

# **Guidance for Compiling a Maintenance Programme**

## **How to use this guidance material:**

This guidance material can be used to assist the owner/operator/CAMO (Continuing Airworthiness Management Organisation) in the production of a maintenance programme utilising the GMP (Generic Maintenance Programme) template or, as a guide where it has been decided to use a different format.

When the template has been populated with all the required tasks and information, this is then approved and becomes the Approved Maintenance Programme (AMP) for the individual aircraft.

The GMP template can be used in its entirety, or individual sections or pages, or not at all. A blank GMP template can be downloaded from the CAA website.

The person compiling a maintenance programme must be fully aware of the build and modification state of the subject aircraft.

A thorough review and listing of the aircraft's equipment and component fit will assist in enabling the person compiling the programme to identify which source data to use. Further guidance and explanatory notes can be found in CAP 562 Leaflet C-165.

## **Section 1: Owner / Operators moving from their current Light Aircraft Maintenance Programme (LAMP) based maintenance programme to the Generic Maintenance Programme (GMP) template.**

To assist in the transfer from Light Aircraft Maintenance Programme (LAMP) to the new template the following material is provided. For further detailed information and guidance on populating the template reference should be made to the relevant detail in Section 2.

The owner/operator has a number of options in how this move can be carried out and how, on completion, the programme is approved, and these are:

- Where the owner/operator has contracted the airworthiness management of their aircraft to a CAMO, the CAMO can make the necessary change and then approve the maintenance programme if it holds the required Indirect Approval privilege.
- The owner/operator may contract the change and approval of the maintenance programme to a CAMO that holds the required Indirect Approval privilege.
- An owner/operator can produce their own maintenance programme and then contract a CAMO that holds the required Indirect Approval privilege to review and approve the maintenance programme.
- The owner/operator who has produced their own maintenance programme may request the CAA to review and approve the maintenance programme.

### **Populating the template**

The manufacturer's scheduled maintenance tasks (for airframe, engine, and propeller) should be obtained and added to the relevant section in the GMP template. These can simply be copies of pages from the relevant manufacturers' manual. Or, reference can be made to the applicable manual where the information can be found.

**Note:** If the option to reference the data is chosen, the referenced manual must be easily and readily available/accessible. The details must be recorded in the GMP table provided. If the referenced material is accessed via an internet link, the link address should be included.

For those aircraft where no manufacturer's data is available, the LAMP based task list provided in Supplement 1 of CAP 562 Leaflet C-165 can be used, and the action/reasons recorded.

CAA Recommends:

- Some manufacturers do not have recommended inspections or maintenance tasks below those of a 100 hour/Annual check. In these instances the CAA recommends that the addition of 50 hour/6 month inspection items should be considered. These tasks should be for the early detection of deterioration and for protection of the airframe and systems. Experience has shown the benefits that such a programme has for the protection of the airframe and the operation of aircraft systems, when considering the maritime weather and environment conditions found here in the UK. (*Examples of tasks can be found in Supplement 1 of CAP 562 Leaflet C-165, tasks 1-37*)

- Avionic systems are in many cases not covered by manufacturer's maintenance tasks. A list of tasks has been provided in the Appendix to the GMP template to cover this shortfall. It is recommended these tasks should be used unless a viable alternative is available.

All information regarding AD's (Airworthiness Directive's), SB's (Service Bulletin's), SL's (Service Letter's), Lifer items, Time limited tasks, Component requirements, Pilot/owner maintenance tasks, plus all information relating to alternative means of compliance and the relating tasks, these should be removed from the current programme and inserted into the relevant section of the GMP template.

Any further information or task that were as a result of the customisation process, or has been added for operational or environmental reasons should also be added.

If in the event that the current maintenance programme does not match the breakdown of the GMP template the owner can develop their own format, but should ensure all elements described in the GMP guidance material are reviewed and have been included where applicable. In this instance it is important that the structure and content is recorded for future reference.

