aerotech uk

aviation software solutions

easyweigh™ version 4.9

User Manual

aerotech uk

Manual Revision: 4.9.58 Issued 2nd July 2009

Installation Guide

Minimum Requirements for installation of easyweigh

Minimum computer specification:

- Windows NT, 2000, XP Service Pack 2, (currently Windows Vista is NOT supported)
- Adobe Reader 8 (required for generating pdf reports)
- 2Gz+ CPU recommended (1Ghz minimum)
- 80 Gb hard drive
- 2 Gb RAM recommended (1 Gb Mb minimum)
- 1024 x 768 resolution screen
- Ethernet card
- Internet connectivity required to download software updates
- Microsoft Office not required, though Excel is recommended for the purposes of loading validation

NB in order to receive updates to your software over the internet, your machine will need to have access to our web server ftp.aerotechuk.com. Depending on local protocol, this may be restricted via your firewall. Contact your IT department to confirm local protocols/arrange for access to be enabled.

Installing easyweigh for the first time

1. Run easyweigh.exe from the easyweigh installation folder on the CD provided
2. Follow the onscreen prompts to install the software
3. Run 'easyweigh update' from the shortcut on your desktop. You will receive a prompt to locate your unit key file, which can be found on the installation CD
4. Run easyweigh update from the shortcut on your desktop again; if you are connected to the internet, and your firewall permits it, easyweigh update will identify the files that need updating.
5. You can then either continue the update over the internet by pressing next, or to install from the CD provided, press the update from CD button
6. Open the update folder named 'EW Update...' on the CD and select the file 'ew4lm.dat'. easyweigh update will then install/update all the necessary files.
7. When all files in the list are green it has completed satisfactorily and easyweigh is ready to run.

To install subsequent easyweigh software updates

1. Run easyweigh update from the shortcut on your desktop; if you are connected to the internet, and your firewall permits it, easyweigh update will identify the files that need updating.
2. You can then either continue the update over the internet by pressing next, or to install from the update CD provided, press the update from CD button
3. Open the update folder named 'EW Update...' on the CD and select the file 'ew4lm.dat'. easyweigh update will then install/update all the necessary files.
4. When all files in the list are green it has completed satisfactorily and easyweigh is ready to run.

NOTES:

The most common reason for problems running the software is incorrectly set user/file permissions. It is essential that the application is installed by an administrator account and the appropriate user permissions are correctly set (especially on networked machines on a domain) – full control of all files in the easyweigh application folder for all user accounts.
Additionally users need to be assigned permission to use the dlls – standard Win XP users (Win 2000 power users) automatically have this right.

If it is essential to keep the users as restricted users:

1. add them to the administrator group
2. log on as the user
3. run easyweigh
4. log off as the user and log back on as administrator
5. change the access rights of the user back to Restricted User

Troubleshooting possible installation problems:

A) Data Access Components not correctly registered

Error message: 'Active X component can't create object'

It should be resolved as follows:

1. Press the Start button
2. Select Run
3. Type in: Regsvr32.exe "path\Dao350.dll"
4. Where 'path' is the directory for your application, for example 'C:\Program Files\easyweigh'
5. If in doubt, use Windows Explorer to find your application and copy the path details from there.
6. Press OK
7. Once you get a message box saying that the file was successfully registered the application should run.

B) Correct Data Access Components not present

Setup will warn you if you need to update the data access components (MDAC).

To update MDAC double Click on mdac_typ.exe in the \Support Files folder on the CD.

If necessary you can check which version of MDAC you have on your computer as follows:

1. Double Click on cc.exe in \Support files on the CD to install a component checker utility.
2. Run compcheck.exe, choose 'determine which version is installed' and press OK.
3. View the report for details of the version identified and any errors encountered.
4. If Version 2.5 SP 2 is not correctly installed run mdac_typ.exe

C) Internet Explorer missing

HTML Reports in the application need internet explorer in order to work.

Ensure that at least IE 5.5, but preferably the latest version of IE, is installed on the computer. IE can be downloaded from the Microsoft Website at **http://www.microsoft.com/downloads/search.asp**, or if necessary obtain support from your IT Dept.

D) Outlook/Outlook Express missing

Automatic creation of emails requires Microsoft Outlook or Outlook Express in order to work. OE can be downloaded from the Microsoft Website at **http://www.microsoft.com/downloads/search.asp**, or if necessary obtain support from your IT Dept.

New Features in easyweigh 4.9

4.6.158	Baseline
4.7.11	❑ Electronic verification & validation of aircraft specification data. ❑ Ability to update default Range & Endurance speeds. ❑ Loadsheet simplified. ❑ Basic Aircraft tab of the loadsheet now displays a list of all items marked as 'Included in Basic Weight'. ❑ Audit Trails added to loadsheet, improving visibility. ❑ Improved mouse controls on the Performance Conditions panel. ❑ Role fits extended to allow up to 12 roles to be configured.
4.7.32	❑ Performance Penalty summary added to the loadsheet performance tab ❑ Updates to Mission Module calculations to test Start & End MAUM for Hover & Land segments.
4.8.50	❑ Updated toolbar icons ❑ Aircraft Configuration data validation added. ❑ New Electronic Flight Log (EFL)
4.8.88	❑ New optional aircraft setting to force Basic Weight check on loading an aircraft file. ❑ Optional Hoist Load specific Flight Envelopes ❑ General improvements to EFL. ❑ New Admin Panel to allow configuration of aircraft Callsigns & Visibility within easyweigh
4.8.135	❑ Green Spot icons on cabin plan for equipment with no graphic, including toggle on/off visibility ❑ Master list status visibility added to loadsheet ❑ Updated fuel control ❑ Drag & Drop crew across seats ❑ File Path & EFL settings added to the Admin Control Panel ❑ EFL record set filtering. ❑ Electronic Flight Log; CAA Mission Log & eMSLS reports added.
4.8.164	❑ Enabled drag & drop of Crew, Passengers & Cargo on each segment of a mission in the Mission Assessment Module. ❑ Enabled fill loadsheet from each mission segment to improve visibility of mission calculations for each segment.
4.8.182	❑ Snapshot/Add new Role Fits base on loadsheet configuration ❑ EWAC Role Fit edit now highlights changes made since last save. ❑ Data synchronisation via FTP added to efl & admin control panel settings. ❑ Insert segments added to the Mission Module. ❑ Mission Module refuel to MAUM option added to Hover & Land segments. ❑ Aircraft Validation audit trail added to Web Support screen ❑ Subsequent sectors section added to loadsheet pdf
4.8.193	❑ EFL changes to location management ❑ Ability to reopen closed eMSLS pages in EFL
4.8.237	❑ EWPS Validation process improvements including Interpolation of validation data prior to validation being enabled. Also improved visibility of charts validation status in easyweigh ❑ Loadsheet PDF report option to show a Performance Summary instead of all charts. ❑ easyweigh update option to prevent automatic check of Web Site for users with no internet access.
4.9.48	❑ New Performance Summary graphical representation of chart output ❑ Graph groups allowing switching between charts based on performance conditions ❑ Updater now allows you to download files, then create your own update folders for distribution within your own network to other easyweigh installations ❑ Option to print PDF loadsheet with or without performance data for 1 page printing.
4.9.58	❑ Validation of MLA & default Range and Endurance speeds added to EWAS form. ❑ Revert to Master Version added to loadsheet 'Changes' tab. ❑ Validation of Graph Groups & Fuel Flow interpolation data.

TOOLBAR OVERVIEW

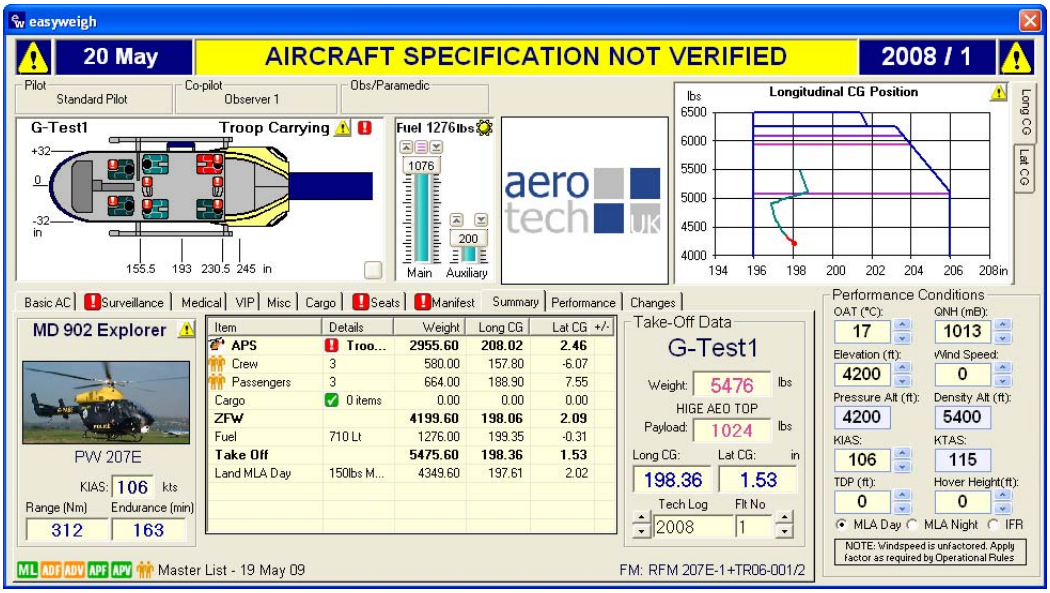
	WEIGHT AND BALANCE CALCULATION (LOADSHEET): View and change aircraft crew, loading and performance
	CREW LISTS: View and change crew data
	AIRCRAFT CONFIGURATION: View and change aircraft equipment lists; Manage role fits; View and enable/disable loading logic rules
	AIRCRAFT SPECIFICATION: Validate basic aircraft specification data.
	PERFORMANCE: Detailed view of aircraft performance data.
	PRINT LOAD SHEET: Print hard copy of load sheet check to PDF.
	EXPORT CALCULATION TO EXCEL: Export loadsheet calculations to excel for checking.
	ARCHIVE: View electronically archived Excel loadsheets.
	ELECTRONIC FLIGHT LOG (Optional): Record aircraft loading and mission events, collating data into a tech log, sector log or billing report.
	MISSION ASSESSMENT MODULE (Optional): Configure up to 10 mission segments, select a maximum of 4 aircraft and compare Performance calculation data for the given mission.
	easyweigh SUPPORT CENTRE (available upon subscription): Check you have the latest aircraft, performance and crew files. Download the latest updates as they are released.
	Admin Control Panel: Open the user manual, or contact aerotech support
	easyweigh HELP: Open the user manual, or contact aerotech support
	EXIT easyweigh

WEIGHT AND BALANCE CALCULATION (LOADSHEET)

OVERVIEW

The screen consists of six main parts (shown below):

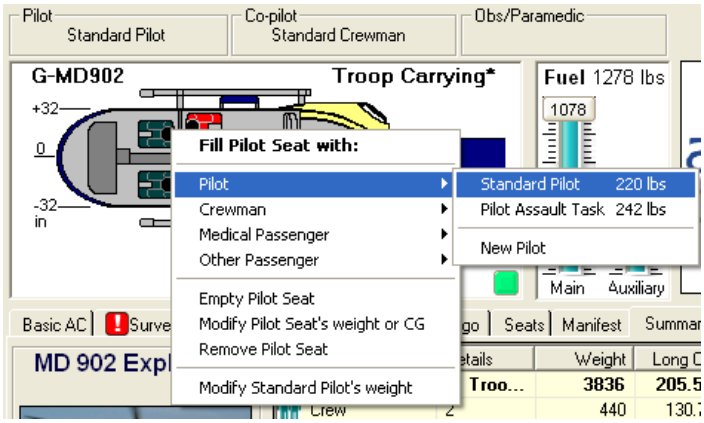
- Cabin Plan showing:
  - aircraft
  - equipment loading
- Fuel contents
- Longitudinal, Lateral or Longitudinal Vs Lateral C of G graphs (subject to data availability)
  - Update automatically when a change is made to crew or loading
- Equipment Lists accessed through the tabs to allow viewing and changing of equipment and cargo fitted to the aircraft. Organised as follows
  - Basic Aircraft
  - 4 optional role equipment tabs, Cargo & Seats tabs
  - Manifest; displaying all crew and passengers on board
  - Loadsheet; including summary and detail views of all items included in the aircraft loading
  - Performance; giving performance data
  - Changes - Audit trial of changes to crew, aircraft & equipment data
- Take off Data - Weight and C of G Summary; colour coded indicating maximum performance levels.
- Performance Conditions; can be updated according to current environmental conditions.
- Yellow exclamation marks indicate un-validated aircraft specification data - click on the exclamation to shortcut to the relevant Aircraft Specification screen, where the data should be validated (see Aircraft Specification section for full details of how to complete validation).



CABIN PLAN

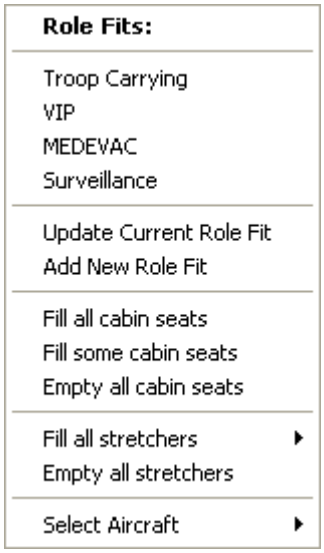
Add, remove or adjust crew, equipment or cargo

- Left click on the seat or item to show the menu (shown right)
- Choose the required option from the menu
- Left click on variable weight equipment icons (e.g. Cargo) will prompt for entry of Cargo weight
- Left click drag Pax, allows you to drag a Pax from one seat or station to another.
- Click on the green toggle icon bottom right of the cabin plan to show/hide green spot icons for all equipment with no graphic assigned.

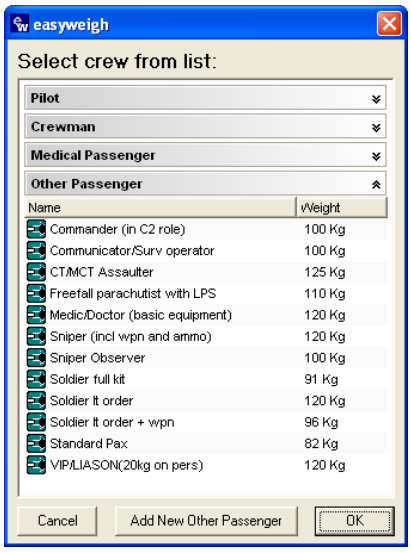


To adjust the Role Fits to pre-configured settings:
- Click on the Aircraft image but not on a seat or equipment item.
- Choose the required Role Fit from the drop down menu (right)

Additional menu options to:
- 'Update Current Role Fit' opens the Role Fit edit form in EWAC showing all changes made via the loadsheet, with options to save or cancel.
- 'Add New Role Fit' give the user a prompt for a Role Fit name, then saves the current loadsheet configuration into the new Role Fit.
- Fill all or some cabin seats with any Pax type.
  - Will prompt for number of seats to be filled (where 'fill some cabin seats' is selected).
  - Followed by prompt for selection of a default Pax (see below)
  - Left click on further Pax seats will auto fill with the default Pax, or if occupied, will empty the seat.
- Empty all of the cabin seats.
  - Empties all cabin seats and resets the default Pax to nil selected.
  - Pax seats will no longer be auto filled on left click.
- Option to fill all stretchers with the default 'Patients', or empty all stretchers.
- Ability to switch between aircraft.

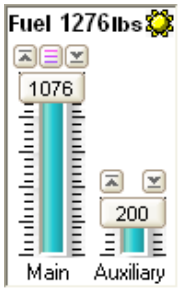


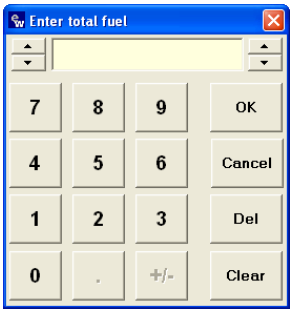
Default Pax Selection:
- The Select Crew pop-up (right) allows selection of any preconfigured Pax, or addition of new Pax.
- Select the grey banner for the crew type you wish to select/add.
- Click to select the required Pax entry then click 'OK', or double click to select that Pax as the default to be used by seat auto fill.
- Click the 'Add New...' button to add another Pax to the selected crew type.
- Click Cancel to close the form and cancel seat auto fill.



FUEL STATE

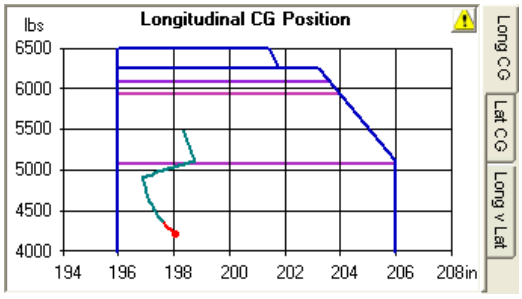
Adjust the fuel state by:
- Drag the fuel slider to the desired level for the selected tank
- Clicking on the top fuel total display to manually enter the fuel state for all tanks (via keypad pop-up shown right)
- Click on the fuel labels at the bottom of the control (i.e. 'Main' or 'Auxiliary') to specify a specific tanks fuel contents.
- Icon indicating MLA setting next to Total Fuel contents.
- **NB**. You will not be permitted to exceed the aircraft's maximum fuel capacity. If the aircraft has more than one fuel tank the total will be automatically distributed based on assumed fuel burn.





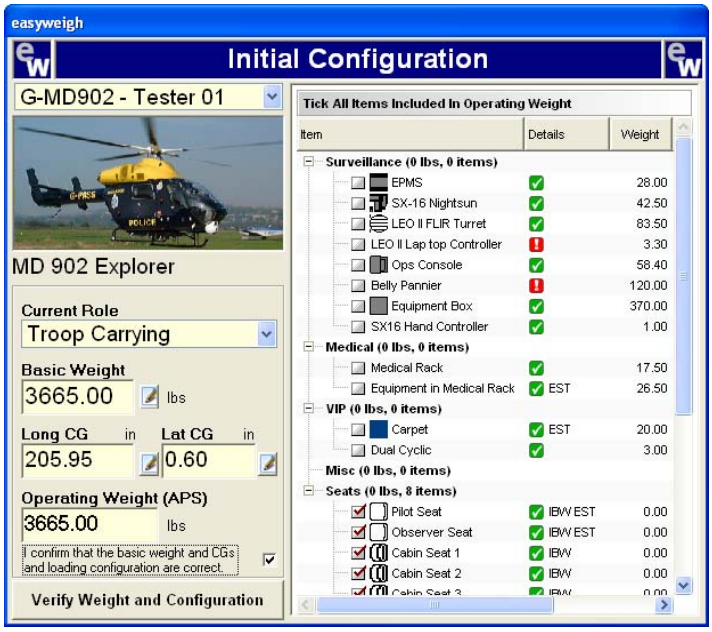
WEIGHT AND CENTRE OF GRAVITY GRAPHS

- Automatically recalculated with every loading change
- CG migration with fuel burn shown
- Displays information regarding performance limits (when set to 'show' in the Performance tab)
- Tooltip shows limiting weight type when you move the mouse cursor over the limiting weight lines.
- Switch between Longitudinal CG, Lateral CG and Longitudinal vs. Lateral CG Positions where available.



CHECK BASIC WEIGHT (Optional on request)

A 'Check Basic Weight' setting can be enabled for individual aircraft on request. On loading the aircraft file this setting forces verification of APS loading & aircraft basic weight (via the below form).



- If this option is set, complete the form as follows:
  - Select the aircraft & role fit required via the dropdown menus
  - Amend APS loading (excluding Cargo & Pax) via the tick boxes in the right hand equipment lists
  - Set the aircraft Basic Weight & CG values as required by typing in the values, or click on the icon to launch a keypad if using a touch screen.
- Operating Weight is calculated & displayed based on the aircraft Basic Weight & APS Loading.
- Once configuration is complete, select the tick box (bottom left) and click 'Verify Weight and Configuration' to verify the details entered as correct & proceed to the loadsheet, where Manifest & Cargo can be added.

