A review of the implementation of Part M
in respect of European sailplanes and motor-sailplanes
by
The Board of the European Gliding Union

INTRODUCTION

EC216/2008 : Part M – Maintenance and Continuous Airworthiness of non-complex aircraft, was enactment into law on 28 September 2009. The European Gliding Union (EGU) has conducted a survey across all its subscribing nations, investigating the issues and challenges that faced national sporting associations in the maintenance and continuing airworthiness functions for the sailplane and motor-sailplanes under their care. Replies were received from 18 nations, providing a comprehensive review of the implementation challenges experiences of a wide sample of nations of differing sailplane populations, and with different extant national rules and practices.

While sporting sailplanes represent a minority leisure and sporting sector, wholly outside Commercial Air Transport (CAT), they are also the simplest form of aeroplane that was identified as appropriate for regulation under Part M. Indeed during the formulation of Part M, real concerns had been raised over the ability to achieve a proportionate regulation for this simplest category of airframes. It should additionally be noted that approaching 20,000 sailplane airframes, of well over 200 types, are operational over the EU, and representing possibly 10% of all licensed airframes in Europe. Before the enactment into law of Part M airframes were operated largely by nationally recognised, voluntary enthusiasts under delegation from their NAA’s, in an environment that had been demonstrated and accepted by EASA to be acceptably safe by extant standards. Thus the application of Part M to this sector represented the greatest challenge to the breadth of it applicability.

SCOPE

The EGU questionnaire was designed to cover all aspects of initial certification, continuing airworthiness (CA), maintenance and personnel licensing, the latter under Part 66. The responding contacts were typically individuals within the National Sporting Association (NSA) who have accepted either voluntarily, or in some case part time professionally, the responsibility for the previous airworthiness standards in their nation, and those going forward under EASA. While some quantitative data have been gathered regarding costs and scale of management, this report concentrates on implementation issues involving both the rule as promulgated, and the role of the National Aviation Authorities (NAA’s) in interpreting that rule for implementation in each nation.

The nations replying to the questionnaire manage widely different numbers of registered sailplanes: from Germany with over 8000 airframes, to Luxembourg and Iceland (both with less than 20 airframes). In analysing the response this report identified 3 separate classes:

1. 'Larger association' [8], who have typically had in depth experience in managing airworthiness and/or maintenance in their nation and who had an experience and an existing airworthiness understanding with their NAA.
2. 'Smaller associations' [7] who had previously operated in association with their NAA who are now being require to engage with that NAA in the interpretation and implementation of airworthiness and/or maintenance system.
3. 'Central government reliant' [3] (SP, IT and GR) These nations have historically relied directly on national government departments and agencies for the provision of airworthiness services and maintenance licensing. Most of these nations expect to continue to rely on these government bodies for these services under EASA rules.

The latter group of 3 nations have been largely unaffected by Part M because of their historical,
direct dependence on their NAA. That said, two of these three have experienced serious difficulties during the latter part of 2009, when the NAA's concerned became aware of their obligations under Part M. In these two nations sailplanes were grounded for a limited period while these NAA's took stock of the Part M implications.

EXPERIENCES WITH SUB PART G – CAMO IMPLEMENTATION

Larger associations with existing relationships with their NAA's, [7] DE, FI, FR, GE, PL, SE, SW and UK: typically nations with numbers of registered sailplanes in excess of 200).

Most of the National Sporting Associations (hereafter 'associations') of these nations previously held some level of national responsibility for airworthiness and/or maintenance before the transition to the EASA Part-M rule. All have completed negotiations, with varying degrees of success, with their NAA's to secure approvals under Sub-Part G - CAMO but, in only two cases, sought further approval under Sub-Part F – Maintenance. This section now considers only the Sub-Part G experience. Maintenance and personnel licensing will be considered in a later sections.

Only one national association has secured the full privileges that it had previously enjoyed under its original national system, by delegation from that NAA. The rest have been required to accept a significantly increased liaison and dependence on their NAA, including the ongoing commitment to submit to periodic audits, often at their own costs. For all nations, negotiations took place on the basis of an 'Exposition' or Airworthiness and/or Maintenance Procedures' document (AMP) which was usually developed from existing national approval documentation. The level of detail required in the Exposition appeared to be highly variable between nations. While in most cases a workable approval was secured by the deadline of 28 September 2009, considerable ongoing review activity continues to the present, with detailed privileges still to be defined. The cost of developing an Exposition was typically estimated at around 100KEuros, not including: (1) the time provided freely by volunteer drafters and reviewer and (2) the cost of attending negotiation meeting with the relevant NAA. Some nations assembled the cases for Sub-Parts F and G simultaneously, providing some efficiency savings. Nevertheless the scale of the whole negotiation has placed substantial strain on a volunteer workforce in non-profit making sporting associations.

