Flight Documentation

Availability

In line with current CRM and safety standards, air crew should have access to pertinent Flight Documentation at all times before any given flight, for the purpose of individual flight preparation. This may be either in the form of personal manuals or software.

On board the aircraft all critical documentation (e.g. SID, STAR, check-lists etc.) should be readily available to all cockpit flight crew members. In the case of on-board electronic flight information and library systems, back-ups must be provided.

Note.- Unless the electronic flight information and library system is a certified redundant system, the back-up should be a hard copy.

Amendments

The Flight Documentation should be kept up-to-date in accordance with all the relevant sources of information (NOTAMs, FARs, Manufacturers technical bulletins, etc.)

The responsibility for collection and distribution of relevant information as well as its regular update has to be clearly assigned and the process regularly checked as part of the operator's quality assurance

The validity of flight documentation should be clearly marked i.e. the date of issue and the date of applicability if other than that of issue. Applicability for various aircraft types (minima etc.), as well as for various operators under the same amendment service, should be clearly marked and defined.

Electronic database updates should also be accompanied by documentation where applicable i.e. FMS, clearly defining all the changes in the current version.

In the case of short-term or rapid data changes (i.e. routings etc.) before a new database can be changed and published, the crew should be made aware of the errors or discrepancies. Every effort should be made to keep the database as up-to-date as possible.

However when amendments overruling electronic checklists, especially in the case of new aircraft introduction, become so numerous so as to render the original concept unusable, increasing the risk of error, it is recommended to revert to paper checklist completely until a error-free version of the electronic checklist is available.

Quality

Flight document format (for use in the cockpit) should be such that it can be easily handled and used. It should be designed for the space available with respect to the various phases of flight.

In case of paper documentation, factors such as the cockpit lighting, paper quality, the characteristics of printing-method used and degradation of readability due to photo-copying should be taken into account. Print-outs in red should be avoided.

In the creation of checklists, displays, data link messages, etc. the use of plain language is desirable. It should be noted that a majority of users are not of English mother-tongue and efforts should be made to avoid confusing or ambiguous wording.

Training

Air crew training should include the study and thorough knowledge of the Flight Documentation presentation on hand. However, good Flight Documentation cannot replace currency, training and experience.

Recurrent training should take place using to the extent possible, all the Flight Documentation used in a normal flight.

Familiarity with Abnormal/Emergency Checklists should be trained in the simulator. In an Abnormal/Emergency situation both crew-members should be able to select and use the appropriate checklist, without diverting a large amount of attention locating that checklist.

If electronic documentation is to be used during normal / abnormal operation, simulators for initial or recurrent training shall be equipped with the same electronic device (EFB) as used during regular operations.

Any problems with the Flight Documentation identified as a lack of ergonomics, is potentially hazardous in a stress situation. Immediate steps should be taken to correct and improve the documentation in question.

Operators and manufacturers should have a channel open to criticism/suggestions regarding Flight Documentation from crew members.

NOTAMS

NOTAMs being the source of short term information for air crews makes them a very important part of flight planning. These should be easily accessible, clearly readable, organised logically and kept scrupulously up-to-date.

The operator with an in-house amendment service would put the latter to good use by tailoring the NOTAMs, such that air crews can rapidly access the relevant NOTAMs for each flight, thus avoiding the tedious task of reading through all NOTAMs, including irrelevant ones, finally missing the one essential piece of information.

NOTAMs presented to crews in relation to GNSS satellite outages should be relative to the effects these outages have on essential navigation. In particular, it is undesirable to present crews with large numbers of irrelevant NOTAMS at the pre-departure stage of duties. Particularly if these NOTAMs have not been graded for operational use.

Flight plans

Operators should ensure the readability of the operational Flight Plan print-outs to reduce the possibility of inserting incorrect waypoints. Where standards do not exist on the use of the operational Flight Plans an operator should provide completed examples to promote standardization.

On computer flight plans, important figures such as basic planning data should be printed clearly and always in the same place in a format that is clearly readable and unambiguous under all lighting conditions.

