

Subject: EASA Operations Rulemaking

Meeting: OPS.001 Rulemaking Group Meeting Jan. 8, 2007 and Non-Commercial Operations Sub-Group Meeting Jan 9 & 10, 2007

File: EASA

Reported by: Ray Rohr

Summary:

The OPS.001 Rulemaking Group met on Jan. 8 to discuss safety management systems and how SMS concepts should be integrated into the OPS rules. After a review of SMS concepts it was agreed that each Sub-Group would identify SMS issues related to that regulatory sector and the Rulemaking Group would then address the issue on a macro basis. The [minutes of that meeting](#) are linked to this report.

Issues discussed at the fourth meeting of the Non-Commercial Operations with Complex Motor-Powered Aircraft Sub-Group included:

- the Regulatory Impact Assessment (RIA) process,
- Initial discussions of the regulatory oversight of non-commercial operations,
- SMS requirements for non-commercial operations, and
- The importance of informing stakeholders on the implementing rules as soon as possible.

Work on these items will continue in the next meeting.

The Sub-Group reviewed CFR Part 91 K (the FAA rules on fractional operations) in detail and discussed how these rules could be used in the development of PART OPS 2.

The Sub-Group also discussed the three Working Papers that Ray Rohr had prepared on

- [Operations Manuals](#),
- [Mass and Balance](#), and
- [Fatigue Countermeasure](#).

Updated copies of those Working Papers are linked to this report.

The Sub-Group also discussed the need to augment their expertise by the addition of a member with expertise in managing a corporate flight department and with hands on SMS experience. Such a request was made to the Core Group who supported it and asked EASA to go back to the list of nominees and attempt to identify someone with the expertise.

A copy of the [draft meeting minutes](#) are linked to this report

The next OPS.001 and Non-Commercial Operations meeting is on February 13 & 14.

Implication for Business Aviation:

This is a very important ongoing project with a number of issues that must be resolved. Fortunately progress to date has been positive.

Decisions Required:

Nil at this time.

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European Aviation Safety Agency

TASK OPS.001 RULEMAKING GROUP

MEETING MINUTES OF

8 JANUARY 2007 MEETING ON MANAGEMENT SYSTEM

11.00 H – 16:00 H

EASA PREMISES, COLOGNE

Attendees:

Thierry Allain, DGAC France
Svein Austheim, CAA Norway
James Black, ECOGAS
Karl Brady, ECA
Ragnar Boge, CAA Sweden
Cliff Edwards, EBAA
Inger-Helene Enger, ETF
Michel Gaubert, Eurocopter
Roano Grandi, EHA
Mike Hamlin, ECOGAS
Joel Hencks, EAS
Pekka Henttu, AEA
Louis Hucher, Dassault
Ornulf Lien, CAA Norway
Mario Moura, INAC Portugal
Dick Nederlof, CAA Netherlands
Peter Norton, EHA (observer)
Geoff Parker, UK CAA
Ray Rohr, EBAA
Dirk Sajonz, LBA
Luigi Simoncini, ENAC Italy
Mark Wilson, ECOGAS
Daniela Defossar, EASA Rulemaking Officer
Betty Lecouturier, EASA Rulemaking Officer
Luis Cardoso Ribeiro, EASA Rulemaking Officer
Maria Algar Ruiz, EASA Rulemaking Officer
Eric Sivel, EASA Deputy Head of Flight Standards
Micaela Verissimo, EASA Rulemaking Officer

Excused:

Douglas Carr, GAMA
Henryk Krasowski, CAA Poland
Patrick Magisson, ECA
Josef Maurer, ETF
Manuel Mayer, FOCA Switzerland
John Miller, UK CAA
Jacob T. Pedersen, IAOPA

Ronald van Put, CAA Netherlands
Stefan Wolf, ECA
Herbert Meyer, EASA Rulemaking Officer

1. Mario Moura opened the meeting and welcomed all participants.
2. Daniela Defossar presented the agenda. Mario Moura asked for an additional agenda point fractional ownership. The agenda was adopted with this change.
3. Some group members raised the issue of complementing certain subgroups with additional expertise. Daniela Defossar asked group members to discuss these issues within the subgroups first and forward the request to the core group. If the request is supported by the core group it will be passed to EASA for AGNA/SSCC consultation and decision.
3. Ray Rohr gave a presentation on the ICAO Safety Management System (SMS) outlining the following:
 - March 2006 ICAO DGCA Conference and its recommendations to States to implement SMS across all safety-related disciplines, subsequent changes to the SARPS and publication of the SMM;
 - the reasons and benefits to introduce such SMS;
 - SMS components: safety policy and planning, culture, accountability and responsibility, risk analysis, document management, safety-risk management, safety analysis, safety measurement;
 - in summary, SMS is a logical business management process that must be appropriate to the size and complexity of the operation and must be compatible and integrated with other management systems.
4. During the following discussion the following issues were raised:
 - the ICAO requirement on States to establish a management programme;
 - the management system as integrated system within the operator organisation;
 - tools to evaluate management systems;
 - existing and new elements within in the ops regulations;
 - legalistic and prescriptive regulation vs. a simple system with certain benefits that persuades operators to actively implement it instead of buying something "of the shelf";
 - impact on small (one man) operations with complex motor-powered aircraft (turboprop).
5. Members agreed that subgroups should identify management system issues specific for their field of ops regulation and forward them to the authority subgroup for consideration before the meeting in March. The authority subgroup will draft common requirements and will try to deliver them for the March meeting for review by the subgroups. It was clarified

that the management system is a total system approach for the operator and includes the complete operator organisation.

