50	180
		A413	50	90	50	180
		HYD SYS		365		365
MHE-269	6,000 LB, Fork Lift	A38714	50	90	50	180
		MHR18325	50	90	50	180

Material Handling Equipment			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
MHE-270	4,000 LB, Fork Lift, Rough Terrain (RTFL)	4B3.9	50	90	50	180
		1102T1236210	50	90	50	180
		HYD SYS		365		365
MHE-271	4,000 LB, Fork Lift, Rough Terrain (RTFL)	4B3.9	50	90	50	180
		1102T1236210	50	90	50	180
		HYD SYS		365		365
MLT6 (MHE200)	6,000 LB, Fork Lift, Rough Terrain (RTFL)	DD453N	50	90	50	180
		ALS 3331-1	50	90	50	180
		HYD SYS		365		365
MLT6-2	6,000 LB, Truck, Lift	DD453N	50	90	50	180
		R28422-1	50	90	50	180
		HYD SYS		365		365
MLT6CH (MHE202)	6,000 LB, Fork Lift	DD453N	50	90	50	180
		ALS 3331-1	50	90	50	180
		HYD SYS		365		365
R60SL-DC	6,000 LB, Truck, Lift	F4L912W	50	90	50	180
		PR-2	50	90	50	180
		HYD SYS		365		365
RT875CC	Crane, Wheel Mounted	6CTA-8.3	50	90	50	180
		CLARK-C273.5	50	90	50	180
		HYD SYS		365		365
RTFL	10,000 LB, Rough Terrain Fork Lift	6BT 5.9	50	90	50	180
		FUNK-1723	50	90	50	180
		HYD SYS		365		365
RTL10	10,000 LB, Rough Terrain Fork Lift	DD6V53	50	90	50	180
		CRT 3531-1	50	90	50	180
		HYD SYS		365		365
RTL10-1	10,000 LB, Rough Terrain Fork Lift	DD6V53	50	90	50	180
		CRT 3531-1	50	90	50	180
		HYD SYS		365		365
W150Y	15,000 LB, Truck, Fork Lift	28265	50	90	50	180
		AUTO79410	50	90	50	180
		HYD SYS		365		365

Construction			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
140H	Grader, Roader Motorized, DED	CAT-3306	50	90	50	180
		CAT-1442234	50	90	50	90
		HYD SYS		365		365
175B	Loader, Scoop	DD8V71N	50	90	50	180
		NT-855-C	50	90	50	180
		CLK4000	50	90	50	180
		HYD SYS		365		365
270-9	Earth Auger	DD353	50	90	50	180
3000M	10,500 LB, Loader, Scopp	C-180	50	90	50	90
		2067761	50	90	50	180
5060	40 T, Crane, Crawler	DD471T	50	90	50	180
		DD23010052	50	90	50	180
609-C	Pump Assembly	F6L912B	50	90	50	180
613BSNS	Scraper, Self Propelled	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
613BSNSI	Scraper	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
613BSS	Scraper, Self Propelled	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
613BSSI	Scraper, Self Propelled	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
613BWDNS	Water Distributor, Self Propelled	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
613BWDS	Water Distributor, Self Propelled	CAT-3208	50	90	50	180
		8S3543	50	90	50	180
		HYD SYS		365		365
621B	Scraper, Self Propelled	3406	50	90	50	180
		7G2780	50	90	50	180
		HYD SYS		365		365
75TPH EAGLE	Crusher	N855-P235	50	90	50	180
780T	Machine, Paving	T4.236	50	90	50	180
950BNS	Loader, Scoop	CAT-3304	50	90	50	180
		7G4851	50	90	50	180
		HYD SYS		365		365

Construction			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
950BNSCE	Loader, Scoop	CAT-3304	50	90	50	180
		7G4851	50	90	50	180
		HYD SYS		365		365
950BS	Loader, Scoop	CAT-3304	50	90	50	180
		7G4851	50	90	50	180
		HYD SYS		365		365
950BSCE	Loader, Scoop	CAT-3304	50	90	50	180
		7G4851	50	90	50	180
		HYD SYS		365		365
AT422T	22 T, Crane	6BTA5.9	50	90	50	180
		13.9 LFHR	50	90	50	180
		HYD SYS		365		365
BSF-400	Paving Machine	DD353	50	90	50	180
		HYD SYS		365		365
C350B	Roller, Tandem	DD353	50	90	50	180
		HYD SYS		365		365
C350B-D	Roller	DD353	50	90	50	180
		HYD SYS		365		365
CB-534B	Roller, Tandem	CAT-3054	50	90	50	180
		HYD SYS		365		365
C530A	Roller, Pneumatic	DD353	50	90	50	180
		393303	50	90	50	180
CAT-12	Grader, Road	CAT-D333	50	90	50	180
CAT-120ROPS	Grader, Road	CAT-D333	50	90	50	90
		3R9859	50	90	50	90
CAT-130G	Grader, Road	CAT-3304DIT	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365
CAT-130GNS	Grader, Road	CAT-3304	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365
CAT-130GNSC	Loader, Road	CAT-3304DIT	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365
CAT-130GNSE	Loader, Road	CAT-3304	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365
CAT-130GS	Loader, Road	CAT-3304	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365

