

SAFETY ALERT 2018-01

Issue 01

Date of issue: 25th November 2018

SUBJECT:

FATIGUE IN AIRCRAFT MAINTENANCE ENVIRONMENT

REFERENCE PUBLICATIONS:

UK CAA CAP 716 (Aircraft Maintenance Human Factors)

FAA AC 120-115

REASON:

The maintenance error occurred as a result of 19 identifiable contributory factors, two of these were directly related to engineer's duty periods;

- (a) The effect of fatigue on the engineer's decision making process due to his shift pattern of working an average of 8.5 hours a day for 32 days continuously.
- (b) Lack of guidance provided by the CAMA and the operator, on;
 - 1) the effect of shift duty durations and the management of risk associated with fatigue.
 - 2) man-hour methodology, duty times (including maximum days on duty), working hours, shift patterns, working beyond normal duty times, minimum rest between shifts and rest days.

The following definition of fatigue has been agreed and accepted:

A physiological state of reduced performance capability resulting from sleep loss or extended wakefulness, circadian phase or workload (mental and/or physical activity), that can impair an individual's alertness and ability to perform safety related duties.

RECOMMENDATION:

- (a) *Maintenance Organisations approved in accordance with YCAR 145 should enhance their Safety Management System by ensuring that:*
 - 1) *their safety policy encourages continuous reporting of fatigue-related hazards and errors;*
 - 2) *they continually evaluate their safety-related processes to identify those that may be affected by fatigue and effectively mitigate the risk; and*
 - 3) *they periodically increase awareness to fatigue of all personnel performing safety-related tasks (not only certifying staff or support staff signing-off tasks) and regularly remind them of their responsibilities and liabilities of exercising, under the influence of fatigue, the privileges of the authorisation and/or licence granted to them.*
- (b) *The review should in particular enhance the following two processes - (1) the planning of maintenance tasks and (2) the organising of shifts - to proactively take into account human*



performance limitations. Appendix P to UK CAA CAP 716 (Aviation Maintenance Human Factors) and FAA AC (Advisory Circular) 120-115 may be considered as good practice to mitigate fatigue in those areas with due consideration to the following:

- 1) Shifts longer than 12 hours should be considered undesirable;*
- 2) Shifts should not be extended by overtime to longer than 13 hours;*
- 3) A minimum rest period of 11 hours between shifts should not be compromised by overtime;*
- 4) When designing shift schedules the number of days off between shifts should be considered (e.g. after more 2-3 days on night shift, several days of rest time may be required to recuperate/alleviate sleep debt and fatigue);*
- 5) Total work , including overtime, should not exceed 60 hours or seven consecutive work days before a period of rest days; and*
- 6) All aircraft maintenance personnel should be given at least 14 days notice of schedule.*

CONTACT:

civilaviation@y.net.ye