6. The group discussed the necessity of further full group meetings. One common subject identified was safety oversight. Members opined that subgroups should coordinate between themselves. The core group should address interface issue for all subgroups first and decide if a full group meeting is needed.

7. The group discussed the definition of fractional ownership and was briefed on the ECAC definition. The subgroup on non-commercial operations with complex motor-powered aircraft will continue to draft applicable requirements.

DDE
12/01/2007

OPS 2A9.020 General Rules for Operations Manuals**OPS 2A9.020 General Rules for Operations Manuals**

(a) An operator shall provide, for the use and guidance of personnel concerned, an operations manual containing all the instructions and information necessary for operations personnel to perform their duties.

(b) An aircraft operator shall ensure that the contents of the Operations Manual including all amendments or revisions, do not contravene the conditions contained in the Declaration made to the Competent Authority or any other applicable regulations.

(c) An aircraft operator shall ensure that all operations personnel have easy access to a copy of each part of the Operations Manual required to carry out their duties including when on board the aircraft.

(d) An aircraft operator shall ensure that the Operations Manual is amended or revised so that the instructions and information contained therein are kept up to date. The aircraft operator shall also ensure that all operations personnel are made aware of the changes that are relevant to their duties.

(e) An aircraft operator must ensure that the contents of the Operations Manual are presented in a form which can be used without difficulty and that the design of the manuals observe Human Factors principles.

(f) An aircraft operator may present the Operations Manual or parts thereof, in a form other than on printed paper. In such cases, the accessibility, usability and reliability must be assured.

OPS 2A9.025 Operations Manual - Structure and Contents

Operations manuals may be compiled in accordance with an industry code of practice. Also see AMC OPS 2A9.025

AMC OPS 2A9.025 Operations Manual - Structure and Contents

1. General

An operations manual, which may be issued in separate parts corresponding to specific aspects of an operation, should include the instructions and information necessary to enable the personnel concerned to perform their duties safely. Operations manuals will vary in detail and complexity in accordance with the complexity of the operation and of the type and number of aircraft operated. A flight department with several turbojet aircraft will have a more comprehensive operations manual than will be required by an owner operated small turboprop aircraft.

The operations manual should be such that:

- a. all parts of the manual are consistent and compatible in form and content;
- b. the manual can be readily amended;
- c. the manual contains an amendment control page and a list of the pages that are in effect; and
- d. the manual has the date of the last amendment to each page specified on that page.

An operator should provide a copy of the appropriate parts of its operations manual, including any amendments to that manual, to each of its crew members and to its ground operations and maintenance personnel.

An operator may place a copy of the appropriate parts of its operations manual in each aircraft that it operates, instead of providing a copy to each crew member. Every person who has been provided with a copy of an operations manual should keep it up to date with the amendments provided and should ensure that the appropriate parts are accessible when the person is performing assigned duties.

An operator should include in the company operations manual a description of the process to allow deviations from the provisions contained in it and specify the person who may approve such deviations. Any deviation should identify the associated conditions under which it is permitted or required, and should be based on a risk assessment process.

The design of the company operations manual and all associated manuals should observe Human Factors principles.

Note.- Guidance material on the application of Human Factors principles can be found in the ICAO Human Factors Training Manual (Doc 9683).

2. Operations Manual Contents

The operations manual may be based on an industry code of practice and should at least contain the following information

- a. table of contents;
- b. amendment control page and list of effective pages, unless the entire document is re-issued with each amendment and the document has an effective date on it;
- c. duties, responsibilities and succession of management and operating personnel;
- d. operator safety management system;
- e. operational control system;
- f. MEL procedures (where applicable);
- g. normal flight operations;
- h. SOPs;
- i. weather limitations;
- j. flight and duty time limitations;
- k. emergency operations;
- l. accidents/incidents consideration;

OPS 2A9.020 General Rules for Operations Manuals

- m. personnel qualifications and training;
- n. record keeping; and
- o. a description of the maintenance control system.

3. Operations Manual Structure

An operator may structure their operations manual as they deem appropriate. One option is to follow the format specified in OPS 1. In that case the following may structure may be used.

Part A. General/basic

- 1. Administration and control of operations manual;
 - 1.1 Table of contents, and
 - 1.2 Amendment control page and list of effective pages, unless the entire document is re-issued with each amendment and the document has an effective date;
- 2. Organisation duties, responsibilities and succession of management and operating personnel;
- 3. Operational control system;
- 4. Operator safety management system;
- 5. Personnel qualification requirements;
- 6. Flight time limitations;
- 7. Weather limitations;
- 8. Standard operating procedures;
- 9. Security;
- 10. Handling of accidents and occurrences; and
- 11. Maintenance control system.

Part B. Aeroplane operating matters type related

- 1. Normal procedures;
- 2. Abnormal and emergency procedures; and
- 3. Minimum equipment list (where applicable).

Part C. Route and aerodrome instructions and information (If applicable)

Part D. Training

- 1. Personnel training and competency programs; and
- 2. Record keeping.