Construction			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
CAT-130GSCE	Loader, Road	CAT-3304	50	90	50	180
		5R6192	50	90	50	180
		HYD SYS		365		365
CAT-814F	Tractor, Wheel	CAT-3306B	50	90	50	90
		1223774	50	90	50	50
		HYD SYS		365		365
CAT-815F	Compactor, High Speed, Self Propelled	CAT-3306B	50	90	50	180
		1223774	50	90	50	180
		HYD SYS		365		365
CAT-D5	Tractor, Full Tracked	CAT-3306	50	90	50	180
		3S7094	50	90	50	180
		HYD SYS		365		365
CAT-D5B	Tractor, Full Tracked	CAT-3306	50	90	50	180
		3S7094	50	90	50	180
		9P4905	50	90	50	180
		CAT-2WA1/UP	50	90	50	180
		D5/3T3394	50	90	50	180
		HYD SYS		365		365
CAT-D7F	Tractor, Full Tracked	CAT-3306	50	90	50	180
		CAT-6CYL638C	50	90	50	180
		5R82	50	90	50	180
		HYD SYS		365		365
CAT-D7G	Tractor, Full Tracked	CAT-3306	50	90	50	180
		9P5382	50	90	50	180
		HYD SYS		365		365
CAT-D7H	Tractor, Full Tracked	CAT-3306	50	90	50	180
		9P5382	50	90	50	180
		HYD SYS		365		365
CAT-D7R	Tractor, Full Tracked	CAT-3306	50	90	50	180
		CAT-9TXI-UP	50	90	50	180
		HYD SYS		365		365
CAT-D8K	Tractor, Full Tracked	CAT-D342	50	90	50	180
		3N1869	50	90	50	180
		HYD SYS		365		365
CS433C	Self-Propelled type 1, Roller Vibratory	CAT-3054	50	90	50	180
		HYD SYS		365		365
CS563D	Self-Propelled type 1, Roller Vibratory	CAT-3114	50	90	50	180
		CAT-3116	50	90	50	180
		CAT-3126	50	90	50	180
		HYD SYS		365		365

Construction			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
D5BNS	Tractor, Full Tracked	CAT-3306	50	90	50	180
		D5/3T3394	50	90	50	180
		CAT-2WA1/UP	50	90	50	180
		HYD SYS		365		365
D5BS	Tractor, Full Tracked	CAT-3306	50	90	50	180
		D5/3T3394	50	90	50	180
		CAT-2WA1/UP	50	90	50	180
		HYD SYS		365		365
D5BS1	Tractor, Full Tracked	CAT-3306	50	90	50	180
		CAT-2WA1/UP	50	90	50	180
		D5/3T3394	50	90	50	180
		HYD SYS		365		365
DV-100	Deployable Universal Combat Earthmover (DEUCE)	CAT-3126	50	90	50	180
		POWERSHIFT	50	90	50	180
		HYD SYS		365		365
F5070	20 T, Truck, Dump	NTC-290	50	90	50	180
		HT750CRD	50	90	50	180
		HYD SYS		365		365
H100C RB	Loader, Scoop	IHDT817C	50	90	50	180
		P-2004	50	90	50	180
		HYD SYS		365		365
H100C GPB	Loader	IHDT817C	50	90	50	180
		P-2004	50	90	50	180
		HYD SYS		365		365
HMMH (FLU-10344)	Tractor, Wheeled	BENZ-OM352	50	90	50	180
JD230LCR	Hydraulic Excavator, Type I	JD6068	50	90	50	180
		HYD SYS		365		365
JD230LC-RD	Hydraulic Excavator, Type II (Rock Drill Configuration)	JD6068	50	90	50	180
		JD4045	50	90	50	180
		HYD SYS		365		365
JD330LCR	Hydraulic Excavator, Type III	JD6081	50	90	50	180
		HYD SYS		365		365
JD410	Tractor, Backhoe	4-2-19DT-03	50	90	50	180
JD550	Tractor, Full Tracked	4276TT01	50	90	50	180
		AT49678	50	90	50	180
		HYD SYS		365		365

Construction			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
K300	Compactor, High Speed	CAT-3208	50	90	50	180
		CLK28000	50	90	50	180
		HYD SYS		365		365
LRT-110	7 1/2 T, Crane	4B3.9	50	90	50	180
		17243E	50	90	50	180
		HYD SYS		365		365
M150 CSWP	150 T, Rock Crushing Plant	6CT8.3G	50	90	50	180
		M11-C	50	90	50	180
		6CTA8.3-C#1	50	90	50	180
		6CTA8.3-C#2	50	90	50	180
		4BT3.9C	50	90	50	180
M878	Tractor, Yard	DD6V53	50	90	50	180
		MT653	50	90	50	180
M878A1	Tractor, Yard	DD6V53T	50	90	50	180
		MT653	50	90	50	180
M9 (ACE)	Armored Combat Earthmover	V903	50	90	50	180
		13.5 HR 3610-2	50	90	50	180
		HYD SYS		365		365
MT250	25 T, Crane	DD6V53N	50	90	50	180
		HYD SYS		365		365
MW24C	Loader, Scoop	CASE-504BD	50	90	50	180
		CASE-A504BDT	50	90	50	180
		TT2421-1	50	90	50	180
		HYD SYS		365		365
RS28	Roller, Vib	DD453	50	90	50	180
		HYD SYS		365		365
RT41AA	Scamp, Crane SP	D3400X289	50	90	50	180
		126HR183278	50	90	50	180
		HYD SYS		365		365
SM54A	Roller, Towed	DEUTZ-F2L51	50	90	50	180
SP848	Roller, Vib	DD353	50	90	50	180
		HYD SYS		365		365
TMS-300-5	25 T, Crane, Truck Mounted	DD671	50	90	50	180
		HYD SYS		365		365
TO730HKEG	Mixer, Rotary Tiller	6BT 5.9	50	90	50	180
		HYD SYS		365		365
US612ACD1	Pumps	DEUTZ-91213	50	90	50	180
US90CCD1	Pumps	DD353	50	90	50	180