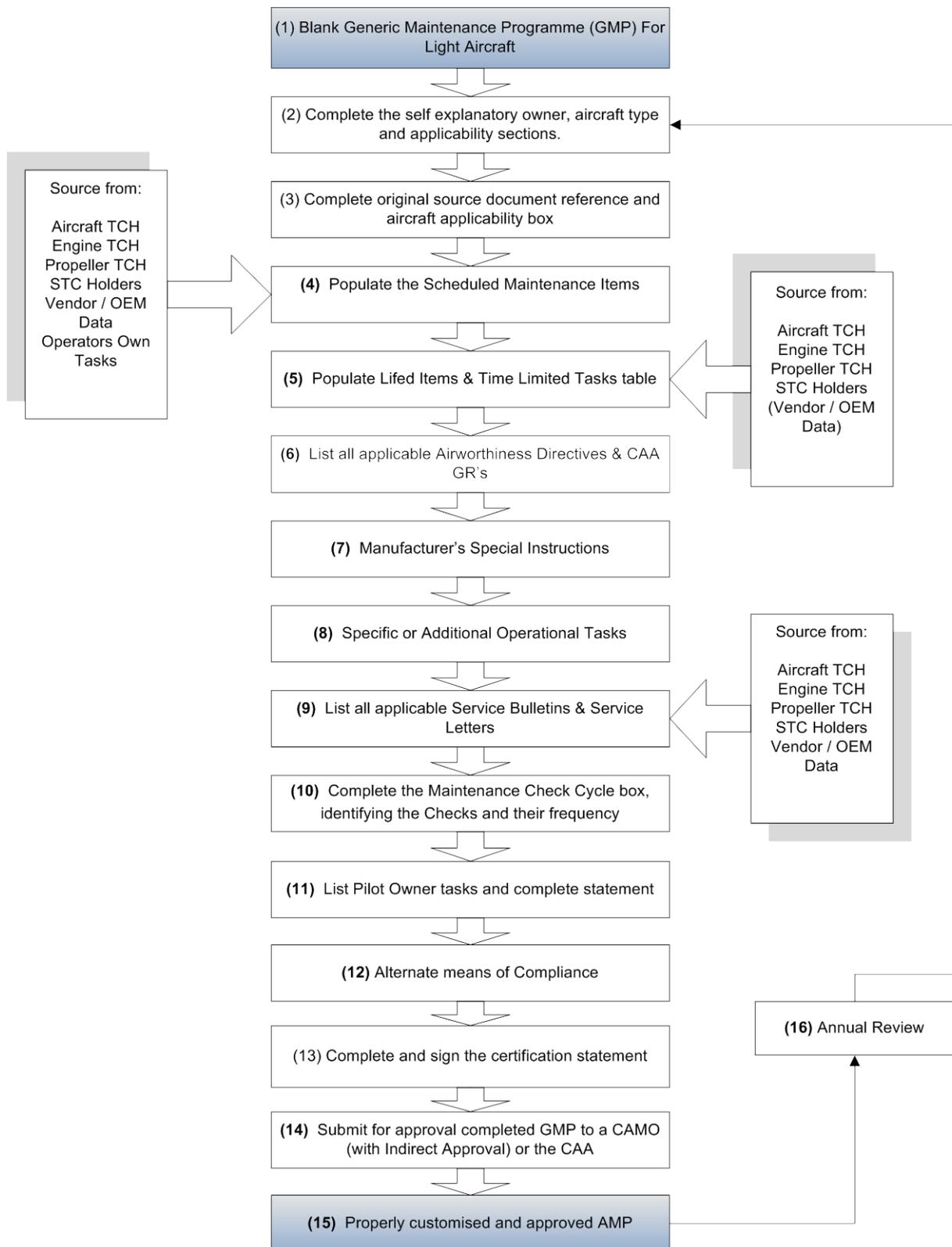
If during the transfer process the content of the maintenance programme has changed, the owner/operator should be aware that some tasks may need to be carried out to implement the change.

Once the change has been completed the programme should be submitted for approval, reference above or Item 14 below. A customisation compliance check sheet has been included for use where the owner/operator wishes to submit the maintenance programme to the CAA for approval. This should be used to ensure all aspects of customisation have been completed and approval will be indicated by the signing of the relevant box.

Where the maintenance programme is approved by a CAMO, they should submit to the CAA a copy of their compliance check list and signed approval of the programme so that the approved maintenance programme can be recorded, and details added to G INFO.