Standard Operating Procedures

Standard operating procedures are a very effective safety management tool in multi-crew aircraft and equally beneficial in single pilot operations. It is recommended that an operator establish and maintain standard operating procedures for each type of aircraft that is operated. Information on development of a SOP manual is contained in Attachment A.

Attachment A Standard Operating Procedures

The Standard Operating Procedures (SOP) should contain the following information for each type of aircraft operated. Where there are significant differences in equipment and procedures between aircraft of the same type operated, the SOP should show the registration mark of the aircraft, it is applicable to. The SOP may be a stand alone document or may be incorporated into the Company Operations manual.

1. *Recommended Contents of a SOP*

1. table of contents;
2. list of effective pages;
3. amending procedure;
4. communications;
5. crew coordination;
6. use of check lists;
7. standard briefings;
8. standard calls;
9. radio procedures;
10. normal procedures
 - a. battery/APU engine starts;
 - b. taxi;
 - c. take-off and climb;
 - d. cruise;
 - e. descent;
 - f. instrument approach procedures and circling, arrival and departure procedures at controlled and uncontrolled airports;
 - g. landing;
 - h. refuelling with passengers onboard; and
 - i. use of onboard navigation and alerting aids;
11. abnormal procedures
 - a. rejected take-off;
 - b. missed approaches and bailed landing procedures;
 - c. stall recovery;
12. emergencies
 - a. pilot incapacitation; (2 pilot crew);
 - b. bomb threat and hijacking;
 - c. engine fire/failure/shutdown;
 - d. fire, internal/external;
 - e. smoke removal;
 - f. rapid decompression;
 - g. flapless approach and landing; and
 - h. check lists.

2. *Runway Incursion Prevention Best Practices*

The SOP should consider the taxi phase should be treated as a “critical phase of flight”.

OPS 2A9.020 General Rules for Operations Manuals

The important elements of runway incursions prevention are:

- a. It is essential to adhere strictly to all relevant ICAO Standards and Recommended Practices, Procedures and guidance material, including phraseologies;
- b. Flight crews need to ensure that they follow the clearance or instructions that are actually received, and not those that the flight crew is expecting to receive;
- c. Good planning of ground operations can decrease the workload during taxi. The flight and its associated risks starts during the preparation;
- d. Good situational awareness is the top priority during taxi. All crewmembers should be involved;
- e. Application of "Crew Resource Management" principles during taxi is as important as during other phases of flight;
- f. Even the most professional and experienced people make mistakes. By being defensive and letting the built-in safety nets do their work, a single mistake should not lead to a serious incident or accident; and
- g. Never take anything for granted.

For additional guidance material that may be used in SOP development please see *ICAO Doc 9870 Manual for Preventing Runway Incursions*.

OPS 2A2.010 Mass and Balance General

OPS 2A2.010 Mass and Balance General

(a) An aircraft operator shall establish and implement systems and procedures to ensure that during every phase of the flight, the load restrictions, mass and centre of gravity of the aircraft conform to the limitations specified in the aircraft flight manual.

(b) An aircraft operator shall specify in its company operations manual its mass and balance system and instructions to employees regarding the preparation and accuracy of mass and balance forms.

See AMC OPS 2A2.010

OPS 2A2.010 Mass and Balance General

AMC OPS 2A2.010

1. Operators Mass and Balance System

The operator's mass and balance system shall specify for each flight how the operator will establish and be responsible for the accuracy of:

- 1.1. Aircraft basic empty mass and centre of gravity determined in accordance with the aircraft flight manual;
- 1.2. Aeroplane operational empty mass and centre of gravity. The aircraft operational empty mass is the actual mass of the aircraft before loading for dispatch consisting of the aircraft basic empty mass and may include removable equipment, flight crew members (including baggage), crew members (including baggage and supplies), water, toilet fluids and chemicals, oil, unusable fuel and emergency equipment and shall be defined by the air operator;
- 1.3. Mass of passengers, carry-on baggage and stowed baggage, determined either by actual or standard mass, and the actual mass of cargo;
- 1.4. Mass of the fuel load determined by using either the actual specific gravity or a standard specific gravity;
- 1.5. Aircraft loading including, but not limited to, compartment mass and bulk cargo limits, floor loading limits, cargo restraint and unit load device/pallet loading considering mass and centre of gravity limits;
- 1.6. Aircraft zero fuel mass (if applicable);
- 1.7. Location of the centre of gravity to include the longitudinal position and where required, lateral and vertical positions;
- 1.8. Preparation and disposition of all required documentation whether by the pilot-in-command or other qualified personnel authorized by the operator; and
- 1.9. The training, both initial and recurrent, of all operator personnel and other qualified personnel authorized by the operator with duties and responsibilities in this system.
- 1.10. The mass and balance computation may be incorporated in the operational flight plan or be a separate form.
- 1.11. The balance computation component may include standards load profiles.

2. Standard Passenger Mass

If determining the mass of passengers using standard mass values, the values in Tables 1 below should be used. The standard masses include hand baggage¹ and the mass of any infant below 2 years of age carried by an adult on one passenger seat. Infants occupying separate passenger seats must be considered as children for the purpose of this sub-paragraph.