Support Equipment-Generators			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
1500M	1,500 KW, Generator Set	DD6V53	150	180	150	180
250D33	Air Compressor	CAT-D353	50	180	50	180
250DCMS1	Air Compressor	JD403	50	180	50	180
250RPV	Air Compressor	DD453	50	180	50	180
35KVA	Power Unit (Utility)	GPT 30-150E	50	180	50	180
600TV75	750 KW, Gas Turbine 50/60 HZ	T-1010 S-39	50	180	50	180
6M125	Air Compressor	D2000X16	50	180	50	180
750DPQ	Air Compressor	DD6V71N	50	180	50	180
AN/MJQ-10A (MEP-114A)	30 KW, 400 HZ Power Unit	D298ERX37	150	180	150	180
AN/MJQ-11A (MEP-009A)	200 KW, 60 HZ Power Unit	CAT-D343TA	150	180	150	180
AN/MJQ-12A (MEP-006A)	60 KW, 60 HZ Power Unit	AC3500	150	180	150	180
AN/MJQ-15 (MEP-113A)	15 KW, 400 HZ Power Unit	D198ERX51	150	180	150	180
AN/MJQ-18	10 KW, 60 HZ Power Unit	D198ERX51	50	180	50	180
AN/MJQ-18 (MEP-003A)	10 KW, 60 HZ Power Unit	100-1345	50	180	50	180
AN/MJQ-21 (MEP-404B)	60 KW, 400 HZ Power Unit	T62T32A	150	180	150	180
AN/MJQ-24 (D424A)	150 KW, 400 HZ Power Unit	A04043B02	150	180	150	180
AN/MJQ-35	5 KW, 60 HZ, TQG	DN2M	125	180	125	180
AN/MJQ-35A	5 KW, 60 HZ, TQG	DN2M	125	180	125	180
AN/MJQ-36	5 KW, 60 HZ, TQG	DN2M	125	180	125	180
AN/MJQ-37	10 KW, 60 HZ, TQG	DN4M-1	125	180	125	180
AN/MJQ-38	10 KW, 400 HZ, TQG	DN4M-1	125	180	125	180
AN/MJQ-39	Power Plant, Trailer Mounted	ISUZU-C240	150	180	150	180
AN/MJQ-40	30 KW, 50/60 HZ, Power Plant	JD4039T	150	180	150	180
AN/MJQ-40B	30 KW, 50/60 HZ, Power Plant Electric, Trailer Mounted	4045TF151	150	180	150	180
AN/MJQ-41	60 KW, 50/60 HZ, Power Plant	JD6059T	150	180	150	180
AN/MJQ-41B	60 KW, 50/60 HZ, Power Plant	6068TF151	150	180	150	180
APP-1	Power Unit (Utility)	GTCP85-127	0	90	0	180
B413	150 KW, 400 HZ Generator Set	RTG3600C-S1	150	180	150	180
D424A	150 KW, 400 HZ Generator Set	A04043B02	150	180	150	180
D5	Engine Driven, Test Stand (Gasoline)	HYD SYS	0	365	0	365
D5 ENG TS	Engine Driven, Test Stand	HYD SYS	0	365	0	365

Support Equipment-Generators			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
D6	Engine Driven, Test Stand	CAT-D333	50	180	0	0
		HYD SYS	0	365	0	365
EMD12567	700 KW, 400 HZ Generator Set	16-567-C	50	180	50	180
EPPIII	150 KW, 400 HZ Generator Set (Patriot System EPPIII)	BF8L513	150	180	150	180
GTGE709-2	GTGE709-2	GPT 70-52	50	180	50	180
JHTWX1096	Power Unit (Utility)	GTCP85-127	0	90	0	180
LPU-71	Power Unit (Utility)	GTCP85-127	0	90	0	180
LPU-71W	Power Unit (Utility)	GTCP85-127	50	90	50	180
MEP-003	10 KW, 60 HZ Generator Set	100-1345	125	180	125	180
MEP-003A	10 KW, 60 HZ Generator Set	100-1345	50	180	50	180
MEP-003A	10 KW, 60 HZ Generator Set	D198ERX51	50	180	50	180
MEP-004A	15 KW, 60 HZ Generator Set	D198ERX51	150	180	150	180
MEP-005A	30 KW, 60 HZ Generator Set	D298ERX37	150	180	150	180
MEP-006A	60 KW, 60 HZ Generator Set	AC3500	150	180	150	180
MEP-007A	100 KW, 60 HZ Generator Set	CAT-D333CT	150	180	150	180
MEP-007B	100 KW, 60 HZ Generator Set	CAT-76-4106	150	180	150	180
MEP-009A	200 KW, 60 HZ Power Unit	CAT-D343TA	150	180	150	180
MEP-009B	200 KW, 60 HZ Power Unit	CAT-D343TA	150	180	150	180
MEP-012A	750 KW, 50/60 HZ Gen Set	KTA-2300G	150	180	150	180
MEP-029A	500 KW, 60 HZ Generator Set	VTA-1710G	150	180	150	180
MEP-029A	500 KW, 60 HZ Generator Set	VTA-28G1	50	180	50	180
MEP-103A	15 KW, 60 HZ Generator Set	D198ERX51	150	180	150	180
MEP-104A	30 KW, 60 HZ Generator Set	D298ERX37	150	180	150	180
MEP-105A	60 KW, 60 HZ Generator Set	AC3500	150	180	150	180
MEP-106A	100 KW, 60 HZ Generator Set	CAT-D333CT	150	180	150	180
MEP-108A	200 KW, 60 HZ Generator Set	CAT-D343TA	150	180	150	180
MEP-113A	15 KW, 400 HZ Generator Set	D198ERX51	150	180	150	180
MEP-114A	30 KW, 400 HZ Generator Set	D298ERX37	150	180	150	180
MEP-115A	60 KW, 400 HZ Generator Set	AC3500	150	180	150	180
MEP-116A	100 KW, 400 HZ Generator Set	CAT-D333CT	150	180	150	180
MEP-208A	750 KW, 50/60 HZ Gen Set	KTA-2300G	150	180	150	180
MEP-360A	30 KW, AC 400 HZ, Power Unit,	GTCP36-50(H)	50	90	50	180
(P-713)	Aviation Multi-Output GTED (AGPU)	HYD SYS	0	365	0	365
MEP-362A	15 KW, 28 VDC, Generator Set	TT10-1	50	180	50	180
MEP-36A	1250 KW, 50 HZ Power Plant	16-567-E4	50	180	50	180
MEP-36A50	1250 KW, 50 HZ Power Plant	16-567-E4	50	180	50	180