A unique reference number shall be allocated to each maintenance programme. This unique reference number will be used on G INFO and should be added to the front page of the maintenance programme.

## Section 2: Customising the GMP



Process flow chart.

- (1) **Blank Generic Maintenance Programme (GMP) Template for Light Aircraft and single piston engine helicopters:** The blank GMP template is presented in a standardised format and provides obvious areas to be populated. The document can be downloaded from the CAA web site and completed prior to saving and / or printing off. An owner / CAMO can use all or parts of the template provided, or they can produce and use their own. Sample tables and forms are provided and these can be utilised by the owner as required. In each section the owner/operator may enter the data in the format of their choice; this may be by using the tables provided or by adding the pages from the manufacturers' documents.
- (2) **Owner, Aircraft Type and Applicability Sections:** Completion of these boxes personalises the GMP template to the operator and registration/s of the aircraft concerned. It should be noted however where it is proposed to use one GMP template for a group or fleet of the same aircraft type, that where significant variances exist between the same models of aircraft, due perhaps to modifications or equipment fit, then consideration should be given to completing a GMP template for each aircraft.
- (3) **Maintenance Programme Source Data:** Populate this box with details of the source documents used in compiling the programme. These details include the reference or publication number allocated to the document and must also include the revision state of the document used at time of compilation. In consideration to multiples of the same aircraft type being operated there is provision for additional aircraft registrations to be added to this box against which different documents can be annotated. For example where one aircraft is effected by a Service Bulletin over another which is not.

There is also the option of making reference to the applicable manufacturers publication rather than copying the data across. In this case the reference link must be accurately recoded in Table 2.

- (4) Completion of the **Scheduled Maintenance Items** for Chapter 2 shall be carried out using the manufacturers source data and as a minimum, reflect exactly those recommended by the relevant Type Certificate Holder (TCH ) and vendor/Original Equipment Manufacturer (OEM). It must be borne in mind that, following an appropriate review of all TCH, STCH (Supplemental Type Certificate Holder) and Vendor/OEM data, maintenance data may exist which are in addition to those defined by one particular source.

This will require careful reading of Aircraft, Engine, Propeller and Equipment TCH data as well as data promulgated by STC Holders and Vendors/OEM's. It should, be noted that the required information may often be contained within a system description paragraph or similar therefore a thorough review of the document is essential. Such data includes, but is not necessarily limited to:

- Maintenance Manuals.
- Operator Manuals.
- Service Bulletins.
- Service Letters.

Where conflict exists between a recommendation made by, for example, an Aircraft TCH and a Vendor/OEM, then an informed decision must be made, based on knowledge of the item together with operational considerations and must be recorded in Chapter 8. The decision reached must not be based on financial consideration alone. If it is decided not to use the TCH's recommendation but that of the Vendor/OEM then the decision must be recorded and approved. (refer to Item 12 below)

The owner/operator may enter the data in this section in the format of his / her choice. Each entry must contain the task description, task interval, any reference to approved data (e.g. maintenance manual), and whether the task is designated as a pilot maintenance task.

**(5) Lified Items and Time Limited Tasks Table:** Completion of the Lified Items and Time Limited tasks box in Chapter 3 will require careful reading of Aircraft, Engine, Propeller and Equipment TCH data as well as data promulgated by STC Holders and Vendors/OEM's. It should be noted that required information may often be contained within a system description paragraph or similar therefore a thorough review of the document is essential. Such data includes, but is not necessarily limited to:

- Maintenance Manuals.
- Operator Manuals.
- Service Bulletins.
- Service Letters.

Where conflict exists between a recommendation made by, for example, an Aircraft TCH and a Vendor/OEM, then an informed decision must be made based on knowledge of the item together with operational considerations and must be recorded in Chapter 8. The decision reached must not be based on financial consideration alone. If it is decided not to use the TCH's recommendation but that of the Vendor/OEM then the decision must be approved by the CAA (refer to Item 12 below)

*Lified Items and Time Limited Tasks are items that do not fall within the normal scheduled maintenance check cycle, and each item requires a specific action to be carried out. For example, engine overhaul (as in the example below) at 2000 hours or 12 years whichever is first, or, it may be a lified item which is scrapped when the time limit is reached. It should be noted that the life of the item could be recorded in aircraft / component hours, aircraft / component cycles, or calendar time.*

**Example**

Information taken from Lycoming Service Instruction No. 1009AU, dated November 18, 2009.