Deviations where actual data is not available and computer default values used, should be clearly marked as such.

All routings, way points, tracks, distances and estimated times should be clearly indicated in standard units of measurement. Figures should correspond to exact values with no additional dots, blanks or 'zeroes'' to fill empty computer print columns.

For all organised track systems and random tracks a chart or table should be produced to indicate not only the planned track, but all reasonable track and distance combinations. All aircraft, including military and general aviation should be provided with this chart/table.

Note: It is the usual practice of operators to provide only the computer flight plan for the track filed and the original track message. Therefore there is often no detailed track and distance information available to the pilot in the event that the route clearance is different from the track filed in the flight plan.

Route Manuals

The Route Manual should consist of a reference section in which the pilot can find all the information relevant to any part of the flight, planned or unplanned (re-clearance).

The DEST/ALTN part of the RM should be divided (where feasible) into separate General Aerodrome, SID, STAR and Approach pages.

In the interest of safety, acquired experience regarding en-route operations and the various destinations should be shared among the crews through Route Briefing pages or notes.

Electronic Library Systems (ELS) based route and DEST/ALTN charts should make full use of the possibility of selecting and superimposing various data according to needs Capability should be provided to display terrain information.

En-route charts should be drawn to scale with the routing geographically represented. Communication frequencies, notes and information of importance should be included.

ELS should have a separate database from the FMS to permit cross-checking of navigation data.

Aerodrome General pages should include enough information and detail to make operations safe at an otherwise unfamiliar airport.

Airport Moving Map Displays (AMMD) with display of own ship position, approved by the State of the operator, can increase situational awareness during taxi.

SIDs, STARs and APP procedures for each runway should be on separate pages.

Terrain and obstacles should be clearly marked.

The approach being the flight phase where the aircraft descends towards the terrain, utmost care should be taken that layout and content of charts used guarantee readability and situational awareness. To this end use of colour is recommended.

Topography and obstacles should be presented in a manner that the pilot can instantly recognise and interpret. Individual spot heights should not be used as they fail to convey the character of the terrain.

A profile section should clearly depict the relationship between the approach path and the terrain, highlighting any dangers within the approach sector and intermediate minima along the approach path.

Headings, altitudes, minima and times should be clearly displayed, leaving no doubt about the procedure of the approach being flown.

Normal checklists

These should be of a practical size and layout for ease of use and reference.

Layout and flow should correspond to the 'geography' of the cockpit to simplify the execution of checklist actions and reduce the risk of omissions and incorrect switching.

Checklists should be optimised to the degree of usage within a specific time span. For example, lengthy and complicated 'cockpit preparation' checklists, should be condensed to a transit version on short-haul operations where turn-round times are short to avoid undue stress and fatigue.

Abnormal/Emergency checklists

Separate 'Emergency' and 'Abnormal' checklists are recommended for ease of use.

The checklist index must ensure quick and sure reference. On EDS equipped aircraft the wording of the problem/failure alert must be clearly titled in the relevant checklists. Similar alert titles leading to confusion should be avoided.

Depiction and layout should be clear and logical corresponding to the sequence of actions and switching necessary to handle the relevant trouble or failure. 'Notes' referring to consequences or options, within the checklist should precede the action point.

Language used should be clear and concise, easy to understand by all trained users in any level of urgency or stress. The inevitable use of double negatives in some current checklists, should be highlighted and users cautioned by a note or colour coding.

Memory items should be kept to a strict minimum.

Manuals

Care should be taken to create reference manuals that impart enough system knowledge to air crew to keep Abnormal/Emergency Checklists simple and clear, avoiding lengthy explanatory notes.

They should not include too much information of little consequence to the flight crew, for example descriptions of functions or schematics over which air crew have no control in flight.

For training purposes, consideration should be given to including enough information to equip the pilot with basic knowledge necessary to understand why a system behaves in a certain way.

Wherever colour coding is an integral part of flight instrumentation, the reference manuals should be printed with the corresponding colours.