Almost all the responders in this category have sought Sub Part G approval adopting the 'Uncontrolled Environment', within which the final responsibility for the airworthiness of an airframe remained with the owner. All considered that the level of corporate liability that would be demanded of their association under the 'Controlled Environment' was not realistic or economically sustainable under their charter as a sporting body. Further, the ability to provide the required support measures for a 'Controlled Environment' were not economically realistic using the limited funding and workforce available to them. Using this 'Uncontrolled Environment', the cost of ARC renewal has remained substantially unchanged, apart from additional levies gathered from NAA's in some cases.

Another consequence of the choice of the 'Uncontrolled Environment' is the need for education and training at the owner level, to make him aware of his responsibilities within the process. Many association had previously provided some form of Occurrence Reporting facilities in their existing measures and have continued to do so on an informal basis, exceeding the actual requirements of the 'Uncontrolled Environment' (Mandatory Occurrence Reporting is a requirement of the Controlled Environment).

Ongoing issues with NAA representatives, regarding operating experiences, were:

- The Generic Maintenance Programme GMP – its creation, customising and authorisation
- Complexity and cost of external audit process/schedule involving the NAA
- Access and cost of NAA support services and the variable response times.
- Lack of sufficient posts in a small HQ organisation to provide required levels of role
segregation.

- Need to engage additional independent quality staff on at least a part time basis
- Training of working level staff and in the field
- The detailed application of Pilot/Owner maintenance measures

Generally the transition process to CAMO approval was achieved with reasonable effectiveness, albeit requiring a substantial effort in reorganising small headquarters teams and a great deal of effort, much of it by volunteers. Undeniably, documentation has improved, which will presumably clarify the audit trail subsequent to any accident/incident. That said, most in this sporting sector would have preferred to deploy their scarce voluntary resources on proactive preventative safety measures. The gliding movement is unable to identify any positive impact on actual air safety, particularly given that safety standards were already accepted by NAA’s/EASA as being at least satisfactory by their own metrics.

Finally, the imposition of two additional, formal levels of oversight (NAA and EASA) has lead to a serious loss of self esteem within a community that previously prided itself on it self sufficiency, correctness and autonomy, not to mention additional cost.

**Smaller Associations without access to a convenient CAMO [7] (BE, GR, IC, IR, LU, NO and SK) - typically smaller nations with sailplane number of 200 and below).**

These associations broadly shared the above issues, but the impact has been much more severe, in some cases, to the point of systemic failure. As the overhead costs involved in mounting a CAMO do not scale with the number of sailplanes registered, CAMO approval remain economically unrealistic for these National Associations. While previously accepted as being capable of this role, they are struggling to establish themselves within their limited resources as non-profit making sporting bodies. There are currently no CAMO’s capable of economically accommodating sporting sailplanes in BE, GR, IC or LU: further in IR, NO, SK and Switzerland, the sporting associations are struggling with the consequences of CAMO application. While the total number of sailplanes that are implicated is not large (around 1000), this represents an unsought and unwelcome inconveniences and complications in these nations. Individual cases vary, but it is clear that because of the sport/leisure context and low airframe numbers, sailplanes occupy a place of low priority in smaller NAA’s. Informed interpretation of the rule’s intention is sometimes lacking. Indeed, several reporters have noted that their Associations appear better informed on EASA Part M requirements that the officials of their NAA’s. Further, the largest increases in NAA charges for both Exposition approval and issue/renewal of ARC’s have been experienced by these nations. Detailed experiences during exposition negotiation suggest that the following areas are often misunderstood by NAA’s reviewing applications:

- Right to adopt Generic Maintenance Programmes for simple aircraft of this weight class
- Agreeing the accreditation of qualified maintenance and CA personnel (ARC signatories)
- Division of responsibilities in small organisations, particularly Quality Audit/Review
- Procedure for issue and renewal of ARC’s within the CAMO
- Right to adopt simplifying measure including Pilot/Owner maintenance

The only remaining alternatives open to sailplane owners in these nations are either (1) to rely individually on NAA support which may, or any not, be reliably or economically available or (2) to travel across boundaries for CAMO services. This inconvenience, loss of autonomy and self sufficiency is represents a major loss of privilege in these nations. This represents a serious loss of self sufficiency and autonomy and credibility with the Association’s membership.