Table 1 – Standard Passenger Mass

Passenger Seats	1 - 5	6 - 9	10 - 19	More than 20
Male	104	96	92	88
Female	86	78	74	70
Children ²	35	35	35	35

¹ In operations where no hand baggage is carried 6 kg should be deducted from the adult passenger weights

²Children age 2 – 12 years

OPS 2A7.005 Fatigue Countermeasure Program

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(a) An aircraft operator shall establish and implement a fatigue countermeasures system. The system shall be described in the operations manual and shall contain flight and duty time limitations that ensure that all company personnel involved in the operation and maintenance of aircraft do not carry out their duties when fatigued.

(b) If deviations from the flight and or duty time limitations are permitted, the system shall include provisions for:

(1) Assessing the associated risks and applying appropriate mitigation to ensure that there is no degradation of safety, and

(2) Identify the management person who is authorized to approve the deviation.

(c) In the case of deviations, the risk assessment and related mitigation shall be recorded in writing.

(d) Deviations shall be made only with the express approval of all personnel involved.

See AMC OPS 2A7.005

OPS 2A7.005 Fatigue Countermeasure Program

AMC OPS 2A7.005 Fatigue Countermeasure Program

1. Global Consideration

Fatigue is related to a variety of different subjective experiences, for example, physical discomfort after overworking a particular group of muscles, concentration difficulties during a monotonous task, difficulty appreciating potentially important signals following long or irregular work hours, or simply difficulty staying awake. Fatigue becomes important if it reduces efficiency or otherwise degrades performance. Subjective fatigue can be affected by motivation or by the amount of stimulation coming from the environment.¹

Fatigue is a hazard faced by most aviation operations. Research clearly indicates that fatigue is an issue across all segments of aviation, not only in long haul flights that involve significant time zone changes². The data shows that different flight operations and work schedules create different physiological disruptions and somewhat different outcomes. However, there are four core operational factors that must be considered in fatigue countermeasures programs.

1. Duty period length is related to the continuous hours of wakefulness through a subset. Flight time is a subset of duty period.
2. Rest or off-duty periods, are related to sleep opportunity and can affect both acute sleep loss and the creation of a cumulative sleep debt.
3. Circadian factors can affect both alertness and performance during operations as well as the quantity and quality of sleep obtained during rest periods.
4. Cumulative effects can be relevant for continuous and consecutive duty periods and the creation of sleep debt.

The physical environment and work conditions also contribute to fatigue.

The risks normally associated with this hazard are mistakes and accidents. Strategies to manage this hazard and the associated risks should be developed by operators and included in their safety management system. The management strategies should include processes to involve all persons involved in the operation, and include:

1. Training and education for everyone involved in the operation on the physiological mechanisms that underlie fatigue and the misconceptions about fatigue,
2. Flight and duty time limits based on sound research,
3. Scheduling practices that carefully consider the safety-risks associated with fatigue and its cumulative effects,
4. Mechanisms that ensure that people involved in the operation report on situations where fatigue became an issue,
5. Process to analyse all report, provide feedback and effect change to preclude future occurrences.

The reporting, analysis and feedback mechanisms should be a component of the company safety management system

2. Fatigue Countermeasures Program Development

As noted above the first step in development of a fatigue countermeasures program should be an analysis of the fatigue hazards and the associated risks inherent in the operation as a component of the operator's SMS. Industry models, such as the IS-BAO and International Standard for Business Aircraft Operations, and a range of other guidance material are available to assist in this process. With this information an operator can then make an informed decision on the use of an appropriate fatigue countermeasure program from OPS 1, one of the models included in this Appendix or developing their own individual program.

¹ Rosekind, Mark et al, *Crew Factors in Flight Operations XV: Alertness Management in General Aviation Education Module*, NASA Ames Research Center, Moffett Field, California, 2002

² Rosekind, Mark et al, *Alertness Management in 24/7 Settings, Lessons From Aviation*. Hanley & Belfus, Inc., Philadelphia, 2002

3. Flight Safety Foundation Fatigue Countermeasures Program

The Flight Safety Foundation guidelines were developed by a task force that worked closely with the U.S. National Aeronautics and Space Administration's Ames Research Center. They looked into such issues as circadian physiology, off-duty periods, duty periods and flight time along with education and training issues. The Task force was comprised of 30 representatives of operators, aircraft manufactures, and training suppliers. They relied extensively on research from the Flight Management and Human Factors Division of the NASA-Ames Fatigue Countermeasures Program.

Tables 1 and 2 present an overview of the guidelines and recommendations continued in the Task Force report. Operators are encouraged to obtain and review the full report. It may be downloaded at http://www.flightsafety.org/members/serveme.cfm/?path=/fsd/fsd_feb97.pdf.

3.1 Relevant Definitions

<i>Window of Circadian Low</i>	The window of circadian low is best estimated by the hours between 0200 and 0600 for individuals adapted to a usual day-wake/night-sleep schedule. This estimate is calculated from scientific data on the circadian low of performance, alertness, subjective report (i.e., peak fatigue) and body temperature. For duty periods that cross three or fewer time zones, the window of circadian low is estimated to be 0200 to 0600 home-base/domicile time. For duty periods that cross four or more time zones, the window of circadian low is estimated to be 0200 to 0600 home-base/domicile time for the first 48 hours only. After a crew member remains more than 48 hours away from home-base/domicile, the window of circadian low is estimated to be 0200 to 0600 local time at the point of departure. Recommended guidelines related to the window of circadian low should be applied when any of the following operations occur: landing within the window; flight through both sides of the window; or duty period that starts at 0400 or earlier within the window.
<i>Off Duty</i>	is a continuous, predefined period of uninterrupted time during which a crew member is free of all duties.
<i>Duty</i>	is any task a crew member is required to perform by the operator, including flight time, administrative work, managerial duties, training and deadheading.
<i>Duty period</i>	is a continuous period of time during which tasks are performed for the operator; determined from report time until free from all required tasks.
<i>Flight time</i>	is the sum of all flight time, calculated from block to block for each flight segment.
<i>Standby</i>	A flight crew member on "standby" is required to be available to an operator (away from the airport) for assignment to a flight duty period.