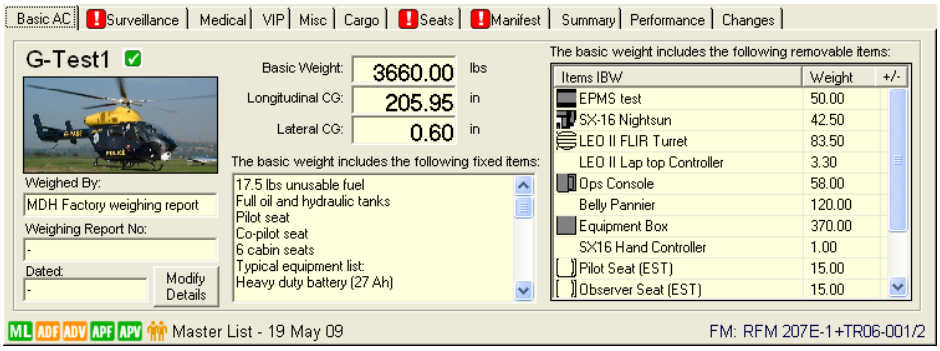
An Additional 'IBW' setting can be enabled on request, which forces all APS items to form part of the Basic Weight of the aircraft (excluding Cargo & Pax)

- If this option is set:
  - Basic Weight will always match the Operating Weight (APS)
  - Any changes to loadsheet APS configuration (excluding Pax & Cargo) will force re-validation of the aircraft Basic Weight

EQUIPMENT LISTS

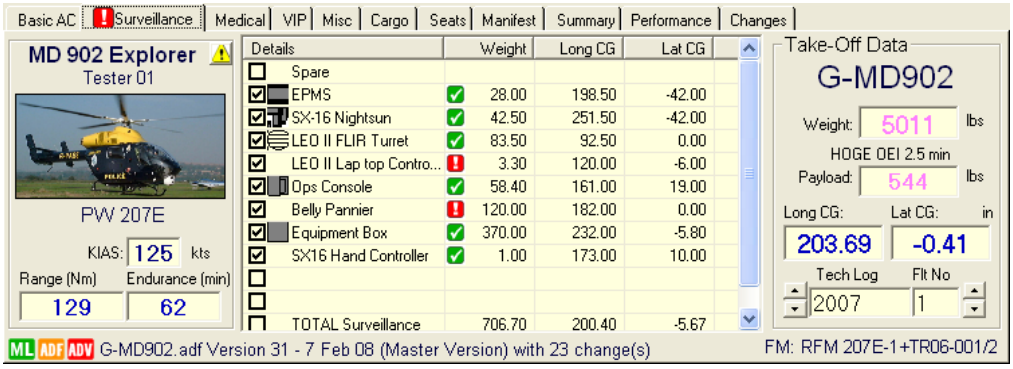
BASIC AIRCRAFT

- Displays details from the aircraft's weight and C of G schedule:
  - Basic weight
  - Longitudinal & Lateral CG's
  - Weighed by
  - Weighing report number
  - Date of report
- Lists loadsheet items included in the basic weight.
- Summary of fixed items included in the basic weight.
- Can be modified by clicking the 'Modify Details' button (password protected)



4 OPTIONAL EQUIPMENT LIST TABS, CARGO AND SEATS TABS

- Edit and view aircraft loading.
- Displays details of all equipment that can be fitted.
- Tab & Equipment level icons colour coded to indicate current validation status (see Aircraft Configuration for colour coding).
- Check and uncheck to add or remove items
- Weight, payload and C of G automatically updated to reflect changes
- Right Click on an item to modify the weight or C of G, Add/Remove all items to aircraft
- Option to set the tech log and Flt Log number
- Projected Range and Endurance values for fuel tank contents (less Minimum Landing Fuel) and Performance conditions entered.

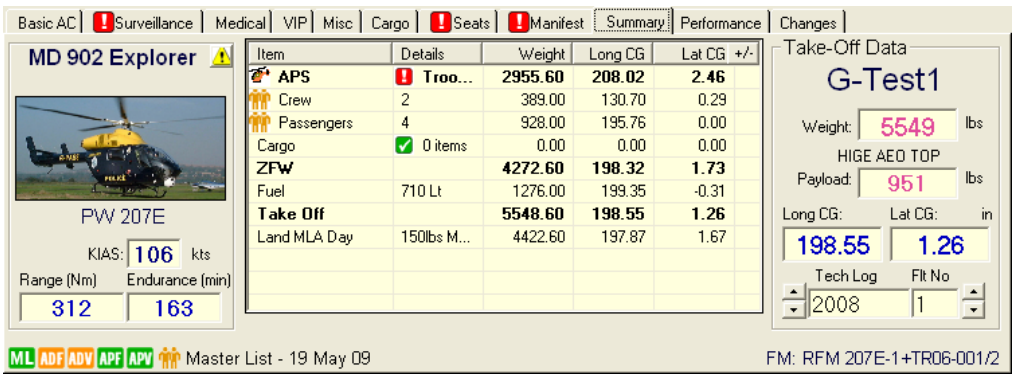


MANIFEST

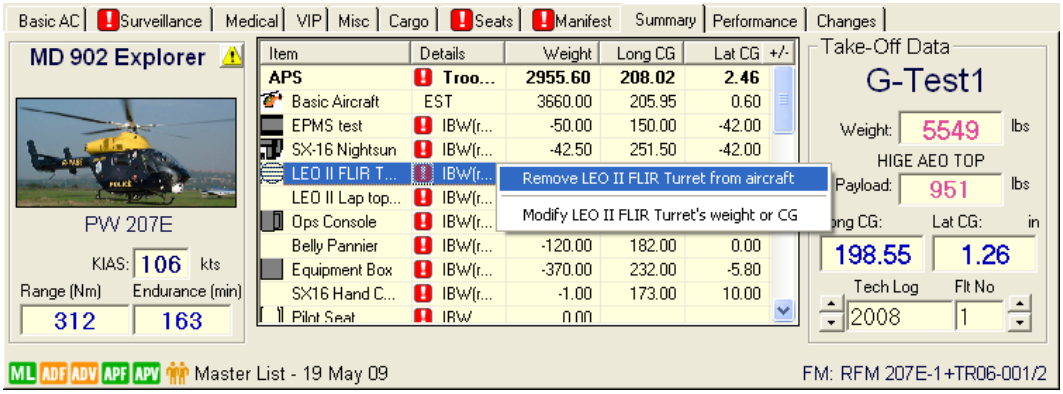
- Lists the details of the people on board.
- Right Click on a person to remove the person or modify their weight or CG
- Option to set the tech log and Flt Log number

LOADSHEET SUMMARY

- Gives a summary of the aircraft loading grouped by:
  - APS (Aircraft Prepared for Service)
  - Crew
  - Passengers
  - Cargo
  - Overall ZFW (Zero Fuel Weight)
  - Fuel
  - Overall Take Off weight
  - Land weight for selected minimum fuel level

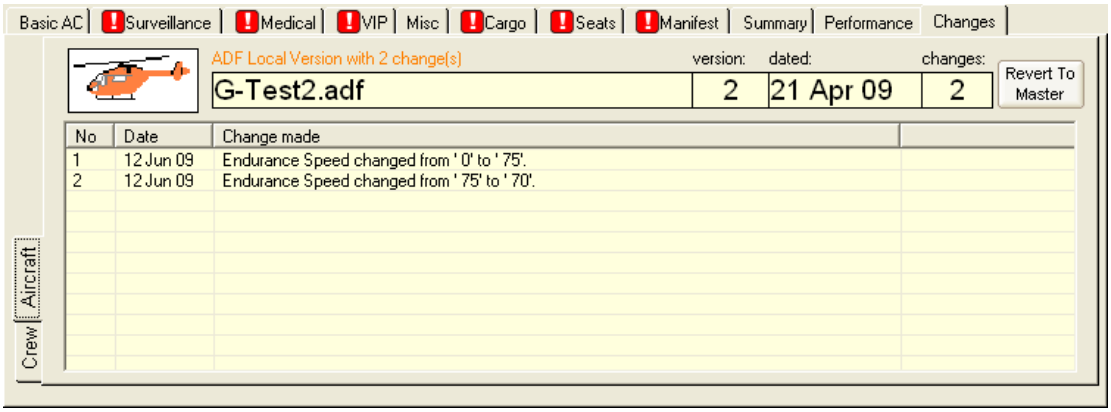


- Click the +/- icon on the top right of the data grid to display a full list of all items included in the loading
  - Sub Totals displayed in bold.
- Right Click on an item to modify the weight, C of G, or to remove items from the aircraft



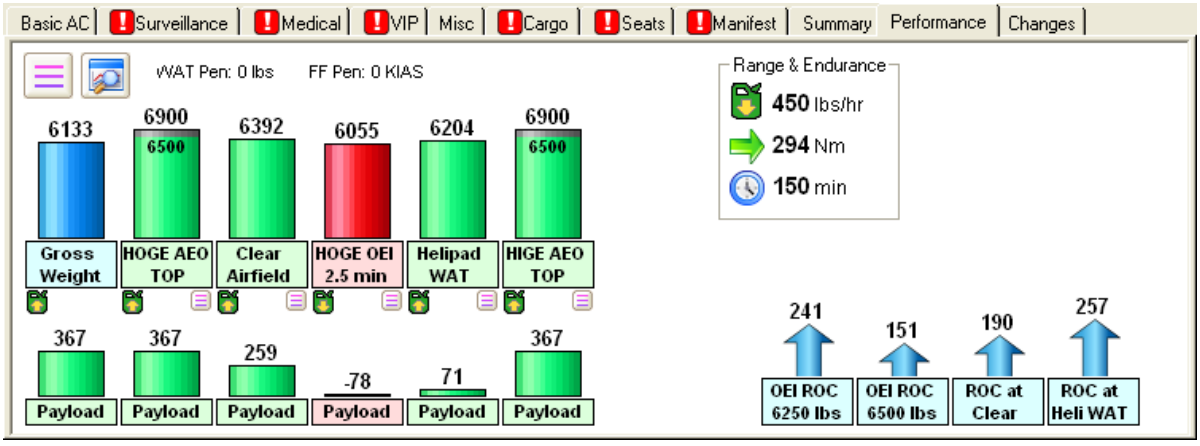
CHANGES

- Aircraft tab displays changes made to the equipment list or Aircraft loading
- Crew tab shows audit trail of changes made to the crew list
- A Warning message is displayed on start up of easyweigh if changes have been made.
- Click the 'Revert to Master' button to revert the selected file back to the unchanged state.



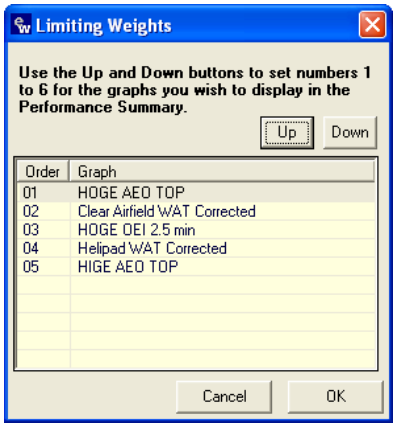
PERFORMANCE

- A graphical performance summary can be viewed on the Weight and Balance page by selecting the Performance tab
- Displays Performance Penalties, Fuel Flow, Range & Endurance based on current aircraft loading, and specified performance conditions
- Limiting Weight chart output displayed in a bar chart format, indicating if the current aircraft Weight complies (green), or exceeds (red) the chart output. Available payload remaining is also indicated
- The blue bar indicates current aircraft weight, and payload available to the flight envelope limit
- Click the icon to fill the fuel tanks using any payload available for the selected chart
- Rate of Climb (ROC) output displayed graphically (only if charts available)
- View the full Performance Summary page by pressing the button on the top left of the Weight and Balance form Performance tab



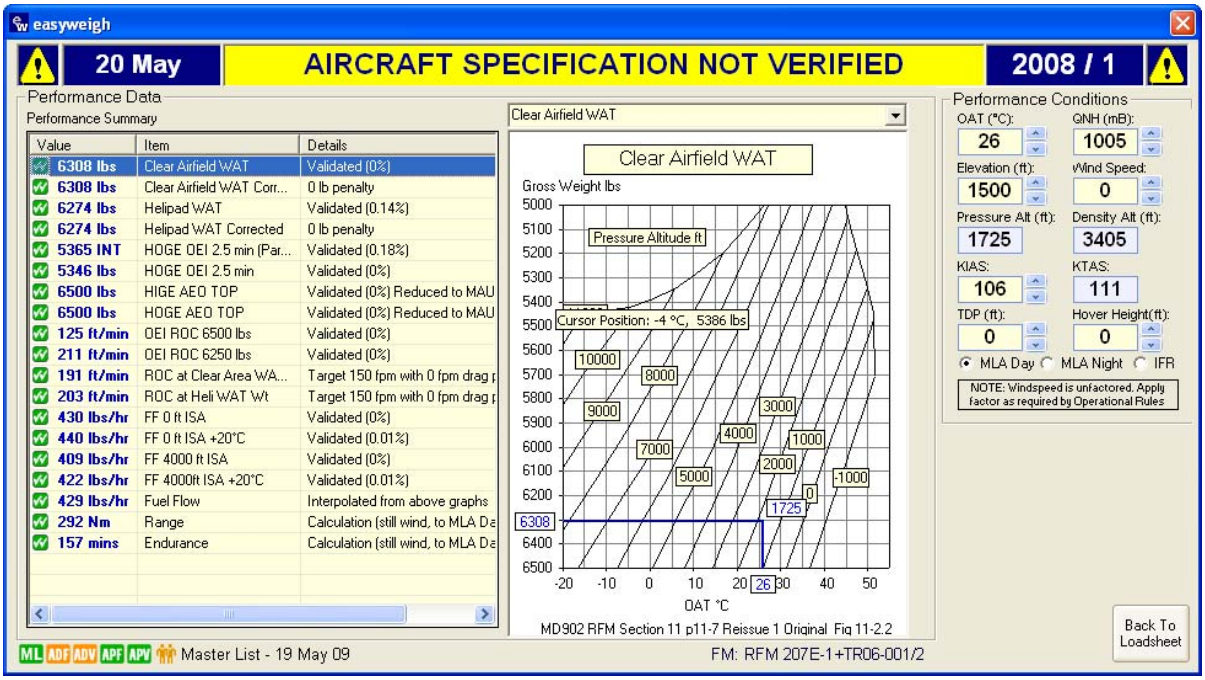
LIMITING WEIGHTS

- Click on the  button, and the 'Limiting Weights' form will open (right).
- Rearrange the order of the limiting weight graphs using the 'Up' and 'Down' buttons.
- On clicking 'Ok', the first 6 graphs in the list will be displayed on the performance tab in the order specified.
- NB. These should be in order of limiting weight, (heaviest available payload 1st for the 6 shown)



FULL PERFORMANCE SUMMARY PAGE

- Input 'Performance Conditions'; OAT, QNH, Take Off Elevation, Wind Speed, Indicated Air Speed, Take-Off Decision Point & Hover Height.
- Performance charts validation status indicated in the 'Performance Summary' list view.
- Performance is re-calculated and the results displayed in the Performance Summary grid, on the Weight and Centre of Gravity graphs, and in the Weight and Balance screen Performance Tab and Take-Off Data summary box
- Click on the dropdown above the graph to select alternative performance graphs
- The Performance Summary can be minimised by clicking on the 'Back To Loadsheet' button on the bottom right of the form.

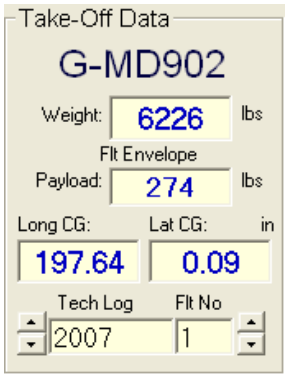


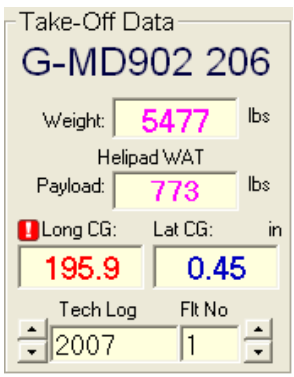
TAKE-OFF WEIGHT AND CENTRE OF GRAVITY SUMMARY

- Outside limits – **red with exclamation mark**
- Within limits – **blue**

If weight is limited by aircraft performance extra colour coding is applied, e.g. Cat A WAT limits applied:

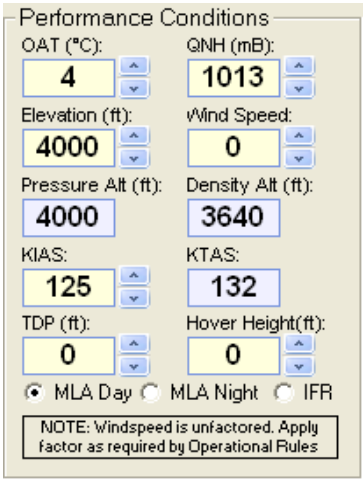
- Cat 'A' restricted – **darkest purple**
- Clear airfield – **dark purple**
- Short field – **medium purple**
- Helipad – **light purple**
- **NB**. The above limit descriptions are for illustration only, and may vary.

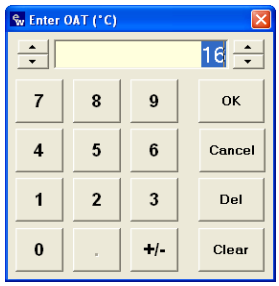




PERFORMANCE CONDITIONS

- Users can input the current environmental performance conditions:
  - OAT
  - QNH
  - Take Off Elevation
  - Wind Speed
  - Indicated Air Speed
  - Take-Off Decision Point
  - Hover Height
- Pressure Altitude, Density Altitude & True Air Speed are system calculated values
- On updating the above parameters, the Performance Graph input/output values are updated accordingly, giving up to date results for each chart.
- Toggle between 'MLA Day', 'MLA Night' & 'IFR' to update Range & Endurance calculations.
- Click the label above the input field to launch the input keypad (shown far right).

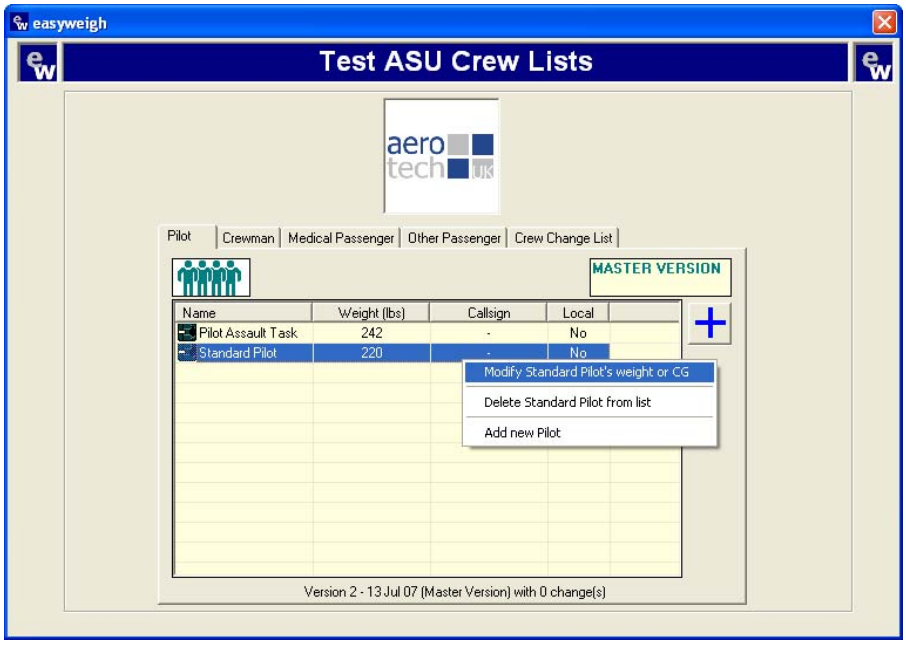




CREW LISTS

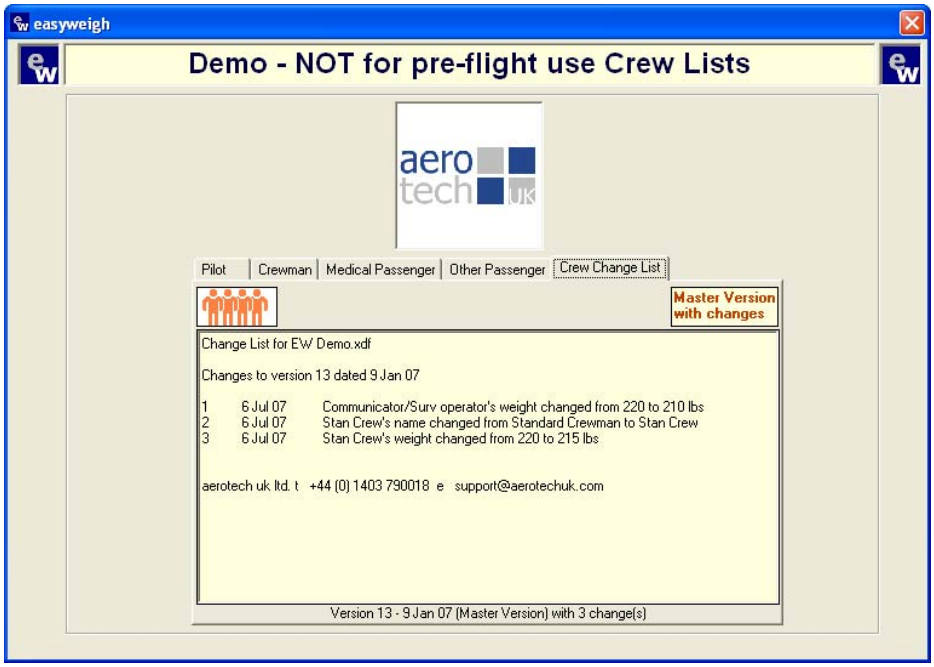
CREW LISTS

- Displays stored crew names and weights divided into
  - Pilots
  - Crewmen
  - Medical Passengers
  - Other Passengers
- Right Click on a name to modify, delete or add a new record
- Click on the plus icon to add a new record
- The following are utilised by the Electronic Flight Log (EFL) module only
  - Pilot Callsigns can be assigned/updated
  - Local flag to indicate if the record is to be synchronised with other units, or to be for 'Local' use only.



