

This Application is developed to track compliance of Duty and Flight Rosters with CASA Civil Aviation Order 48-1. The rules applied are based on Civil Aviation Order 48-1 Instrument 2013, as amended by Civil Aviation Order 48-1 Amendment Instrument 2016 (No. 1). This app has an Upgrade function for improvements, bug fixes and for when new rules are implemented.

It has the capability to track compliance for;

- It can also give a prediction of Sleepiness by calculating an improved IFLS (Individual Fatigue Likelihood Score) These scores could be used to set extra limits in an Operators Manual or as a tool for Appendix 7 FRMS.



Example 3-MP

Appendix/Operator: 3-MP Sectors: 3 Place @ start FDP: Home Place @ end FDP: Home Time Displacement: 0 3 Multi-Pilot FDP Starts at Home Base FDP Ends at Home Base

Activity: Day Duty (incl Positioning before FDP): D Insert Ops Activity: Clear MND/HND FDP Info: Add another Day Warnings

Warnings for 15/03/2018

\* FDP's >=4 with LNO's >=3 (3.5 left in 1 day on 7 day Duty lim | Mind 360CP+ requirement)

Example 3-MP

## Setting Up

The template can be set up by entering a User Email Address (and the Registration Email Address for the Full version) and then click the SETUP button. The template will be renamed, and the main worksheets will become available. (Only 1 workbook per user can be used at the same time). The personalised workbook will have the following worksheets:

### Setup

This worksheet is designed to setup the template and to enter some historic data to get the compliance calculations going from the startdate. On this page you can also define your standard personalised sleep rhythm for IFLS calculations.

### Info

An information page with a summary of this manual.

### Roster

This is the main working page (see more explanation below).

### FDP Info

On this sheet a view of the calculations for a specified FDP can be presented here by using the 'FDP Info' button.

### Codes

An overview of used codes in the system.

### Limits ....

The text of Appendices 1, 3, 4, 4B, 5 and 6 with a summary and extracted calculation drivers.

Example 4-SP

Appendix/Operator: 4-SP Sectors: 1 Place @ start FDP: Away Place @ end FDP: Home Time Displacement: -3 4 Single-Pilot FDP Starts Away from Home (3 hrs) FDP Ends at Home Base

Activity: Day Duty (incl Positioning before FDP): D Insert Ops Activity: Clear SS3AH-3 FDP Info: Add another Day Warnings

Warnings

Mind 360CP+ requirement | FDP Limit Extended | Mind 360CP+ requirement | Exc 7 day Duty lim | Delay limit Exc | Mind 360CP+ requirement

Example 4-SP

At the top of the Roster Worksheet there are selection boxes to define an FDP with the following parameters:

positive = Away location West of Home location)

[illegible]

To enter a FDP (or Sleep period for IFLS calculations), select the Activity first and then select the cells on the time table for the date and time periods as planned for the FDP. When you now click the 'Insert Ops Activity' button, the cells will be automatically filled with a code for the activity and all background calculations executed.

- Any FDP exceedance beyond limit or if an FDP is started whilst insufficient Sleep Opportunity or ODP not long enough, the FDP will colour Red.
- The FDP will colour darker for allowed Increases (Apdx 4B, 5), Extended periods for unforeseen circumstances and even darker for Extended periods for Urgent operations / Re-assignments.
- The activity Codes will colour orange when IFLS between 1 and 8, Purple when IFLS between 8 and 12, Red when greater than 12.
- Any applicable Warnings will appear right of the time table.

On the left, dates can be entered for any duty days. You can skip (off duty) dates by entering the next line a date more than one day later than previous line. The IFLS will use the standard personalised sleep pattern from the Setup sheet for these skipped dates. If you want to reflect the IFLS for irregular sleep pattern during days off (e.g. not much sleep due to flights overseas), enter the dates for this irregular pattern and only use Sleep (Z) as activity in the pattern as experienced.

There are more buttons at the top of this worksheet:

- Clear** to clear any entries on the timelines first select the cells and then click this button
- FDP Info** to get information on the background calculations for a specific FDP. Select a cell within the FDP and click this button. The copied information can be found on the FDP Info sheet.
- Add another Day View** to add a day to your Roster table click this button to toggle between different zoom levels of the Roster worksheet
- Warnings** to display all warnings for a particular day in a message box (when there are many warnings that don't fit on the right side of the time table)

The screenshot shows a detailed roster timeline. The top section contains various input fields and buttons like 'Appendix/Operation', 'Crewing', 'MP', 'Home', 'Home', 'Aerial Work (8 AIN Flight Time)', 'Multi-Pilot', '1 or 2 Sectors', 'View', and 'Archive'. Below these are buttons for 'Activity', 'Sleep (ODP)', 'Insert Ops Activity', 'Clear', 'AMQ-D', 'FDP Info', 'Add another Day', and 'Warnings'. The main timeline consists of columns numbered from 0 to 23.5, with rows representing different days. Activities are indicated by letters (Z, D, F, etc.) and colors. A grey shaded area on the right indicates '360OP req (inc) before 20-03-18' and 'Max # LNO's in 7 days reached'.

