CAPP 130-3
CAP AIRCRAFT MAINTENANCE OFFICER GUIDE

Acknowledgments

We would like to take this opportunity to say thank you to all the contributors who have made this guide a reality. Without their contributions none of this would have been possible. We sought the inputs of CAP members with literally hundreds of years of combined experience maintaining CAP aircraft and received a huge outpouring of ideas and inputs that made creating this guide a pleasure. We appreciate their willingness to allow us to use their guides and ideas as a template for this document. We intend for this guide to be a living breathing document that continues to capture the best way to do aircraft maintenance on CAP aircraft and that stays current and relevant as aircraft, personnel, and technology change. We want to say a special thank you to the following people who went out of their way to make this guide a reality.

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Sincerely,

The NHQ LGM Team

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1. BACKGROUND

The CAP Wing Aircraft Maintenance Officer (AMO) is the single point of contact for all maintenance issues for the aircraft entrusted to their care. As such, the Wing AMO is responsible for all maintenance performed on their Wing's aircraft. This guide is intended to provide all CAP AMOs with a set of tools that will help them manage their Wing's assigned aircraft (powered, glider and balloons) in the most efficient and effective manner possible to provide safe, reliable aircraft to meet all CAP mission requirements. It prescribes policies and procedures that apply to all CAP Aircraft Maintenance and is intended to cover items that AMOs at all levels should be familiar with.

1.1. The Aircraft Management department within the Logistics Directorate of National Headquarters (NHQ/LGM) is responsible for CAP's aircraft maintenance program. In turn, each region should have a designated counterpart to oversee the utilization and upkeep of its allocated fleet. Then each wing relies on an AMO to perform the management of its fleet.

1.2. CAPR 30-1, *Organization of Civil Air Patrol*, provides the organization structure in which an AMO performs their duties. CAPR 30-1 also gives each wing the option of aligning their AMO under the Operations or Logistics staff

1.3. Besides performing duties governed by CAPR 130-2, the AMO must manage maintenance efforts to comply with Federal Aviation Regulations (FARs), FAA Airworthiness Directives (ADs), applicable Service Bulletins as determined by NHQ/LGM, FAA–approved manufacturer's data and this guide.

1.4. The AMO is the interface between CAP and all the businesses necessary to keep their assigned aircraft mission capable.

1.5. CAP Regulations, Forms, Interim Change Letters, and Approved Supplements can be found on the CAP Publications Library website at https://www.gocivilairpatrol.com/members/publications/.

1.6. FARs can be found on the FAA website at:
https://www.faa.gov/regulations_policies/faa_regulations/

1.7. ADs can be found on the FAA website at:
https://www.faa.gov/regulations_policies/airworthiness_directives/

2. AMO RESPONSIBILITIES

2.1 BASIC RESPONSIBILITIES.

2.1.1 Exercises staff supervision and coordination of all aircraft maintenance.

2.1.2 Assist their commander in developing an aircraft maintenance management program that ensures that all CAP scheduled maintenance is performed and discrepancies are corrected promptly.

2.1.3 Ensure that CAP aircraft meet FAA standards in order to be issued an FAA Standard Certificate of Airworthiness and are maintained in accordance with FARs and FAA–approved manufacturer's data, to assure continued airworthiness.

2.1.4 Coordinate aircraft inspections and repairs with NHQ/LGM.

2.1.5 Make recommendations to the commander for the improvement of the maintenance program.

2.1.6 The maintenance officer should be familiar with CAPR 130-2 and CAPP 130-2, Federal Aviation Regulations 43, 45, and 91 and applicable Federal Aviation Advisory Circulars.

2.2 GENERAL AIRCRAFT CARE & UPKEEP

When a wing receives an aircraft, the responsibility falls on that wing to employ the aircraft on as many CAP missions as possible with the aircrews it has available. In addition, all wings are to keep their aircraft in a safe, operable condition.

2.2.1 To safeguard and protect assigned CAP aircraft the AMO will:

a. Make sure it is parked in a location which meets CAPR 130-2 minimum anchoring requirements and uses approved tie down devices.

b. Make sure it has the covers required by CAPR 130-2; and that the covers are both serviceable and presentable.

c. Make sure pitot tube covers and engine plugs are installed when aircraft is not in use to preclude bird and insect infestation and damage.

d. Make sure it has an acceptable throttle quadrant/avionics lock installed to deter theft of high value avionics where applicable.

e. Make sure the door locks work properly; and that there are controls on the aircraft keys.

f. Make sure that the aircraft equipment is periodically inventoried to make sure it hasn't disappeared or doesn't need repair, replacement, or replenishment.

g. Make sure aircraft status changes and discrepancies are entered and kept updated in AMRAD.

h. Make sure logbooks are secure, accurate and properly maintained.

HANGAR SAFETY: No matter where the aircraft is parked, in a hangar or on the ramp, the AMO will ensure each parking area has a Hangar Risk Assessment/Mitigation Plan.

i. The plan must contain the following information:

1. Hangar location and description.

2. Identification of any hazards/risks to parking/moving the aircraft.

3. Procedures to minimize the hazards/risks.

j. The plan must be readily visible to pilots in the aircraft hangar.

k. This hangar risk assessment will be reviewed at least annually for any changes to the hangar that might cause a higher operational risk and must be submitted to the Wing/SE for approval. A review date must be included on the approved/signed plan.

2.3 COORDINATE AIRCRAFT MAINTENANCE

Be Proactive! Proactively manage your assigned aircraft to stay ahead of the power curve. When things go sideways (and they will almost always go sideways at the worst possible time) it is much easier to recover from changes and delays when you are prepared and out ahead of things versus being reactive to every little change that happens and then being swamped and trying to dig out.

Fix it right the first time, <u>every time</u>! Insist that your aircraft is fixed right the first time and don't settle for half-way fixes just so it can fly the next mission. This saves time, money and increases the

amount of time our aircraft are FMC instead of down awaiting fixes to the band-aids that were put on them the last time they were in for maintenance.

Stay on top of scheduled maintenance and time change items! A well-maintained aircraft fleet is vital to the operational readiness of the Civil Air Patrol. We must always strive to keep our aircraft mission ready.

2.3.1 Coordinate required aircraft work

Schedule repairs/maintenance/inspections to keep the aircraft airworthy IAW CAPRs, FAA guidance and the manufacture's technical guidance. The aircraft may require service, repairs, alterations, installations or removals, inspections, functional tests, cleaning, corrosion treatments, or troubleshooting. CAP uses an aircraft Centralized Maintenance program, as directed by NHQ/LGM. CAP Contract Maintenance Facilities (CMF) should be used for all scheduled maintenance and for as much non-scheduled maintenance as is reasonably possible.

2.3.1.1 Plan scheduled maintenance actions to minimize impact on flight operations and operational requirements. Scheduled maintenance includes:

- Oil Changes
- Inspections
- Certifications
- Time change or calendar replacements

2.3.1.2 Respond to unscheduled (e.g. unexpected) maintenance needs. Have repairs accomplished at appropriately insured facilities as promptly as time, safety considerations, facilities, and the availability of a certified Aircraft Maintenance Technician (AMT) allow.

2.3.2 Aircraft Status and Discrepancy Reporting

CAP uses Aircraft Maintenance Repair and Documentation (AMRAD), a web-based utility in eServices to track all discrepancies and aircraft maintenance data. It is tightly integrated with WMIRS and ORMS. When a new discrepancy is created in AMRAD for an aircraft assigned to your wing the AMO will receive notification of this discrepancy on their AMRAD home screen under the Work Items tab and will be listed as "Open Discrepancies" with a number beside it in parenthesis to indicate how many discrepancies require AMO validation.

NOTE: Here are links to AMRAD, AMRAD Training and the AMRAD User's Guide.

2.3.2.1 All aircraft discrepancies should be entered in AMRAD immediately but must be entered no later than 8 hours after the occurrence of the issue creating the discrepancy occurring or coming due.

2.3.2.2 The AMO is expected to validate each discrepancy and decide if the discrepancy entry is valid and accurate and indicate this by clicking the submit button. This attaches your name to the discrepancy signifying that you have reviewed it and the discrepancy is accurate and the aircraft status is correct to the best of your knowledge.

2.3.2.3 The AMO must also ensure that the aircraft status assigned to the discrepancy accurately reflects the true condition of the aircraft. If the discrepancy does not meet these criteria the AMO must correct the discrepancy or aircraft status to accurately reflect the true condition of the aircraft prior to validating the discrepancy. Once the discrepancy is validated it can be submitted to NHQ/LGM for estimate approval or to request parts.

WARNING: If the cause of a discrepancy cannot be determined (unknown condition or cause) and you do not know for a fact that an aircraft is safe to fly then the aircraft MUST be grounded until an airworthiness determination can be made by a qualified AMT.

2.3.2.4 When analyzing the actions to take after notification of a new discrepancy, the most stringent flight restriction which could reasonably result from the reported discrepancy shall be applied.

2.3.2.5 A discrepancy shall not be deferred unless the aircraft is airworthy and safe to fly. Flight restrictions limit an aircraft from operating in a given set of conditions but in NO circumstance should an unairworthy discrepancy be deferred. If an aircraft is not airworthy the condition that created the unairworthy condition must be properly corrected or a Special Flight Permit must be obtained prior to releasing this aircraft for flight.

2.3.2.6 All deferred maintenance items must meet the requirements of 14 CFR FAR 91.213(d) and be properly disabled or removed and properly placarded per this FAR.

2.3.2.7 If an item has been deferred that limits the ability of the aircraft to operate in a given condition, then the appropriate Limitation Status should be selected in AMRAD. If no limitation is imposed by the deferred discrepancy then "No Flight Restrictions" can be selected for a deferred item.