CREW CHANGE LIST

- Shows audit trail of changes made to the crew list

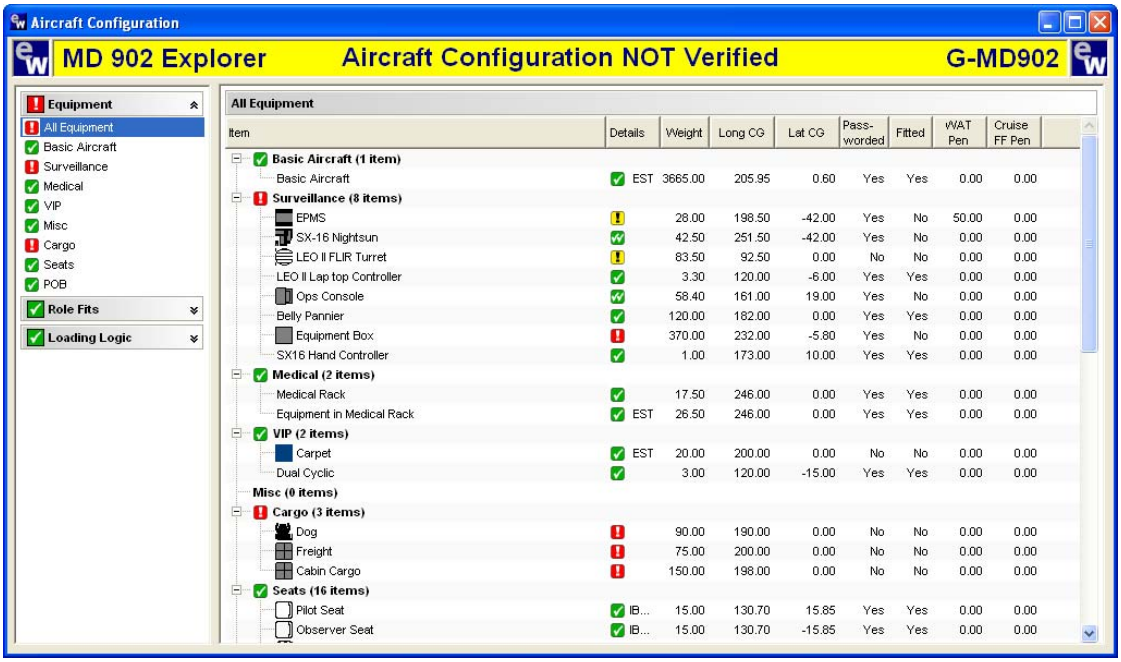


AIRCRAFT CONFIGURATION

EQUIPMENT

4 OPTIONAL ROLE EQUIPMENT LISTS;CARGO, SEATS & POB LISTS

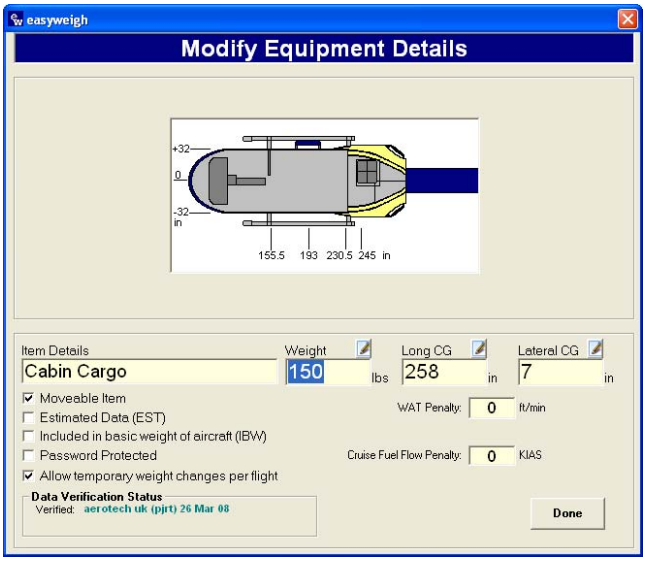
- Gives a summary of:
  - Weight
  - Longitudinal and lateral CG
  - If Password protected
  - Whether currently fitted to the aircraft on the loadsheet
  - Any performance penalties
  - Validation Status for Third Party Validated (TPV) or Locally Validated items
- Red exclamation mark indicates equipment items requiring data verification (TPV), or validation (non TPV)
- Yellow exclamation mark indicates a Third Party Validated (TPV) item requiring local validation.
- Orange exclamation mark indicates a TPV item that has been changed locally (on a child unit). There is the option to revert back to the original TPV settings; this can be done manually on the 'Modify Equipment Details' form via the 'Revert to Master' button.
- Single Green tick indicates a locally verified item
- Double Green tick indicates a TPV item that has been verified & validated.
- Double Click on an item to open the Modify Equipment Details form to update the equipment configuration



MODIFY EQUIPMENT WEIGHT OR MOMENT

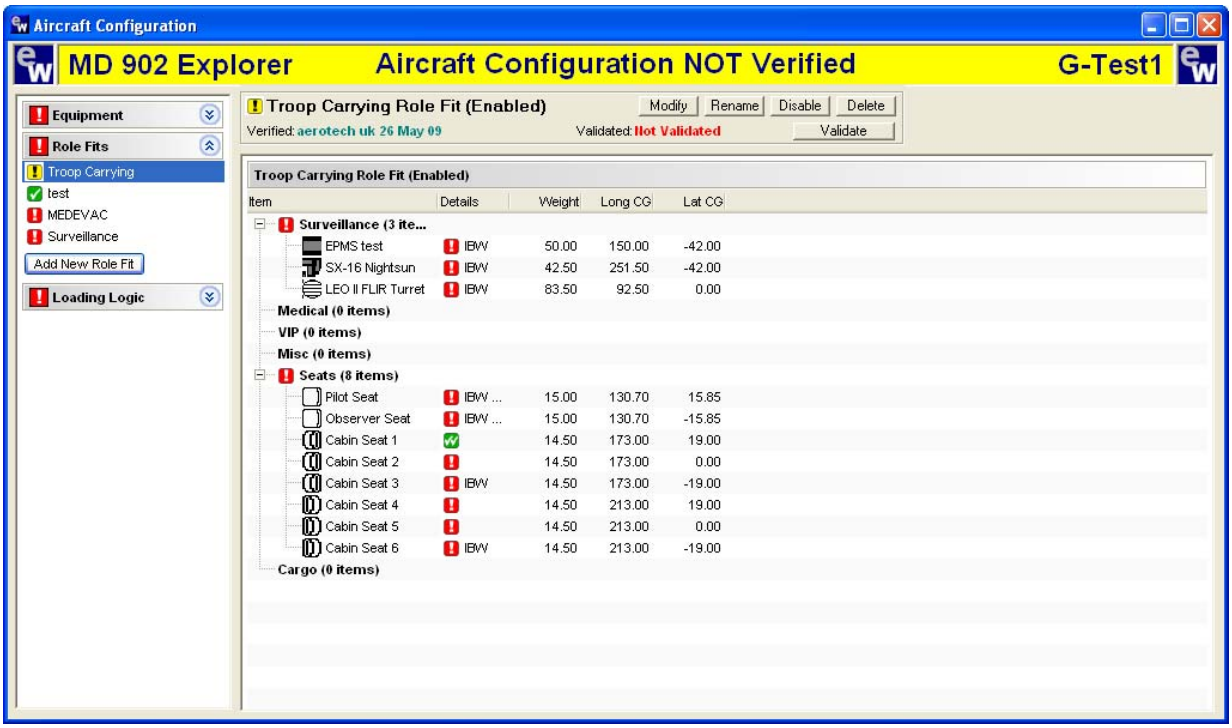
(Password Protected as indicated)

- Name, weight and C of G values can be adjusted manually
- Tick-boxes to control whether the item is:
  - Moveable Item
  - Estimated Data
  - Included in basic weight of aircraft
  - Password Protected
  - Allowed temporary weight changes per flight (without breaking validation for that item)
- If the item is marked 'moveable' the graphic may be dragged to a new position as required. The C of G values automatically recalculate.
- WAT & Fuel Flow Performance Penalties may also be adjusted manually if applicable.
- Data Validation Status is displayed (bottom left)
- Click the 'Verify' button to verify the items configuration as accurate (password protected)
- **NB**. Tick-boxes and performance penalties are Password Protected at all times.



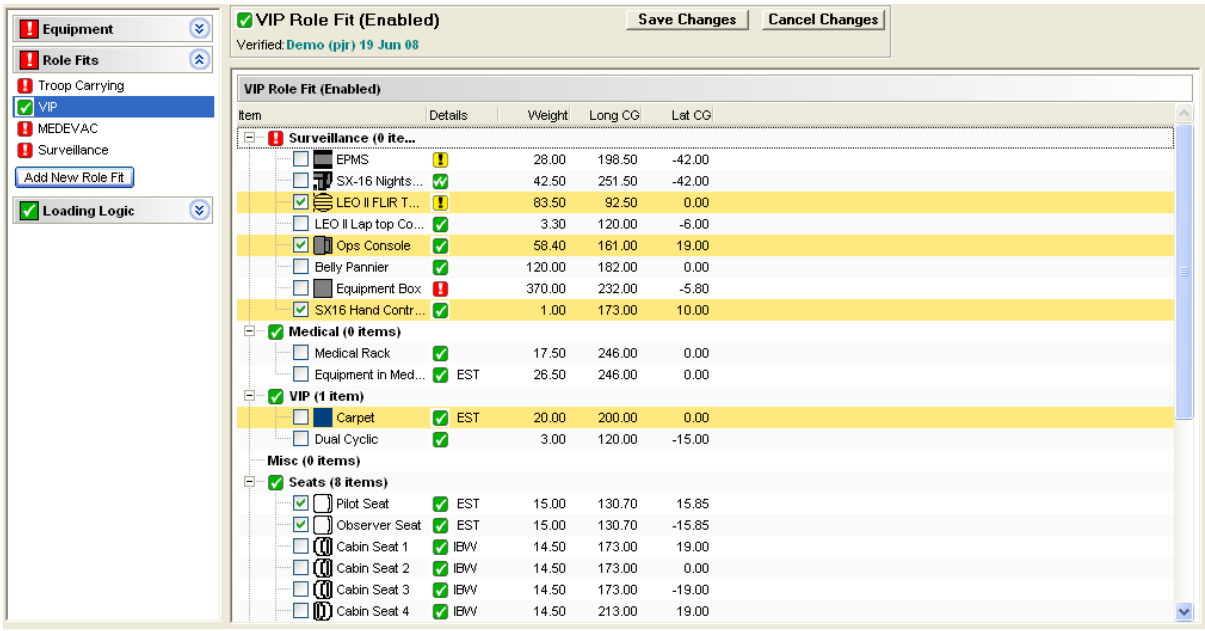
ROLE FITS

- Click ‘Role Fits’ on the left of the screen to display all pre-configured role fits.
- Allows you to view the equipment fitted for the selected role by default
- Click ‘Rename’ to change the name of the selected role (password protected).
- Click ‘Modify’ to update the equipment included in the selected Role Fit (password protected).
- Click ‘Disable’ to make the Role Fit inactive (password protected).
- Click ‘Delete’ to permanently delete the selected Role Fit - **note** this can not be reversed.
- Click ‘Verify’ to verify the role fit equipment list as accurate.
- Click ‘Revert to Validated Data’ to restore the Role Fit to previously validated configuration.
- Click ‘Add New Role Fit’ below the Role Fits list to add another role fit (up to 12 can be specified).



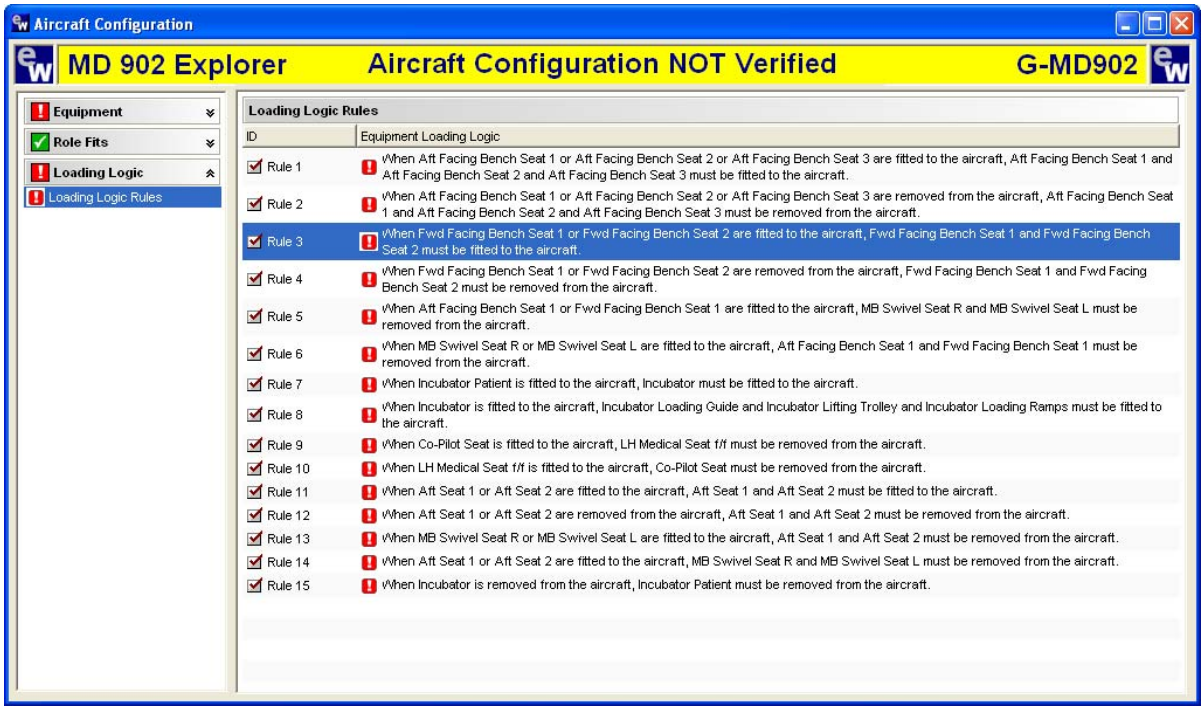
MODIFY ROLE FIT

- Click ‘Modify’ unlocks the selected Role Fit for editing, showing all available equipment, and it’s validation status.
- Items fitted or removed from the Role Fit since the last save are highlighted in Orange.
- Click ‘Save Changes’ to update the Role Fit to the new configuration.
- Click ‘Cancel Changes’ to abandon any changes that have been made.



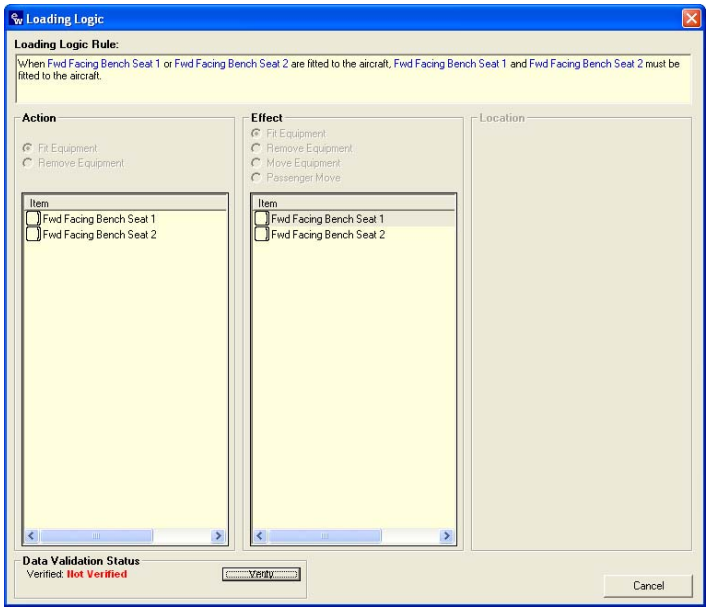
LOADING LOGIC

- Click ‘Loading Logic’ on the left of the screen to display all Equipment Loading Logic rules.
- Disable/Enable rules via tick-boxes.
- Rule validation status indicated using icons as per the Equipment Lists.
- View details of a rule by double clicking on a rule to open the ‘View Rule’ form.



VIEW RULE

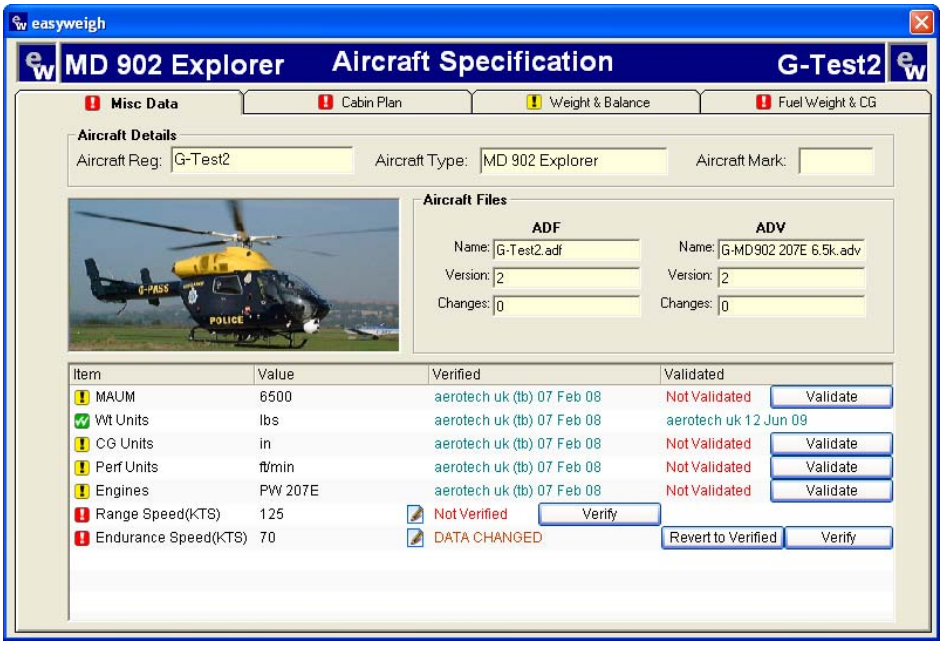
- The Panel at the top of the screen summarises the logic to be applied.
- The ‘Action’ frame displays what action will trigger the rule (via the radio buttons and equipment list).
- The ‘Effect’ frame displays what action will be taken when the rule is triggered (again via the radio buttons and equipment list)
- The ‘Location’ frame is only displayed where the effect is to move Equipment or a Passenger.
- Validation status displayed at the bottom of the form.
- Click ‘Verify’ to verify the loading logic rule as meeting requirements.