3.2 Overview of Guidelines and Recommendations

Table 1 – General Guidelines and Recommendations

		Off Duty			Duty Period		Flight Time				
		Per 24-hour Period	Per Week	Other	Per 24-hour Period	Weekly, Monthly, Annually	Per 24-hour Period	Per Week	Monthly, Annually		
Two Pilots	10 hours	Minimum 36 continuous hours, including two consecutive recovery nights, in a seven-day period (calculated on a seven-day or 168-hour rolling basis) ... Or ... minimum 48 continuous hours in a 10 day period.	48 continuous hours on return home following duty period across multiple time zones	14 hours	There are Not sufficient scientific data to provide specific guidance in this area; nevertheless, maximum cumulative duty periods should be adjusted downward over increasing time frames.	10 hours	There are not sufficient scientific data to provide specific guidance in this area; nevertheless, maximum cumulative flight time should be adjusted downward over increasing time frames.			Standard	
	12 hours (following extended flight time)			14 hours		Up to 12 Hours (requires that landings, maximum cumulative hours be restricted, with compensatory off-duty time)					Maximum of four cumulative hours of extension
		Off Duty			Duty Period		Flight Time			Extended *	
Three Pilots (Augmented)	12 hours	Same as above	Same as above	Reclining seat 18 hours	Same as above	16 hours **	Same as above				
	12 hours			Supine bunk 20 hours		18 hours **					

* Extended operations can involve duty/rest cycles longer than 24 hours.

** Each flight crew gets maximum sleep opportunity with minimum four hours total; maximum two consecutive duty periods with 18 hours off duty.

Source: Flight Safety Foundation and U.S. National Aeronautics and Space Administration
Included with the permission the Flight Safety Foundation

OPS 2A7.005 Fatigue Countermeasure Program

Table 2 - Flight Operations During the Window of Circadian Low

The “window of circadian low” is best estimated to be the hours between 0200 and 0600 for individuals adapted to a usual day-wake/night-sleep schedule. Guidelines apply to the following operations within this window of circadian low:

1. Landing
2. Flight through both sides of the window of circadian low
3. Duty period that starts at 0400 or earlier in the window of circadian low

		Off Duty			Duty Period		Flight Time			
		Per 24-hour Period	Per Week	Other	Per 24-hour Period	Weekly, Monthly, Annually	Per 24-hour Period	Per Week	Monthly, Annually	
Two Pilots		12 hours	48 continuous hours in seven-day period following multiple duty periods in circadian low (calculated on a seven day or 168 hour rolling basis)	48 continuous hours on return home following duty period across multiple time zones	12 hours	There are not sufficient scientific data to provide specific guidance in this area; nevertheless, maximum cumulative duty periods should be adjusted downward over increasing time frames.	10 hours (requires that landings be restricted)	There are not sufficient scientific data to provide specific guidance in this area; nevertheless, maximum cumulative flight time should be adjusted downward over increasing time frames.		Standard
	No two pilot extensions recommended									
		Off Duty			Duty Period		Flight Time			
Three Pilots (Augmented)		12 hours			Reclining seat 18 hours		16 hours **			Extended *
		12 hours	Same as above	Same as above	Supine bunk 20 hours	Same as above	18 hours **	Same as above		

* Extended operations can involve duty/rest cycles longer than 24 hours.

** Each flight crew gets maximum sleep opportunity with minimum four hours total; maximum two consecutive duty periods with 18 hours off duty.

Source: Flight Safety Foundation and U.S. National Aeronautics and Space Administration
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OPS 2A7.005 Fatigue Countermeasure Program

4. Canadian Business Aviation Association Guidelines

The following fatigue management system guidelines are derived from the guidelines published by the Canadian Business Aviation Association (CBAA) as part of their private operator certification (POC) Program.

4.1 Flight Time Limitations for Pilots³

No operator shall assign a flight crew member for flight time, and no flight crew member shall accept such an assignment, if the flight crew member's total flight time will exceed:

- a. 1,200 hours in any 12 consecutive months;
- b. 300 hours in any 90 consecutive days;
- c. 120 hours in any 30 consecutive days; or
- d. where the flight crew member conducts single-pilot IFR flights, 8 hours in any 24 consecutive hours.

