

**BY ORDER OF THE COMMANDER  
LUKE AIR FORCE BASE**

**LUKE AIR FORCE INSTRUCTION 21-124**



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**Maintenance**

**OIL ANALYSIS PROGRAM (OAP)**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Maintenance of Military Materiel*, Air Force Instruction (AFI) 21-101, *Aircraft and Equipment Maintenance Management and AFI 21-101\_AETCSUP, Aircraft and Equipment Maintenance Management*. It establishes procedures and responsibilities for ensuring the accurate procurement, processing, analysis, delivery, and documentation of oil samples taken at regular intervals on all aircraft engines and oil servicing carts. It is applicable to all maintenance organizations requiring support by Luke Air Force Base (AFB) OAP Laboratory. Compliance with this instruction is mandatory for all affected units in the 56th Fighter Wing (FW). This publication does not apply to any organization outside of Luke AFB. This instruction involves the 355th Equipment Maintenance Squadron (EMS), Davis-Monthan AFB, as a backup support agency. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*; route AF Form 847 from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFI 33-322, *Records Management and Information Governance Program*, and disposed of IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). If the publication generates a report(s), alert readers in a statement and cite all applicable Report Control Numbers IAW AFI 33-324, *The Air Force Information Collections and Reports Management Program*. The authorities to waive wing/unit level requirements in this publication are identified with Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360 for a description of the authorities associated with the Tier numbers.

## ***SUMMARY OF CHANGES***

**This publication has been substantially revised and must be completely reviewed.** Major changes is to clarify process improvement. It also update the new backup OAP Laboratory, located in Davis-Monthan AFB, Tucson, AZ. It also update the title from Joint Oil Analysis Program to Oil Analysis Program (OAP).

### **1. Responsibilities.**

1.1. Commanders, superintendents, and supervisors are responsible for ensuring compliance with this instruction.

### **2. Procedures.**

#### 2.1. General Practices:

2.1.1. All squadrons, Aircraft Maintenance Units (AMUs), and sections responsible for supervision of maintenance on aircraft (i.e., aircraft engines, ground turbine generators, and aircraft ground equipment, etc.) will appoint an OAP Manager using an appointment letter. **Note:** This requirement may be delegated from the squadron to the responsible unit section. The OAP Manager will be a Noncommissioned Officer (NCO) and will serve as the primary liaison between their AMU and the OAP laboratory for all OAP issues. The appointment letter will include grade, name, duty phone, AFSC, organization and office symbol and will be updated as changes occur. **Note:** An OAP Manager should be made available on each shift when OAP laboratory support is required. OAP laboratory personnel will provide training for newly appointed OAP Managers if the OAP Manager is new to the program or requests refresher training. The appointment letter will serve as documentation for this training requirement.

2.1.1.1. Oil servicing carts will be sampled every 7 days (exception: off-station carts will be sampled every 15 days). Samples will be submitted to the OAP laboratory along with a completed DD Form 2026, *Oil Analysis Request Form*. The appropriate form can be found in Technical Order (TO) 33-1-37-1 WP 003 00, Figure 6. The DD Form 2026 will be annotated with the oil cart serial number, oil type, the date and time the sample was taken, and contact information for the cart owner.

2.2. Aircraft Maintenance Units (AMU), to include Transient Alert Flight, 56th Equipment Maintenance Squadron (56 EMS) will:

2.2.1. Each AMU responsible for taking samples will ensure that sample intervals derived by the applicable MDS-6 technical order are followed and delivered to the OAP laboratory (bldg. 966). All “red cap” samples will be annotated as such and delivered to the OAP laboratory. Aircraft on “CODE E” and “CODE C” will not fly until sample results have been called into the Maintenance Operations Center (MOC).

2.2.2. Provide information on oil changes, engine installation, and oil-wetted engine component changes to the OAP laboratory and engine management. AMU maintenance supervision will ensure the OAP laboratory is notified immediately, via DD Form 2026, when an engine is installed (rollback and reinstallation of the same engine for the purpose of facilitating of maintenance will not require an oil sample). Oil samples will be taken upon completion of engine installation run, with the DD Form 2026 annotated with “ENGINE INSTALL RUN” in the remarks section.

2.2.3. Provide all base aircraft going cross-country with a computer-generated copy of the current oil analysis trend, provided by the OAP laboratory, and insert it into the aircraft forms (AFTO Form 781K, *Aerospace Vehicle Inspections, Engine Data, Calendar Item Inspection, and Delayed Discrepancy Document*). The computer-generated printout and all additional sampling data will be returned to the OAP laboratory along with the first oil samples when the aircraft returns.