AIRCRAFT SPECIFICATION

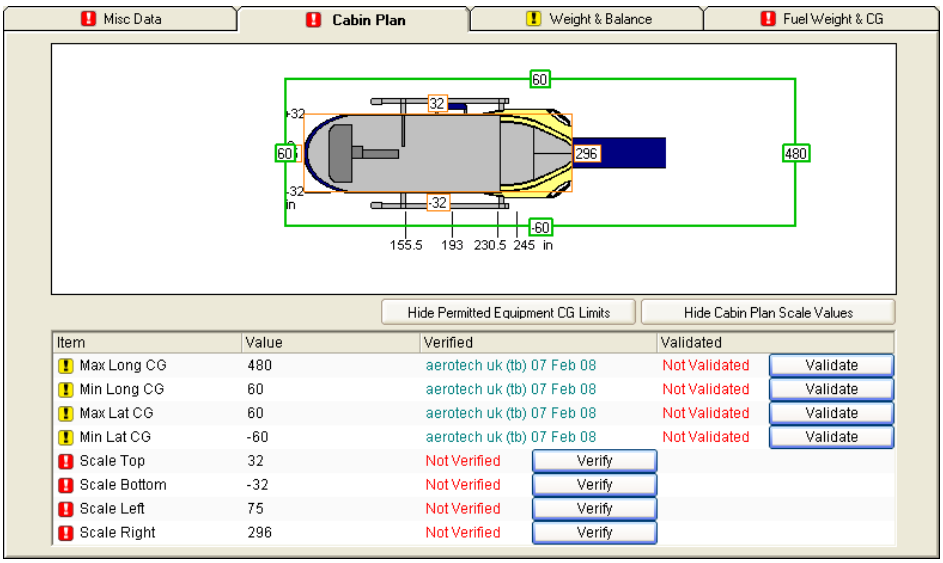
MISC DATA

- Displays miscellaneous aircraft data, requiring the following to be verified & validated:
  - MAUM
  - Weight units
  - CG units
  - Performance Penalty units
  - Engines
- Click the Verify/Validate buttons to complete validation of the values in the data grid.
- Click the edit button in the data grid to launch an edit form, where you can update stored values as required. (**NB** Default Range & Endurance speeds are used by the Mission Module calculations).
- On changing values from validated settings, an option to Revert to Verified will appear, giving you the ability to revert changes made back to previously validated values.



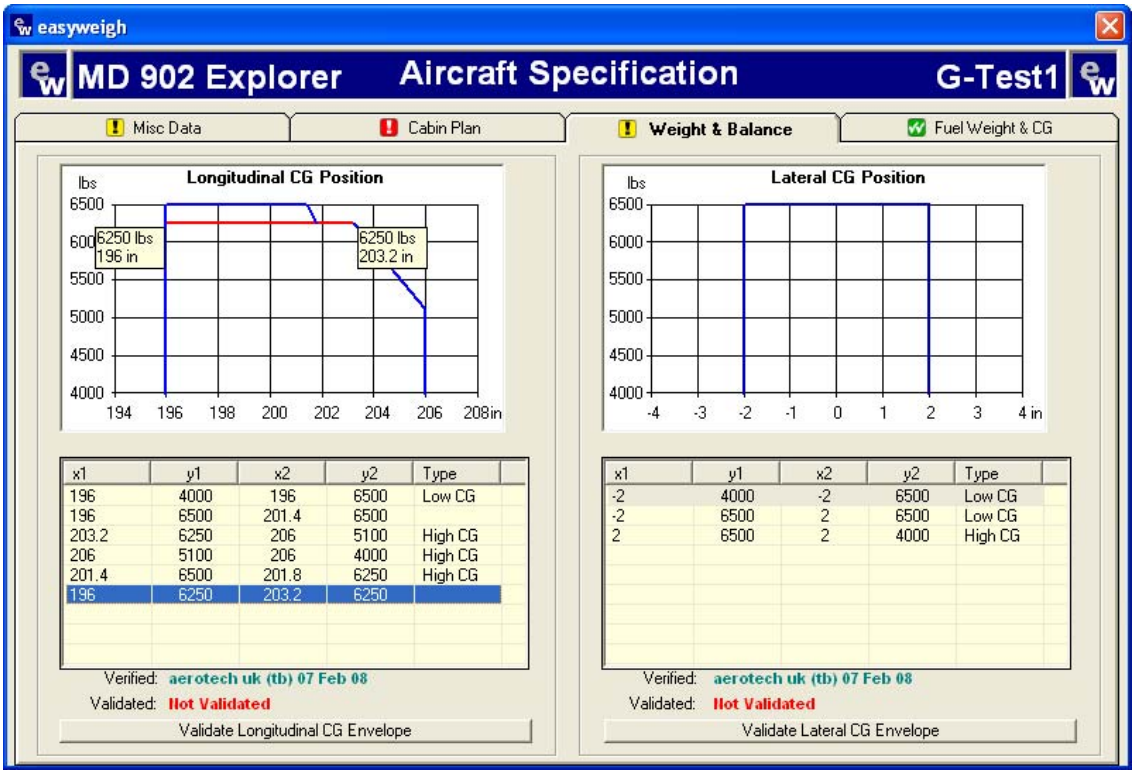
CABIN PLAN

- Click 'Show Permitted Equipment CG Limits' button to display/hide the CG limiting values in place for gross error checking (shown as a green box around the cabin plan).
- Click 'Show Cabin Plan Scale Values' to display/hide the cabin plan scaling (shown as an orange box on the cabin plan).
- Mouse tooltip on cabin plan shows cursor CG position relative to the cabin plan.
- Click the Verify/Validate buttons to complete validation of the values in the data grid.



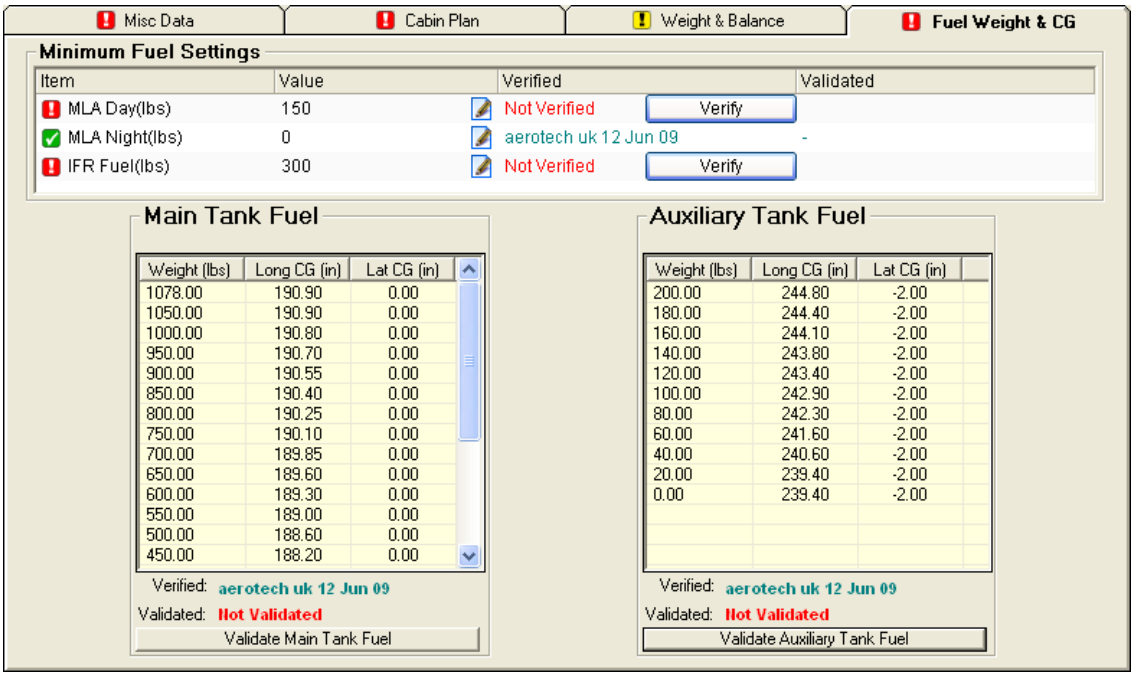
WEIGHT & BALANCE

- Displays the flight envelope data in graphical and pure data formats.
- Click on a row in the data grid, the selected line will show highlighted in red on the graphical view.
- Once the data has been checked against the flight manual, click the Verify/Validate button to complete validation.



FUEL WEIGHT & CG

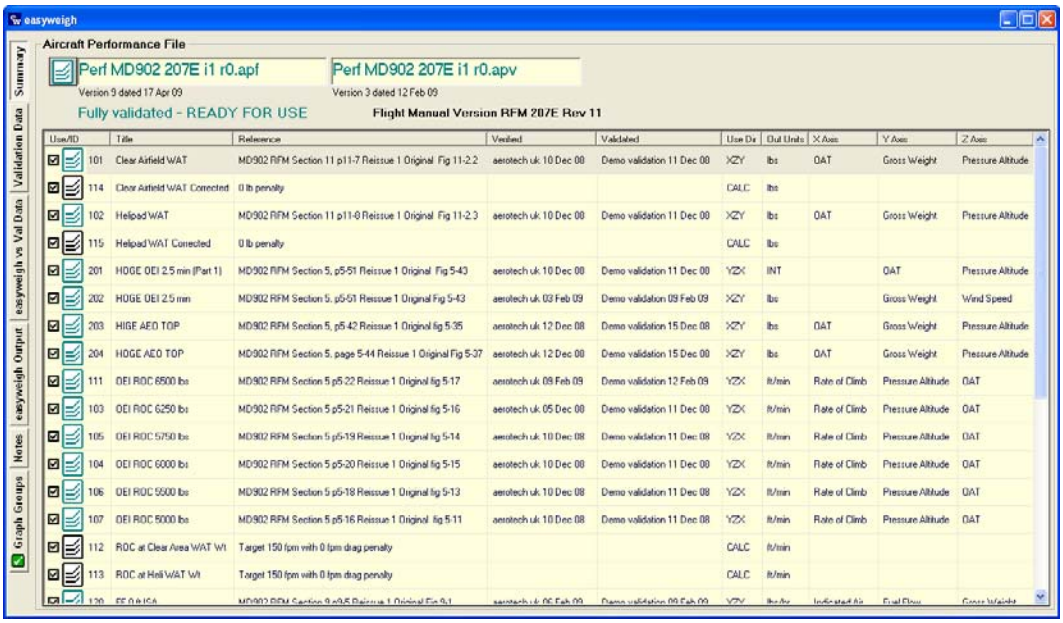
- Displays the fuel C of G data and the minimum fuel settings.
- Click the edit button to launch the keypad edit form, where you can update the minimum landing fuel values. (**NB** These settings are used when calculating remaining Range & Endurance).
- Click the Verify/Validate buttons to complete validation
- Adjust fuel contents from the Weight and Balance screen



PERFORMANCE

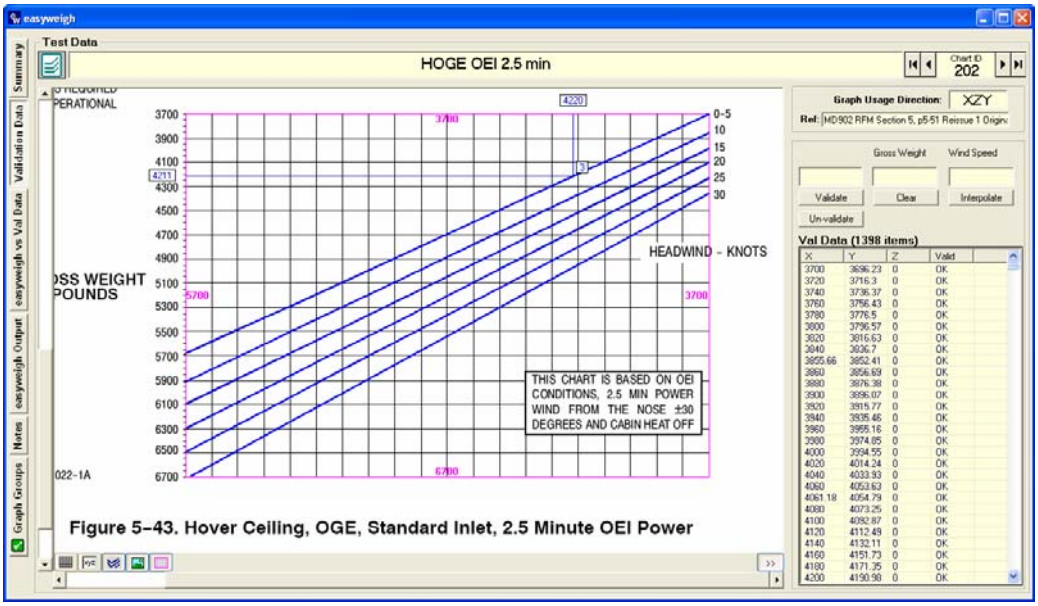
SUMMARY

- Displays a list of the performance graphs available.
- Filter graphs available for use in other areas of the application via tick-boxes.
- Colour coded icons details whether the graphs current status:
  - Green indicates the graph is fully validated and is ready for use
  - Amber indicates changes have been made to the graphs
  - Red indicates the graph has not been fully validated
  - Black indicates no validation data (Not for Pre-flight Use).
- Double-Click selection of a record will take you into the 'easyweigh vs Val Data'



VALIDATION DATA

- Allows you to view the performance graphs from the Flight Manuals.
- Allows you to view the Validation File Graph References on the right
- Click an entry in the Val Data grid (on the right) to plot individual data points on the graph image.
- Click Validate to plot all points in the Val Data grid onto the graph image; complete checks of the graphs underlying image, scaling and interpolation then mark the chart as Validated. Un-validate option available
- Click Clear to remove plotted points from the graph image.
- Click Interpolate to plot points with user parameterised values.
- Slow, Fast & Pause buttons allow user control of the plotting speed to ease the review process.



EASYWEIGH VS VAL DATA

- Allows you to compare the graphs from the flight manuals against those generated by easyweigh
- Includes a comparison of calculated values against static Test Data values.

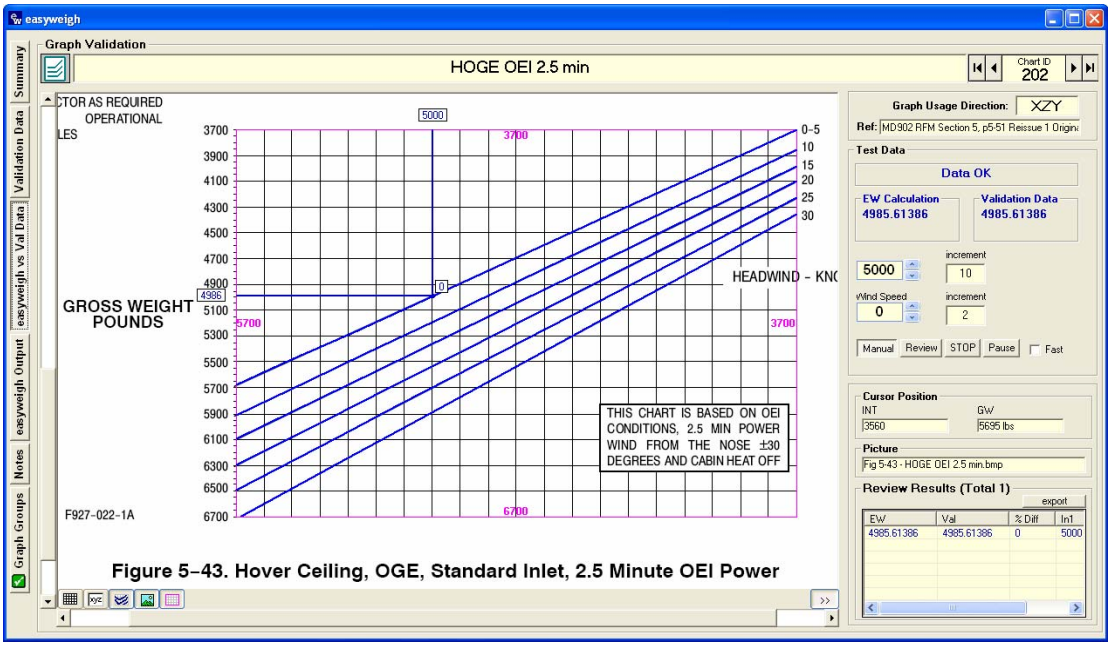


Figure 5–43. Hover Ceiling, OGE, Standard Inlet, 2.5 Minute OEI Power

- Use the arrows to navigate between the different graphs available

IMAGE TOOLBAR allows control of the data displayed on the chart area.

- Toggle the button to hide/plot easyweigh chart grid lines (generated from scaling values).

- Toggle the button to hide/plot axis labels.

- Toggle the button to hide/show the easyweigh plotting overlay from the graph image

- Toggle the button to hide/show Fuel Flow conversion axis (where fuel flow generated from TQ conversion - for validation of TQ to FF conversion purposes).

- Toggle the button to hide/show the Fuel Flow axis labels (where fuel flow generated from TQ conversion - for validation of TQ to FF conversion purposes).

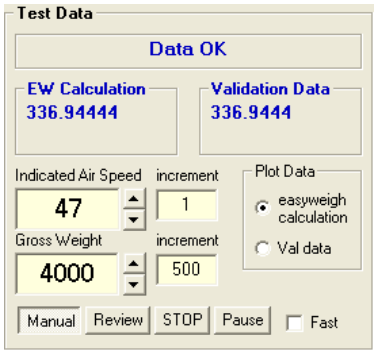
- Toggle removes the graph image allowing you to view the easyweigh plotting in isolation. Click the button again to reinstate the graph image

- Toggle the button to hide/show the pink box scaling.

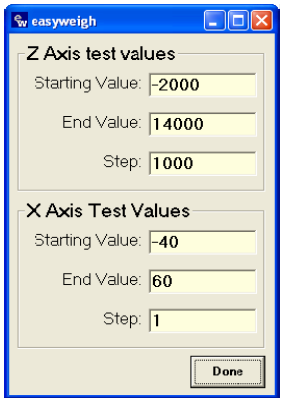
- Click to hide the Image toolbar (give increased screen size for viewing the chart)

- Click to show the Image toolbar

- Click ‘Review’ will allow you to validate the graphs automatically.
- Click ‘Manual’, and adjust the OAT & Pressure Altitude values to plot specific values.
- In the ‘Plot Data’ frame, you can select which values you want to see plotted against the graph image.

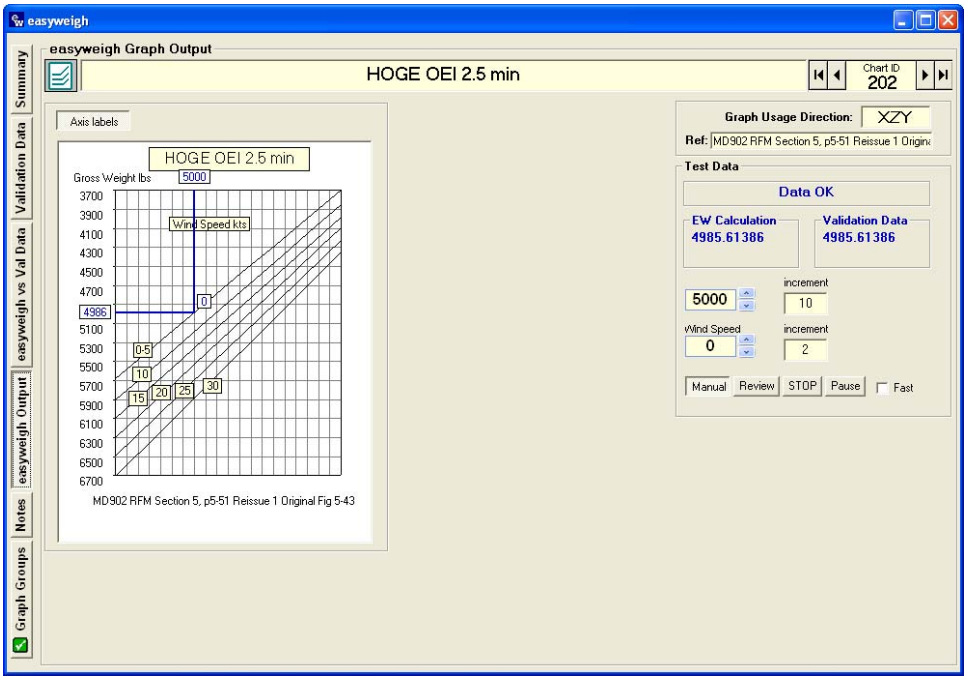


- On reviewing the graph, you are given the option of entering ‘Start’ & ‘End’ values, and to detail the ‘Step’ (incrementation) for the automated review.
- On Clicking ‘Done’, easyweigh will plot calculated values (generated using the parameters supplied), plotted against the flight manual performance graph image.
- The easyweigh results are displayed colour coded, showing blue for valid calculations, and red for those that are invalid.