Support Equipment-Generators			Sampling Intervals			
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
MEP-36A60	4500 KW, 60 HZ Power Plant	CAT-D398A	50	180	50	180
MEP-404B	60 KW, 60 HZ Generator Set	T62T32A	150	180	150	180
MEP-802A	5 KW, 60 HZ, TQG, Skid	DN2M-1	125	180	125	180
MEP-803A	10 KW, 60 HZ, TQG, Skid	DN4M	125	180	125	180
MEP-804A	15 KW, 50/60 HZ, Generator Set	C-240PW-28	150	180	150	180
MEP-805A	30 KW, 50/60 HZ, Generator Set	JD4039T	150	180	150	180
MEP-805B	30 KW, 60 HZ, Generator Set	4045TF151	150	180	150	180
MEP-806A	60 KW, 50/60 HZ, Generator Set	JD6059T	150	180	150	180
MEP-806B	60 KW 60 HZ, Generator Set	6068TF151	150	180	150	180
MEP-810B	920 KW, 50/60 HZ Prime Power	CAT-3456	125	180	125	180
MEP-812A	5 KW, 400 HZ, Generator Set	DN2M-1	125	180	125	180
MEP-813A	10 KW, 400 HZ, TQG, Skid	DN4M	125	180	125	180
MEP-814A	15 KW, 400 HZ, Generator Set	C240PW28	150	180	150	180
MEP-815A	30 KW, 400 HZ, Generator Set	JD4039T	150	180	150	180
MEP-815B	30 KW, 400 HZ, Generator Set	4045TF151	150	180	150	180
MEP-816A	60 KW, 400 HZ, Generator Set	JD6059T	150	180	150	180
MEP-816B	60 KW, 400 HZ, Generator Set	6068TF151	150	180	150	180
MEP-903A	10 KW, 60 HZ, (APU)	D722TB-11	125	180	125	180
MEP-903B	10 KW, 60 HZ, (APU)	D722TB-11	125	180	125	180
MEP-903C	10 KW, 60 HZ, (APU)	D722TB-11	125	180	125	180
P250WDMH268	Air Compressor	DEUTZ	50	180	50	180
PPU85-4	Power Unit (Utility)	GTCP85-127	0	90	0	180
PPU85-5	Power Unit (Utility)	GTCP85-127	0	90	0	180
PU405A/M (MEP-004A)	15 KW, 60 HZ Power Unit	D198ERX51	150	180	150	180
PU406A/M (MEP-005A)	30 KW, 60 HZ Power Unit	D298ERX37	125	180	125	0
PU406B/M (MEP-005A)	30 KW, 60 HZ Power Unit	D298ERX37	150	180	150	180
PU495A/G (MEP-007A)	100 KW, 60 HZ Power Unit	CAT-D333CT	150	180	150	180
PU495B/G (MEP-007B)	100 KW, 60 HZ Power Unit	CAT-76-4106	150	180	150	180
PU650B/G (MEP-006A)	60 KW, 60 HZ Power Unit	AC3500	150	180	150	180
PU699A/M (MEP-006A)	60 KW, 60 HZ Power Unit	AC3500	150	180	150	180
PU700A/M (MEP-006A)	60 KW, 60 HZ Power Unit	AC3500	150	180	150	180

Support Equipment-Generators		Sampling Intervals				
End Item Model	Nomenclature	Component Model	Active Army Hours	Active Army Days	Reserve/National Guard Hours	Reserve/National Guard Days
PU707A/M (MEP-115A)	60 KW, 400 HZ Power Unit	AC3500	150	180	150	180
PU732M (MEP-113A)	15 KW, 400 HZ Power Unit	100-1345	150	180	150	180
PU753/M	10 KW, 60 HZ Generator Set	100-1345	125	180	125	180
PU760M (MEP-114A)	30 KW, 400 HZ Power Unit	D298ERX37	150	180	150	180
PU797	5 KW, 60 HZ, TQG, M116A3 Trailer	DN2M	125	180	125	180
PU797A	5 KW, 60 HZ, TQG, HMT Trailer	DN2M	125	180	125	180
PU798	10 KW, 60 HZ, TQG, M116A3 Trailer	DN4M-1	125	180	125	180
PU798A	10 KW, 60 HZ, TQG, HMT Trailer	DN4M-1	125	180	125	180
PU799	10 KW, 400 HZ, TQG, M116A3 Trailer	DN4M-1	125	180	125	180
PU799A	10 KW, 400 HZ, TQG, HMT Trailer	DN4M-1	125	180	125	180
PU800	15 KW, 400 HZ, Generator Set	C-240PW-28	150	180	150	180
PU801	15 KW, 50/60 HZ, Generator Set	C-240PW-28	150	180	150	180
PU801A	15 KW, 50/60 HZ, Generator Set	C-240PW-28	150	180	150	180
PU802	15 KW, 50/60 HZ, Generator Set	C-240PW-28	150	180	150	180
PU803	30 KW, 50/60 HZ, Generator Set	JD4039T	150	180	150	180
PU804	30 KW, 400 HZ, Generator Set	JD4039T	150	180	150	180
PU804B	15 KW, 60 HZ, Generator Set	4045TF151	150	180	150	180
PU805	60 KW, 50/60 HZ, Generator Set	JD6059T	150	180	150	180
PU805B	30 KW, 60 HZ, Generator Set	4045TF151	150	180	150	180
PU806	60 KW, 50/60 HZ, Generator Set	JD6059T	150	180	150	180
PU806B	60 KW, 60 HZ, Generator Set	4045TF151	150	180	150	180
RMS-250	Air Compressor	DD6V53N	50	180	50	180
SM50068003	1500 KW, 60 HZ, Power Plant	D398A 3EA	50	180	50	180
SM50068004	2000 KW, 60 HZ, Power Plant	CAT-D398A	50	180	50	180