**EXPERIENCES WITH SUB PART F – MAINTENANCE**

To date, only Germany and UK have sought and secured Part M Sub Part F approval on behalf of
their members and operatives. (Note that the combined population of sailplanes in GE and UK represents over 50% of the European total).

In most nations compliance with Sub Part F has been treated with lower priority by National Sporting Association because in many cases a national supplier base has existed through established Part 145 or 'M' organisations and licensed engineers under Part 66. Even so, many Part 145 and ‘M’ organisations and Part 66 personnel albeit well versed in larger aircraft, are not equipped to handle the simple maintenance tasks required for a sailplane in an economical manner. Only in nations with a substantial populations of sailplanes have the Associations traditionally managed a community of maintenance operatives functioning under national dispensation or approval from NAA’s. Only two other national associations (other than UK and GE) are seriously considering their position on this.

Most nations report that the Sub Part F arrangements for Pilot/Owner maintenance have been greatly facilitated simple, unscheduled, in-the-field maintenance. However it has been reported that some NAA's have withheld these privileges, presumably for local reasons. Many nations would also like to see wider interpretation made concerning arrangements for Complex Task authorisation and Component maintenance. For example many simple flight instrument reconditioning and calibration facilities are becoming disenfranchised. Finally the 'Standard Parts' NPA, whereby commercial equipment can be carried in non-CAT aircraft, is largely ineffective due to the requirement in many nations to comply with Part 21 measures for installation approval (there is a separate EGU paper on this).

Many nationally accredited individuals have provided the basic maintenance function to date, but they have only held limited authorisations. It is premature to comment on the degree of success in this area, while Sub Part F continues to operate under national dispensations and we are still awaiting the formal revision and issue of Part 66. Nearly all nations held strong concern that 'transition' arrangements for Part 66 'L' licence should enable a transition for these individuals in an appropriate manner - the so-called 'Grandfather Rights' of existing engineer/mechanics. Many further noted a reduction of interest and enthusiasm in individuals concerned with the mounting issues of liability, and growth of validation paperwork both in respect of maintenance practice and sustaining their own approvals. Future, heavy demands on retraining will further exacerbate this situation.

**REVIEW and STUDY CONCLUSIONS**

Sailplanes are an example of a very simple airframe. Very few commercial organisations who can to take up the required approvals in this sport sector while continuing to offer previous economic rates. It was recognised by EASA that, in many nations, National Sporting Association could take up this role. While this demanded a major effort on the part of largely volunteer workforce, most NSA took up the challenge to effect Sub part G approval application and to reorganise procedures and practices.

While some, typically the larger nations, have been able to justify this expense, the complexity of the rule and costs of implementation has found nations with smaller volumes of sailplanes unable to justify the overhead of approval application. These nations have, and will continue, to suffer significant hiatus and continuing inconvenience, even manifested in the economic necessity of securing appropriate certification renewal in other member states. Economies of scale continue to work against them and many have to date foundered through communication failure and resource limitations including spiralling cost.

The costs associated with preparation and negotiation of the necessary Sub Part approvals, both in voluntary time and hard financial resource, are considerable. Only where National Sporting Associations have control of maintenance supervision and Continuing Airworthiness functions (inc. ARC renewal) have these 'operating' costs been reasonably contained by drawing on this experience and utilising modifications of existing documentation.
Where applications for approval were successful there has been a major escalation in NAA oversight/audit, usually at the Association's expense, and massive increases in volume of office and paperwork. While improvements in documentation standards are recognised, no reporters saw this as a direct contribution to air safety. In some cases it is considered that the new system interfaces less well than the more holistic safety systems which previously operated within nations. This could be seem to represent a decline in overall safety standard. While audits tend to concentrate on the details of individual paperwork the EASA reporting system seems unable to manage genuine issues in an acceptable timescale.

Some NAA's have not shown leadership or in some cases, even lack an understanding of the new regime. National implementations lacks consistency or clear guidance. While perhaps understandable, given the low priority attached to the sport/general aviation sector compare the CAT, this suggests that implementation time-scale was unrealistic. EASA should bear this in mind when implementing future initiatives in this area, such as the upcoming Part 66 revision on personal licences.

A 'softer' issue associated with all this regulation is the impact on the enthusiasm, motivation and morale among the owners and stakeholders. Like any sporting activity, gliding is a sport where individuals seek fulfilment of their personal aims while taking a pride in their contributions achievements with the sport. In this respect this sector is wholly different to the commercial sector, albeit that it may be underpinned by commercial services. The movement as a whole feels dis-enchanted and dis-enfranchised by these measures that are seen as an intrusion on responsible personal freedom. The wider impacts of these regulation on all those who serve the gliding movement in a largely voluntary manner is impossible to estimate, but they have serious implications on the future enthusiasm for gliding in particular and sport aviation in general.