4.2 Flight and Duty Time Limits and Rest Periods for All Crew Members

The fatigue management system must ensure that flight duty time is limited to:

- a. 14 hours in any consecutive 24 hour period;
- b. 15 hours in any consecutive 24 hour period provided;
 - i. the crew member's total flight time in the previous 30 consecutive days does not exceed 70 hours, or
 - ii. the rest period prior to the flight is at least 24 hours;
- c. 17 hours in any consecutive 24 hour period where
 - i. the crew is augmented by at least one additional flight crew member;
 - ii. a seat outside of the cockpit that provides for rest is provided;
 - iii. the maximum flight deck duty time is 12 hours; and
 - iv. the subsequent minimum rest period is at least equal to the length of the preceding duty day; or
- d. 20 hours in any consecutive 24 hour period where
 - i. the crew is augmented by at least one additional flight crew member;
 - ii. a flight rest bunk is provided;
 - iii. the maximum flight deck duty time is 14 hours; and
 - iv. the subsequent minimum rest period is at least equal to the length of the preceding duty day; and

4.3 Minimum Rest Period

The minimum rest period shall be provided with an opportunity to obtain not less than eight consecutive hours of sleep in suitable accommodation, time to travel to and from that accommodation and time for personal hygiene and meals. During the period crew members shall be free from all duties and not be interrupted by the operator.

4.4 Delayed Reporting Time

Where a crew member is notified of a delay in reporting time within the two hours preceding that reporting time and the delay is in excess of three hours, the crew member's flight duty time starts three hours after the original reporting time.

4.5 Split Flight Duty Time

³ Includd with permission of the Canadian Business Aation Association

OPS 2A7.005 Fatigue Countermeasure Program

Where flight duty time includes a rest period, flight duty time may be extended beyond the maximum flight duty time referred to in 4.2 by one-half the length of the rest period, to a maximum of 4 hours, if:

- a. the operator provides the crew member with advance notice of the extension of flight duty time; and
- b. the operator provides the crew member with a rest period of at least 4 consecutive hours in suitable accommodation.

In such cases the minimum rest period following this flight duty time shall be increased by an amount at least equal to the extension to the flight duty time.

4.6 Unforeseen Operational Circumstances

The fatigue management system may provide for the flight duty time to be extended by up to three hours in the case of unforeseen operational circumstances provided that:

- a. the subsequent minimum rest period is increased by an amount at least equal to the extension of the flight duty time; and
- b. all persons involved explicitly agree to extend the flight duty time.

4.7 Controlled Rest on the Flight Deck

An air operator may institute a program of controlled rest on the flight deck if provisions are contained in its Operations Manual that addresses:

- a. Pre-flight Activities
 - i. The pilot-in-command shall determine if operational considerations allow or preclude the use of controlled rest on the flight deck based on guidelines developed by the operator;
 - ii. Normally, the flight crew members' rest periods will be planned at a pre-flight briefing to enable them to anticipate and maximize the sleep opportunity and to manage their alertness. However, if required, this briefing can occur in flight; and
 - iii. The briefing shall include:
 - A. the choice of rest sequence,
 - B. planned and unplanned wake-up criteria,
 - C. transfer of control procedures, and
 - D. coordination with the cabin crew (if applicable).
- b. Pre-rest Period

Pre-rest period activities should take approximately 5 minutes and shall include:

 - i. the transfer of duties;
 - ii. an operational briefing;
 - iii. completion of physiological needs;
 - iv. co-ordination with the cabin crew;
 - v. and time for the flight crew member preparing to rest to become comfortable in the flight deck seat.
- c. Rest Period
 - i. Only one flight crew member at a time shall rest and the other flight crew member(s) shall remain alert. An alertness monitor may be considered as a back-up system;
 - ii. the resting flight crew member's duties shall be completed by the non-resting flight crew member(s);
 - iii. all flight crew members shall remain on the flight deck throughout the rest period;
 - iv. each rest period shall be limited to a maximum of 45 minutes to avoid sleep inertia when the flight crew member is awakened;
 - v. rest periods shall occur only during the cruise phase of the flight and shall be completed at least 30 minutes before planned top of descent, workload permitting; and
 - vi. if required, more than one sleep opportunity may be taken by the flight crew members.
- d. Post-rest Period

OPS 2A7.005 Fatigue Countermeasure Program

- i. Unless required due to an abnormal or emergency situation, at least 15 minutes without any flight duties should be provided to the awakened flight crew member to allow sufficient time to become fully awake before resuming normal duties; and
- ii. an operational briefing shall be given to the awakened flight crew member.

Every flight crew member who participates in the controlled rest on the flight deck program shall have received training in the program as well as training in the general principles of fatigue and fatigue countermeasures.

4.8 Days Off

The fatigue management system must provide for

- a. at least one period of 36 consecutive hours free from duty within each seven consecutive days; or
- b. at least one period of 3 consecutive calendar days free from duty days within each 17 consecutive days.

5.0 Additional References

Additional material on fatigue managements is available from the following sources:

- **Alertness Solutions** has a number of research papers and educational materials at <http://www.alertness-solutions.com/> that would be of use to operators.
- **NASA Ames Research Center Human Factors Research and Technology Division** has a wealth of flight crew fatigues countermeasure related studies and papers at on their web site at <http://human-factors.arc.nasa.gov/zteam/fcp/FCP.pubs.html>.
- Information on the Australian Civil Aviation Safety Authority's fatigue management project can be found at <http://www.casa.gov.au/avreg/business/fatigue/regref/develop.htm>. Also, an evaluation of the project is posted at <http://www.casa.gov.au/avreg/business/fatigue/FRMS/validation.htm>.