2.3.2.8 The Airplane Flight Manual (AFM) or Pilot's Operating Handbook (POH) and the Kinds of Operations Equipment List (KOEL) or Configuration Deviation List (CDL), if applicable, show a list of required equipment for given flight conditions. They should be used to determine if a flight may be initiated with inoperative aircraft equipment without the issuance of a Special Flight Permit (Ferry Permit).

a. If your aircraft AFM or POH does not have an approved KOEL or CDL, and you have inoperative equipment or instruments, then you must refer to 14 CFR part 91, section FAR 91.205 and FAR 91.213, to determine if a special flight permit is needed to operate the aircraft.

b. If a system is to be disabled or deactivated, these actions must be documented in the aircraft logbooks per FAR 43.9 if maintenance must be performed to deactivate the equipment.

c. If action is needed at the aircraft (repair, disabling inoperative equipment, installing inoperative placard, etc.), the aircraft shall be grounded in AMRAD until the appropriate action is accomplished. Once the appropriate action has been taken at the aircraft then the aircraft status can be updated in AMRAD to reflect the new status.

2.3.2.9 Aircraft Mission Status is defined as:

a. Full Mission Capable (**FMC**) – no discrepancies that will prevent the completion of assigned missions and can fly any missions the aircraft is equipped to fly.

b. Partial Mission Capable (**PMC**) – discrepancies that will limit the operational mission capability but does not pose a safety hazard to flight operations. For example: DF inoperative etc.

c. Not Mission Capable**(NMC)** – discrepancies that in combination prevent completion of any assigned mission, poses a safety hazard, or any airworthiness item.

2.3.2.10 Aircraft Status is reported in AMRAD as:

a. Deferred – aircraft has a discrepancy or discrepancies that have been deferred IAW 14 CFR FAR 91.213(d) and the items are properly disabled or removed and properly placarded and documented per the FARs. Aircraft in Deferred status are typically considered PMC if the discrepancy affects the ability of the aircraft to perform any assigned mission.

b. Grounded – aircraft has a grounding discrepancy that makes the aircraft unairworthy. Aircraft that are grounded are NMC.

c. Serviceable – aircraft does not have any airworthiness discrepancies or any discrepancies that affect its ability to perform any missions. Aircraft that are serviceable are FMC. It could still have discrepancies reported such as a torn seat, ripped headliner or worn paint that do not make it PMC and that are not required to be disabled or removed per the FARs.

2.4 MONITOR/VERIFY AIRCRAFT MAINTENANCE DATA IN AMRAD

The AMO must enter and monitor the Aircraft Maintenance Data recorded in AMRAD and ensure that it is accurate and up to date with the current data. This includes all component serial numbers and TBO dates and times as well as upcoming inspections and certifications.

2.5 VERIFY MAINTENANCE COMPLETE

When a maintenance task or inspection is completed, the AMO must make sure all maintenance actions are correctly and completely documented in AMRAD and the aircraft logbooks, which are the official record. Any maintenance that is not properly documented is effectively maintenance that did not occur.

Aircraft maintenance records (Logbooks) must include:

a. The total time in service of the airframe, engine, and propeller;

b. The current status of the life-limited parts of each airframe, engine, propeller, and appliance;

1. The time since the last overhaul of all items installed on the aircraft, which are required to be overhauled on a specified time basis;

2. The identification of the current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained;

3. The current status of applicable Airworthiness Directives (ADs) including, for each, the method of compliance, the AD number, and the revision date. If the AD involves recurring action, the time and date the next action is required; and

c. A copy of the major alterations to each airframe, engine, propeller, and appliance.

d. These records are retained for the life of the aircraft and must be kept intact.

When any maintenance, repair, alteration, or inspection is performed the completed actions must be entered in the appropriate maintenance logbooks. (Aircraft usually have separate logbooks for airframe, power plant, propeller, and radio/avionics.) If the task involves new or replaced equipment, or

modifications, the AMO must also make sure the unit receives appropriate FAA-required documents from the manufacturer or repair station. CAPR 130-2, FAR 43.9 and FAR 43.11 address the "content, form, and disposition of" such maintenance entries. FAR 43, Appendix D further describes the scope and detail of items to be included in Annual and 100-hour Inspections. AC 39-7D defines responsibilities for accomplishing ADs. As examples:

14 CFR Part 43, Section 43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, §135.411(a)(1), and §135.419 of this chapter).

Any person who maintains, rebuilds or alters an aircraft, airframe, aircraft engine, propeller, or appliance shall make an entry containing:

a. A description of the work or some reference to data acceptable to the FAA,

b. The date the work was completed,

c. The name of the person who performed the work, and

d. If the work was approved for return to service, the signature, certificate number, and kind of certificate held by the person approving the aircraft for return to service.

14 CFR Part 43, Section 43.11, Content, form, and disposition of records for inspections conducted under parts 91 and 125 and §§135.411(a)(1) and 135.419 of this chapter.

e. When a mechanic approves or disapproves an aircraft for return to service after an annual, 100-hour, or progressive inspection, an entry shall be made including:

f. Aircraft time in service,

g. The type of inspection,

h. The date of inspection,

i. The signature, certificate number, and kind of certificate held by the person approving or disapproving the aircraft for return to service, and

j. A signed and dated listing of discrepancies and unairworthy items.

Sign-off Examples

a. Oil changes must cite the authority; the oil type and quantity used; and any other actions taken related to the event (such as oil sample taken, oil filter replaced, oil screen cleaned…)

b. Inspections must be performed "in accordance with" a cited FAR or manufacturer's publication.

c. Time-changes (such as ELT batteries) must document actions taken; specify make/model/part number of the new item; and list the item's expiration date or next-due event time.

d. Each sign-off of a static pressure system, altimeter, and automatic pressure altitude reporting system that has been tested or inspected must include: A description of the work, the maximum altitude to which the altimeter was tested, and the date and signature of the person approving the aircraft for return to service.

e. (AC 39-7D) When a 100-hour, annual, progressive, or any other inspection required under 14 CFR part 91, 121, 125, or 135 is accomplished, § 43.15(a) requires the person performing the inspection to determine that all applicable airworthiness requirements are met, including compliance with ADs.

f. Airworthiness Directives (AD) or Service Bulletins (SB) sign-offs must cite the designation of the AD/SB; the method of accomplishment; and the results if it's an inspection action. If it is a recurring AD/SB the entry must also identify the date or tach reading when next due.

g. Parts or appliance replacements must cite the specific actions taken; cite the technical data used; specify make/model/part number/serial number to positively identify the replacement component; and identify any functional or operational checks due before the aircraft can be returned to service.

h. Repair actions must identify what was repaired and by what method the repair was accomplished. Functional checks (if appropriate) must be documented, with their results. Any parts or hardware used must be identified (although if the list is lengthy, they may be documented on the shop's work order or invoice and just referenced in the logbook entry).

i. All maintenance entries must include the date and tachometer reading -- or total-time-airframe (TTAF) reading when the action was taken. Most (but not all) actions require an entry that the aircraft (…or engine, or prop…) was returned to service.

j. All entries require the signature of the AMT, inspector or repair station representative who is authorized -- also by FAR 43 -- to make such entries**.**

2.6 SURVIVAL KIT

Survival kits shall be carried aboard powered aircraft on all flights per CAPR 130-2. The AMO will need to ensure the Wing provided survival kit is inspected as required and will need to resupply the kit as necessary to replenish the kits or replace expired items.

2.7 SELF-INSPECTION

The AMO will periodically perform a self-inspection. CAPR 130-2 Attachment 1 should be used as an inspection guide. It is the AMO's responsibility to make sure the wing's aircraft management duties are in compliance with the FARs, CAP regulations and wing directives. The AMO should complete the self-inspection every 6 months.

2.8 SPECIALTY TRACK

Review CAP Pamphlet 206, Specialty Track Guide for the Logistics Officer. Get started on your Maintenance Officer Specialty ratings ASAP.

3. MAINTENANCE PROCEDURES

This section details the procedures for scheduling, coordinating, and documenting aircraft maintenance on CAP aircraft.

- CAP Contract Maintenance Facilities (CMF) should be used for all scheduled maintenance and for as much non-scheduled maintenance as is reasonably possible.

NOTE: All contact with the Aircraft Maintenance Facility should be done through the Wing AMO or, if delegated by the AMO, an assistant AMO.

A successful aircraft maintenance event must start **well** before the aircraft's arrival at the aircraft maintenance facility.

- Establishing good rapport with the maintenance facility shop owner, shop manager or director of maintenance is essential to timely, high quality repairs to your wing's aircraft.

NOTE: AMOs must ensure AMRAD aircraft data is accurate and that it is used to track all upcoming maintenance events to include inspections, time changes, engine overhaul, propeller overhaul, governor overhaul etc.

- **It is our responsibility to manage maintenance on our aircraft.** Relying on a shop to tell us when an inspection or overhaul is due is a sure way to end up with overflown inspections and equipment operated past TBO. This leads to unsafe aircraft and excessive down time for unanticipated repairs. **WE** must proactively manage our aircraft maintenance and inspections to keep them out of the shop and in the air flying.
- Send logbooks with the aircraft to the shop for maintenance events if the logbooks are not kept in the aircraft.
- All work performed on CAP aircraft must have an approved estimate prior to the work being performed. The AMO is authorized by CAPR 130-2 to approve work up to $750. Anything above this amount must be approved by NHQ/LGM.
- All invoices should be e-mailed to CAPCONSMX@capnhq.gov for prompt payment.
- All AMFs must have liability insurance as required by CAPR 130-2 to perform maintenance on CAP aircraft.

3-1. SCHEDULED MAINTENANCE

"Quality maintenance programs are based on performing scheduled maintenance at specific intervals and prompt correction of discrepancies discovered during inspections."

CAPR 130-2

NOTE: CAP policy is that all 100-hour inspections will be signed off as Annual Inspections.

NOTE: Although you are authorized to overfly a 100-hour inspection by 10% IAW CAPR 130-2 to allow flight to a place of inspection, you cannot overfly a required AD inspection even if it lines up with the 100 hour. Some ADs will not allow you to fly on a Ferry Permit (SFP). If this were to occur the wing could be liable for the added expense of having this inspection done out of cycle and at an offsite location. Schedule all flights accordingly and make sure your flight crews are paying attention to these issues.

3.1.1. Coordinate 100-hour/Annual inspections and mid-cycle maintenance with the shop about 15-20 TACH hours prior to required maintenance times. Use WMIRS>Aircraft Maintenance Snapshot to track time to required maintenance.