**APPENDIX C
AOAP ILLUSTRATED SAMPLING**

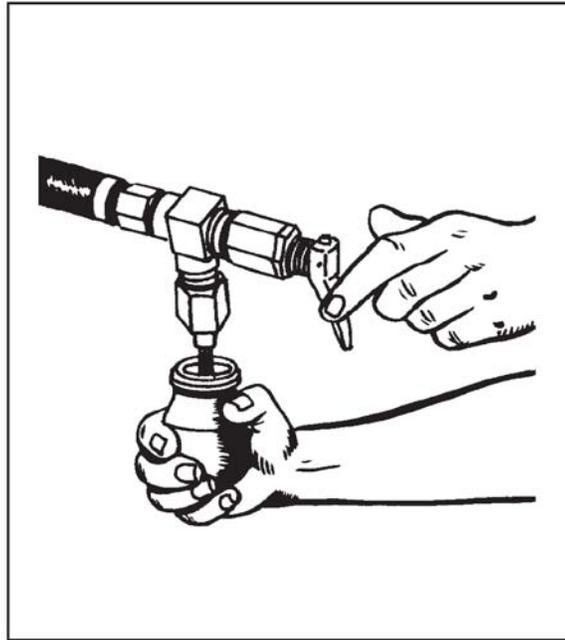


Figure 2 - Oil Sampling Valve

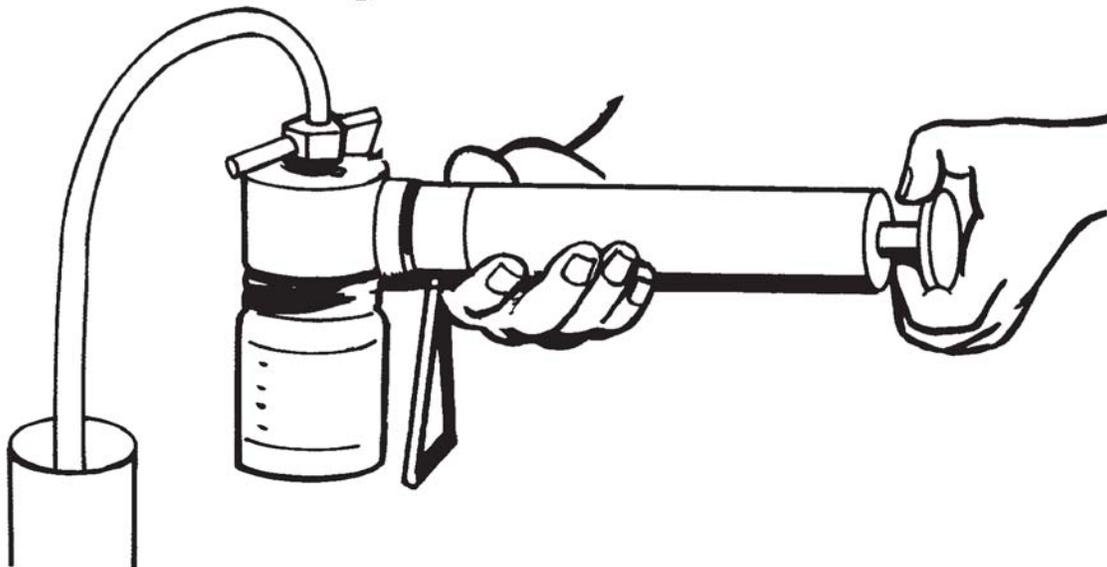


Figure 3 - Oil Sampling Pump

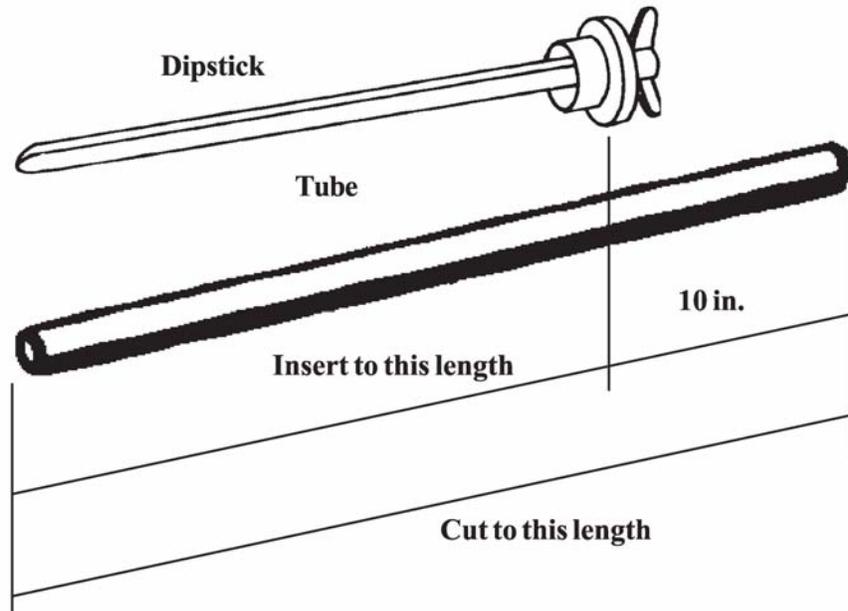


Figure 4 - Oil Sampling Tube

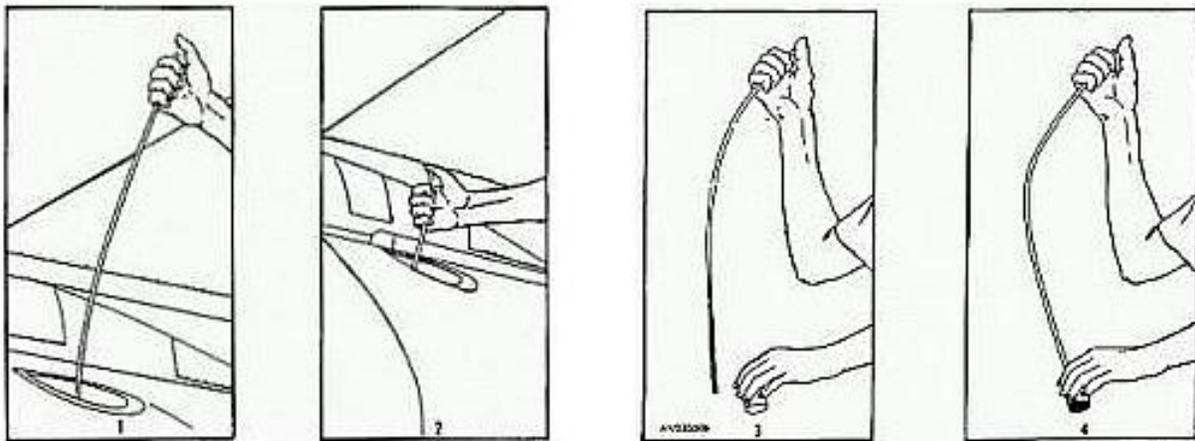


Figure 5 - Aviation Tube Sampling Method

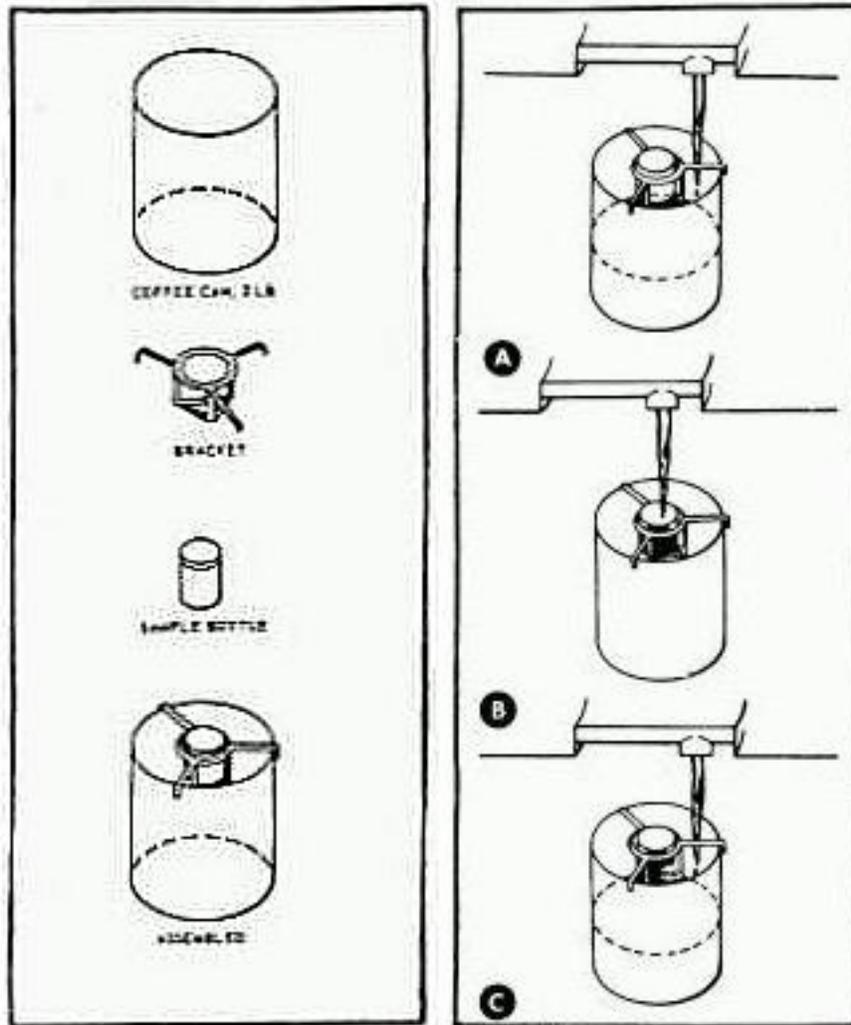


Figure 6 - Oil Analysis Drain Method

**APPENDIX D
AOAP FORMS**

OIL ANALYSIS REQUEST						
TO	OIL ANALYSIS LABORATORY					
	Ft. Hood					
	MAJOR COMMAND					
FROM	FORSCOM					
	OPERATING ACTIVITY (Include ZIP Code/APO/UIC)					
	Hq Co 1/66 Armor, 2AD (WADST0) Ft. Hood, TX 76544 685-3908					
EQUIPMENT MODEL						
Engine AVDS 1790-2D						
EQUIPMENT SERIAL NUMBER						
A0606						
END ITEM MODEL/HULL NUMBER						
Tank M60A1						
END ITEM SERIAL NUMBER						
6486						
DATE SAMPLE TAKEN (Day, Mo., Yr)				LOCAL TIME SAMPLE TAKEN		
15 Mar 02						
HOURS/MILES SINCE OVERHAUL				346		