European Aviation Safety Agency

TASK OPS.001 RULEMAKING GROUP

SUBGROUP NON-COMMERCIAL OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT

MEETING MINUTES OF

09 JANUARY 2007, 09.00 H – 17.00 H

10 JANUARY 2007, 09.00 H – 12:30 H

EASA PREMISES, COLOGNE

Attendees:

Karl Brady (KBR), ECA
Douglas Carr (DCA), GAMA
Mike Hamlin (MHA), ECOGAS
Josef Maurer (JMA), ETF (09/01/2007)
Dick Nederlof (DNE), CAA Netherlands
Geoff Parker (GPA), UK CAA
Jacob T. Pedersen (JTP), IAOPA
Ray Rohr (RRO), EBAA
Daniela Defossar (DDE), EASA Rulemaking Officer

1. RRO opened the meeting and welcomed all participants.
2. The meeting minutes of the previous meeting were reviewed.
 - The subgroup discussed the extent and content of the RIA. GPA opined that the RIA should be conducted on the rule itself. DDE responded that EASA and the Commission through the amended Basic Regulation have the obligation to write implementing rules. The RIA could therefore address certain issues that seem to be contentious as well as the impact compared to present national legislation. The RIA should furthermore be used as a decision support process. GPA underlined that the RIA should address the entire regulation.
 - The subgroup started discussing the extent of oversight. This will be addressed by the authority subgroup where they will examine concepts as to how the States may most efficiently meet their ICAO oversight obligations. The State “duty of care” regarding operator declarations files under Part OPS 2 must be addressed.
 - The group reviewed the action list. Regarding the “equivalent standard” to FCL, DDE reported that for European operators the FCL implementing rules are applicable. The notion “equivalent standard” should be deleted from the implementing rules. The acceptance of third country licenses will be addressed by FCL.001 and task OPS.004.

- DDE reported that she did not finish in time with the ICAO cross reference list. The item was deferred to the next meeting and the agenda changed accordingly.

The minutes were adopted without changes.

3. The subgroup exchanged views on the safety management system and the full group meeting on 8 January. Each of the subgroups is asked to specify peculiar requirements of their Part and submit them to the authority subgroup for consideration. RRO proposed in this context to complement the subgroup by expertise of a corporate flight department and SMS. This was supported by subgroup members. The chairman will forward the request to the core group.

4. It was confirmed at the full group meeting that this subgroup should draft the requirements on fractional ownership.

5. DCA gave a presentation on FAR 91 Subpart K and the regulatory construction of fractional ownership in the US. A large part of the regulation deals with maintenance requirements. The subgroup agreed that the issue of operational control needs further consideration. The chairman was asked to address the issue of arrangements, other than fractional operations, between aircraft owners and management companies within the non-commercial rules to the core group. DCA and DDE will draft requirements on fractional ownership based on FAR 91 K for the next meeting.

6. The subgroup jointly met with the authority subgroup to discuss the declaration process. Subjects discussed were the extent of oversight, special operation approvals, the contents of the declaration, costs and resources. Both subgroups agreed that the non-commercial subgroup will develop a proposal which will be discussed with the authority subgroup.

7. Group members reviewed Subparts K and L of JAR-OPS 1 (Amdt. 12). Neither draft JAR-OPS 0 nor 2 had subparts on equipment. In general, equipment issues need to be harmonised with the other subgroups on decision of the core group.

- 1.650 Day VFR operations – Flight and navigational instruments and associated equipment seems to be too onerous for OPS 0 and should be copied to OPS 2.
- 1.655 Additional equipment for single pilot operation under IFR should be copied to OPS 2.
- 1.680 Cosmic radiation detection equipment: The equipment requirement should be removed and instead a programme retained for OPS 2. It needs to be checked if this is in line with the applicable EU Directive.
- CVR and data recorder should be addressed in OPS 0.
- 1.730 CRD was deferred and will be addressed at a later stage.
- 1.731 Fasten seat belt and no smoking signs should follow the ICAO recommendation (paragraph 6.2) and should be placed in OPS 0.
- 1.735 Internal doors and curtains seems to be a commercial requirement. KBA will re-check against CS.

- 1.755 Emergency Medical Kit and 1.760 First Aid oxygen should be placed in OPS 0.
- 1.770 and 1.775 Supplemental oxygen for pressurised and non-pressurised aeroplanes should be placed in OPS 0.
- 1.780 Crew protective breathing equipment should be copied in OPS 2.
- 1.790 Hand fire extinguishers and 1.800 Marking of break-in points should be placed in OPS 0.
- 1.795 Crash axes and crowbars: It is unclear where these requirements originate. Needs further consideration.
- 1.805 Means for emergency evacuation: Applicable certification requirements seem to be sufficient. No need to repeat it in the ops regulations.
- 1.810 Megaphones should be considered as AMC/GM to OPS 2.
- 1.820 ELT should be placed in OPS 0.
- 1.815 Emergency lighting: Applicable certification requirements seem to be sufficient. No need to repeat it in the ops regulations.
- 1.825 Life jackets should be placed in OPS 0. In this respect, OPS 0 should also refer to the ICAO Annex 6 risk assessment.
- 1.830 Life-rafts and survival ELTs for extended overwater flights, 1.835 Survival equipment and 1.840 Seaplanes and amphibians – Miscellaneous equipment should be placed in OPS 0.
- All paragraphs not specifically mentioned should be placed in OPS 0.
- All paragraphs of Subpart L should be placed in OPS 0.

8. Group reviewed JAR-OPS 1 (Amdt. 12) Subpart N. A paragraph on CRM training was added. Further coordination with FCL.001 was requested.