3.1.2. Engines should be ordered from NHQ/LGM about 2 months prior to TBO. To get a good estimate you can go to WMIRS>Support>Reports> Form 18 - Powered Wing Fiscal Year Report. Pull up the report for your Wing's previous FY and look at the total number of hours flown by the aircraft in question. Divide this number by 12 to see how many hours per month this aircraft flies

on average. Divide the remaining time until TBO by this number to get a pretty good estimate of how long it will be until this aircraft needs an engine change.

NOTE: Time Between Overhaul (TBO) is the manufacturer's recommended number of running hours **or** calendar time before an aircraft engine or other component is due to be changed.

3.1.3. Magnetos must be inspected every 500hrs per the manufacturer's recommendations. All CAP Magnetos must be sent to one of the following three locations for inspection/service. New magnetos are installed on all overhauled engines.

3 Locations for easy access

(West)	**(Central)**	**(East)**
Aircraft Magneto Service 3995 Flying Lane #5-5 Stevensville MT 59870 844-267-6247 aircraftmag@hushmail.com	El Paso Aero, Inc. 7305 Boeing Drive El Paso, TX 79925 915-779-3481 william@elpasoaero.com	T&W Aircraft Electrical 3711 Stearns Road Valrico, FL 33596 813-740-9049 sales@twaircraftelectrical.com

3.1.4. CAP Magneto procedures

- The **shop** must identify that it is a CAP aircraft and put the N# on the paperwork
- Include a completed CAP Magneto Work Order Form with each set of mags
- CAP gets front of the line priority at each of these locations for rapid turn around
- High capacity at all locations ensures quick-turn times on all mag inspections
- NHQ is billed directly by these shops
- Any repairs needed are coordinated directly with NHQ
- 2 Day shipping authorized for all magnetos going to these shops
- 2 Day shipping back to your location
- High quality repairs
- All inspections and repairs are warranted
- All shops will provide help with troubleshooting if required

3.1.5. Schedule the aircraft for maintenance in AMRAD during the time the maintenance is scheduled to be performed by creating a discrepancy and showing the aircraft as grounded until the work is completed.

Send the maintenance shop a list of known discrepancies including impending propeller and governor overhauls, magneto inspections or any other time changes that are coming due at this time and a notional timeline of when they can expect the aircraft to arrive.

3.1.6. Start ordering known needed parts from NHQ/LGM

3.1.7. For a 100-hour/Annual, firm up the projected date 7 days out with the shop and let them know of any new squawks Our Contract with our CMFs specifies a minimum of 5 working days' notice.

3.1.8. Print the Open Discrepancies Report and the Aircraft Maintenance Data Snapshot for this aircraft from AMRAD and provide it to the shop when the aircraft is dropped off.

3.1.9. Maintenance run times should be annotated in AMRAD when you closeout the discrepancy you entered for the required scheduled inspection. Maintenance time is entered in the "Tach Out" field when closing a discrepancy.

3.2 100-HOUR/ANNUAL INSPECTIONS

3.2.1 During or after completion of the **inspection** at a Contracted Mx Facility (CMF) the shop will submit an itemized cost estimate for approval by NHQ/LGM if the total of **repairs** will exceed the contracted price for a 100-hour/Annual Inspection or Engine change by more than $750 including parts and labor.

3.2.2 No work at a CMF that exceeds the contracted price for that shop + $750 will be performed without prior approval from NHQ.

3.2.3 On the rare occasion that a 100-hour/Annual Insp must be performed at a non-contracted Aircraft Maintenance Facility (AMF) a detailed estimate must be sent to NHQ/LGM for approval prior to any work being performed.

3.2.4 At a CMF, all 100-hour and annual inspections must be completed in a timely manner and repairs subsequent to inspections should be accomplished within 7 days of inspection completion.

3.2.5 At a CMF a longer period may be authorized by you as the wing AMO or by NHQ/LGM

3.2.6 CAP will supply replacement parts that conform to FAA and manufacturer recommended specifications and limitations such as engine, propeller, propeller governor, flight controls and skin as well as some accessories (starter, carburetor, magnetos, etc.) and other high costs items and have them delivered to the shop.

3.2.7 The shop should contact the wing AMO and NHQ for availability of replacement parts prior to ordering from local parts warehouse.

3.2.8 The shop is responsible for managing cores and core deposits and is responsible for shipping or returning cores to the appropriate vendor or repair facility in order to expedite repairs.

3.2.9 The shop will cut oil filters open and inspect for metal contamination on all oil changes.

3.2.10 CAP preferred engine oil - Phillips XC or Aeroshell

NOTE: Extra oil (cases or quarts) are not authorized to be purchased and charged to NHQ. Oil needed between oil changes should be purchased the same way fuel is purchased for that mission, this provides a receipt and accountability for each quart purchased.

- EFS card – AFAM or NHQ reimbursable missions
- Wing or authorizing entity pays for B & C missions

- Member pays for oil when flying the aircraft for proficiency

3.2.11 The shop may provide the oil and oil filter to be sent with the aircraft to be used for the mid-term oil change at the 100-hour/Annual.

3.2.12 A CMF may perform aircraft washes upon your request, to aid you in complying with CAPR 130-2 wash schedules.

3.2.13 At a CMF applying touch up paint may be accomplished simultaneously to the aircraft wash to maintain aircraft appearance.

3.2.14 The shop should be directed to apply corrosion preventative to the aircraft on the schedule directed by CAPR 130-2 and IAW with the aircraft manufacturer's procedures.

3.2.15 CAP reserves the right to have some repairs performed at other facilities based on concerns such as airworthiness of aircraft and/or aircraft proximity to shop, when other shops are available (such as at your home base).

3.2.16 All work shall be inspected by a CAP representative upon completion

3.2.17 At a CMF, CAP shall, by contract, pickup aircraft within 5 workdays after notice of completion is received. The shop is entitled to parking fees if CAP is late picking up completed aircraft which will normally be paid for by the **wing.**

3.2.18 CAP must exercise post-acceptance rights within a reasonable time after any defect is discovered.

3.2.19 Ensure pilots picking up aircraft after work is completed check logbooks for work entries and accept aircraft after a very thorough preflight.

3.2.20 Ensure pilots retrieve logbooks and return them to the location designated for your wing.

3.2.21 If there are any questions, or if there are any issues with scheduling or getting work completed by the shop, the wing AMO is the single POC for resolving these issues and working with NHQ/LGM to get invoices processed for payment.

3-3. UNSCHEDULED MAINTENANCE

Once an issue occurs with an aircraft we must first decide if the new discrepancy is a safety of flight or airworthiness item. If the discrepancy is not a safety of flight or airworthiness item, then it can be deferred unless the item is required for an upcoming mission in which case it needs to be fixed prior to the next mission requiring that system or item. If the repair needs to be completed prior to the next flight, follow the step below.

NOTE: Per CAPR 130-2 payment for unauthorized repairs are the responsibility of the wing

3.3.1 Upon notification confer with the pilot or person reporting the discrepancy about the required repair.

3.3.2 Make sure that the discrepancy has been entered in AMRAD and that the discrepancy entered is a valid and accurate description of the current condition of the aircraft and that the aircraft status is correctly represented in AMRAD.

3.3.3 Contact the AMF for a cost estimate for the repair and if they are not a CMF or one of your normal vendors explain CAP work order procedures.

3.3.4 Ensure the shop knows that no repairs may be performed without prior approval.

3.3.5 Ensure they know that all work is to be conducted in accordance with applicable CAP, FAA, and manufacturers' regulations, directives and policies.

3.3.6 Ensure they know that they must use repair and replacement parts that conform to FAA and manufacturer recommended specifications and limitations.

3.3.7 Ensure they understand that NHQ/LGM reserves the right to supply all replacement parts for items in excess of $100 for use in affecting needed repairs.

3.3.8 Make sure they understand that they will need to bill NHQ/LGM.

3.3.9 Make sure they know to send all invoices to CAPCONSMX@capnhq.gov. Have them courtesy copy you on all invoices so you know when repairs are completed and what was repaired on the aircraft.

a. Ensure they know that returning all part cores is the responsibility of the AMF and that if cores are not returned, they will be liable for paying for them. Cores should not be left in the aircraft for the wing to take care of.

b. Make sure they are aware that all work will be inspected by a CAP representative upon completion and repairs must be acceptable to CAP before the invoice is paid

3.3.10 Make sure the AMF has liability insurances as required in CAPR 130-2. They must carry a minimum of $1,000,000 of liability insurance when working on powered aircraft and $500,000 when working on gliders. "A copy of a current certificate of insurance, identifying the insurer and the amount of liability coverage, explicitly including "products and completed operations," shall be maintained on file with the wing or region and a copy shall be forwarded to NHQ/LGM." NHQ/LGM is the approval authority for waiving the insurance requirements.

3.3.11 If the estimate for repairs is **less than** $750 a duly appointed AMO or Assistant AMO may authorize the AMF to proceed with repairs.

3.3.12 Any work above and beyond the initial estimate requires submission of an additional estimate, and AMO or Assistant's approval, before the work can be accomplished.

3.3.13 If the estimate for repairs is more than $750 contact NHQ/LGM for approval prior to authorizing the shop to proceed with repairs.

3.3.14 Contact NHQ/LGM if parts costing more than $100 will be required to accomplish repairs to see if they will be supplying parts or if they can be procured locally by the AMF.

