



Transfer of Aeronautical Products between Maintenance Schedules

1.0 Purpose

1.1 Background Maintenance schedules are approved for the use of particular operators, and take into account the operators' individual circumstances and demonstrated reliability. They are not interchangeable between operators. Scheduled maintenance requirements for aeronautical products may also vary within the fleet of a single operator, according to the type of aircraft on which they are installed, or the role in which they are operated. When aeronautical products (either complete aircraft or components) are transferred between inspection programs, it is the responsibility of the operator (where two operators are involved the responsibility is that of the new operator) to review the maintenance status of the products to establish them on the new program.

2.0 Review

2.1 The review procedure consists of a comparison of the content of the previous inspection program with that of the new program. If the programs are found to be identical, no further action is required. Any differences between the two programs will require either a recalculation of the times remaining to the maintenance task(s) involved, an out of phase inspection of the product, or both, as explained in the following paragraphs.

3.0 Differences

3.1 Differences between the two inspection programs will fall under one of the following methods or headings:

- (a) tasks which appear on both programs, but at different intervals;
- (b) tasks which appear on both programs, but use different accomplishment;
- (c) tasks which appear on one program but not on the other.

3.2 The procedure for calculating the times remaining to overhaul, or other maintenance tasks(s) for those items having different intervals on the new program, is given in section 11.

4.0 Both Program Tasks

4.1 Where a task appears on both programs, but the task uses different accomplishment methods, calculation to the new program interval is not permitted, unless the document which requires the inclusion of that task into the maintenance schedule is consulted to ensure methodology does not affect interval. Where the interval is based on methodology, the task will be accomplished at the interval appropriate to the methodology used in the new program.

5.0 Old Program Tasks

5.1 Tasks which form part of the old program but not the new must normally be performed one final time before being eliminated totally by the new program. The tasks may be performed either at the time of transfer or at some later convenient time, provided that the approved interval (of the previous program) is not exceeded (i.e. time remaining to task will be the same on both programs). In some circumstances ESWACAA can, upon application, waive the requirement to perform tasks in this category. Such a waiver would be appropriate in the case of tasks introduced because of a specialized operating role, when the aircraft had operated in that role for only a small proportion of the approved interval. It would not, however, be appropriate in the case of tasks introduced in response to problems which could result from short term exposure to risks. For example, if an underfloor inspection has been included in a program to cater for the carriage of cattle, then use in that role for even a single occasion will necessitate the performance of the inspection.

6.0 New Program Tasks

6.1 Tasks which are required by the new program, but do not appear on the old, can be performed at the completion of the appropriate interval, commencing at the time of transfer (i.e. time remaining to task and approved interval will be identical).

7.0 Airworthiness Limitations

7.1 The prorating procedures described in section (4) above do not apply to items designated in the type approval document as "airworthiness limitations", or "life limits". This will not normally be a problem, since such limitations apply equally to all operators. Certain life-limited items, however, can have different limits depending on the installation or the aircraft role. Because of the critical nature of parts subject to life limits or other airworthiness limitations, when transferring identical life-limited products between programs to which different limits apply, the lower limit shall be observed, irrespective of whether that limit forms part of the old or the new program, unless written approval for some other procedure is obtained from the ESWACAA Director of Airworthiness Inspectorate.

Information Note: *The new operator shall perform an acceptance inspection at the time of transfer. This inspection shall confirm that the aircraft or component is in compliance with airworthiness directives and other mandatory requirements, and provide an opportunity to perform those tasks required by one program only, or those tasks required at such frequent intervals that prorating would be inconvenient. In cases where the transfer involves a complete change of program format (e.g. from a "block" to an "equalized" program, or vice-versa) the*

acceptance inspection can be performed in a number of stages over a period of operation time, to provide the necessary "stagger" for future task performance.

8.0 Records

8.1 At the time of transfer, the new operator shall make entries in the appropriate sections of the technical records recording any recalculations which have been made. For example, a typical engine log entry might read:

"Engine acquired by ABC Airlines 15/2/2010. Previous TBO (XYZ Airlines) 5,500 hrs. Time since overhaul at transfer 3,086 hrs. ABC Airlines approved TBO 4,500 hrs. Prorated time remaining = 1975 hrs. Overhaul at 5061 hrs."

9.0 Subsequent Transfers

9.1 If, after prorating and a period of operation on the new program, a subsequent transfer occurs, either to a third program or back to the original program (as would occur on the termination of a lease, for example) the procedure shall be repeated. If further calculations are required, value Y (see section (11) below) shall be taken as the time(s) remaining to task at the time of transfer, irrespective of the actual hours flown or the previous calculations made. The details of previous calculations are not required, since only the time remaining is being adjusted. The principle involved is that the time remaining to overhaul shall be a direct indication of the unused service life potential of the component.