2.2.4. Each AMU will take OAP samples when any of the following conditions occur:

2.2.4.1. Any engine on a special sampling request.

2.2.4.2. Any OAP laboratory-requested sample.

2.2.4.3. Any time an engine is involved in a mishap.

2.2.4.4. Any functional check flight due to engine change or major maintenance.

2.2.4.5. Initial run after engine installation.

2.2.5. Upon notification of error(s) present with a DD Form 2026, the AMU will correct the error(s) prior to resuming aircraft engine operations.

2.3. 56 EMS OAP laboratory will:

2.3.1. Provide OAP support during scheduled flying hours, with telephone standby coverage available through 56 FW MOC on weekends and holidays.

2.3.2. Immediately notify MOC when an oil sample indicates a confirmed abnormal trend.

2.3.3. The OAP laboratory will assign priority to "Red Caps" over routine samples and expedite results to MOC. All other samples will be analyzed with a "first in, first out" priority.

2.3.4. Immediately track and notify the AMU, through MOC, when an error is found on the DD Form 2026. Errors not corrected prior to the next flying day will appear on the quarterly slides.

2.4. 56th Component Maintenance Squadron (CMS) Engine Management Branch (EMB) will:

2.4.1. Monitor the OAP status of spare engines.

2.4.2. Prior to release of spare engine, review engine serial number, aircraft it will be installed on, and flying hours from assigned maintenance data platforms to ensure all required oil analysis information is correct.

2.4.3. Provide update to OAP laboratory.

2.5. Maintenance Operations Center (MOC) will:

2.5.1. Immediately notify owning organization of any test indicating oil contamination or OAP results reported to them by the OAP laboratory.

2.5.2. Ensure only local flights or reduced-load operations are flown on aircraft with engines that are on surveillance (CODE E).

2.5.3. Mark the flying schedule board to show all aircraft OAP results.

## 2.6. Assigned AMUs will:

2.6.1. Initiate a message to the appropriate governing agency when an engine or component is removed as a result of oil analysis and returned to assigned agency. The message will contain a complete identification of equipment and the specific reason for removal. Informational copies will be sent to the following:

2.6.1.1. Owing command.

2.6.1.2. OAP laboratory.

2.6.1.3. Air Force Materiel Command (AFMC): Oklahoma (OK) City Air Logistics Center (OC-ALC): Aerospace Sustainment Directorate (OC-ALC/GK): Propulsion Sustainment Division (OC-ALC/GKG).

2.6.2. Fill out the remarks portion of the DD Form 2026 after teardown recommendations ("T" CODE) are completed and return the form to the OAP laboratory within 7 workdays for data processing to be forwarded to the OAP Technical Support Center, Tinker AFB, OK.

2.6.3. Provide the OAP laboratory, through assigned maintenance data platform, information on all maintenance actions performed on oil-wetted components.

2.6.4. Review the quarterly OAP working reports.

## 3. 355 EMS, Davis-Monthan AFB:

### 3.1. Davis-Monthan AFB OAP Laboratory.

3.1.1. Davis-Monthan AFB OAP laboratory is designated as the backup laboratory for Luke AFB. When support is required, the 56 EMS OAP laboratory will provide sufficient qualified technicians to support oil analysis operations. The 56 EMS OAP laboratory supervisor will notify the Davis-Monthan OAP laboratory supervisor by phone if support is required.

GREGORY KREUDER  
Brigadier General, USAF  
Commander, 56th Fighter Wing

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 21-1, *Maintenance of Military Materiel*, 1 August 2018

AFI 21-101, *Aircraft and Equipment Maintenance Management*, 16 January 2020

AFI21-101\_AETCSUP, *Aircraft and Equipment Maintenance Management*, 10 August 2020

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

AFI 33-324, *The Air Force Information Collections and Reports Management Program*, 22 July 2019

***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*

AFTO Form 781K, *Aerospace Vehicle Inspections, Engine Data, Calendar Item Inspection, and Delayed Discrepancy Document*

DD Form 2026, *Oil Analysis Request*

***Abbreviations and Acronyms***

**AF**—Air Force

**AFB**—Air Force Base

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AFRC**—Air Force Reserve Command

**AFRIMS**—Air Force Records Information Management System

**AMU**—Aircraft Maintenance Unit

**ANG**—Air National Guard

**AZ**—Arizona

**CMS**—Component Maintenance Squadron

**CTO**—Central Tagging Operation

**EMB**—Engine Management Branch

**EMS**—Equipment Maintenance Squadron

**FW**—Fighter Wing

**IAW**—in accordance with

**MOC**—Maintenance Operations Center

**OAP**—Oil Analysis Program

**OK**—Oklahoma