3-4. REMOTE AIRFIELD MAINTENANCE PROCEDURES

If the aircraft is stranded at a remote airfield or an airfield without a CAP approved AMF and needs repair:

a. Inform the pilot that the MULTISERVICE CARD CANNOT BE USED FOR AIRCRAFT MAINTENANCE.

b. Gather information:

a. Description of problem or maintenance required to return the aircraft to service.

b. If the aircraft is blocking the runway or is off the runway and cannot safely move under its own power the AMO can authorize the recovery of the aircraft to a safe location at the current airfield.

c. Gather the contact information for the local AMF: AMF name, AMF POC, phone number, email, and fax number.

d. CAPR 130-2, requires NHQ approval (or the NOC if afterhours or on the weekend) if repairs will need to be accomplished by a mechanic not having the minimum insurance required by CAP (Liability policy limit of $1,000,000 per occurrence for powered aircraft or $500,000 for gliders).

e. Have the pilot get an estimate for the required repairs from the AMF, if repairs are less than $750 and the AMF meets all CAP requirements then an AMO can approve the repairs.

f. If the estimate is more than $750 then NHQ approval is required. If afterhours or on the weekend and work can be completed in a short amount of time so the pilots can continue their mission or RTB, contact the NOC for approval.

c. Inform the pilot and AMF that **WORK CANNOT BE STARTED UNTIL AUTHORIZATION IS RECEIVED.**

d. If the aircraft cannot be repaired quickly and will remain at the remote airport have the pilot make sure the aircraft is secure. Get the contact information of the person with the aircraft keys.

e. Enter required information in AMRAD

3-5. AIRCRAFT MISHAP REPORTING

a. All Aircraft Mishaps as defined in CAPR 160-2 must be reported.

b. TAKE NOTES! This information will be very useful when completing the mishap report in SIRS or filling out the NTSB report, if required.

3-6. MAINTENANCE COMPLETE

3.6.1 The AMO should provide the pilot that is going to pick-up the aircraft a list of all maintenance that was to be performed at the AMF.

3.6.2 The AMO must inform the pilot that **BEFORE** leaving the AMF, they are responsible for:

a. Confirming with the AMO that all required work is completed and will report any maintenance concerns to the AMO prior to RTB.

b. The pilot picking up the aircraft will review logbooks to verify that the recent maintenance work has been annotated correctly in the logbooks.

c. The AMO will review the logbooks when the aircraft is returned and verify that all maintenance is documented correctly in the logbooks IAW the appropriate FARs and appropriate endorsements have been made.

d. Prior to RTB, note any maintenance run-up time in the AIF logs, noting entry as “CMX” time.

e. AMO will enter all maintenance activity and new times in AMRAD and close out all discrepancies covered by the work performed.

3.7. GPS DATABASE UPDATES.

Properly trained AMOs at all levels are authorized to update self-contained front instrument panel mounted GPS navigational databases. Record updates in the AMRAD>Aircraft Maintenance Data, Date of Last GPS data update block. These databases are updated on a 26-day cycle. You will need a login and password to download updates. The Wing AMO will get passwords from NHQ/LGM when they are needed. An out-of-date database does not ground the aircraft. The aircraft will not be IFR certified until updated, and a discrepancy should be entered in AMRAD until the database is updated.

3.8 PILOT SERVICE/MAINTENANCE

CAP pilots and uninsured A&P mechanics (even if paid) may only perform the services listed in CAPP 130-2.

WARNING: Tire pressures **must** be physically checked with a gauge prior to the first flight of each day.

CAUTION: A new tube should be used anytime a new tire is installed. A used tube will grow in service and may be too large to use in a new tire. A tube that is too large may cause a fold or crease, which could **develop into a split that will cause the release of pressure.**

NOTE: Tire pressures are critical because over inflation increases tire size, and under inflation results in sidewall flexing that generates additional heat. Heat causes accelerated aging of the tire and leads to blowouts.

a. Tires should always be inspected for damage or slippage relative to the wheel following tire/wheel lockup or anytime heavy braking is applied.

b. Tires are worn out when the tread is worn to the bottom of any groove. Not just a flat spot. Tires do not have a life limit and weather checking (cracks) that can be seen on the sidewall or bottom of grooves are OK. A tire should be replaced if visible fabric matrix can be seen through cuts or weather checking.

c. The Michelin Aircraft Tire Care & Service Manual and the Goodyear Tire Care & Maintenance Manual are available as a great references for all aircraft tire questions.

3.9 SPECIAL FLIGHT PERMIT (FERRY PERMIT), CHECK FLIGHTS AND OPERATIONAL TESTS

3.9.1 Special Flight Permits (SFP) - If your aircraft has a maintenance problem that cannot be fixed at its present location it may require a Special Flight Permit (SFP) see FAR 21.197. If an SFP is required:

a. Download FAA Form 8130-6, fill it out and have it signed by NHQ/LGM. Your local maintenance facility probably has the expertise to help you fill-in the form and may know the local FSDO from past interactions. Instructions, short version: fill-in Part 2 by checking blocks B, then 8, then 1. Fill-in Part VII. Special Flight Permit Purposes Other Than Production Flight Test and send to NHQ for signature. **This form must be signed by NHQ/LGM as the owner's representative prior to submission to the FSDO.**

b. You will need to establish an account on the FAA's AWC site to submit an SFP request to the FSDO. AWC Applicant Registration Guide . You can access the site here FAA AWC Applicant LOGIN You can access complete instructions for the SFP process here SFP

Application Using AWC. The SFP will list the specific ferry flight requirements. Be sure to comply with these restrictions. You may need an AMT to inspect the aircraft before flight and sign the maintenance logbook verifying the "aircraft is safe for the intended flight." The SFP has an expiration date, usually 10 days. Keep this in mind when working on the flight details and date. This can be a quick process if done correctly. Ask for help if needed. The SFP must be in the aircraft for flight.

3.9.2 Check Flights/Operational Checks by Non-CAP Personnel. IAW CAPR 130-2 "FAA certified mechanics, FAA certified repair stations and fixed base operators are authorized to perform necessary inspections/maintenance runs and check flights as pilot in command in CAP aircraft. The pilot shall be FAA rated and current in the category/type aircraft being flown."

3.9.3 Check Flights/Operational Checks by CAP Personnel carrying Non-CAP passengers. If it becomes necessary for an AMT to be flown in a CAP aircraft to perform an in-flight operational check or troubleshooting they must be approved IAW the procedures in CAPR 70-1. This includes approval from the Wing, Region, CAP-USAF Liaison Region, NHQ/LGM and CAP-USAF. The requester must request permission to carry a non-CAP passenger at least 5 days in advance and the passenger must fill out and file a CAPF 70-9.

3.10 OTHER AIRCRAFT INSPECTIONS

3.10.1 CAPF-71 Aircraft Inspection.

The CAPF-71 form has multiple fields for tracking inspection dates in Section 1 (*Aircraft Log Books/Records, POH, AIF*). When filling out this form, all dates listed are the dates that the inspections were performed, unless otherwise noted (i.e. by indicating "Due" or "Exp" for future expiration dates).

3.10.2 Survival Kit Inspection

The Survival Kit should be inspected quarterly to ensure serviceability.

3.10.3 Aircraft Wash

Review the last date the aircraft was washed, and schedule a date to wash the aircraft, if the next washing is nearing the due date. This aircraft wash can be conducted as a squadron activity, or it can be performed by an approved AMF while the aircraft is undergoing other maintenance.

3.11 ENGINE BREAK-IN PROCEDURES

3.11.1 A new or overhauled engine represents a significant investment, and proper engine break-in is vital to preserve this investment and maintain our valuable assets. The break-in period is the most critical time in an engine's life, with around 75% of normal wear occurring during this period. Proper break-in maximizes the performance and longevity of our aircraft fleet.

3.11.2 Objective of Break-In: The primary goal of the break-in process is to wear the piston rings to the cylinder surface, so they mate accurately, a process known as ring-to-bore seating. During break-in, metal-to-metal contact between the ring and cylinder wall is necessary to seat the rings properly. This contact is only desirable during break-in and not for the engine's remaining lifespan.

3.11.3 Cylinder Break-In Details: When a cylinder is new, its inner wall surface is not smooth. The break-in procedure aims to rub off high spots on both the cylinder wall and the piston rings. This process creates a tight gas seal necessary for normal engine operation.

Metal-to-Metal Contact: During break-in, actual metal-to-metal contact occurs between the rings and cylinder wall. The rings' role is to seal the gases on the piston's top side from escaping to the bottom side and into the crankcase. For this to happen, the rings must match the cylinder barrel's contour along their full diameter and width.

Heat Dissipation: The cylinder barrel also undergoes some wear in to have a consistent contour along the ring's stroke. This consistent contour helps in quick heat dissipation through the rings, keeping the rings and piston cool. This results in a tightly sealed combustion chamber, leading to a healthy, efficient, and powerful engine with an acceptable level of oil consumption.

Break-In Requirements: For proper break-in, the piston rings need to expand sufficiently to seat with the cylinder walls. This seating occurs when cylinder pressures are high enough to cause the piston rings to expand, typically achieved at power settings above 65%. This high pressure allows the piston ring to break through the oil film, permitting a certain amount of metal-to-metal contact.

Oil Consumption: Once the rings match the cylinder walls, the break-in is complete, resulting in a noticeable decrease in oil consumption as gases no longer blow past the rings into the crankcase. The oil consumption rate stabilizes at a lower rate, indicating break-in is complete.

Break-In Timeline: Break-in usually completes within 50 flight hours, with most ring seating occurring in the first 5-10 hours. Some experts suggest that 90% of break-in happens within the first hour, making initial engine operation critical. While ring-to-bore seating typically occurs within the first few hours, achieving optimal oil consumption may take over 50 hours of operation. You will observe a significant reduction in oil consumption during this period until the optimum rate is reached.

3.11.4 Avoid Glazing: Using low power settings prevents proper piston ring expansion, leaving an oil film on the cylinder walls. High combustion temperatures oxidize this oil, causing glazing, which halts the ring break-in process and increases oil consumption (often visible on the aircraft's belly due to a pressurized crankcase). Extensive glazing can only be fixed by removing and re-honing the cylinders, which is costly and avoidable with proper break-in procedures. Most fatal mistakes involve overheating the cylinders. If glazing occurs, report it to your AMO and have the aircraft serviced.

3.11.5 CAP Break-In Program:

3.11.5.1 These procedures will be followed for:
New Engines
Overhauled Engines
Cylinder Replacements (any number)

3.11.5.2 There is a distinction that has to be made at the beginning of this process. Newly purchased aircraft will have already been flown at least once. However, we cannot make this assumption for aircraft coming back to us from an overhaul or similar repair. For these recently repaired aircraft, we must remain close to the maintenance facility for this first flight and the aircraft must be looked at by the vendor to ensure there are no leaks or other issues with the aircraft before the engine break-in process can continue. In this case, the pilot must use either the Fixed Prop (First Flight Only) Checklist or the Constant Speed Prop (First Flight Only) Checklist as appropriate to the aircraft. Only after

performing this one-hour flight and having it subsequently inspected by the maintenance facility can it be released for further break-in sorites. To be clear, these first flights do not constitute the "initial ground run" of the aircraft, which the maintenance facility must conduct before the aircraft is released to us to do any sort of flight.