HOURS/MILES SINCE OIL CHANGE				67		
REASON FOR SAMPLE						
<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> LAB REQUEST <input type="checkbox"/> TEST CELL <input type="checkbox"/> OTHER (Specify)						
OIL ADDED SINCE LAST SAMPLE (Oz, Pts, Qts, Gals)						
1 Gal						
ACTION TAKEN						
DISCREPANT ITEM						
HOW MALFUNCTIONED						
HOW FOUND						
<input type="checkbox"/> LAB REQUEST <input type="checkbox"/> AIR OR GROUND CREW						
HOW TAKEN		SAMPLE TEMPERATURE		TYPE OIL		
<input checked="" type="checkbox"/> DRAIN <input type="checkbox"/> TUBE		<input checked="" type="checkbox"/> HOT <input type="checkbox"/> COLD		OE 30		
ENGINE POSITION:			REMARKS/MISC: MI 4761			
NAME: James J. Lin			PHONE: 685-3908			
EMP NO: Sgt			SIGNATURE: <i>James J. Lin</i>			
FOR LABORATORY USE ONLY						
SAMPLE RESPONSE TIME						
FE	AG	AL	CR	CU	MG	NA
NI	PB	SI	SN	TI	B	MO
ZN	LAB RECOMMENDATION					
SAMPLE NUMBER(S)				FILE MAINT	DATA SEQ.	

DD FORM 2026, MAR 1999 (EG)