Example 5-AW

## Warnings

Warnings will be generated for the following conditions:

- (Pending) Flight Time (FT) Exceedances for 7 and 28 day periods
- FT Rate of Effort (ROE) warnings for 90 and 365 day periods
- (Pending) Exceedance of Duty limits for 7 and 14 day periods
- (Pending) Exceedance of Late Night Operations (LNO) related FDP limits
- Warning for time separation of 2 consecutive LNO's
- Insufficient Off Duty Periods (ODP)
- (Pending) Requirement for 36ODP+ (36 hour Off Duty Period with 2 local nights) (also in relation to LNO's and FDP Increases if applicable)
- (Pending) Requirement for 72ODP+ (72 hour Off Duty Period with 3 local nights)
- Sleep Opportunity and ODP prior requirements
- (Pending) Requirements for days ODP in 28 and 84 day periods
- Incorrect Split Duty Rest Periods (SDRP)

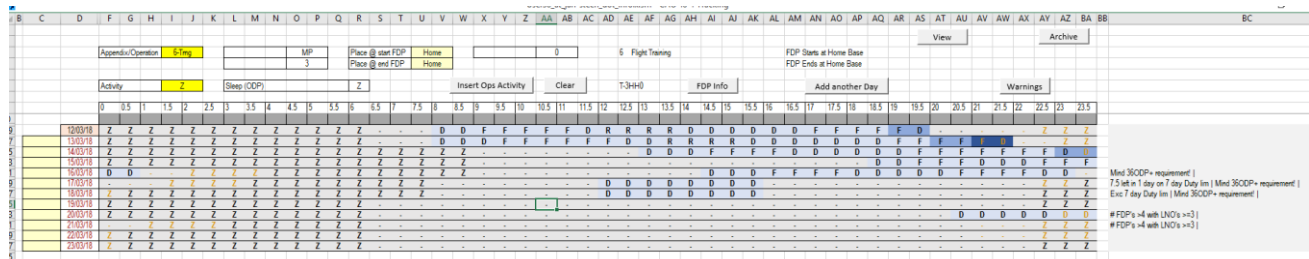
- Incorrect time periods for FDP (Apdx 1-Gen)
- Exceedance of Delay and Standby periods
- When Delay or SDRP equals an ODP

Nearly all CAO articles are covered except;

- that Flight Training must be in first 7 hours of FDP
- requirements for checking crew fitness before accepting an FDP extension
- Extension; If unforeseen operational circumstances arise after take-off on final sector, flight may continue to planned destination or alternate
- Any specific Ops Manual requirements  
(Stone Productions can implement that for you!)

Flight Time limitation calculations are based on the time brackets that are selected as “Fly” and based on a sum of max 28 days (may be more in the passed if you skip off duty days). For limitations based on longer periods an Rate of Effort (ROE) is calculated to warn if these long term limitations are in the balance. These warnings will give a good indication when logbook period totals need to be monitored.

Late Night Operations (LNO) will be counted for per day as applicable for the chosen operation/appendix. What constitutes a LNO differs between appendices. If flown until 23:00 on a 1-Gen Apdx/Ops than this will count as a day with a LNO and will also count for the total when later operations are conducted as for example Apdx 5-AW with LNO times between 0:00 and 4:59.



Example 6-Trng

## (Improved) Individual Fatigue Likelihood Score (IFLS)

The formula to calculate the improved IFLS is as follows:

$$\text{IFLS} = (\text{if } T < 5; (5 - T) * 4) + (\text{if } F < 12; (12 - F) * 2) + (\text{if } A > F; (A - F) * X)$$

T	Effective Sleep prior 24 hours
F	Effective Sleep prior 48 hours
A	hours Awake since last significant sleep (= minimum 2 hours)
X	Activity Factor; 1.5 for “Fly” otherwise 1
Effective Sleep	sum of hours within Circadian rhythm + (sum of hours outside Circadian rhythm) * 0.8
Circadian Rhythm	when 3 out of 4 consecutive days slept at the same time

Amber	IFLS > 0.5
Purple	IFLS > 7.5
Red	IFLS > 12

Amber is when people start to begin to get tired  
 Purple; people in general are quite tired  
 Red; when people in general get very tired. (Unsafe for Flying?)



## Production Version

For production version of this program contact Stone Productions.

<https://www.stoneproductions.com.au/contact.html>

### Pricing:

Single Appendix;	\$65.- per user per year
Single Appendix + IFLS;	\$80.- per user per year
Full Version:	\$99.- per user per year

### Downloads & Information:

<https://www.stoneproductions.com.au/frms.html>