3.11.5.3 The Engine Break-in Process will begin as CAP/LGM(PS&D) or the applicable AMO adds a discrepancy in AMRAD. This will classify all flights for this purpose as A9 flights. The aircraft may only fly break-in profile flights while in this status. All other mission types are prohibited. The aircraft will be closely monitored, with data analyzed and reviewed by CAP/LGM Plans Scheduling & Documentation. The AMRAD discrepancy will be closed once oil stabilization is achieved. CAP will use the following text in that initial discrepancy: "During the new/overhauled engine break-in phase, certain operational restrictions and data collection requirements are mandatory. Only flight crew specifically authorized are permitted to operate the airplane during the break-in phase utilizing A9 sorties only. This discrepancy will be closed when CAP/LGM is satisfied that the break-in phase is concluded."

3.11.5.4 CAP pilots will use one of four checklists during all break-in flights, which dictate flight parameters for the aircraft, engine, and propeller. Proper adherence to these procedures is essential to avoid glazing and ensure correct ring seating. Please download and print a copy of the necessary checklist from the CAP Website (see links below). They have been specifically formatted for use on your kneeboard while in flight.

- Fixed Pitch Prop Break in Cklst FIRST FLIGHT ONLY
- Constant Speed Prop Break in Cklst FIRST FLIGHT ONLY
- Fixed Pitch Prop Break in Cklst
- Constant Speed Prop Break in Cklst

3.11.5.5 Pilots must check oil levels before each flight, adding oil as needed based off dip-stick level and POH oil capacity requirements. Post-flight, the engine should cool down before rechecking the oil level. Checklists will capture data on cylinder head temperature, oil temperature, and oil consumption, which are indicators of proper ring seating. All data must be recorded manually while in the aircraft and then entered into a SmartSheet form linked at the bottom of each checklist after landing and cooldown.

3.11.5.6 It is highly recommended that at least two qualified CAP senior aircrew members take part in the flights accomplishing the engine break-in. The pilot's primary function is the safe accomplishment of the flight, and the second person can monitor and record all systems constantly for the duration of the flight. Cadets or additional crew members are not authorized in these flights.

3.11.5.7 Upon completion of 10 engine TACH hours, the collected data will be analyzed by NHQ for successful completion of the break-in profile through oil consumption and oil temperature stability. Ultimately, the Director of Aviation Support (CAP/LGM) will determine if oil stabilization has occurred and whether to release the aircraft for other missions, continue the break-in period, or send the aircraft back for further maintenance.

3.11.6 Lubrication for Break in

3.11.6.1 The respective AMO hosting the aircraft will ensure the following oil lubrication schedule is met. Spectral oil analysis (SOAP) will be performed at the 50-hour interval in all cases of engine break-in. The SOAP should be repeated 50 hours later, and then at each annual/100-Hr inspection thereafter.

The oil analysis reports will be sent to LGM and retained in the aircraft engine logbooks for the life of the engine.

3.11.6.2 Use the following lubrication schedule during break in:

Hours on Overhaul	Description
0	Initial fill-up
10*	Change Oil and Filter
25	Change Oil and Filter
50	Change Oil and Filter
Every 50 Hours or 4 Months	Change Oil and Filter

Table 1 – Engine lubrication during break in

*10 - hour oil change requirement not required for new Lycoming factory engines.
Note: Only mineral oil should be used for the break-in process. Use only Phillips TYPE M 20W-50. If unavailable, use Phillips XC 20W-50 as an approved alternative.
For Lycoming turbocharged engines, use Phillips XC 20W-50 ashless dispersant oil only.

Expanded Procedures: This section is dedicated to expanding the explanations to assist in checklist success. Please review the details here so that standardized action can be applied professionally in the aircraft during the actual stabilization of the engines and its components.

3.11.7 Fixed Pitch Propeller Checklist

- Fixed Pitch Prop Break in Cklst FIRST FLIGHT ONLY
- Fixed Pitch Prop Break in Cklst

3.11.7.1 Purpose: To properly conduct the engine break-in following a new engine installation, overhaul, or cylinder replacement. This checklist is for any aircraft with a fixed pitch propeller. Record the required data fields on the checklist and input this data into the SmartSheet form at the end of the procedure.

3.11.7.2 Procedure:

- **3.11.7.2.1** Use Fixed Pitch Prop Break in Cklst FIRST FLIGHT ONLY during the FIRST FLIGHT ONLY for an aircraft with a fixed-pitch propeller. This checklist is to be used when assigned by LG or PS&D following the installation of an overhauled engine or cylinders at maintenance facilities in your wing. The sortie is planned to last for TACH of 1 hour and the destination should be the origin airport. CAP is expecting the maintenance facility that performed the work to assist in the post flight review. So, trying to accomplish this during the business hours of the facility is to our advantage. If all parties agree the next flight would utilize Fixed Pitch Prop Break in Cklst and the destination can be other than the origin. (e.g. return to home base flight).

3.11.7.2.1 Use Fixed Pitch Prop Break in Cklst during all subsequent flights for the break-in period with a fixed-pitch propeller.

3.11.7.2.2 Pre-Flight Inspection additional focus – (complete normal pre-flight inspection)

3.11.7.2.2.1 Visual Inspection:

3.11.7.2.2.1.1 Inspect the aircraft for oil leaks, especially on the belly or unexpected compartments.

3.11.7.2.2.1.2 Take a picture of the aircraft belly for post-flight comparison to identify additional leakage.

3.11.7.2.2.2 Oil Check:

3.11.7.2.2.2.1 Check and record cold oil level

3.11.7.2.2.2.2 Add oil to ensure the sortie starts with a full sump.

3.11.7.2.2.2.3 Record both cold oil level and the amount of oil added on the checklist.

3.11.7.2.2.3 Density Altitude Planning:

3.11.7.2.2.3.1 Plan for an altitude that assures your ability to produce a minimum of 75% power and allows for safe traffic and obstacle separation. In all cases do not exceed a DENSITY ALTITUDE (DA) of 7000ft DA. Anything more than 7000ft DA will PREVENT you from achieving a minimum of 75% power.

3.11.7.2.2.3.2 Understand that most engines cannot produce 75% power levels above 7000 ft density altitude. To achieve good engine break in ability to achieve 75% power level is essential.

3.11.7.2.2.3.3 High elevation locations must consider possible relocation of the aircraft during the break in process – consult CAP/LGM.

3.11.7.2.2.3.4 Determine and record power settings for both 65% and 75% power levels at planned density altitude.

3.11.7.2.2.3.5 When determining DA, POHs do not always refer to "75%" exactly in chosen altitudes when there is a choice our preference would be to choose higher power settings. Example:

Pressure Altitude Feet	RPM	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% MCP	KTAS	GPH	% MCP	KTAS	GPH	% MCP	KTAS	GPH
2000	2550	83	117	11.1	77	118	10.5	72	117	9.9
	2500	78	115	10.6	73	115	9.9	68	115	9.4
	2400	69	111	9.6	64	110	9.0	60	109	8.5
	2300	61	105	8.6	57	104	8.1	53	102	7.7
	2200	53	99	7.7	50	97	7.3	47	95	6.9
	2100	47	92	6.9	44	90	6.6	42	89	6.3
4000	2600	83	120	11.1	77	120	10.4	72	119	9.8
	2550	79	118	10.6	73	117	9.9	68	117	9.4
	2500	74	115	10.1	69	115	9.5	64	114	8.9
	2400	65	110	9.1	61	109	8.5	57	107	8.1
	2300	58	104	8.2	54	102	7.7	51	101	7.3
	2200	51	98	7.4	48	96	7.0	45	94	6.7
	2100	45	91	6.6	42	89	6.4	40	87	6.1
6000	2650	83	122	11.1	77	122	10.4	72	121	9.8
	2600	78	120	10.6	73	119	9.9	68	118	9.4
	2500	70	115	9.6	65	114	9.0	60	112	8.5
	2400	62	109	8.6	57	108	8.2	54	106	7.7
	2300	54	103	7.8	51	101	7.4	48	99	7.0
	2200	48	96	7.1	45	94	6.7	43	92	6.4

In this example if you chose 4000 PA on a standard day you can achieve 77% at 2600 RPM or 73% at 2550 RPM. Prefer 77%. Remember we need to maintain a minimum of 75%. For the 65% setting at this altitude, you could achieve 65% at 2450 RPM but some indicators may not show that very accurately (steam gauge) thus using 2500 would be fine at 69%.

If you use the 6000 PA choice on a standard day again defer to the higher choice of 77% at 2650 RPM. In this example there is an actual 65% rating at 2500 RPM.

3.11.7.2.2.4 During Flight:

3.11.7.2.2.4.1 Take off and Climb Out: USE POH for all take-off settings. Once you achieve a safe obstacle clearance altitude or pattern altitude then, maintain a shallow cruise climb angle to achieve rpm requirements while avoiding overheating. (200-300 ft/min climb where obstacle clearance and noise considerations allow) Maintaining 200-300 ft/min climb rates at 75% minimum power setting allows more air to flow over cylinders and help cool cylinders.

3.11.7.2.2.4.2 Never exceed the maximum CHT per POH. Do your very best to keep CHTs below 425F in all phases of engine break in. The lower the better.

3.11.7.2.2.4.2 First Hour:

3.11.7.2.2.4.2.1 Cruise at 70-75% power at or below 7000 DA (preferably 5000 DA if obstacle avoidance allows).

3.11.7.2.2.4.2.2 Record data every 20 minutes, including cylinder head temperature and oil pressure.

3.11.7.2.2.4.3 Second Hour:

3.11.7.2.2.4.3.1 Vary power between 65% and 75%, alternating every 20 minutes.

3.11.7.2.2.4.3.2 Record temperature and pressure readings.

3.11.7.2.2.4.3.3 Record the highest cylinder head temperature and cylinder position achieved in any monitored cylinder.

3.11.7.2.2.5 Additional Notes:

3.11.7.2.2.5.1 For carburetor engines with single-cylinder temperature monitoring, record the single cylinder's reading. (if applicable)

3.11.7.2.2.5.2 If the exhaust gas temperature gauge lacks numeric values, no need to record a value.

3.11.7.2.2.5.3 In all cases oil temperatures and oil pressures are to be monitored and recorded. Approximate the temperature and pressures when using analog gauges.