10.0 Differences in Build Standard

10.1 The procedures required by paragraph (11) are intended for transfers between programs which have been approved for use with identical products. Where the programs have been developed for products having significant differences in build standard, no upward adjustment of the times remaining to overhaul is permitted without specific ESWACAA approval. "Significant" differences are any differences in material specification, dimensions or tolerances, or any differences in modification standard which could affect the potential TBO.

Information Note: *As an example, most engine structural modifications (Air Transport Association (ATA) Chapter 72 dealing with Engine-Turbine/Turboprops) would fall into this category. Operators who are bringing into use products with build standards different to those for which the inspection program was developed, and who wish to adjust the times remaining to overhaul upwards, shall list the differences and forward them to the Principal Maintenance Inspector (PMI) of ESWACAA Airworthiness Inspectorate, together with the prorating calculations, and their assessment of the effect of the build standard differences on the times remaining to overhaul. ESWACAA will assess the proposals, and notify the operator of the maximum time(s) which can be permitted to elapse before the task(s) are performed.*

11.0 Calculations

The procedure for calculating the times remaining to overhaul or other maintenance tasks(s) for those items having different intervals on the new program is known as "prorating." It is based on the following formula:

$$X = Y \times \frac{a}{b} \text{ where:}$$

X = time remaining to task on the new program;

Y = time remaining to task on the previous program;

a = interval between tasks on the new program; and

b = interval between tasks on the previous program.

The following examples will illustrate the use of this formula. Note that the approved intervals (TBOs) of the respective programs are unaffected. It is the times remaining to the task(s) which are recalculated.

For the purpose of these calculations, all times can be rounded out to the nearest hour or, in the case of calendar times, to the nearest complete month.

Example 1

An aircraft is transferred (by sale or lease) between two operators. The first operator's inspection program requires an overhaul of the flap actuator gear boxes at 10,000 hrs. The new operator (who has a short haul route structure requiring more frequent flap extensions) is approved for a TBO of 5,000 hrs. The No. 1 flap gear box has been in service for 6,000 hrs.

Time remaining to task on the previous program (Y) = 10,000 - 6,000 = 4,000 hrs.

Interval between tasks on new program (a) = 5,000 hrs.

Interval between tasks on previous program (b) = 10,000 hrs.

$$\text{Time remaining to overhaul } (X) = Y \times \frac{a}{b} = 4,000 \times \frac{5,000}{10,000} = 2,000 \text{ hrs}$$

Example 2

An operator has a DC-3 and a Canso and keeps one spare engine for use in both aircraft. Approved TBO in the DC-3 installation is 1,000 hrs. Approved TBO in the Canso installation is 800 hrs. The spare engine is required for use in the DC-3 and has 650 hrs. Since overhaul, acquired while installed in the Canso.

Time remaining to overhaul in the DC-3 installation (X) will be:

$$150 \times \frac{1,000}{800} \quad \text{Rounded to nearest complete hour} = 188 \text{ hrs.}$$

Example 3

An operator having an approved time between "C" checks of 2,500 hrs. Obtains an aircraft from an operator having an approved time between "C" checks of 3,000 hrs. Time since last "C" check is 2,150 hrs. A comparison of the two "C" check packages shows the check content to be the same in both cases.

$$Y = 3,000 - 2,150 = 850$$

$$\text{Time remaining to "C" check on new program } (X) = 850 \times \frac{2,500}{3,000} = 708 \text{ hrs.}$$

Where differences exist between the contents of the two check packages, the operator can elect to calculate the times remaining to each of the items involved as a separate task, to be performed out of phase with the rest of the check cycle, or to treat the items in accordance with paragraph (6) above, as appropriate.

Where the two inspection programs are based on different units (e.g. flying hrs. operating cycles or calendar time) all intervals and times remaining to tasks shall be converted to the units used by the new operator prior to prorating. This conversion should be done, where possible, according to the conversion factor expressed in the previous operator's program. Where no such factor exists, the conversion shall be based on the actual experience of the previous operator, as shown in the following example:

Example 4

An operator having an approved time between "C" checks of 12 months, obtains an aircraft from an operator having an approved time between "C" checks of 3,000 hrs. Aircraft time since last "C" check is 2,150 hrs.

Step 1. (Convert to calendar times)

Previous operator's utilization (past 12 months) = 2,365 hrs.

$$\text{Therefore monthly utilization} = \frac{2,365}{12} = 197 \quad (\text{rounded})$$

$$\text{Approved "C" check interval in calendar time} = \frac{\text{interval in hrs}}{\text{monthly utilization}} = \frac{3,000}{197} = 15 \text{ mths} \quad (\text{rounded})$$

$$\text{Time remaining to check in calendar time} = \frac{\text{time in hours}}{\text{monthly utilization}} = \frac{850}{197} = 4 \text{ mths} \quad (\text{rounded})$$

Step 2. (prorate)

New operator's time remaining to "C" check $= 4 \times \frac{12}{15} = 3 \text{ mths}$ (rounded).

**Approved by Director General
Civil Aviation Authority**