9. The group discussed the Mass and Balance working paper presented by RRO. It was requested to change all references from aeroplane to aircraft. Table 1 standard passenger mass includes hand baggage which is not applicable for helicopter. GPA asked for more time to review the proposal. The subject will be re-discussed at the next meeting.

10. The group discussed the operations manual working paper presented by RRO. The reference to the ER should be deleted. A requirement to carry the OM on board should be added. The requirement referring to industry practice should be modified. Paragraph (d) is not sufficiently clear and should be redrafted. A reference to human factors may be added. Paragraph (e) "... acceptable level of ..." should be redrafted. The AMC on maintenance control system needs further review. It may not be required in the OM as it is already covered in the airworthiness regulations. A correction procedure should be incorporated. The paragraph on SOP needs further consideration and should be discussed with the core group to harmonise requirements. Single pilot operations should be included. The paragraph on runway incursions needs redrafting and should be linked to applicable rule material. The subject will be re-discussed at the next meeting.

11. The group discussed the FTL working paper presented by RRO. The term "fatigue countermeasure programme" was felt more appropriate for

the non-commercial environment. The record issue needs to be developed in supporting risk assessment and to be used within the management system analysis. The Appendix should become AMC material. The WP will be re-discussed at the next meeting.

12. The group discussed the security working paper presented by RRO. A reference to "national security programme, where applicable" should be added. The appendix should become AMC material. The appendix is a copy of NBAA industry standards as agreed with the TSA. The question was raised if the content would be appropriate for Europe. The WP will be re-discussed at the next meeting.

13. The group decided for the next meeting that one day should be reserved for the declaration. RRO will prepare a working paper.

ACTION LIST

No.	Meeting No. / Date	Task	Resp.	Timeframe	Status
1.	1 09/11/06	Presentation on IS-BAO	RRO	Meeting 23 28-29/11/06 12-13/12/06	c
2.	1 09/11/06	Circulate meeting documentation of last meeting of the ECAC Task Force on fractional ownership	DDE	asap	c
3.	1 09/11/06	Put link to FAR 91 Subpart K on circa website	DDE	asap	c
4.	1 09/11/06	Prepare WP on the basis of JAR-OPS 0 and 2	RRO+ DDE	Meeting 2 28-29/11/2006	c
5.	2 28-29/11/06	Distribute copy of ICAO Annex 6 Part II proposal	RRO	asap	c
6.	2 28-29/11/06	NBAA Management Guide to be put on circa	DDE	asap	c
7.	2 28-29/11/06	Presentation on FAR 91K and on ICAO discussions when drafting the proposal Annex 6 II regarding fractional ownership	DCA	Meeting 4 9-10/01/2006	c
8.	2	Check ICAO SARPs	DDE	asap	c

	28-29/11/06	for approval requirements			
9.	2 28-29/11/06	Conduct RIA on requirements regarding determination of mass	Group	Meeting 3 12-13/12/2006 See action item 11.	c
10.	2 28-29/11/06	Review JAR-OPS 1 Subparts	GPA, DCA, DDE, JTP, JMA	Meeting 3 12-13/12/2006	c
11.	3 12-13/12/06	Review draft JAR-OPS 2 Subpart J and draft a proposal for the OPS 2 rule	RRO	Meeting 4 09-10/01/2007	c
12	3 12-13/12/06	Clarify "equivalent standard" to FCL	DDE	Meeting 4 09-10/01/2007	c
13	3 12-13/12/06	Redraft OPS 2 requirements regarding the content and structure of an OM	RRO	Meeting 4 09-10/01/2007	c
14	3 12-13/12/06	Review EU-OPS Subpart Q and draft proposal for OPS 2; present FTL schemes	RRO	Meeting 4 09-10/01/2007	c
15	3 12-13/12/06	Circulate IS-BAO checklist for guidance material	RRO	asap	c
16.	3 12-13/12/06	ICAO cross reference list	DDE	Meeting 45 09-10/01/2007 13-14/02/2007	o
17.	4 09-10/01/07	Forward request on additional membership to core group	RRO	asap	c
18.	4 09-10/01/07	Address the issue of legal charter within the non-commercial rules to core group	RRO	asap	c
19.	4 09-10/01/07	Draft requirements on fractional ownership based on FAR 91 K	DCA/ DDE	Meeting 5 13-14/02/2007	o
20.	4 09-10/01/07	Cosmic radiation detection	DDE	Meeting 5 13-14/02/2007	o

		equipment: check EU Directive			
21.	4 09-10/01/07	Internal doors and curtains: check against CS	KBA	Meeting 5 13-14/02/2007	o
22.	4 09-10/01/07	1.795 Crash axes and crowbars: source	All	Meeting 5 13-14/02/2007	o
23.	4 09-10/01/07	W&B WP: incorporate comments for next meeting	RRO/ DDE	Meeting 5 13-14/02/2007	o
24.	4 09-10/01/07	OM WP: incorporate comments for next meeting	RRO/ DDE	Meeting 5 13-14/02/2007	o
25.	4 09-10/01/07	FTL WP: incorporate comments for next meeting	RRO/ DDE	Meeting 5 13-14/02/2007	o
26.	4 09-10/01/07	Security WP: incorporate comments for next meeting	RRO/ DDE	Meeting 5 13-14/02/2007	o

DDE
24/01/2007