Description	Type	Part No	Overhaul Life	Scrap Life
Engine	Lycoming	O-320-HSAD	2000 Hrs 12 years	

- (6) **Applicable Airworthiness Directives and CAA Generic Requirements (GR's):** The GMP template shall be populated in chapter 4 with all applicable EASA, CAA and State of Design Airworthiness Directives together with CAA Generic Requirements that require a repeat maintenance task to be carried out. These include those applicable not only to the Aircraft type but also the engine, propeller and equipment therefore, as above, the person compiling the GMP must be fully aware of the build and modification state of the subject aircraft. A thorough review and listing of the aircraft's equipment and component fit will again be required to enable the person compiling the GMP to identify which Airworthiness Directives & GR's to include. It should be noted that the GMP need only include those AD's which actually apply and not those which may apply by type but are not actually applicable by build, modification or serial number, these should be recorded elsewhere in the aircraft's records.
- (7) **Manufacturer's Special Instructions:** A manufacturer may or may not issue special instructions, examples are; a structural inspection programme or items contained in a service bulletin. Tasks should be added as and when required.
- (8) **Specific or Additional Operational tasks:** dependant on how the aircraft is operated there may be specific tasks relating to the operation, e.g. for banner towing, glider towing, etc. tasks should be added to this chapter (chapter 6) if and when required. An owner does not have to include this chapter if it is not applicable.
- (9) **Applicable Service Bulletins and Service Letters:** The GMP must be populated with the applicable Service Bulletins (SB's) and Service Letters (SL's) in Chapter 5 (Manufacturers Special Instructions) once they have been evaluated and the decision has been made to action the content (refer to Item 12 below). Only those SB's or SL's that require a repeat maintenance task to be carried out should be added to the GMP template. Individual applicable tasks should be added to the relevant section of the GMP (e.g. time limited tasks to Chapter 3, a scheduled task to Chapter 2 as applicable). These include those applicable not only to the aircraft type but also the engine, propeller and equipment, the person compiling the GMP must be fully aware of the build and modification state of the subject aircraft. A thorough review and listing of the aircraft's equipment and component fit will, once again, be required to enable the person compiling the GMP to identify which SB's & SL's to include. As with AD's above, the GMP need only include those SB's & SL's which actually apply and not those which may apply by type but are not actually applicable by build, modification or serial number. These should be recorded elsewhere in the aircraft's records.
- (10) The **Maintenance Check Cycle box** in Chapter 2 shall be populated with periodicities which, as a minimum, reflect exactly those recommended by the relevant TCH and vendor/OEM. It must be borne in mind that, following an appropriate review of all TCH, STCH and Vendor/OEM data, maintenance check periods may exist which are in addition to those defined by one particular source. For example, the aircraft manufacturer may define a 100 Flight Hour/12 month check cycle, but the engine manufacturer may define additional tasks to be carried out every 50 Hours thereby requiring the addition of a 50 Hour maintenance input. It follows therefore that the maintenance regime for this aircraft would be 50 Hour, 100 Hour/12 months, etc.

The recommended check cycle frequencies quoted by the TCH will be for what they consider to be for average use. Where an owner is operating their aircraft outside of these figures (generally 25% greater or less) then tasks should be added or amended for the higher or lower utilisation. Generally the TCH has supporting information to assist in this. An owner should also consider including extended parking requirements if it is expected that the aircraft will not be used for extended or long periods during a year.

- (11) The **Pilot Owner tasks** shall be identified in the GMP and must fall within the principles and scope as defined in Part M. In listing these tasks the Owner may choose to limit the number of tasks to which he or she feels confident. It is recommended that each individual task within the GMP identified as a pilot owner task should be annotated accordingly. The pilot owner shall complete Chapter 7. (*Note: Pilot owner maintenance can only be applied on privately operated non-complex motor-powered aircraft of 2730 kg MTOM and below, sailplane, powered sailplane or balloon.*)
- (12) **Use of alternative instructions:** Alternative instructions for continuing airworthiness included in the material described above, when considered appropriate, may be adopted in its place. All of the additional or alternative tasks identified shall be recorded in Chapter 8.