3.11.7.2.2.6 Issues & Descent:

3.11.7.2.2.6.1 If at any time readings are outside the green area for any system, return for landing and notify your AMO.

3.11.7.2.2.6.2 During descent, avoid sudden large power reductions to prevent extreme temperature changes. (shock cooling) Plan your descent reduce power gradually. Consider 100 RPM reduction every 5-7 minutes.

3.11.7.2.2.6.3 Consider using “high drag” configurations during descent to maintain higher power settings and temperatures.

3.11.7.2.2.7 Post-Flight Shutdown & Cooling:

3.11.7.2.2.7.1 Perform a normal shutdown and secure the aircraft.

3.11.7.2.2.7.2 Wait at least 1 hour for the engine to cool and oil to settle before checking the oil level.

3.11.7.2.2.7.3 Record the oil level reading on the checklist.

3.11.7.2.2.7.4 If you’re flying the First Flight for this aircraft after the engine overhaul or cylinder replacement, be sure to have the maintenance facility inspect the aircraft.

3.11.7.2.2.7.5 Use the QR Code at the bottom of the checklist to submit the data on your checklist to the CAP/LG Smart Sheet tool.

3.11.8 Constant Speed Propeller Checklist

- Constant Speed Prop Break in Cklst FIRST FLIGHT ONLY
- Constant Speed Prop Break in Cklst

3.11.8.1 Purpose: To properly conduct the engine break-in following a new engine installation, overhaul, or cylinder replacement. This checklist applies to any aircraft with a variable-pitch propeller. Please record the required data fields on the checklist and input this data into the Smart Sheet form at the end.

3.11.8.2 Procedure:

3.11.8.2.1 Use Constant Speed Prop Break in Cklst FIRST FLIGHT ONLY during the FIRST FLIGHT ONLY for an aircraft with a constant-speed propeller. This checklist is to be used when assigned by LG or PS&D following the installation of an overhauled engine or cylinders at maintenance facilities in your wing. The sortie is planned to last for TACH of 1 hour and the destination should be return to the origin airport. CAP is expecting the maintenance facility that performed the work to assist in the post flight review. So, trying to accomplish this during the business hours of the facility is to our advantage. If all parties agree the next flight would utilize Constant Speed Prop Break in Cklst and the destination can be other than the origin. (e.g. return to home base).

3.11.8.2.2 Use Constant Speed Prop Break in Cklst during all subsequent flights for the break-in period with a constant-speed propeller.

3.11.8.2.3 Pre-Flight Inspection additional focus – (complete normal pre-flight inspection)

3.11.8.2.3.1 Visual Inspection:

3.11.8.2.3.1.1 Look for oil leaks (e.g., oil on the belly or in unexpected compartments).

3.11.8.2.3.1.2 Take a picture of the aircraft belly for post-flight comparison.

3.11.8.2.3.2 Oil Check:

3.11.8.2.3.2.1 Check and record cold oil level

3.11.8.2.3.2.2 Add oil to ensure the sortie starts with a full sump based off the POH.

3.11.8.2.3.2.3 Record both cold oil level and the amount of oil added on the checklist.

3.11.8.2.3.3 Density Altitude Planning:

3.11.8.2.3.3.1 Plan for an altitude that assures your ability to produce a minimum of 75% power and allows for safe traffic and obstacle separation. In all cases do not exceed a DENSITY ALTITUDE (DA) of 7000ft DA. Anything more than 7000ft DA will PREVENT you from achieving a minimum of 75% power. Exceptions: Turbocharged aircraft can produce higher power settings above 7000ft DA. The DA restriction is not applicable to these aircraft.

3.11.8.2.3.3.2 Understand that most engines cannot produce 75% power levels above 7000 ft density altitude. To achieve good engine break in ability to achieve 75% power level is essential.

3.11.8.2.3.3.3 High elevation locations must consider possible relocation of the aircraft during the break in process – consult CAP/LGM.

3.11.8.2.3.3.4 Determine and record power settings for both 65% and 75% power levels at planned density altitude.

3.11.8.2.3.3.5 When determining DA, POHs do not always refer to "75%" exactly in chosen altitudes when there is a choice our preference would be to choose higher power settings. (See example in Fixed Pitch Propellor section)

3.11.8.2.3.4 During Flight:

3.11.8.2.3.4.1 Take off and Climb Out: USE POH for all take-off settings. Once you achieve a safe obstacle clearance altitude or pattern altitude then, maintain a shallow cruise climb angle to achieve rpm requirements while avoiding overheating. (200-300 ft/min climb where obstacle clearance and noise considerations allow) Maintaining 200-300 ft/min climb rates at 75% minimum power setting allows more air to flow over cylinders and help cool cylinders. Cowl flaps OPEN. Never exceed the maximum CHT per POH. Do your very best to keep CHTs below 425F in all phases of engine break-in. The lower the better.

3.11.8.2.3.4.2 First Hour:

3.11.8.2.3.4.2.1 Cruise at 70-75% power at or below 7000 ft DA (preferably 5000 ft DA if obstacle avoidance allows).

3.11.8.2.3.4.2.2 Open cowl flaps to prevent overheating. Monitor CHT.
Record data every 20 minutes.

3.11.8.2.3.4.3 Second Hour:

3.11.8.2.3.4.3.1 Vary power between 65% and 75%, alternating every 20 minutes.

3.11.8.2.3.4.3.2 Record temperature and pressure readings.

3.11.8.2.3.4.3.3 Record the highest cylinder head temperature and cylinder position achieved in any monitored cylinder.

3.11.8.2.3.5 Issues & Descent:

3.11.8.2.3.5.1 If at any time readings are outside the green area for any system, return for landing and notify your AMO.

3.11.8.2.3.5.2 During descent, avoid sudden large power reductions to prevent extreme temperature changes. (shock cooling) Plan your descent reduce power gradually. Consider 1 inch reduction in MP every 5-7 minutes.

3.11.8.2.3.5.3 Close cowl flaps during descent to maintain cylinder head temperature above 300°F.

3.11.8.2.3.5.4 Consider using "high drag" configurations during descent to maintain higher power settings and temperatures.

3.11.8.2.3.6 Post-Flight Shutdown & Cooling:

3.11.8.2.3.6.1 Perform a normal shutdown and secure the aircraft.

3.11.8.2.3.6.2 Wait at least 1 hour for the engine to cool and oil to settle before checking the oil level.

3.11.8.2.3.6.3 Record the oil level reading on the checklist.

3.11.8.2.3.6.4 If you're flying the First Flight for this aircraft after the engine overhaul or cylinder replacement, be sure to have the maintenance facility inspect the aircraft.

3.11.8.2.3.6.5 Use the website link at the bottom of the checklist to submit the data on your checklist to the CAP/LG SmartSheet tool.

3.11.9 General Guidelines:

3.11.9.1 Flight Duration: During break-in sorties it is recommended to plan at least 2 hours but no more than 3 hours. Each checklist is built to capture a maximum of 3 hours of data per sortie.

3.11.9.2 Ground Operations: Minimize ground operations to avoid low power settings.

3.11.9.3 Weight Management: Keep the flying weight to a minimum by not carrying unnecessary crew, passengers, or equipment.

3.11.9.4 Oil Type: Use only Phillips TYPE M 20W-50 mineral oil for the break-in period. If Type M is not available, Phillips TYPE XC 20W-50 is an acceptable substitute. For Lycoming turbocharged engines, use Phillips XC ashless dispersant oil only.

3.11.9.5 Data Recording: Manually record data on the checklists during each sortie, including CHT, oil temperature, and oil consumption.

3.11.9.6 Data Submission: Enter collected data into the Smart Sheet form linked at the bottom of each checklist. The data will be reviewed by the Director of Aviation to determine if oil stabilization has occurred.

3.11.9.7 Time: CAP will use TACH time to refer to time used on checklist during engine stabilization processes. All sortie flight time totals will reflect HOBBS times. When you and your crew record data for the checklist we are expecting you to use actual time. Like all sorties you will record HOBBS and TACH times (start and stop) in WMIRS, required by CAPR 70-1. Additionally, these stabilization sorties require reporting of data reports through the web link provided.

3.11.10 How do you know when the engine break in is complete?

3.11.10.1 There are several clues that the engine will give you, and one key is oil consumption, so you should really take note what the consumption is from the start. What you will find is that the consumption will probably be quite high initially, will reduce rapidly and then plateau at a certain value.