Overall, the lack of consistency and failure to appreciate the need for an appropriate level of regulation in this previously self-sufficient sector has demonstrated a systemic failure in meeting EASA's top level objective of a standardised approach to regulation in Europe. While the adoption of the European Light Aircraft formula into the Part M rule has made the code broadly workable in a larger national association, the detailed implementation practices and charges are at least as variable now as they were in previous national regulation. In nations with a smaller populations of sailplanes the FASA Part M process remains uneconomic and unworkable due to dis-proportionate overheads costs in seeking the national approval required by the rule.

RECOMMENDATIONS

Drawing these comment together one finds two fundamental areas where further action is needed:

1. Reduce cost and complexity of gaining approval for small associations and companies.

While the Part M requirement does not set standard and content for the approval exposition, NAA's clearly expect a level of documentary depth and detail commensurate with Commercial Air Transport organisations much of which is inappropriate or irrelevant. Model expositions released by EASA and NAA's are over ambitious and effectively a discouragement to proceed. The plethora of supporting documentation supports this ideology. Given that the rule is now extant, EASA should at least provide Guidance Material to NAA's explaining the particular operational constraints facing of ELA aircraft and associations, and stressing the need for a proportionate response. For this class of aircraft the concessions for 'smaller organisations' eg. the 'one-man-CAMO' and the 'quality review' are inappropriate and unworkable, mainly because there is such a large number of very simple aircraft. Many Part M clauses are uniquely based of numbers of airframes handled, without consideration of complexity, again an example of 'ONE SIZE DOES NOT FIT ALL'.

All applicant should entitled to the full facilities of Part-M: for example, the right to operate a generic
maintenance and manage generic programmes (M.A.302) right often withheld by NAA's seeking type specific schedules for multiplicities of various design variants, and also requiring inspection type ratings that are wholly inappropriate in this ELA weight class. The EASA standardisation teams should be briefed to ensure that 'local' interpretations do not stand in the way of the exercising of full privileges.

2. Reduce the multiple levels of oversight/audit and associated costs

The multiple layers of audit function provided for in Part M are excessive for these simple classes of aircraft if rigorously invoked. At the base level the continuing airworthiness function itself can be seen as a historical audit of all work done on a given airframe. The conducting CAMO is then required to maintain an internal audit function via independent quality control. In a national association this can only be done independently by hiring a paid expert outside the current management. The CAMO is also expected to submit to national audit by the NAA. While not obligatory this function is usually invoked at cost to the organisation/association. Finally the NAA itself is open to audit by the EASA standardisation team. Thankfully this last function cannot be charge to the CAMO. It might also be noted that under the 'Uncontrolled Environment' favoured by sport aviation, none of these organisations are actually responsible for the airworthiness of any individual airframe: this is down to the owner, provided of course, he operates within the limits of the TC holder's advice. Further development of GM/AMC might be appropriate particularly in the context of appropriate volume of audits.

This plethora of the processes entrain cost and complexity, and are, in total, excessive for this class of airframe and operation. EASA process has now found roles for 'pilot-owner' maintenance sign-offs, work orders, individualised maintenance schedules, job sheets, complex repair authorisation procedures, certificates of releases to service and separate ARC documentation all, to a greater or lesser extent, repetitive, self duplicating and requiring separate collation and reconciliation. Previous national systems operated safely with a minimum of paperwork. In that era most of this information was entered in a single log book, surely the best centralised focus for this activity.

While the Part M rule could be operated in a relatively relaxed manner, the extent of oversight demanded by many NAA's has massively increase the workload. We believe that the rule change process invites overly intrusive behaviour by NAA's, leading to significant increased costs where NAA's operate cost recovery regimes. While EGU can use its offices to facilitate a better understanding of the intent of the requirement, its leverage is strictly limited by the principle that compliance is required to the satisfaction of individual NAA's within the nations. Unlike EASA, EGU has no remit to involve itself with national interpretations. Further we feel it is the role of the EASA Standardisation team to make sure national regulators are aware that unless there are real concerns on safety these measures should be imposed responsible, encouraging self managing organisations, be they commercial or non-profit making national associations.

Finally, these Part M experiences highlight the future need for care and guidance during an appropriate implementation period when mounting of the revision of Part 66 on personal licensing. This second step in regulating this whole area is just as significant in ensuring an effective regime for simpler aircraft classes including sailplane and the 'L' licence.

The EGU Board
1 June 2010