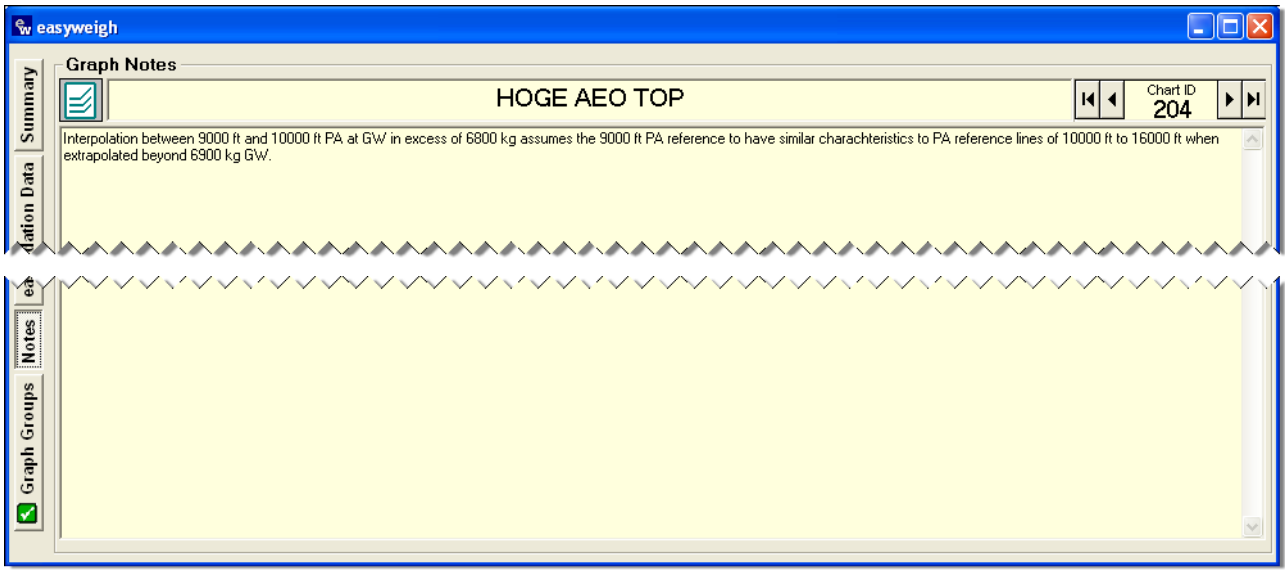
EASYWEIGH OUTPUT

- Allows you to view the performance graphs as generated by easyweigh.



NOTES

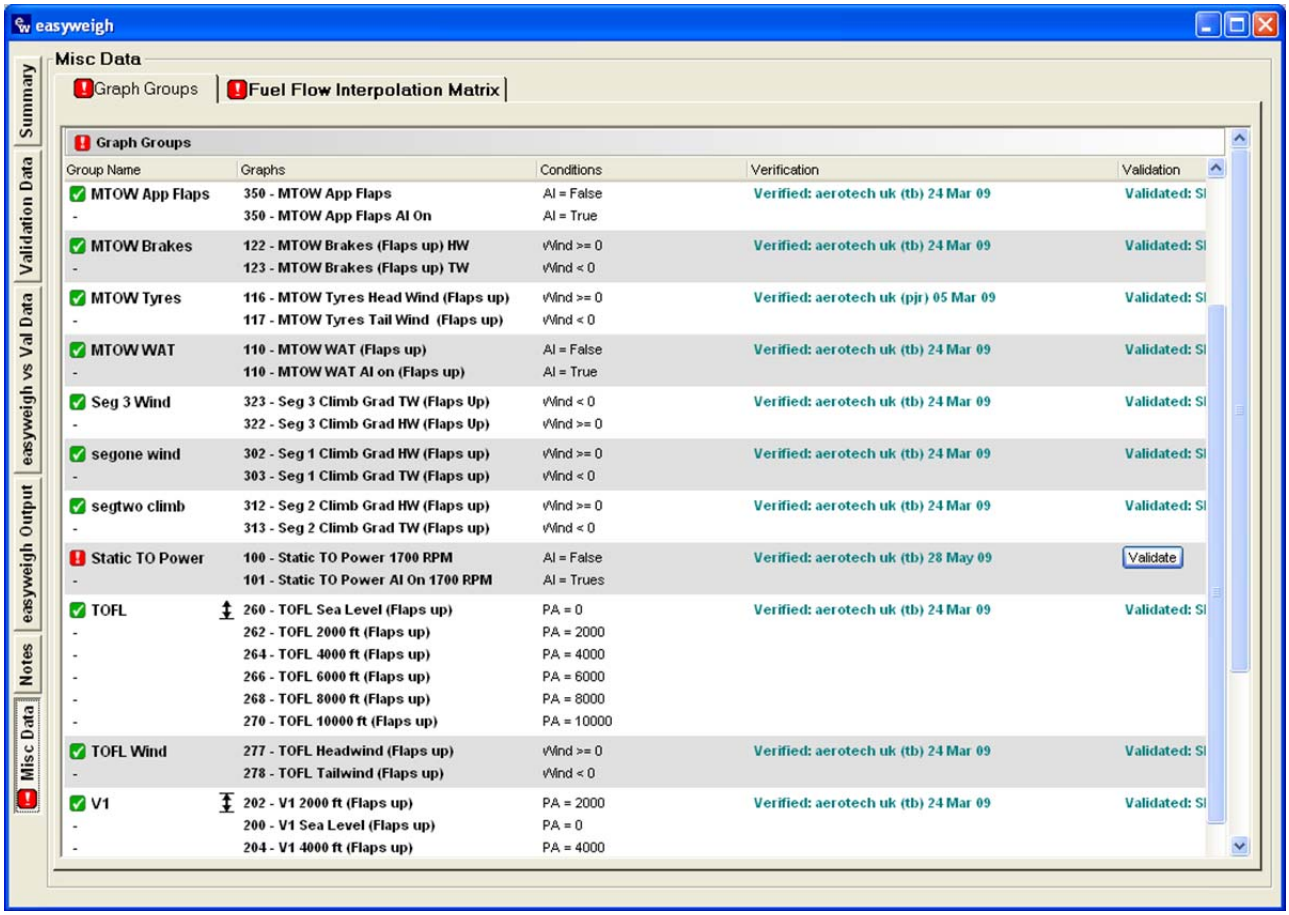
- Displays any notes of assumptions made, amendments to the underlying graph images, or any customer specific information.



MISC DATA

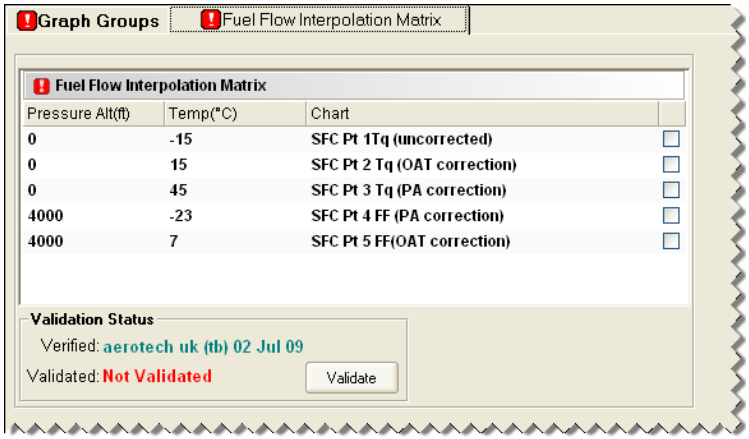
GRAPH GROUPS

- Chart usage can be controlled using Graph Groups
- Each Group contains a number of charts, and show the conditions under which circumstances each chart is used by easyweigh
- Validation status indicated next to the individual groups and overall status indicated on the tab strip. Green tick indicates validated, Red exclamation indicates not validated.
- Click on the Validate button for each graph group to confirm the selected group has been configured correctly - continue until all the graph groups have been validated.



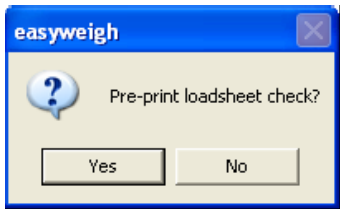
FUEL FLOW INTERPOLATION MATRIX

- Where Fuel Flow chart exist for various PA's & OAT's, easyweigh uses the interpolation matrix to determine which charts to use when interpolating fuel flow for given performance conditions
- To validate this data:
  - Check that the PA & OAT match that entered in the grid for each chart.
  - Tick the checkbox for each entry as they are confirmed correct.
  - Click the Validate button and enter your validation password.

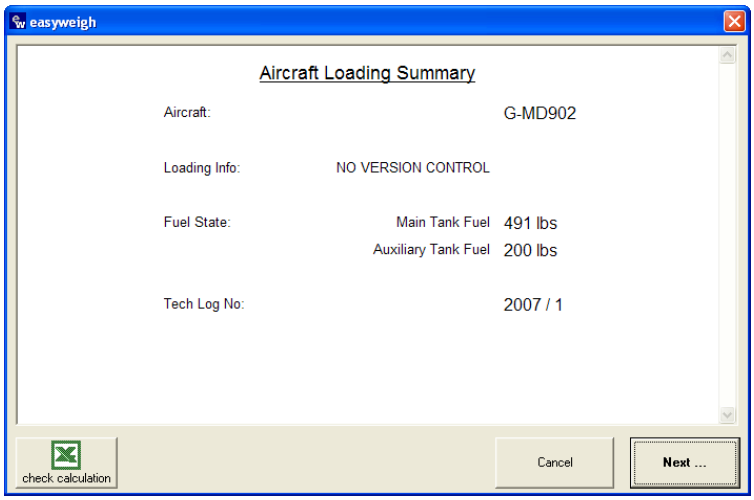


PRINT LOAD SHEET

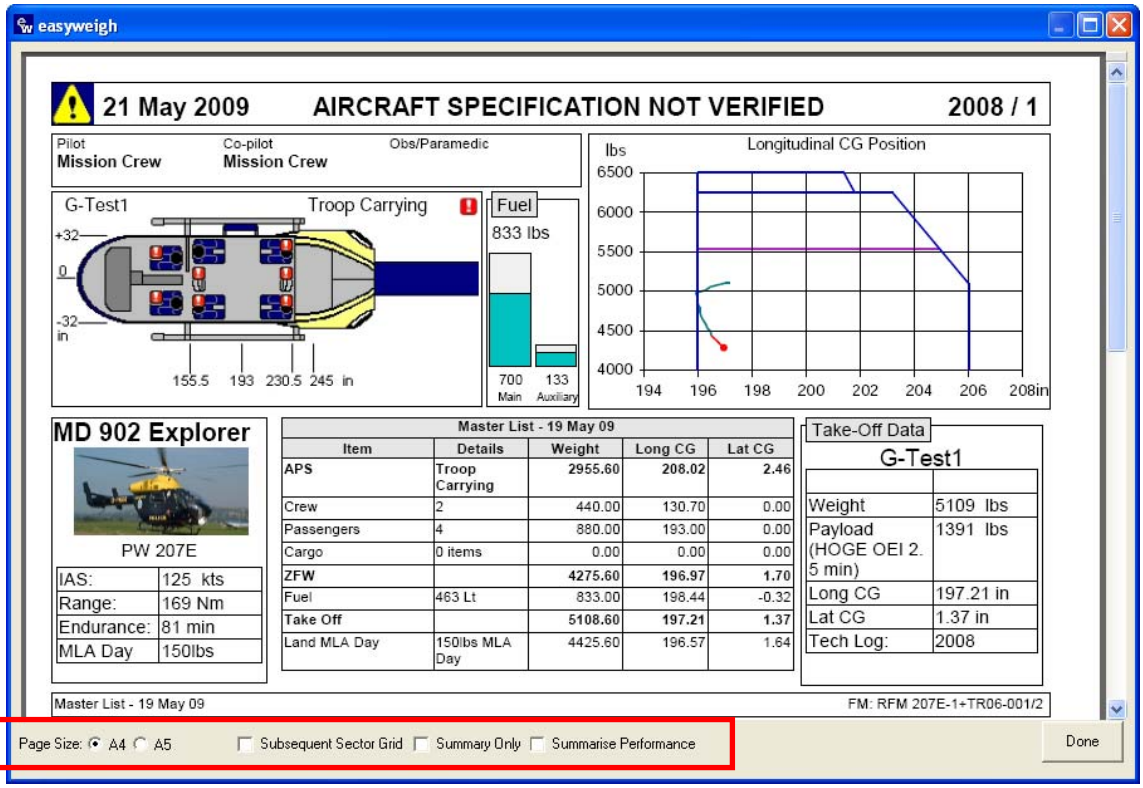
- Pre-Print loadsheet check. Only available from the Weight and CG Calculation page.
- Click on 'Print Load Sheet' icon; the message box (right) allows you the option of viewing an Aircraft Loading Summary prior to generating the Load Sheet.



- Loading Summary, Click 'Next' to progress through the loading checks, and finally to the pdf 'Load Sheet'.



- PDF Load Sheet, which can be printed & signed to act as the Loading Certificate.
- Load sheets are automatically saved into the Archive directory (set in the File menu).
- Default filename including:
  - Aircraft registration
  - Tech log number (pre-set manually in the weight & C of G calculations page)
  - Date
- Options to change Page Size, add the 'Subsequent Sector Changes' section to the bottom of the PDF, show 'Summary Only' (i.e. hide performance data) & 'Summarise Performance' which only shows chart output for the last chart in a cascade.



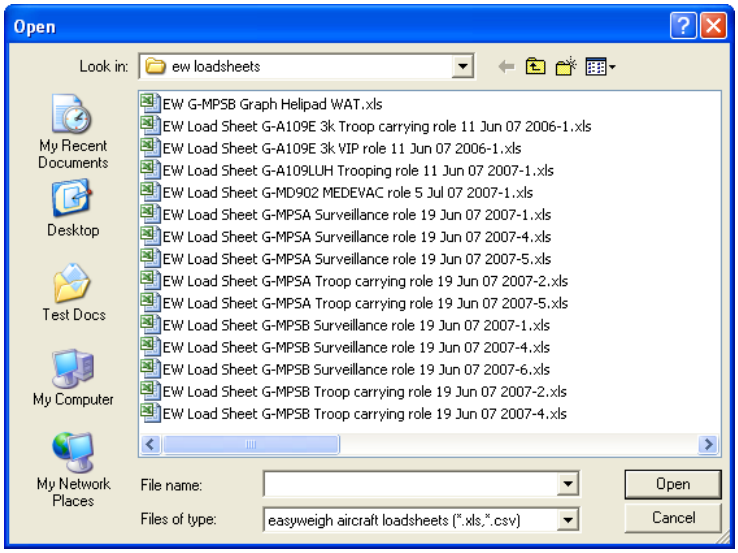
EXPORT CALCULATION TO EXCEL

- Excel opens in separate window
- Predefined spreadsheet performs an independent calculation of the data
- easyweigh calculations are compared with the excel calculations
- Includes performance data & equipment validation status
- Excel Loadsheets are automatically saved into the Archive directory (set in the File menu).
- Default filename including:
  - Aircraft registration
  - Tech log number (pre-set manually in the weight & C of G calculations page)
  - Date

	A	B	C	D	E	F	G
1	easyweigh	Weight	Long CG	Lat CG	Long Moment	Lateral Moment	Status
2	calculation check						
3	Excel calculation	6174.30	198.49	0.28	1225517.95	1744.20	
4	easyweigh calculation	6174.30	198.49	0.28			
5	FM: RFM 207E-1+TR06-001f2						
6	**Troop Carrying'**	**G-MD902**	**TEST-01**	**PW 207E**	**2007 1**	**20 Jun 08**	
7	**Not for pre-flight use**						
8							
9	Basic Aircraft (EST)	3665.00	205.95	0.60	754806.75	2199.00	Verified
10	LEO II Lap top Controller	3.30	120.00	-6.00	396.00	-19.80	Verified
11	Belly Pannier	120.00	182.00	0.00	21840.00	0.00	Verified
12	SX16 Hand Controller	1.00	173.00	10.00	173.00	10.00	Verified
13	Medical Rack	17.50	246.00	0.00	4305.00	0.00	Verified
14	Equipment in Medical Rack (EST	26.50	246.00	0.00	6519.00	0.00	Verified
15	Dual Cyclic	3.00	120.00	-15.00	360.00	-45.00	Verified
16	Pilot Seat (IBW) (EST)	0.00	0.00	0.00	0.00	0.00	Verified
17	Observer Seat (IBW) (EST)	0.00	0.00	0.00	0.00	0.00	Verified
18	Cabin Seat 1 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
19	Cabin Seat 2 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
20	Cabin Seat 3 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
21	Cabin Seat 4 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
22	Cabin Seat 5 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
23	Cabin Seat 6 (IBW)	0.00	0.00	0.00	0.00	0.00	Verified
24	Standard Pilot	220.00	130.70	15.85	28754.00	3487.00	Verified
25	Standard Crewman	220.00	130.70	-15.85	28754.00	-3487.00	Verified
26	Medical Pax	180.00	173.00	0.00	31140.00	0.00	Verified
27	Standard Crewman	220.00	213.00	19.00	46860.00	4180.00	Verified
28	Standard Crewman	220.00	213.00	-19.00	46860.00	-4180.00	Verified
29	Main Tank Fuel 600 Lt	1078.00	190.90	0.00	205790.20	0.00	Verified
30	Auxiliary Tank Fuel 111 Lt	200.00	244.80	-2.00	48960.00	-400.00	Verified
31							
32	22 Items						
33							
34	Take-Off Weight:		6174 lbs	In Limits			
35	Payload Available:		76 lbs	Helipad WAT			
36	Long CG:		198.49 in	In Limits			
37	Lat CG:		0.28 in	In Limits			
38							

ARCHIVED LOAD SHEETS

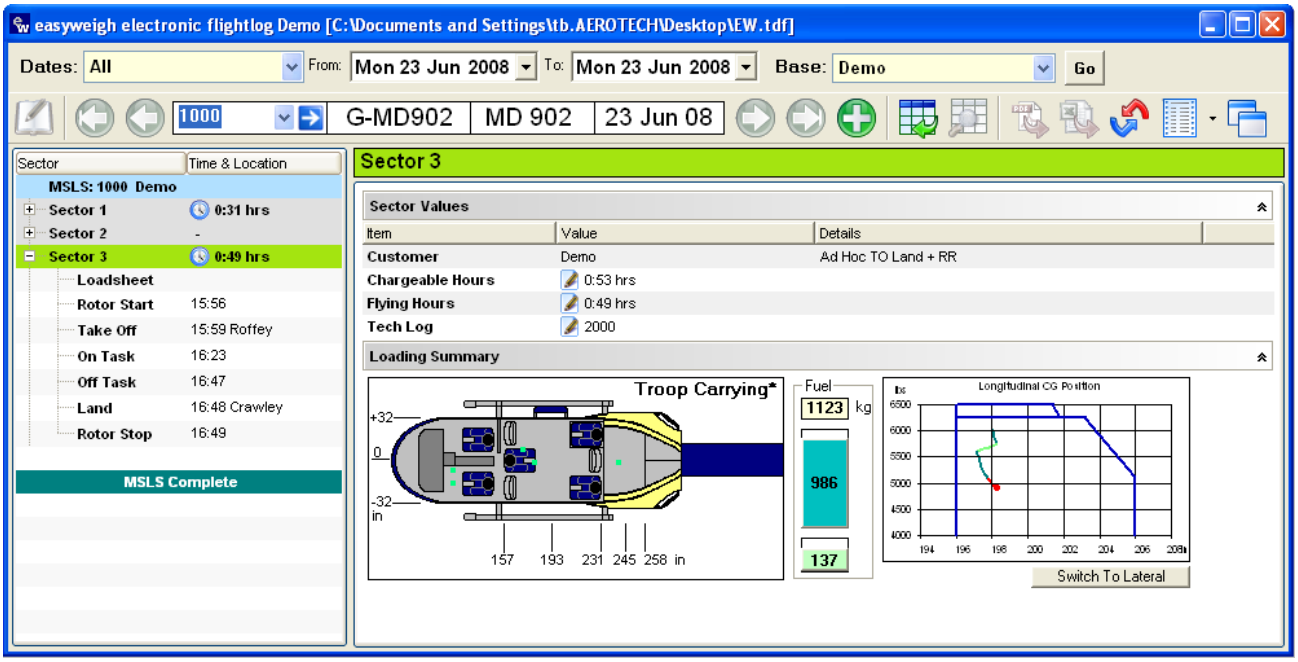
- Press the archived load sheets icon to open the backup directory.
- Select the load sheet you wish to view
- Press Open to view
- Excel will open the selected loadsheet, where you can view, print, and close when finished.