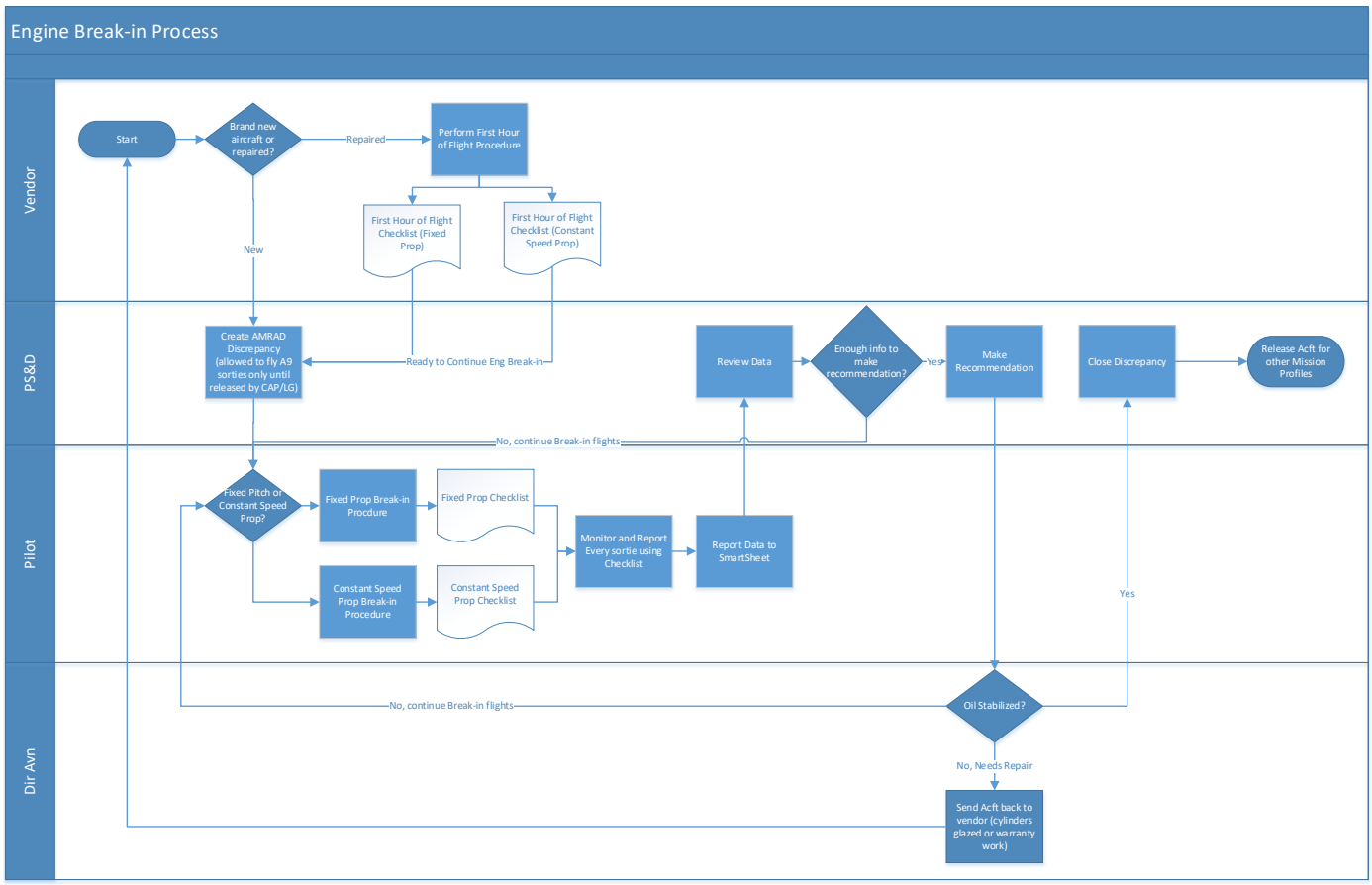
3.11.10.2 What this value is isn't really too important - it can be anywhere in the range of 1 quart every 4 to 20 hours. An indication of stabilization is more telling. A high oil consumption rate indicates that the engine has not broken in yet (or has possibly glazed if it is over 100 hours operation).

3.11.10.3 Another key indicator is what you see from the exhaust stack. This will normally start off being black and wet (due to the high level of oil burned during the initial stages of break-in). It will then turn to black soot and finally produce a tan / grey deposit, indicating that there is little oil being burned and the mixture setting is correct.

3.11.10.4 Finally, a third indication is that of crankcase pressurization. If you fill the engine up to the maximum oil level indication and it rapidly loses the first half quart down the breather pipe, then many people just fill the engine with less oil next time. This is fine if it is an old, worn engine, but during break-in it tells you something.

The reason that the oil is being pushed down the breather is that the crankcase is being over-pressurized by exhaust gas getting past the rings. In other words, the engine is not effectively sealing itself and has not achieved a good gas seal between rings and bore – so the break-in process is not yet complete.

3.11.11 The following diagram outlines the overall engine break-in process:



4. REQUIRED/RECOMMENDED ADs and SBs

4.1 Required and recommended ADs and SBs are listed on the CAP NHQ Aircraft Management web site.

4.2 ADs and Mandatory Service Bulletins required by CAP will also be sent to the field by email and a discrepancy requiring the completion of the required items will be loaded in AMRAD for all applicable aircraft.

4.3 It is the responsibility of the AMO to make sure their aircraft are airworthy and safe and that all maintenance data in AMRAD is accurate so that AD & SB applicability can be ascertained, and notifications can be sent for each affected aircraft.

4.4 The maintenance facility that signs off the 100-hour/Annual inspection is responsible for making sure that all required ADs have been complied with and that the aircraft is airworthy when they sign off the inspection.

4.5 Working as a team will make it much easier to keep your aircraft up-to-date and safe for flight.

5. AIRCRAFT PARTS/REPAIRS URGENCY JUSTIFICATION DETERMINATION

When ordering parts or processing a discrepancy in AMRAD for NHQ/LGM approval the Urgency Justification Code (UJC) is selected based upon the urgency of the next mission or missions that the aircraft is scheduled to perform, the availability of other aircraft and whether the aircraft is capable of being fixed prior to the next mission.

The Wing DO or Wing CC will normally be required to certify AOG-2 or AOG-1 priority due to the extra funds required when processing orders at these priority levels, especially for heavier parts or equipment. Resources are scarce and when everything is a priority, nothing is a priority. We must focus our resources where they are truly required.

"When everything is a priority, nothing is a priority"

Acft Status	UJC	Request Processing Urgency	Shipping Authorized
NMC	AOG-1	Immediate/processed w/in 1 hr	1 Day
NMC	AOG-2	High/processed w/in 4 hrs	2 Day
NMC	AOG-3	Priority/processed w/in 8 hrs	3 Day
NMC	STND-1	Normal/processed w/in 24 hrs	4 Day
PMC	STND-2	Priority deferred/ w/in 48 hrs	4 day
PMC	STND-3	Normal deferred/ w/in 72 hrs	Cheapest means available
FMC	STND-4	Low deferred/ w/in 96 hrs	Cheapest means available

6. REGULATIONS, DIRECTIVES & TECHNICAL PUBs

6.1 CIVIL AIR PATROL (NHQ)

CAP Forms/Publications/Indexes, Regulations and Manuals.

6.2 FAA REGULATIONS

FAA Regulations

Commonly referenced FAA Regulations (FAR)

a. Part 1 (Definitions and Abbreviations)

b. Part 23 (Airworthiness Standards for Normal…Category Airplanes)

c. Part 39 (Airworthiness Directives)

d. Part 43 (Maintenance, Preventive Maintenance, Rebuilding, and Alteration)

1. Recording maintenance actions in aircraft logbooks (§ 43.9)

2. Annual & 100 Hr inspection items (§ 43 Appendix D)

e. Part 45 (Identification and Registration marking)

f. Part 91 (General Operating and Flight Rules)

1. Responsibility (§ 91.403).

2. Maintenance required (§ 91.405).

3. Operation after maintenance (§ 91.407).

4. Maintenance records (§91.417).

5. Inspections:

6. Annual, Airworthiness Directives (AD), 100 hours (§ 91.409).

7. Altimeter and pitot static system (§91.411).

8. Very high frequency Omnidirectional Range (VOR) check (§91.171).

9. Transponder (§ 91.413).

10. ELT (§91.207).

6.3 FAA: AIRWORTHINESS DIRECTIVES

FAA ADs

ADs are regulations issued under part 39. Therefore, no person may operate a product to which an AD applies, except in accordance with the requirements of that AD. Owners and operators should understand that to "operate" not only means piloting the aircraft, but also causing or authorizing the product to be used for the purpose of air navigation, with or without the right of legal control as owner, lessee, or otherwise. ADs are legally enforceable regulations under 14 CFR Part 39.

6.4 FAA: ADVISORY CIRCULARS

FAA Advisory Circulars Index

This index is a list of all ACs numerically or alphabetically by topic. ACs deal with aircraft, aircraft systems, aircraft components, aircraft maintenance, repair practices, and records-keeping. AC 20-35C, 39-7D, 43-9C, 43-12A and 61-9B are a few examples of available ACs.

6.5 FAA: TYPE CERTIFICATE DATA SHEET

FAA TCDS (Make Model)

The TCDS details all specifications of a particular airframe or engine; details operating limitations for that end item; identifies which other appliances (or parts) are authorized to be installed on that end item.

6.6 NTSB: 49 CFR PART 830, ACCIDENT/INCIDENT REPORTING

49 CFR Part 830

Details requirements to preserve aircraft involved in reportable mishaps and requirements to collect/preserve maintenance records.

6.7 AIRPLANE FLIGHT MANUAL (AFM) / PILOT OPERATING HANDBOOK (POH)

Flight manuals and operating handbooks are concise reference books that provide specific information about a particular aircraft. They contain basic facts, information, and/or instructions for the pilot about the operation of an aircraft, flying techniques, etc., and are intended to be kept on hand for ready reference.

Specific by aircraft make, model, year, and serial number, a pilot's guide to the airplane. It is required to be in the aircraft for flight. It contains an equipment list tailored which must be amended anytime equipment is added to or removed from the aircraft. In addition, it has supplemental operating instructions for each item of added or altered equipment on board.

7. FORMS

There are several CAP forms that the Aircraft Maintenance Officer should be familiar with.

7.1 CIVIL AIR PATROL (NHQ) FORMS

a. **CAP Form 71**, *Aircraft Inspection Checklist. (CAPF 71 or CAPF71G for gliders)* Used at all echelons to document current condition of corporate aircraft as well as status of its maintenance records, inspections, and compliance with CAP-directed requirements. The wing aircraft maintenance officer or their representative shall inspect corporate aircraft at least annually to ensure aircraft meet CAP requirements detailed in CAPR 130-2.

b. ***CAP Standardized Aircraft Information File (AIF).*** CAP standard forms to document aircraft data and provide crewmembers information on the aircraft. Required to be in the aircraft for flight. Guidance for AIF information requirements are contained in CAPR 70-1.