PREVIOUS EDITION MAY BE USED.
WHS/DIOR, Mar 99

**Figure 7 - Oil Analysis Request
DD Form 2026
(See paragraph 8-1 for preparation instructions)**

OIL ANALYSIS RECOMMENDATION AND FEEDBACK <small>For use of this form, see TB 43-0106 and TB 43-0210; the proponent agency is DARCOM.</small>		REQUIREMENT CONTROL SYMBOL CSGLD - 1818
1. TO: FIELD <i>(Include ZIP Code and Telephone Number)</i> HQ BTRY, 7/7 FA ATTN: MAINTENANCE OFFICER BLDG. NO. 17832 FT. HOOD, TX 76544-5000 TELEPHONE NUMBER: 672-9992	3. LAB RECOMMENDATION NUMBER	02-108
	4. END ITEM MODEL	M88A2
	5. END ITEM SERIAL NUMBER	7135-27841
2. FROM: LABORATORY <i>(Include ZIP Code)</i> FT. HOOD OIL LABORATORY BLDG. NO. 7046 FT. HOOD, TX 76544-5000	6. COMPONENT TYPE	ENGINE
	7. COMPONENT SERIAL NUMBER	57482908
	8. COMPONENT TIME <i>(Hours/Miles)</i>	424 HOURS
9. RECOMMENDATION AND REASON FOR ACTION OIL ANALYSIS SHOWS HIGH SILICON. RECOMMEND INSPECT AND REPAIR AIR INDUCTION SYSTEM. CHANGE OIL, CHANGE/SERVICE FILTER, AND RESAMPLE AFTER 5 HOURS OF OPERATION.		
10. SIGNATURE AND TITLE OF INITIATOR <i>James J. Linn LAB CHIEF</i>	11. DATE <i>(Day-Month-Year)</i> 22 FEB 02	
12. NOTE FOR ARMY AVIATION ONLY: <small>Quality Deficiency Report (QDR), SF 308, will be submitted when maintenance is performed due to impending or incipient failure indicated by oil analysis. Failure Code 018.</small>	13. ODR NUMBER	
14. FEEDBACK <i>(Maintenance Performed/Action Taken)</i> REPLACED AIR INDUCTION HOSE, CHANGED OIL AND FILTER. RESAMPLED AFTER 5 HOURS OF OPERATION.		
15. FROM: FIELD/DEPOT MAINTENANCE PERSONNEL <i>Mary Ann Banta, SGT</i>	16. DATE <i>(Day-Month-Year)</i> 1 May 02	
17. TO: LABORATORY	NOTE FOR ARMY AVIATION ONLY: Copy of this form with SF 308 (QDR) attached will be sent to: Commander, CCAD ATTN: DRSTS-MER, Stop 55 Corpus Christi, TX 78419	

DA FORM 3254-R, NOV 80

EDITION OF JUN 78 IS OBSOLETE.

USARPC V1.00

Figure 9 - Oil Analysis Recommendation and Feedback
(See paragraph 8-3 for preparation instructions)

DA FORM 2407 OR ULLS DA FORM 5990-E, Maintenance Request

When a DA Form 2407 or ULLS DA Form 5990-E, Maintenance Request, is prepared by the unit to request support from a higher level of maintenance for an AOAP recommended evaluation, attach the DA Form 3254-R, Oil Analysis

Recommendation and Feedback, to the request. Enter "See attached DA Form 3254-R" in the Remarks Block of the DA Form 2407 or ULLS DA Form 5990-E.

MAINTENANCE REQUEST For use of this form, see DA Pam 738-750 and 738-751; the proponent agency is DCSLOG				PAGE NO	NO OF PAGES	REQUIREMENT CONTROL SYMBOL (SGLC-104707)
SECTION I - CUSTOMER DATA			SECTION II - MAINTENANCE ACTIVITY DATA			
1a UIC CUSTOMER	1b CUSTOMER UNIT NAME	1c PHONE NO	24 WORK ORDER NUMBER (WON#)	2b SHOP	2c PHONE NO	
W.H. 148018	244ADA	555-1234				
2a SAMS 2 UIC/SAMS-UTDA	2b UTILIZATION CODE	2c ACFT	4a UIC SUPPORT UNIT	4b SUPPORT UNIT NAME		
SECTION III - EQUIPMENT DATA						
5 TYPE MNT REQ CODE	6 ID	7 NSN	15a FAILURE DETECTED DURING WHEN DISCOVERED CODE (Enter code) See DA Pamphlets 738-750 and 738-751			
A		2320010478754	H			
8 MODEL	9 MOUN		15b FIRST INDICATION OF TROUBLE (SHOW RECOGNIZED CODE (Enter Code) See DA Pamphlets 738-750 and 738-751	16 MILES/KILOMETERS-HOURS/ROUNDS		
M936WW	TRK	WRK		31,627		
10a ONS W/O ORDER NO	10b SIC	11 SERIAL NUMBER	12 OTY	13 PD		
W541E0340321	RTE					
14 MALFUNCTION DESCRIPTION (for DSU, GSU/AVIM/DEPOT use)	17 PROJECT CODE (if assigned)	18 ACCOUNT PROCESSING CODE	19 IN WARRANTY (enter Y or N)	20 ADMIN NO		
C536-00304						
21 REIMBURSABLE CUSTOMER (if not small customer enter Y or N)	22 LEVEL OF WORK	23 SIGNATURE				
	F	Daniel McElroy				
24 DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURES IN EQUIPMENT TM (Do not over/under repair)						
Laboratory wear metal analysis of oil from transmission shows high concentration of iron.						
25 REMARKS						
SEE ATTACHED DA FORM 3254-R						

PREPARATION INSTRUCTIONS FOR THIS PAGE

SECTION I

Block 1a Enter UIC of submitting organization.
Block 1b Enter name of submitting organization.
Block 1c Enter number to be called when maint. is completed.
Block 2a Enter UIC of supporting SAMS-2SAMS-UTDA if work is requested while in transit and away from your support maintenance unit.
Block 2b Enter utilization code. See DA Pamphlets 738-750 and 738-751.
Block 2c Enter "Y" if reportable under AR 700-138. If not, leave blank.

SECTION II

Leave blank. To be completed by the support maintenance DSU/GSU/AVIM/DEPOT.

SECTION III

Block 5 Enter the Type Maintenance Request Code. See DA Pamphlets 738-750 and 738-751.
Block 6 Enter ID associated with block 7. See DA Pamphlets 738-750 and 738-751.
Block 7 Enter the NSN or stock number of the item being submitted.
Block 8 Enter model of item being submitted.
Block 9 Enter noun/nomenclature of item being submitted.
Block 10a Enter Work Order Number (WON/DDC NO assigned when item is submitted. Otherwise, leave blank).
Block 10b Enter End Item Code. See AMDF.
Block 11 Enter serial number of item being submitted.