ELECTRONIC FLIGHT LOG - EFL (OPTIONAL)

EFL is an electronic sector log giving the following:

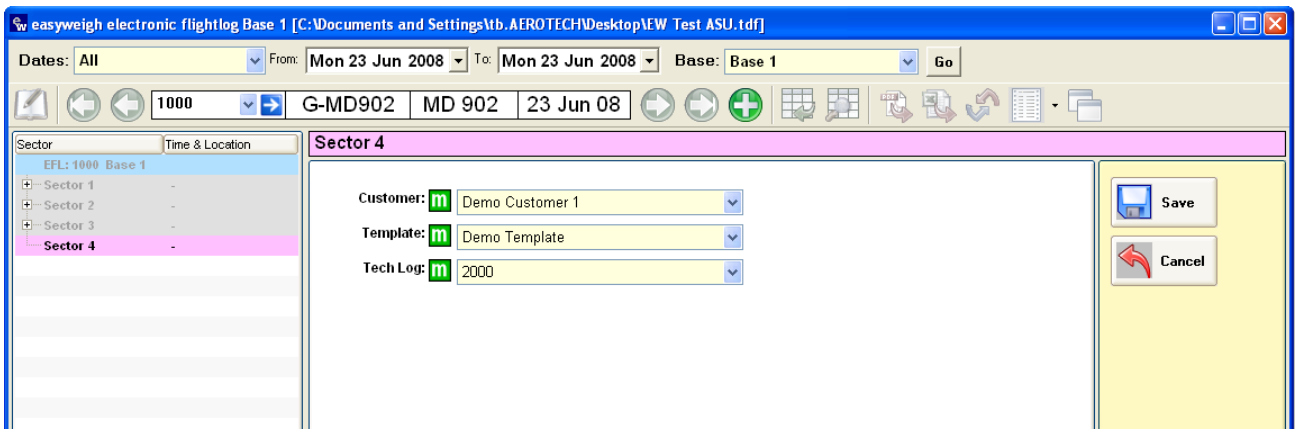
- ❑ The ability to generate electronic multi sector loadsheets (eMSLS).
- ❑ Record sector events, choosing from a pre-configured list (rules exist to prevent invalid sequences, ie. Take off after Rotor Stop).
- ❑ Reporting of Tech Logs, Sector Logs and Customer Billing.
- ❑ Data Synchronisation to HQ from Satellite units (Optional).



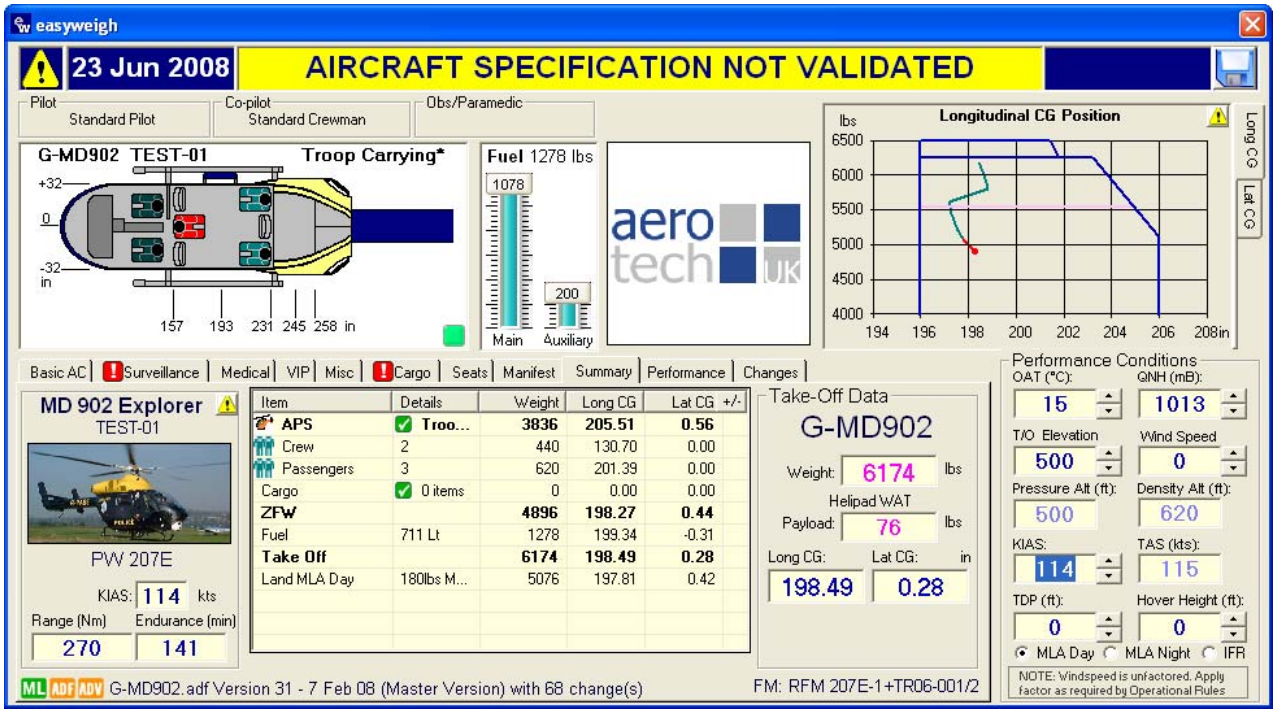
❑ Click + icon to create a new Sector Log

❑ Click to open a 2nd EFL window to allow simultaneous entry of sector logs for another aircraft.

- ❑ The screen (in Detail View) is split into 5 main sections:
  - o Database filter at the top of the screen allows the database to be filtered by date, or base.
  - o EFL Toolbar (below the Database filter) allows navigation, and displays headline Sector Log info.
  - o Event Summary (on the left), shows a list of all Sectors & their associated Events for a sector log.
  - o Event Detail pane in the centre shows all information for the Sector or Event selected in the Event Summary.
  - o Add Event panel on the right shows the next available action (in edit mode only - see below).
- ❑ Complete the applicable fields in the centre panel then click the 'Loadsheet' button on the Add Event panel.

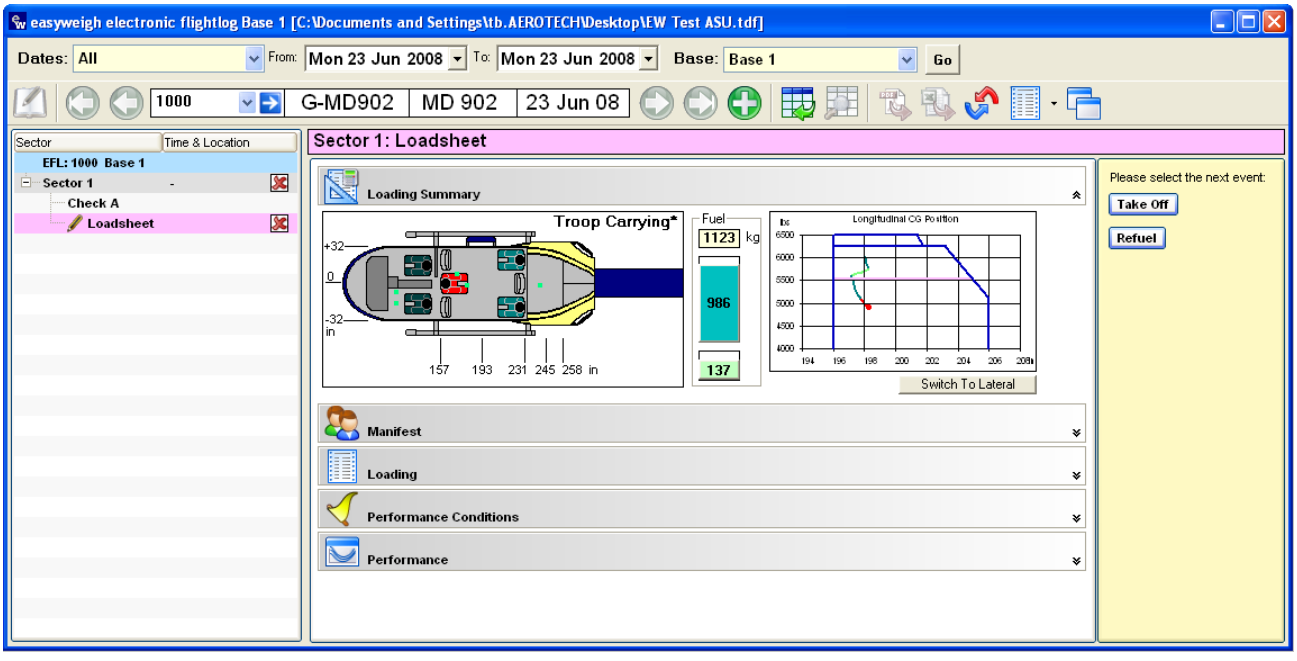


- Configure easyweigh loadsheet to match the aircrafts loading at take-off, checking performance & CG data is within acceptable limits.

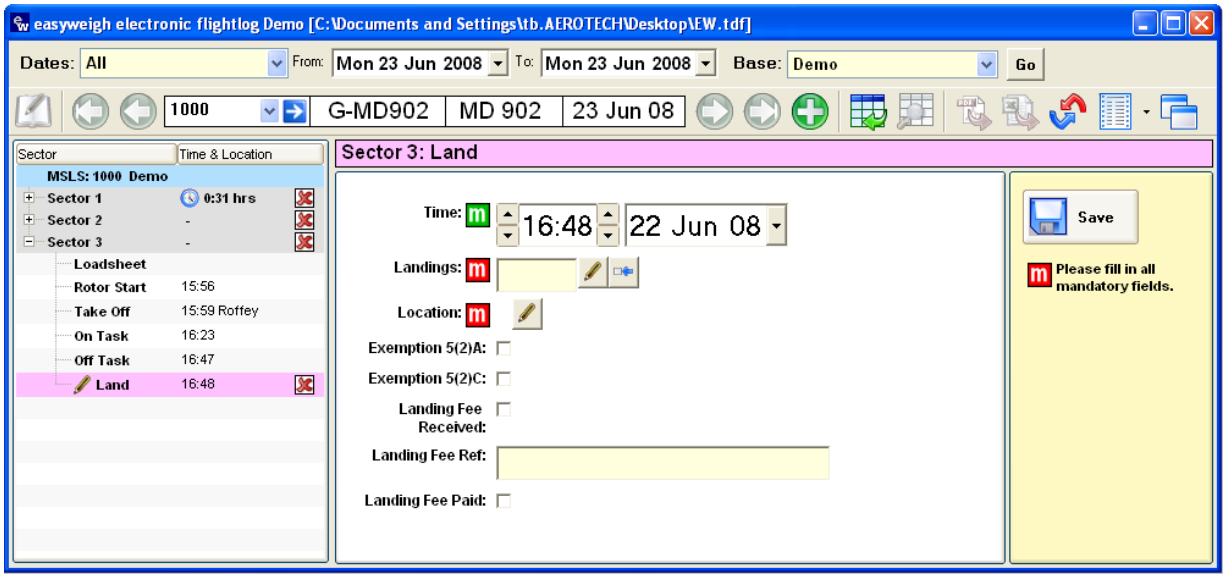


- Once loading is completed, click the disc icon (top right of the loadsheet) to save the loading data into the Sector Log

- On saving the loadsheet, EFL displays a summary page of all the loading information grouped by:
  - Loading Summary, shows the cabin plan & flight envelope information
  - Manifest, shows the crew & passenger manifest
  - Loading; shows weight & CG data for the aircraft, equipment, crew, passengers and fuel loaded.
  - Performance Conditions shows the environmental conditions configured on the loadsheet
  - Performance displays all the performance chart outputs for the given loading configuration & performance conditions.
- To view any of the above items, simply click on the banner of the required section.
- Select the next event via the 'Add Event' panel



- Event/Sectors are colour coded as follows:
  - Pink banners indicate an incomplete event, or a complete event, awaiting the next action
  - Green banners indicate a completed/closed sector.



- Message will show if another machine has the selected page open for editing to prevent multi-user data entry conflicts.

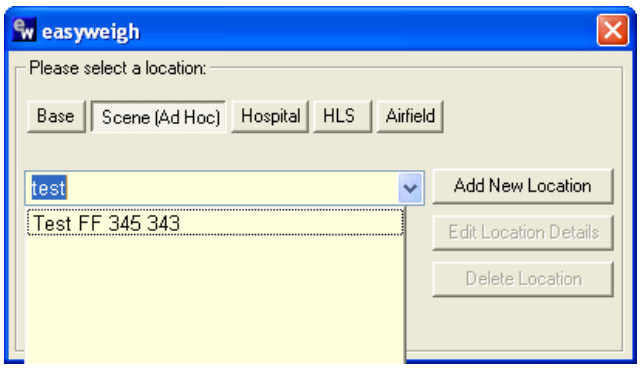
- The Red Cross (delete icon) is visible during sector edit; click to delete the selected event.

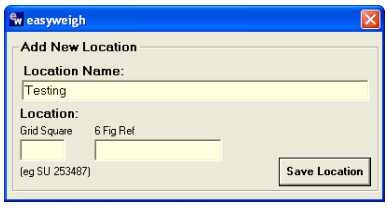
- Green M icon indicates a mandatory field that has been completed.
- Red M icon indicates a mandatory field awaiting completion.

- Click the 'Fill Field' icon (left), to fill the associated field with default values. (For Locations, the default value is the 'home' base specified in the Admin Control Panel). Hover over the button to see a tooltip of what the default value is for the corresponding field.

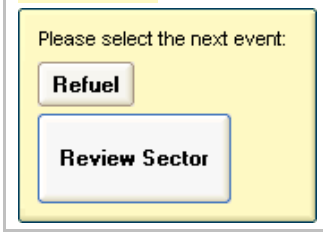
- Click the 'edit' icon (left) to launch the 'Select Location' form (below); also launches a numeric keypad when clicked next to Landings.

- Click the location type required i.e. HLS, Airfield...
- Start typing the location name in the dropdown.
- If the location already exists, the dropdown menu will be prefilled with existing records matching the text typed. Simply click on the location required then click the 'Select Location' button.
- On clicking the 'Select Location' button, the location is returned into the event location field.
- To edit a location, select the location from the dropdown list & click 'Edit Location Details'.
- To delete duplicate locations, select the location from the dropdown list & click 'Delete Location', you will then be forced to re-assign events using that location to another location (**HQ only**)
- For a new location, type location name in the dropdown and click 'Add New Location' to add the location, or for Scene locations, launch the form (over) to enter the Grid Reference. Click Save to save & select the location.



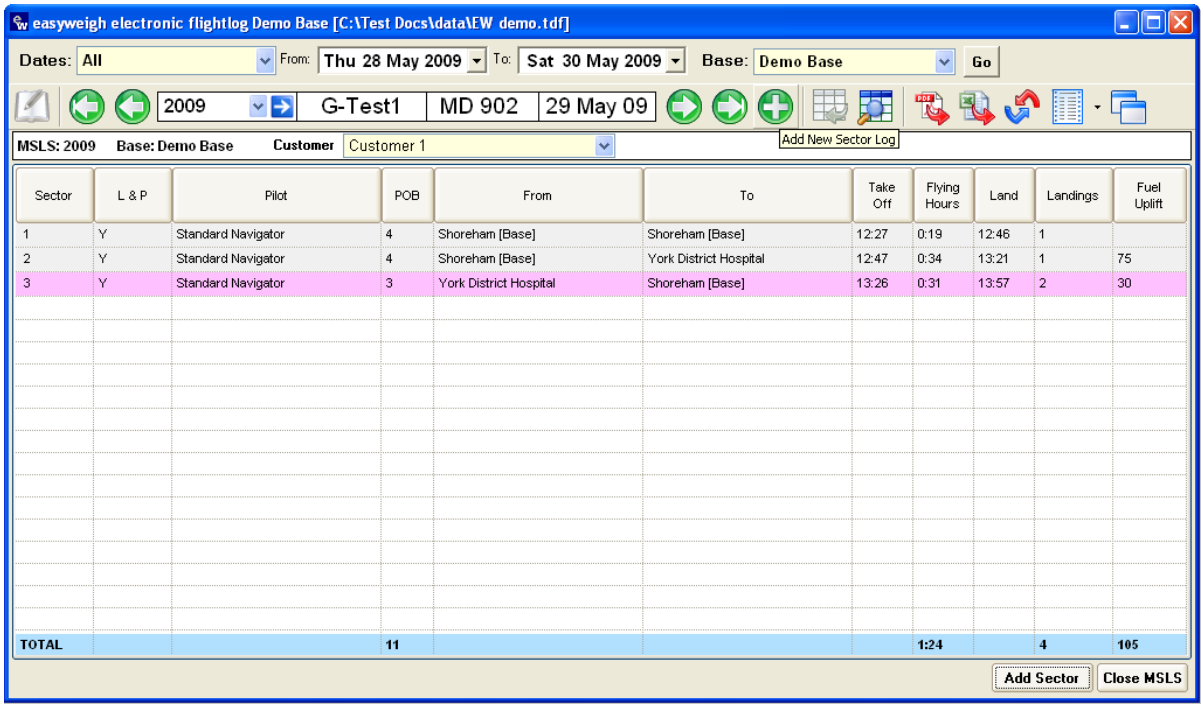


- Once a change has been made to an event, the 'Save' & 'Cancel' buttons will become visible, and allow the user to save or cancel the changes made.



- Once the flow of events has reached a suitable end point, i.e. 'Land' has been completed, you will be given the options to:
  - Add any other optional events, i.e. Refuel
  - or 'Review Sector'
- Click 'Review Sector' will switch EFL to the Summary view, where you can review the values entered on the selected MSLS.

- The Summary View displays a summary of the selected Sector Log
- The view can be filtered using the dropdown menus on the white toolbar.
- Click the column headings to sort the records by an individual column.
- Column Totals are shown at the bottom of the list where relevant (highlighted in blue).



Add Sector

- Click 'Add Sector' will allow you to create another sector.

Close MSLS

- 'Close MSLS' will close the selected electronic multi sector loadsheet for the addition of sectors.

- Once a sector log has been closed, you will be unable to add any further sectors, though editing a sector will still be possible - the record will be marked 'MSLS Complete'.

Re-open MSLS

- Click the 'Re-open MSLS' button to re-open a closed sector log for addition of missing sectors, or where the log has been closed in error - this will only be permitted if there are no open records for the selected aircraft and the record was created by the current unit.

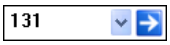
- Sector level information can be viewed when the Sector is selected. Click the edit icon (shown left) to launch the edit forms for 'Flying Hours', 'Chargeable Hours' or 'Tech Log'.

- On selecting a completed 'Event', the 'Modify' button will become enabled (excluding the Loadsheet event).
- Click to modify data for the selected 'Event'.
- On saving your changes, Flying Hours & Chargeable Hours will be recalculated.

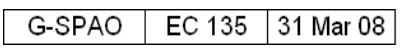
Audit Trail

- An Audit Trail of changes made to a Sector or Event can be viewed under the 'Audit Trail' banner in the main panel on selecting the updated 'MSLS', 'Sector' or 'Event' (The audit trail will display all changes for the selected level and below, i.e. Sector will show Sector & Event Changes, Event will only show Event changes).

- Navigate buttons to go to the previous or first record, as selected.



- Sector Log Search; pre-filled combo, filters the dropdown contents as you type the numbers; click the blue arrow to open the selected record number.



- Sector Aircraft, Aircraft Type & Sector Date for the selected record.

- Navigate buttons to go to the next or final record, as selected.

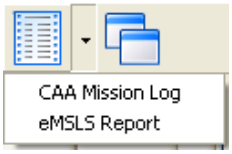
- Click the 'Summary' button to switch from 'Detail View' to the 'Summary View' (above)

- Click the 'Detail' button to change the view back to the Detail view.

- Click the 'PDF Report' button to generate a pdf report for the current screen.

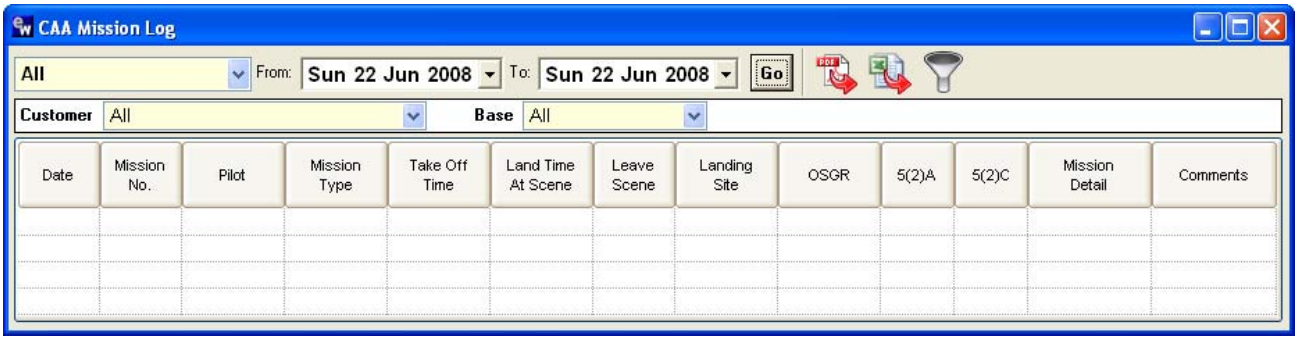
- Click the 'Export to Excel' button to create an excel export of reporting data

- Click the 'Sync' button to commence data synchronisation
- Automatic data synchronisation occurs on shutdown of efl and can be configured in the Admin Control Panel.



- Click the 'Reporting' icon to launch the 'CAA Mission Report'
- Click the down arrow next to the 'Reporting' icon to select other reports as required

- Select the date range required & click the 'Go' button to return the records matching the date criteria.
- Select filter criteria on the 2nd toolbar to restrict the dataset.