7.2 FAA Forms

a. FAA Form 337**,** *Major Repair and Alteration.* Issued to evaluate repairs and/or alterations to airframe, power plant, propeller, or appliances. It certifies that repairs/alterations conform to FAR Part 43 requirements and procedures. It also must be signed by a certified AMT or repair station and describe the work that was performed. A copy is filed with the local FSDO (submitted by whoever signed the form) and the original must be retained with the aircraft logbooks. A mechanic who performs a major repair or major alteration will record the work on FAA Form 337 and have the work inspected and approved by a mechanic who holds an inspection authorization (IA). A signed copy shall be given to the owner and another copy sent to the FAA Aircraft Registration Branch (AFS-750) in Oklahoma City, Oklahoma within 48 hours of aircraft approval for return to service. Most STCs require a 337 that must be filed with the FAA to track installation of the STC on a particular aircraft.

b. FAA Form 8050-3, *Certificate of Aircraft Registration.* A mandatory document that must be onboard the aircraft to fly. This is issued in the name of Civil Air Patrol, Inc. Registration renewal is handled by NHQ. When NHQ receives the new registration forms they are sent to the Wing

Administrator for distribution. Contact NHQ for temporary registration certificates or to get a duplicate registration if your registration is lost or no longer legible.

c. FAA Form 8100-2, *Standard Airworthiness Certificate.* Mandatory document; must be onboard the aircraft to fly. Establishes aircraft airworthiness by make, model, and serial number; and certifies aircraft conforms to the type certificate. It also specifies which "category(s)" the aircraft can be operated in (i.e., Normal Category flight operations).

NOTE: Contact NHQ if the Airworthiness Certificate is lost or is no longer legible for a replacement certificate, they will give you a letter to present to your local FSDO who issues the new certificates.

d. FAA Form 8110-2, *Supplemental Type Certificate (STC).* Certifies new installations or modifications meet airworthiness requirements and are acceptable changes to the type certification for the aircraft. It includes installation/modification instructions, operating limitations, applicability, and any operating instructions needed to supplement the aircraft's POH. These supplements must be filed in the aircraft's POH. STCs must be documented in the appropriate aircraft logbook.

e. FAA Form 8130-3, *Airworthiness Approval Tag.* Certifies the part/appliance you received was manufactured in accordance with FAR Part 21 approved parts specifications. Form is completed by the manufacturer or repair station.

f. FAA Form 8130-6, *Application for U.S. Airworthiness Certificate*. This form is used to apply for one-time ferry flights needed to move an aircraft with a maintenance problem to a facility where it can be fixed, assuming it can be flown.

g. *Weight and Balance Certificate.* A required document and is part of the aircraft's POH. The aircraft can't fly without it onboard. This document has no particular format and is issued by any certificated AMT or Repair Station. It must be updated when equipment is installed or removed, or whenever the airframe structure is altered. A copy is maintained in the AIF, Tab 5.

NOTE: If more than one version of the aircraft weight and balance certificate is in the AIF, POH, or logbooks, the older version(s) must have the word “superseded” written on them.

h. *Maintenance Logbooks.* These books follow no particular format or form; but generally must provide entries for aircraft identification, date of entry, tach time at entry, and space to describe the maintenance actions performed. Individual logbooks are normally kept for the airframe, power plant, propeller, and avionics. Aircraft logbook security, accuracy and accountability must be a priority for all CAP aircraft.

8. TERMS/ABBREVIATIONS

AD – Airworthiness Directive; Mandatory, legally enforceable rules issued by the FAA to correct an unsafe condition in an aircraft, aircraft engine, propeller, or appliance

AIRCRAFT INFORMATION FILE (AIF) - This is a standardized file, required by CAPR 70-1. It is information for aircrews to log flight time and use for reference to safely fly the aircraft. It must be in the aircraft to fly. Guidelines for contents are listed on the CAP NHQ Stan/Eval web site.

AIRCRAFT STATUS

a. FMC (Full Mission Capable) – no discrepancies that will prevent the completion of any missions the aircraft is equipped to perform

b. **PMC** (Partial Mission Capable) – discrepancies that will limit the operational mission capability but does not pose a safety hazard to flight operations

c. **NMC** (Non Mission Capable)– discrepancies singularly or in combination that prevent completion of assigned missions, pose a safety hazard, or any airworthiness item

AFRCC - Air Force Rescue Coordination Center

AFAM - Air Force-Assigned Mission

AMF - Aircraft Maintenance Facility

AMO – Aircraft Maintenance Officer, can be assigned at Region, Wing, Group or Squadron. Responsible for the airworthiness, safety and maintenance of all assigned aircraft.

AMRAD – Aircraft Maintenance Documentation and Repair module in eServices

AMT - Aircraft Maintenance Technician

CMF – Contracted Maintenance Facility

CMMP - Centralized Maintenance Management Program

CALENDAR vs. TIME intervals - CAP aircraft and aircraft components require several recurring inspections, time changes and overhauls. The interval between inspections, time changes or overhauls can be measured either by elapsed days/months ("calendar" intervals) or elapsed engine tachometer readings ("time" intervals) Hobbs meter readings are not used for calculating time intervals on CAP aircraft. These compliance inspections, time changes or overhauls are officially recorded and tracked in the aircraft logbooks, but they must also be tracked in AMRAD to provide visibility to upcoming events and to prevent overflight of these critical items.

CALENDAR MONTH – "A measurement of time used by the FAA for inspection and certification purposes. One calendar month from a given day extends from that day until midnight of the last day of that month". A period of 12 calendar months extends from any day of any month to the last day of the same month in the following year. For example 2 Jan 21 until 31 Jan 22 is considered 12 calendar months.

"If you are required to comply with a regulation under 14 CFR "24 calendar months after or from," you have until the end of the 24th month after the month in which the time began to run. For example, §61.19 (14 CFR §61.19) provides an expiration date for a student pilot certificate of 24 calendar months from the month in which the student pilot certificate is issued. Therefore, if you obtain a student pilot certificate on January 2, 2000, it expires on January 31, 2002."

CI - Compliance Inspections

Contracted Maintenance Shop – AMF contracted to provide maintenance for CAP aircraft at a fixed rate for the term of the contract. See sample contract here: https://www.gocivilairpatrol.com/media/cms/CAPC_SPECIFICATIONSSTATEMENT_OF_WOR_FEEE864607895.pdf

FAR - Federal Aviation Administration Regulation

FRO - Flight Release Officers

IAW - In Accordance With

MONTH – A period of time extending from a given date in a month until the same date in another month with each time from month to month being counted as 1 month. For example, 15 Jun 21 to 15 Jul 21 would be considered one month as would 15 June 21 to 15 May 21 if we were counting months to determine if an inspection or requirement had been performed within the previous X number of months.

"If you are required to comply with a regulation under 14 CFR "within the preceding 24 months" or "24 months after or from," you have from two years before the date you are required to comply or two years after the date the time began to run, respectively. For example, if a regulation under 14 CFR requires you to meet certain requirements "within the preceding 24 months" before you can operate an aircraft, then you must have accomplished the requirements with the two years before the date you want to operate the aircraft. Therefore, if you want to operate an aircraft on January 19, 2000, you would have to have met the requirements within the period of time starting on January 19, 1998"

NHQ - National Headquarters

NLT - No Later Than

NOC - National Operations Center

PMA - Parts Manufacturer Approval, PMA-holding manufacturers are permitted to make replacement parts for aircraft, even though they are not the original manufacturer of the aircraft. PMA approval is sought by parts manufacturers from the FAA so they may sell parts for use on an aircraft. PMA'd parts ensure that the item meets the same specifications and requirements that the original part did when it was approved by the FAA. An FAA PMA part normally has a Certificate of Conformity from the vendor that sells it.

POC - Point of Contact

STC - Supplemental Type Certificates, are sought from the FAA by manufacturers or repair stations so they may modify/alter multiple aircraft, engines or appliances to some new configuration with new operating parameters acceptable to the FAA and usable on the original aircraft or engine or appliance.

SB - Service Bulletins; SBs may be issued by a manufacturer to correct a deficiency in the part or offer an enhancement to the original part. Since manufacturers cannot compel compliance as the FAA can, they will usually declare that the old or unmodified part will become "unserviceable" after a specified period of time. NHQ/LGM will determine which SBs will be complied with on CAP aircraft.

SIRS - Safety Information and Reporting System

SOAP - Spectrometric Oil Analysis Program; The trace-metal contents of the engine's oil can be an early indicator of unusual or excessive oil wetted component wear. Engine oil samples shall be taken at intervals IAW CAPR 130-2. A copy of the analysis report shall be maintained in the aircraft engine maintenance logbook and used to monitor for trends in engine wear/breakdown.

TBO – Time Between Overhaul is the manufacturer's recommended number of aircraft hours or calendar time (or both) before an aircraft engine or other component is due to be changed.

WMIRS - Web Mission Information and Reporting System

9. NHQ CONTACTS

NHQ/LG Contacts NHQ/LGM Contacts

10. AIRCRAFT CI INSPECTION PREPARATION

Assigned aircraft are valuable assets and very costly to acquire and maintain. They will be periodically inspected by Air Force, Region, and Wing personnel including Compliance Inspections conducted by the CAP IG. A self-inspection program is essential to make sure the aircraft management program is meeting expectations. This self-inspection guide is to help the AMO ensure that all aircraft are being managed properly. The AMO should accomplish this self-inspection quarterly.

a. Complete Aircraft Inspection Checklist. Complete a CAPF 71. Be sure to check tire pressures and put the latest CAPF 71 in AIF Tab 2. If the aircraft is going to an Air Force run SAREX/mission, be sure to complete this inspection before the aircraft departs. It will probably be inspected by the Air Force at mission base.

b. AIF Current. Check the CAP web site for most current change to the AIF.

1. Are AIF Tabs current with the latest change? Also see checklist below.
2. Are pages required by National, Wing, and the assigned region in the AIF?

c. Next maintenance item. What and when is the next required maintenance on the aircraft? Do any of these items require advance notification to NHQ/LGM (Engine or Prop etc.)?

d. Update AMRAD. Is aircraft maintenance information current in AMRAD?

e. Hangar Risk Assessment/Mitigation Plan current and visible.

f. Review the CI checklist for compliance. C4 Worksheet ES Aircraft; gather all required documentation of compliance, be prepared to answer every question on every aircraft, have your answers written down and organized and keep them in a Self-Inspection binder. You can provide this binder to the inspector to answer their questions when they are inspecting your aircraft.