24a SUBMITTED BY	25a ACCEPTED BY	25c DATE
D. McElroy		
24b DATE	25b STATUS	25d TIME
95300		

DA FORM 2407, JUL 84

DATE: 30 Oct 95	MAINTENANCE REQUEST	DA FORM 5990-E

CUSTOMER DATA		
UIC: W1110B0	B Rtry 2/44 ADA	PHONE: (502) 555-1234
UTIL CODE: 0	-----	
ACTIVITY DATA		
SUP WON:		PHONE:
SUP UIC:		SHOP SEC:

EQUIPMENT DATA		
TYPE MNT REQ: I	ID: A	NSN: 2320010478754
MODEL: M936WW	SER NUM: C536-00304	QTY: 00001
ORG WON: TRK WRK	PRIORITY: 03	FAILURE DETECTED: H
MI/KM: M31627	HOURS: 000000	ROUNDS:
IN WARRANTY: N	LEVEL OF WORK: F	ADMIN NUM: 1164
MALFUNCTION/REMARKS: SEE ATTACHED DA FORM 3254-R		
PD AUTHENTICATING SIGNATURE: _____		

SIGNATURE DATA		
SUBMITTED BY: <u>May Davis</u>	ORD DATE: <u>95303</u>	MIL TIME: <u>1400</u>
ACCEPTED BY: _____	STATUS: _____	ORD DATE: _____

ACTION DATA		
WORK STARTED BY: _____	STATUS: _____	ORD DATE: _____
INSPECTED BY: _____	STATUS: _____	ORD DATE: _____
PICKED UP BY: _____	STATUS: _____	ORD DATE: _____

Figure 10 - Maintenance Request, DA Form 2407, ULLS DA Form 5990-E
(See DA Pams 738-750 (Ground) or 738-751 (Air) for preparation instructions)

APPENDIX E ABBREVIATIONS AND TERMS

ABBREVIATIONS

AOAP - Army Oil Analysis Program

CCAD - Corpus Christie Army Depot

JOAP - Joint Oil Analysis Program

SOP - Standing Operating Procedure

ULLS - Unit Level Logistics System

TERMS

AOAP Monitor. The organization or unit representative assigned to coordinate oil analysis within the organization and with the regional AOAP laboratory.

Component. Within the AOAP, this term refers to all parts, major assemblies, and secondary items enrolled in the oil analysis program for test and analysis.

Ferrography. An instrument and testing process which determines the size, shape, and type of large wear metal particles being generated by a piece of equipment, to include the method of wear (e.g.; spalling, rubbing, and cutting). Ferrography is used as the primary grease analysis test and as a supplemental oil analysis test to analyze wear metals too large to be examined by spectrometric analysis. Generally, these particles are large enough to be seen by the human eye and may be indications of advanced stages of internal part wear.

Fourier Transform Infrared (FT-IR). An analytical instrument used to examine the physical properties of lubricants for contamination and to determine if the lubricant is still serviceable or should be replaced.

Laboratory Analysis. Oil and grease analyses used to evaluate the internal condition of engines, gearboxes, transmission, and other lubricated systems or components. It is a test or series of tests that provide indications of equipment component condition by applying methods of precision detection and quantitative measurement of wear metals and contaminants in oil

Laboratory Response Time. The AOAP standard interval of time that begins when the laboratory receives the oil or grease sample and ends when the customer unit has been advised of the test results. For aeronautical samples, the maximum laboratory response time is 24 clock hours (one work day) and 72 clock hours (three work days) for nonaeronautical oil samples.

Oil Sample. A representative amount of grease or oil extracted from the enrolled equipment component. Under special circumstances, a sample may be required from new source oil to

compare with oil in the equipment or determine if unusual metal content in the sample is the result of lubricant chemical composition.

On-Condition Oil Change. An AOAP process where the oil in enrolled components will not be changed in accordance with the equipment Lubrication Order. While oil samples from the enrolled component are being tested in the laboratory for internal part wear, the laboratory will also test the oil sample to determine if it has been contaminated. Component system lubricants will be changed when the AOAP laboratory notifies the unit the oil is no longer serviceable. Equipment under warranty will still comply with all requirements of the warranty.

Resample. An additional or follow-up oil sample requested by the laboratory to confirm test findings indicating potentially serious conditions, when the oil sample appears to have been contaminated or there is insufficient lubricant to conduct the required testing.

Special Samples. AOAP samples submitted to the laboratory for analysis, other than routine or laboratory requested samples.

Spectrometric Analysis. A test used to detect concentrations of various wear metals, which are smaller than the human eye can see in oil samples. The friction of moving parts initiates wear in mechanical systems, producing metal particles of microscopic size. These metal particles enter the oil stream and are uniformly dispersed and suspended throughout the lubricating oil system. Spectroscopy detects the kinds and quantities of the different metallic particles in the sample. Analyses identify the wear-metal elements aiding in the determination of the rate of part wear and source of wear. Through scheduled sampling and testing of the oil from the mechanical system, abnormal wear levels can be easily detected. The worn parts can be repaired or replaced before they cause damage to the entire assembly or mechanical system.

Viscosity. Viscosity is the ‘rate of flow’ of lubricating fluid that can be affected by high temperatures, contamination, and aeration during service, which promotes oxidation. Oxidation, if allowed to continue, leads to increased viscosity and the formation of varnish and sludge. Viscosity decreases are usually attributed to fuel dilution or contamination by coolant. The viscosity of used lubricating fluids is determined by a viscometer. These readings may be compared to new oil viscosity specifications and provide an indication of used oil condition. When the lubricant viscosity in equipment no longer meets factory specifications, it may no longer be able to lubricate, cool, and protect the internal parts of a component.

Wear Metals. Minute metal particles produced by friction of internal moving parts in components, suspended in used oil or grease.

APPENDIX F

References

Required Publications

AR 750-1

Army Materiel Maintenance Policy

DA Pam 738-750

Functional Users Manual for the Army Maintenance Management System (TAMMS)

DA Pam 738-751

Functional Users Manual for the Army Maintenance Management System - Aviation (TAMMS-A)

Related Publications

AR 700-132

Joint Oil Analysis Program (JOAP)

TM 38-470

Storage and Maintenance of Army Prepositioned Stock Materiel

Prescribed and Related Forms

DA Form 2408-20

Oil Analysis Log (Prescribed in DA Pam 738-750 and DA Pam 738-751)

DA Form 3254-R

Oil Analysis Recommendation and Feedback (Prescribed in DA Pam 738-750 and DA Pam 738-751)

DD Form 2026

Oil Analysis Log (Prescribed in DA Pam 738-750 and DA Pam 738-751)

DD Form 314

Preventive Maintenance Scheduled and Record

By Order of the Secretary of Army:

Official:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

A handwritten signature in black ink, reading "Joel B. Hudson", followed by a vertical line.

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

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