Alternate and/or additional instructions to those defined and proposed by the owner or the operator, may include but are not limited to the following:

1. Escalation of the interval for certain tasks based on reliability data or other supporting Information. The escalation of these tasks is directly approved by the competent authority.
2. More restrictive intervals than those proposed by the TC holder as a result of the reliability data or because of a more stringent operational environment.
3. Additional tasks at the discretion of the owner/operator.

The following issues will need to be considered, fully understood and incorporated into any proposed revision by the person undertaking the procedure to introduce an alternative maintenance task to that recommended by the Type Certificate Holder.

- **Visibility** - of the amendment and its approval within the aircraft logbook, approved maintenance programme and records.
- **Accountability** – the aircraft owner is ultimately responsible for the continued airworthiness of the aircraft and compliance with the instructions/tasks and should therefore state acceptance of any proposal.
- **Justification** – full justification should be available in order to demonstrate support of any changes being proposed. This may cite alternative OEM or vendor recommendations or alternatively be supported by evidence of in-service experience.

Throughout the completion of the GMP template and the regular reviews of the AMP, it is the owner who is responsible for what is included in the programme. Where the programme is developed by a CAMO, or a CAMO recommends tasks to be included (or not), it is the owner who endorses the inclusion of the tasks, the owner may also reject the recommendation or choose an alternative.

Where tasks are rejected or an alternative is included, the decision with supporting paperwork should be recorded in Chapter 8.

**(13) Certification Statement:** The person (owner, operator or if contracted to, the CAMO) taking responsibility for the management of the aircraft airworthiness should read and understand the certification statement in Chapter 1, followed by signing and dating.

**(14) Once completed, the GMP shall be approved:**

- Where the owner/operator has contracted the airworthiness management of their aircraft to a CAMO, the CAMO can approve the maintenance programme if it holds the required Indirect Approval privilege.
- The owner/operator may contract the development and approval of the maintenance programme to a CAMO that holds the required Indirect Approval privilege.
- An owner/operator who has produced their own maintenance programme may contract the review and approval of the maintenance programme to a CAMO that holds the required Indirect Approval privilege.
- The owner/operator who has produced their own maintenance programme may request the CAA to review and approve the maintenance programme.

Once reviewed the GMP will either be approved and returned for immediate use or further information may be required from its originator. It may also be the case that the GMP is returned without having been approved where further work is required in its customisation process, this should be identified and communicated in writing. A copy of the completed customisation compliance check sheet (if signed by a CAMO) should be submitted to the CAA so that the approved maintenance programme can be recorded, and details added to G INFO.

**(15)** Once the above criteria and processes have been satisfied, and the Approved Maintenance Programme (AMP) approved, then the AMP is considered ready for use. This is now the only maintenance programme to be used for the aircraft listed in the AMP and must be adhered to at all times. The CAA should be notified of the AMP and any previous AMP is cancelled.

**(16) The Annual Review:** The Approved Maintenance Programme should be reviewed annually and amended accordingly. Owners/Operators may also choose to contract a CAMO to perform this review task and approve any changes made. The purpose of the review is to ensure that the programme continues to be valid in the light of the operating experience. It should take into account any new or modified instructions to the source data used in the initial writing published by the CAA, EASA, State of Design, Type Certificate Holder (TCH), Supplementary Type Certificate Holder (STCH) and any other organisation that is required to publish such data. When new or revised non-mandatory instructions have been published in the form of Service Bulletins or other similar documents, the Owner/Operator must consider the relevance of the instructions, taking into account the type of operations being undertaken. Before making a decision not to incorporate new or revised instructions into the AMP, careful consideration should be given to the potential consequences of this course of action, as the AMP is based on a 'preventative maintenance' concept.

Where it is decided not to adopt the new or revised instructions, an entry should be made in Chapter 8 of the AMP to record the rationale for this decision and applicable alternative instructions. Following the principles set out in Paragraph 2, the record should provide visibility, accountability and justification. If the type of operation subsequently changes, such as changing from operating Visual Flight Rules (VFR) to Instrument Flight Rules (IFR) or the aircraft utilisation changes significantly, the aircraft Owner/Operator must establish if further revision to the AMP is necessary.