- The CAA Mission Log returns details of Missions captured in EFL.

- The eMSLS Report allows you to view sector data across multiple records within a date range on a single report.

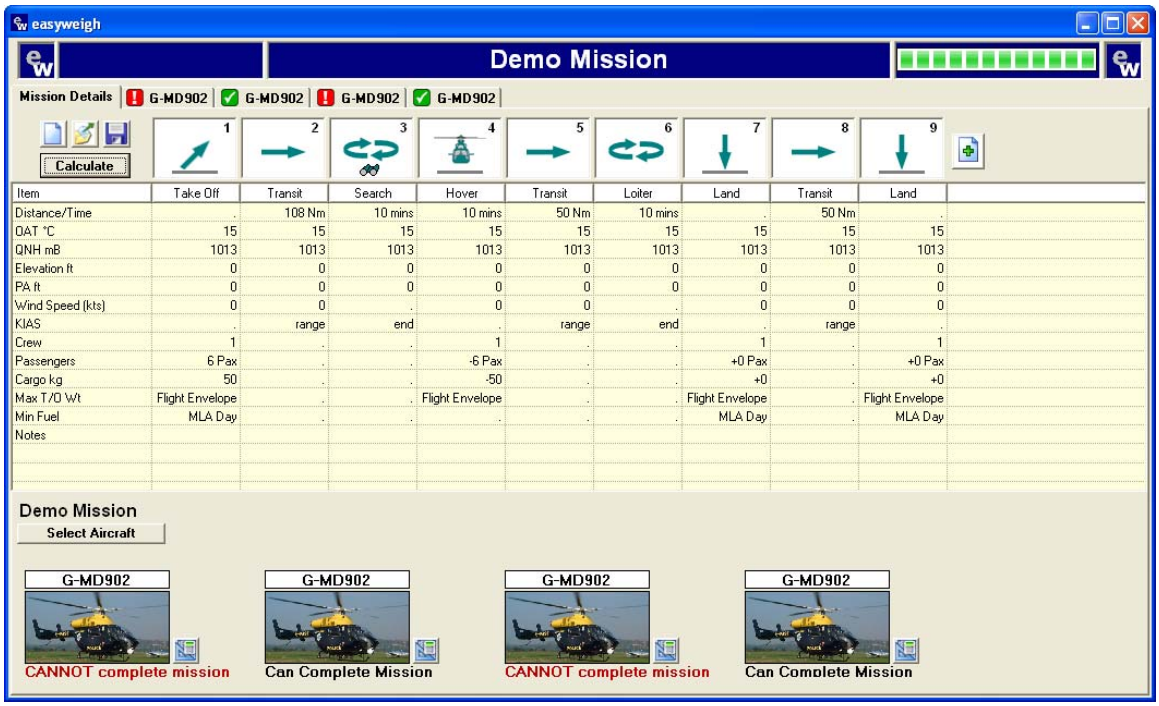
- Click the funnel icon to enable column filtering on the reporting screen.
- The column filter icons will appear - click to see filter options.

- Click the 'Exit' icon to close reporting & EFL windows.
- Automatic Backup of the database occurs on closing EFL - check the settings in the Admin Control Panel, EFL Backup & Restore menu option.

MISSION ASSESSMENT MODULE (OPTIONAL)

MISSION DETAILS

- Up to 4 Aircraft can be selected to find the best fit for a mission.
- Customisable missions can be generated with up to 10 segments per mission.
- Missions can be saved, deleted, password protected, loaded and a default set to load on activation.
- Fuel consumption automatically calculated
- Click Calculate – those aircraft where the calculations validate the aircraft as suitable for the mission are marked 'Can complete mission', those that fail the calculations are marked 'CANNOT complete mission', highlighted in red.
- The tab strip to the top of the form allows the user to navigate between 'Mission Details', and the calculation results for each of the aircraft selected, alternatively, click on the aircraft picture.
- Icons show the calculation status for each tab:
  - o Awaiting calculation, Cannot complete mission, Can complete mission.



BUTTONS

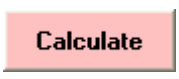
- Click on the 'new mission' button (top left of the screen) to create a new/blank mission.

- Click on the 'add segment' button (to the right of the last segment) to add a new segment to a mission.

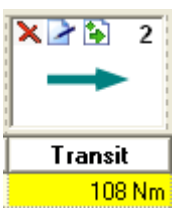
- Click on the 'save' button (top left of the screen) to save a mission.

- Click on the 'Load Mission' button (top left of the screen) to load a previously generated/saved mission.

- Click on the 'Select Aircraft' button (just above the bottom left aircraft image) to launch the aircraft selection form - up to 4 aircraft can be selected at any one time.



- Click on the 'Calculate' button (top left of the screen) to perform calculations against the active mission for the selected aircraft.
- NB. If the calculate button flashes red, this indicates that parameters have changed, and therefore results must be recalculated.

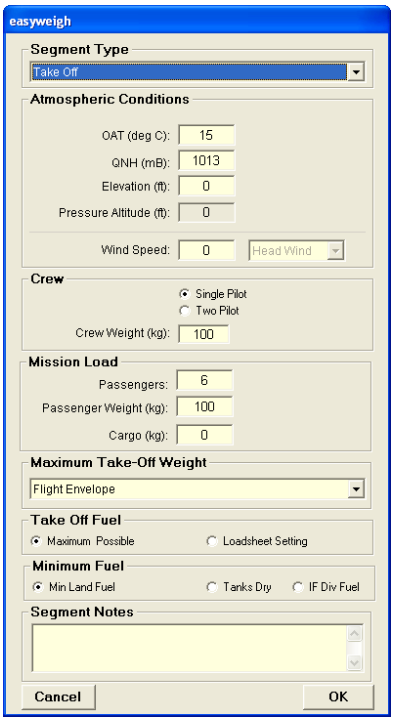


- Hover over the segment icon to reveal the delete button, edit button and insert sector button; click on the ✕ icon to delete the segment, icon to view the segment edit form, or the icon to insert a segment after the currently selected segment.
- If the mission is password protected, a key icon will be displayed, and an admin password must be entered before the segment edit form will be loaded.
- If the mission is read only, a padlock icon will be displayed and the edit form will not be opened. A copy of the mission can be saved and amendments made as required.

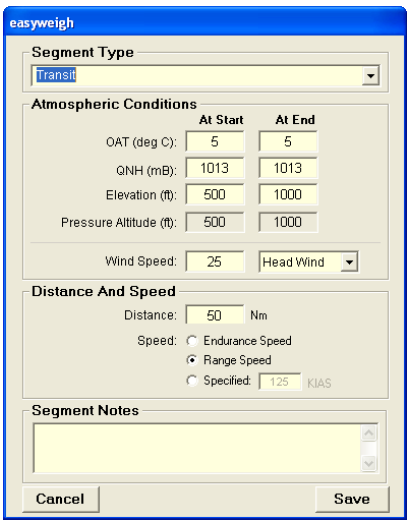
ADDITION OF MISSION SEGMENTS

- On clicking the add segment icon (right), an edit form will be launched, the first segment will default to a Segment Type of 'Take Off', subsequent segments types can be amended as required (Transit, Search, Loiter, Hover or Land); though the mission must end with a 'Land'.

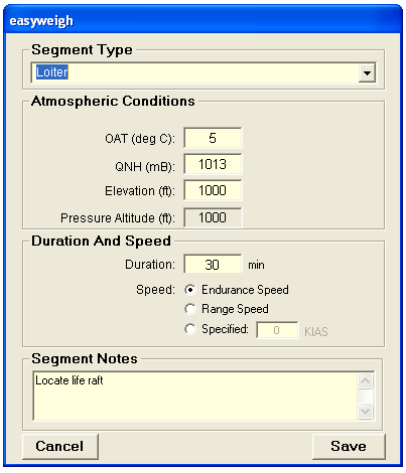
- Take Off parameters:
- Atmospheric Conditions consisting of OAT (deg C), QNH (mB), T/O Elevation (ft), Pressure Altitude (ft).
- Wind Speed and direction (NB. Head Wind assumed)
- Crew; single or dual pilot and average crew weight (kg).
- Mission Load; number of passengers, average passenger weight (kg) and Cargo weight (kg).
- Maximum Take-Off Weight; ability to set take off limits to be applied (where the selected chart is unavailable for an aircraft, the next restrictive chart available will be used).
- Take Off Fuel; allows selection of Loadsheet fuel levels or use Maximum permitted fuel for given MAUM.
- Landing Fuel Options; Min Landing fuel, Tanks Dry or IF Div Fuel. (This is set for the whole mission).
- Segment Notes.
- While creating a new mission only, the 'Add Another' button allows you to add an additional segment without leaving the form.



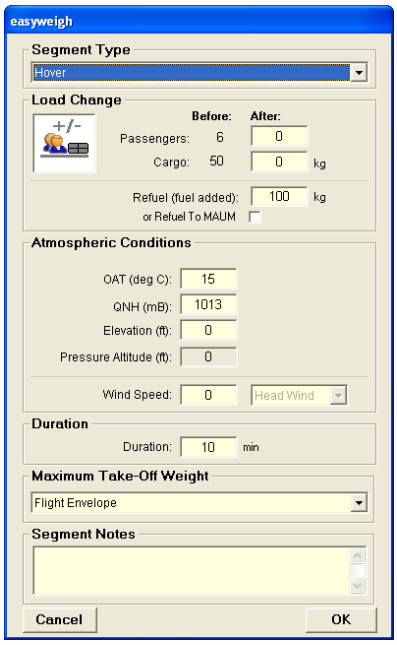
- Transit parameters:
  - Start & End Atmospheric Conditions consisting of OAT (deg C), QNH (mB), Elevation (ft), Pressure Altitude (ft)
  - Wind Speed and direction (headwind or tailwind)
  - Distance & Speed, consisting of Transit Distance (Nm), and the option of selecting the aircraft default 'Endurance' or 'Range' speeds, or setting a specific transit speed (KIAS).
  - Segment Notes

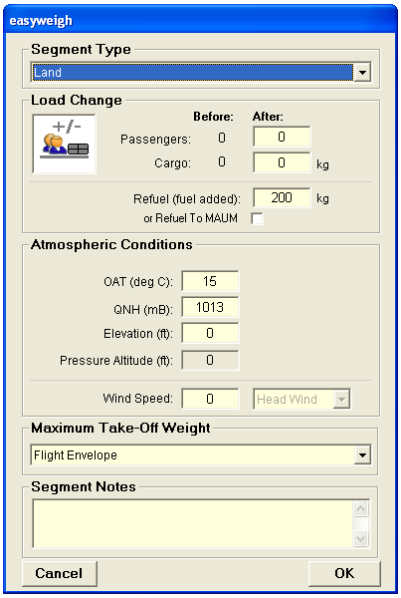


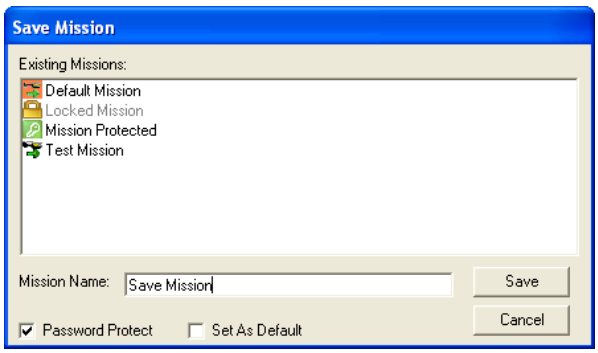
- Loiter & Search parameters:
  - Atmospheric Conditions, consisting of OAT (deg C), QNH (mB), Elevation (ft), Pressure Altitude (ft).
  - Duration & Speed, consisting of Loiter Duration (mins), and the option of selecting the aircraft default 'Endurance' or 'Range' speeds, or setting a specific transit speed (KIAS).
  - Segment Notes

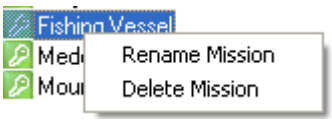


- Hover parameters:
  - Load Change, detailing number of crew & amount of cargo (kg), following the Hover phase; and the ability to add extra fuel (kg).
  - Refuel amount is automatically trimmed back to the maximum fuel tank contents if overstated.
  - Refuel to MAUM fills the fuel tank to capacity, limited by the selected Take-Off Weight. (Refuel amount is calculated based on the aircraft mass at segment end, but with the starting fuel load, fuel burn is then calculated & deducted off the segment end fuel contents).
  - Atmospheric Conditions, consisting of OAT (deg C), QNH (mB), Elevation (ft), Pressure Altitude (ft) and Wind Speed (NB. Head wind assumed).
  - Duration (mins).
  - Fuel flow calculated using 0 airspeed, or 'Range' speed if no fuel flow for 0 KIAS.
  - Maximum Take-Off Weight; ability to select Hover limitations to be applied (where the selected chart is unavailable for an aircraft, the next restrictive chart available will be used).
  - Segment Notes
- Land parameters:
  - Load Change, detailing number of crew & amount of cargo (kg), following the Hover phase; and the ability to add extra fuel (kg).
  - Refuel amount is automatically trimmed back to the maximum fuel tank contents if overstated.
  - Refuel to MAUM fills the fuel tank to capacity, limited by the selected Take-Off Weight. (Refuel amount is calculated based on the aircraft mass at segment end, but with the starting fuel load, fuel burn is not calculated on Land segments).
  - Atmospheric Conditions, consisting of OAT (deg C), QNH (mB), Elevation (ft), Pressure Altitude (ft).
  - Maximum Take-Off Weight; ability to select Hover limitations to be applied (where the selected chart is unavailable for an aircraft, the next restrictive chart available will be used).
  - Segment Notes





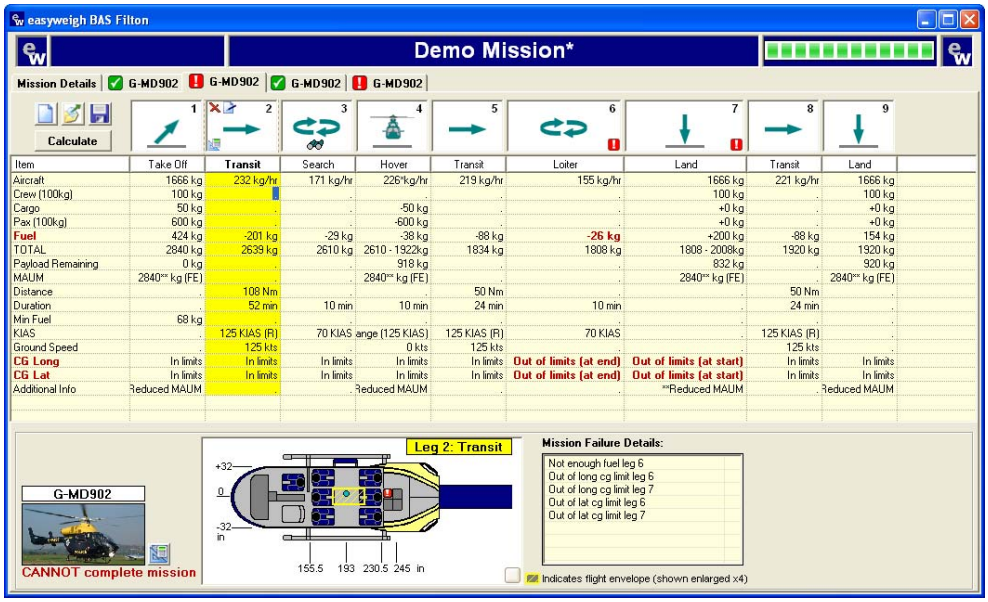




- On clicking the Save, or Load Mission buttons, the Mission form will be loaded (middle left).
- The icon indicates a 'Standard Mission' with no password protection
- The icon indicates the 'Default Mission'
- The icon indicates a 'Password Protected Mission'
- The icon indicates a 'Locked Mission'
- The 'Password Protect' & 'Set As Default' tick-boxes can only be set on saving a mission. If these settings need to be amended for a given mission, this can be done by loading the mission and saving over the stored file.
- If a mission is 'Set As Default'; that mission will load by default each time Mission Module is loaded. Only 1 default is permitted. If there is no default mission, the Mission Module will open a blank mission.
- Locked missions can only be set or amended by aerotech uk - users can 'save as' and amend copies as required.
- To rename or Delete a mission, right click over the filename and select the option required.

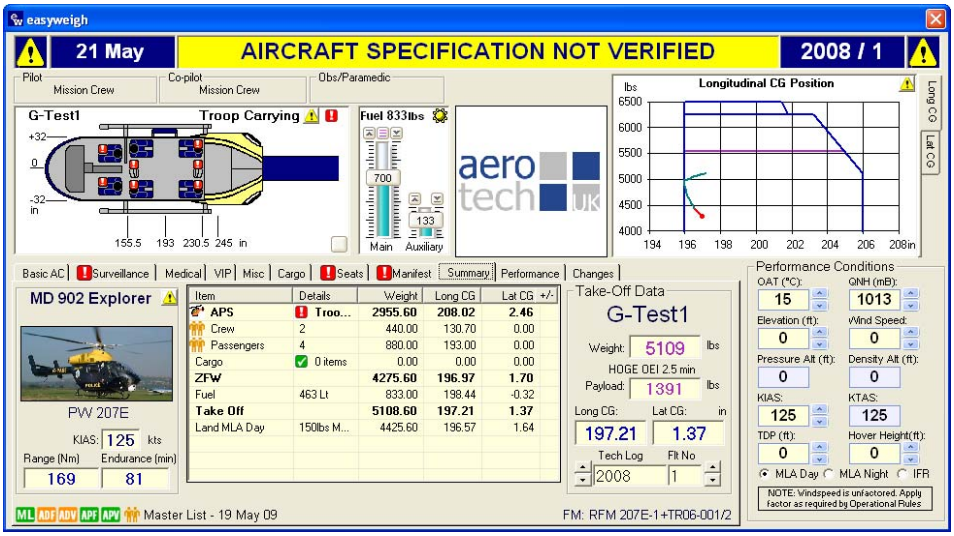
AIRCRAFT CALCULATION RESULTS

- A tab will be available for each aircraft showing the values calculated for the given mission.
- Where the aircraft 'Can Complete Mission', remaining Endurance & Range data will be displayed adjacent to the cabin plan. Calculated based on fuel left at the end of the mission (less MLF).
- Where the aircraft is unable to complete the mission, the row item label and the value(s) on the row that have failed will be highlighted in red, allowing you to quickly identify areas requiring resolution.
- A summary textbox 'Mission Failure Details' will list all failures (bottom right of the form).
- Where a mission has failed due to going 'Out of limits' on the CG envelopes, click on a segment to show the cabin plan loading configuration.
- A yellow box  is shown on the cabin plan indicating the available envelope, and a spot shows the current CG position (this is coloured green if in limits, or red if out of limits).
- On the cabin plan drag & drop crew & passengers around the seats, and Cargo around the cabin to bring the aircraft back into the CG envelope (on Take-Off, Hover & Land segments only - other segments use previous segments crew, passenger & cargo's CG position data).
- Click on the  button next to the aircraft image or on the segment header to open the 'Weight & Centre of Gravity Calculation' form for the selected segment/aircraft.



WEIGHT & CENTRE OF GRAVITY CALCULATION FORM

- Mission Crew, Passengers, Cargo & Fuel parameters from the selected segment of the mission are automatically transposed to the 'Weight & Centre of Gravity Calc' form.

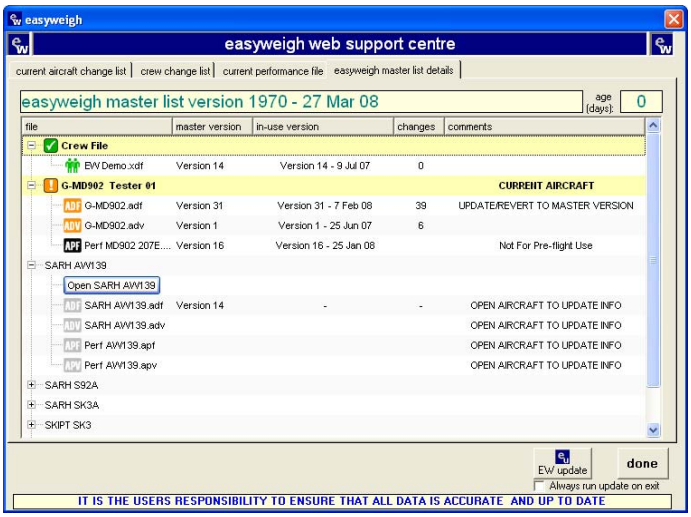


REPORTING

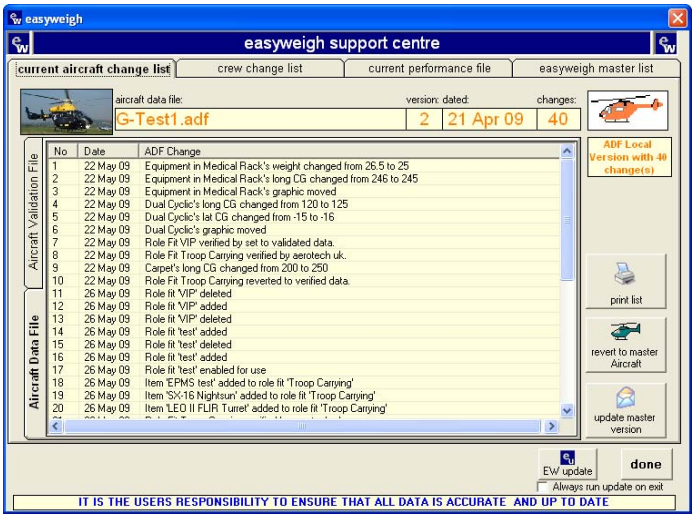
- While in the Mission Assessment Module:
  - Click on the PDF icon to generate a PDF report of the current Mission Details & Results for all selected aircraft.
  - Alternatively click on the excel icon to export the data into excel.

easyweigh SUPPORT CENTRE

- Available by Subscription only.
- Displays a list of the key system files and highlights where updates have been made.
- Colour coding as follows:
  - Red – file is missing or update required
  - Green – file is latest available
  - Orange – updates have been made to the file locally.
  - Black - Not for Pre-Flight Use
  - Grey - file not loaded
- Click the 'EW update' icon to launch the easyweigh updater.

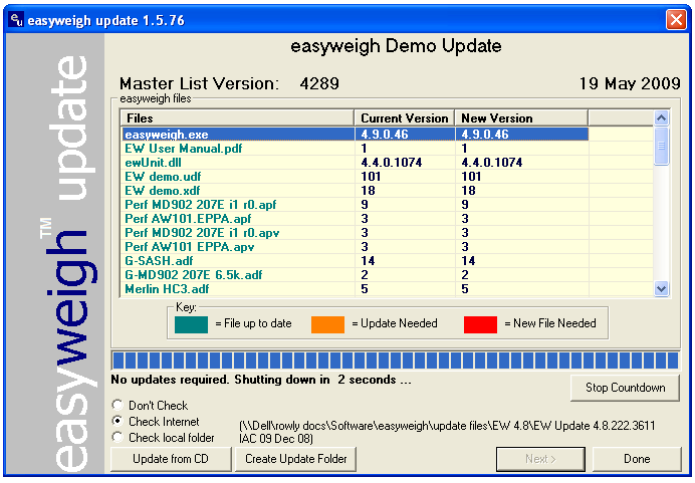


- When changes have been made to the default aircraft loading, crew lists or performance data validated, these must be notified to aerotech UK.
- To send crew or aircraft changes to aerotech uk, access the 'crew change list' or 'current aircraft…' tabs, and Click one of the following 2 options:
  - Click the Helicopter icon to revert back to the original configuration and abandon any changes made.
  - Click the email icon to send a copy of your updates to aerotech to ensure that these are incorporated in any upgrades generated.
- To send the performance validation file to aerotech, select the 'current performance...' tab, and click the email icon to send the updated validation file to aerotechuk.
- **NB**. It is the users responsibility to ensure that all data is accurate and up to date



easyweigh UPDATER

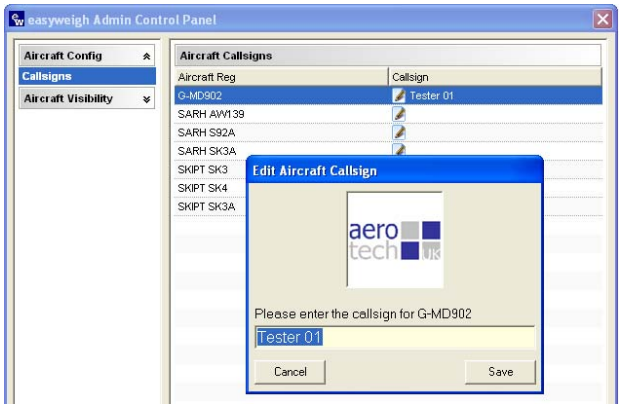
- Updater will attempt to connect to aerotech via the internet, where the updater will verify you have the correct version of any system files loaded.
- If an old or missing file is identified, this will be colour coded red for missing, and orange for old versions.
- Follow the on screen prompts to update your application with the latest files, or Click 'Update from CD' if installing from disc.
- Click 'Create Update Folder' to generate an Update folder for distribution of updates within an internal network (removes the need for each machine to download the latest files, as one machine can download the new files, then create an update folder to distribute to other machines).



ADMIN CONTROL PANEL

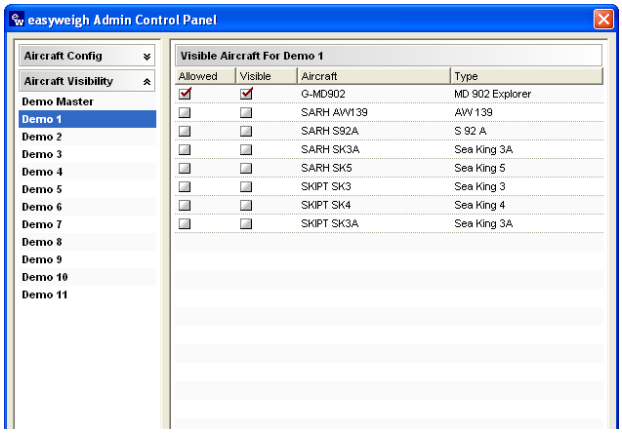
AIRCRAFT CONFIG

- Allows users to configure aircraft Callsigns & visibility within easyweigh.
- Click on 'Aircraft Config' in the left hand panel to view all available aircraft and their Callsign.
- Click on the icon to launch the 'Edit Aircraft Callsigns' form where you can amend or assign a Callsign to the selected aircraft.



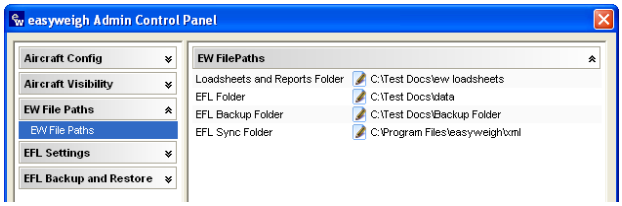
AIRCRAFT VISIBILITY

- Click on 'Aircraft Visibility' to display aircraft permissions & easyweigh visibility.
- Select the unit to be configured via the left hand panel (only the master unit can assign aircraft permissions & visibility for other units where easyweigh is multi-site)
- Tick 'Allowed' against the required aircraft to give a unit permission to access that aircraft file. Un-tick to revoke access to that aircraft.
- Tick 'Visible' against the aircraft to display the selected aircraft in dropdown menu's within easyweigh, or un-tick to hide from the dropdown menu's.



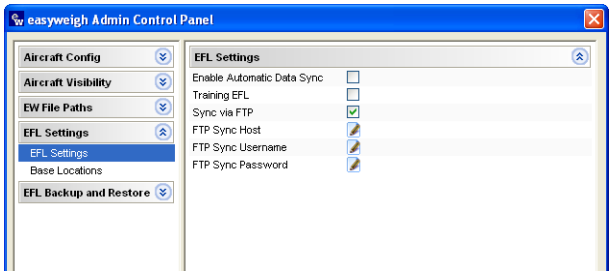
EW FILE PATHS

- Click on 'EW File Paths' to view the easyweigh data folders.
- Click on the icon to launch a browser window to navigate to the required folder location.



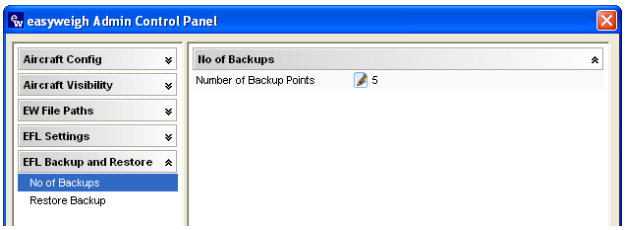
EFL SETTINGS (INCLUDING DATA SYNC)

- Click on 'EFL Settings' to view general EFL tick-box settings:
  - Tick to 'Enable Automatic Data Sync' with other EFL units (sync occurs on closing ew)
  - Tick 'Training EFL' to put EFL in training mode - this allows users to open a separate database for Training purposes.
  - Tick 'Sync via FTP' to utilise the option to sync files via an FTP address instead of network.
- FTP Host, Username & Password must be entered in order to utilise the FTP sync.
- Click 'Base Locations' to assign EFL bases.



EFL BACKUP & RESTORE

- Click on 'No of Backups' to show how many backup points will be retained.
- Backups will be auto-generated on closing EFL
- easyweigh will only keep the latest files - old backups will be auto removed when the number of backup points has been reached
- Select 'Restore Backup' to view the Backup points available & to restore back to that point.



easyweigh HELP FILE

- Click on the help icon to launch the 'User Manual'
- Click on the down arrow to the right of the help icon will give you the option of:
  - Opening the 'User Manual' or,
  - Open an email editor window, pre-populated with basic application details in the title, and addressed to aerotech support; ready to send to aerotech on completion of query text.

EXIT easyweigh

- Click on the exit icon to close the application.
- If the 'Always run update on exit' tick box is selected on the Web Support Centre, then updater will be launched.

APPENDIX A

easyweigh™ modelling assumptions

easyweigh and the mission assessment module contain a number of modelling assumptions, in order to provide indicative performance information without excessive complexity in use.

Details of the assumptions are given below:

Aircraft Performance Model

❑ TAS/IAS Conversion	Conversions between IAS and TAS are calculated using the equation TAS = IAS / Square root (relative density) CAS and EAS (ie aircraft installation errors and compressibility effects) are ignored in the modelling. Relative density = Rel pressure/rel temp Relative temp = (OAT + 273.15) / 288.15 Relative pressure = (1 - ((6.87559 * 10 ^ -6) * PA)) ^ 5.25588
❑ Fuel Flow Calculation	Normally FF charts are presented in the FM as an array of charts covering the flight envelope eg charts for SL ISA, SL ISA-25 deg, SL IAS+25 deg, 2000 ft IAS, 2000 ft IAS-25 deg, 2000 ft IAS +25 deg etc. easyweigh calculates an indicative fuel flow by using an array of 9 or 12 charts (3 or 4 altitude levels with 3 temps per altitude) and interpolates between the 4 relevant charts for the PA and OAT queried. FF charts can be defined in IAS or TAS. For simplicity EW applies the same requested IAS or TAS to ALL charts queried. If the FF charts are in IAS, the IAS selected in the conditions tab of the loadsheet is used, if the charts are TAS the derived TAS for the selected IAS is used. The IAS can be set to any value but defaults to the saved default range speed when the application loads. The mission module uses the saved default range and endurance speeds for its calculations in a similar way. This use of the same speed for all FF graphs is done in order to answer the question 'what is my FF at this speed?' regardless of density altitude specified. While this is simple for the user, the disadvantage is that when querying fuel flow for high speeds it is easy to 'fall off the top' of the FF graphs above the query altitude because the speed is unrealistically high. For example to find the fuel flow at 140 KIAS at sea level ISA the SL ISA FF chart can be used. However to calc FF at SL+ 500 ft ISA interpolation between the SL chart and 2000 ft chart (for example) is required. Often an aircraft would be unable to fly at the SL speed of 140 KIAS at this altitude, especially at higher OATs, and the graph would return NO DATA as the requested speed would require in excess of Max Continuous Torque. Thus EW would give no answer to the question because that speed cannot be achieved in all the graphs queried. In the real world the aircraft would actually fly slower at altitude to remain within Tq limits, but for simplicity this is not modelled. To allow FF calcs to be made for high IASs at SL EW has been modified so users can specify for FF calcs to be interpolated for Temp ONLY, and to use the nearest available charts BELOW the target altitude for the calculation. This reduces the accuracy of the interpolation (pessimistically) but allows an answer to be returned rather than no data in situations described above.

	A longer term solution to improve the modelling would be to allow the query IAS to be specified per chart based on a suitable rule, eg: If a speed is specified, apply a rule to reduce the graph query speed by 2 kts for every 1000 ft above the target altitude (eg if the target altitude is 500 ft and 140 KIAS and the FF chart is for 4000 ft, query the 4000 ft chart at 140 – 7 kts = 133 KIAS), to simulate that in the real world the aircraft will actually fly slower the higher it is. The speed decrement would be defined per aircraft and be adjustable by the user. Additionally, for improved accuracy charts using TAS should be queried using a TAS calculated for the graph altitude and OAT, and not the TAS calculated for the loadsheet conditions as currently implemented. If range or endurance speed is specified, automatically calculate the appropriate speed for the chart and aircraft wt by analysing the gradient of the ff lines to find the min fuel consumption per km or min fuel consumption as appropriate.
❑ FF Penalties	Fuel flow penalties can be specified in KIAS for each external item fitted to the aircraft. This defines the speed reduction due to the drag of the equipment when flying at the normal power setting for range speed. The sum of all the FF penalties for all equipment fitted is calculated and then applied to the speed used to query the FF graphs. For example if the user has specified a speed of 125 KIAS and the external role equipment has a combined FF penalty of 7 KIAS, the FF charts are queried at 125 + 7 KIAS = 132 KIAS to determine the FF (ie more power is required to maintain the required speed compared to a clean aircraft). The range and endurance calcs use 125 KIAS in the normal way.
❑ Loadsheet range and endurance calculations	Indicative range and endurance are calculated on the loadsheet in still wind from the loadsheet fuel state to min landing fuel (MLF) day or night as selected in the conditions frame. For simplicity the FF at the START weight is used (giving a pessimistic answer) – weight reduction and consequent FF reduction as fuel is used is not accounted for. Range and endurance are calculated as follows: FFmin = FF per hour / 60 Nmmin = TAS/ 60 Fuel available = Start Fuel – min LandFuel Endurance= Fuel available / FFmin Range = Endurance * Nmmin
❑ WAT charts and WAT penalties	WAT penalties can be specified in kg/lbs as appropriate for each external item fitted to the aircraft. This defines the weight penalty required to maintain the min ROC required during the Cat A profiles to compensate for the ROC reduction due to the drag of the equipment. The sum of all the WAT penalties for all equipment fitted is calculated and then applied to the appropriate WAT chart outputs for the specified conditions. Often WAT charts produce outputs above the aircraft MAUM – in this case the penalty is applied to the WAT chart and then the WAT wt is further reduced to the MAUM limit if required.
❑ Pressure Altitude (PA)	PA is calculated from the airfield elevation and QNH as follows, assuming that 1 mB = 28.12 ft of altitude. PA = Elevation + ((1013 - QNH) * 28.12)) + 0.5)
❑ Density Altitude (DA)	DA is calculated from the PA and OAT (corrected to ISA)as follows: DA = PA + (120 * (OAT - 15 - (2 * Elevation / 1000)))

Mission Assessment Model

❑ Aircraft configuration	The MM uses the aircraft as configured by the loadsheet. When loaded into the MM, crew, pax, cargo items and fuel are IGNORED (except fuel as specified below)
❑ Take Off Fuel	By default take-off fuel is automatically adjusted to the maximum each aircraft can carry to remain in the max take off wt limit (see above) once the mission load has been defined. If required users can further limit the max fuel to that specified in the loadsheet by setting the take-off fuel radio button on the take off mission module segment. This is applied to all aircraft analysed.
❑ Start, Taxi Take Off	For simplicity fuel used for start, taxi and take-off is not specified or accounted for.
❑ En Route Climb	For simplicity, en route climb can be simulated by setting different PA and OAT conditions for the start and end of a transit segment. Climb FF charts are NOT used but level flight FF charts are used for the conditions at the beginning and end of the segment as appropriate. See above for how FF calc for requested conditions is calculated. NB this assumption will be increasingly inaccurate for modelling large changes in altitude if the overall height change in the mission is not small (ie if the aircraft climbs from sea level to 10,000 ft but descends back to sea level during the mission the extra fuel consumption in the climb may approximately balance out the reduced fuel consumption in the descent, but if it climbs to altitude and stays there (ie deploys to a hot and high region) the overall fuel consumed will be understated). This feature could be improved if necessary by allowing a user to specify a % increase to apply to FF for climbs and a % reduction for descents.
❑ Max Take Off Wt	The max take off or landing wt for a segment can be specified as the flight envelope, a CAT A or Cat B WAT limit or a hover performance limit, IGE or OGE, single engine (OEI) or all engines operating (AEO). All aircraft have slightly different engine limits so perf charts are assigned to power bands to provide approximate equivalence: Emergency Power (<2mins) Take Off Power (>=2, <=5mins) Intermediate Power (>5, <=30mins) Max Continuous Power (>30mins) If an aircraft does not have an appropriate graph for a specified power band then EW automatically selects the next most restrictive graph available eg if a 10 min hover is required but no intermediate power graph is available the MCP graph is used (can deliver the 10 mins performance but the wt is reduced) To allow the power limit differences between aircraft to be fully modelled, this feature could be improved if required by removing the categories and using the appropriate graph for the hover duration required on an aircraft by aircraft basis, again with logic to handle missing graphs for a particular aircraft.
❑ Landing Fuel	Final landing fuel for the mission may be specified as: MLF (min landing fuel) Day MLF Night IF Div Fuel Tanks Dry. MLF Day, MLF Night and IF Div fuel defaults can be set for each aircraft in the aircraft configuration page
❑ Transit Speed	Transit speed may be specified as a particular airspeed or range speed or endurance speed. If range or endurance speed are specified the speeds appropriate for that aircraft are used. The speeds may be adjusted by the user as required, via the configuration page for each aircraft.

❑ Wind in Hover	All hover performance is calculated still wind unless a wind speed is specified, which is assumed as a headwind. Wind corrections are only applied to aircraft whose graphs accept a wind correction.
❑ Fuel consumption in transit	Fuel consumption in the transit is calculated as follows: Calculate fuel consumption at weight of aircraft at start of leg Calculate fuel used at this rate for the time/distance specified Calculate resulting wt of aircraft at end of leg and corresponding FF at this weight. Calculate average FF from start weight FF and end weight FF and use this FF to calculate fuel consumed in leg. This method was used for maximum user simplicity and calculation speed during modelling. It is known that its accuracy is dependent on the lengh of the transit leg, so if required the modelling could be improved by calculating the weight of the aircraft, and therefore FF every 10 mins (for example) during the leg and using the averaged FF for each sub segment of the leg.
❑ Fuel Consumption in loiter/hover	Fuel consumption in a loiter or hover is averaged and calculated in a similar way to the transit (see above). If an aircraft FF chart does not give data for the hover (which is common) then the range speed FF is used for the hover condition. This is indicated on the mission module display and is likely to understate the actual hover fuel flow. If required the program could be improved by allowing a user definable % increase penalty to be applied per aircraft when this assumption is made to attempt to minimise the error.
❑ Fill order in cabin	When adding/removing passengers from an aircraft, the seats are filled and emptied as specified by the fill order for that aircraft. Stretchers are included as available seating positions. The fill order can be specified per aircraft type based on FM constraints or user requirements (eg fill front/rear alternating to minimise CG changes)
❑ Mission segment weight display	The weight breakdown (basic, crew, pax, cargo, fuel etc) for each mission segment shows the loadsheet for the aircraft at the end of the segment.
❑ CG Calcs	Long and lat CG calc are made for the start and end of all segments. If any of CGs calculated are out of limits then the warning is displayed.
❑ Load change in the hover	Aircraft loading is only considered at the start and end of the hover segment. Interim loading changes during winching or HIFR for example are NOT considered.
❑ Hover performance	Hover performance is calculated for the weight of the aircraft at the end of the segment. It is then calculated for the weight of the aircraft at the start of the segment. Both weights must be less than the maximum wt limit specified for the segment not to fail – this allows it to model both weight decreases and increases in the hover - both of which are equally likely
❑ Landing performance	Landing performance is calculated for the weight of the aircraft at the end of the segment. It is then calculated for the weight of the aircraft at the start of the segment. Both weights must be less than the maximum wt limit specified for the segment not to fail – this allows it to model both weight decreases and increases after landing - both of which are equally likely.
❑ Cabin Passenger Weights	All passengers in the cabin are assumed to have the same wt regardless of whether they are crew, passengers etc. The required weight can be defined per mission. If it is required to model different weights for cabin crew and cabin passengers an additional item should be added to the loadsheet to account for the cew equipment. (eg if cabin crew weigh 100 kg and pax 80 kg and 2 crew are carried, set the cabin pax wt to 80 kg for everyone, and add an item for cabin crew equipment for 40 kg (2*20 kg) to account for the extra weight of the cabin crew) Wts for cockpit crew can be specified separately.