CONTROLLER

ClearNav operation is very intuitive and many pilots start using the system immediately with little or no tutorial. The initial sections of this manual therefore describe system function in abbreviated detail for those who would like to take this 'plug-n-play' approach. Most of the graphics in the manual also display drill-down images or explanations if you mouseover or click. Other following sections will review all system features in more detail to explain complex operations, calculations, and design logic. We will therefore start the manual with a review of hand-controller function as it is your communication interface to all ClearNav features.

The nine-button hand controller buttons perform select, zoom and cursor movement functions like mice or game controllers.

**MENU** and **FOCUS** support specific ClearNav features.

**MENU** immediately displays/hides the ribbon menu - which gives the pilot access to all supporting screens and functions.

**FOCUS** immediately returns to the Moving Map when in any other screen ... or highlights the moving map Cursor Box for 5 seconds to allow easy identification on the navigation screen.

The Cursor Box can be moved quickly and precisely to any location on or beyond the displayed map - and the list of enclosed Waypoints and SUAs will be displayed in a new window when the pilot hits the **SELECT** button on the controller. The pilot can scroll down the list and select any turnpoint as an immediate destination - or just review navigation or airport information in the lower window. SUA information is also displayed in a separate tabbed window. The pilot can also mark lift or create a mark point for future reference.

The table following summarizes the behavior of the hand controller buttons in the primary screen types that support ClearNav navigation functions.

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>MOVING MAP</th>
<th>TABBED MENU</th>
<th>ENTRY SCREEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up</td>
<td>Moves Cursor Up</td>
<td>Moves Up Menu</td>
<td>Small Value Increase</td>
</tr>
<tr>
<td>Down</td>
<td>Moves Cursor Down</td>
<td>Moves Down Menu</td>
<td>Small Value Decrease</td>
</tr>
<tr>
<td>Left</td>
<td>Moves Cursor Left</td>
<td>Tabs Left</td>
<td>N/A</td>
</tr>
<tr>
<td>Right</td>
<td>Moves Cursor Right</td>
<td>Tabs Right</td>
<td>N/A</td>
</tr>
<tr>
<td>Select</td>
<td>Display list of Turnpoints and SUAs in Cursor Box</td>
<td>Selects Highlighted Menu Item</td>
<td>Saves set value and returns to Tabbed Menu</td>
</tr>
<tr>
<td>Zoom +</td>
<td>Zoom Closer to Map</td>
<td>N/A</td>
<td>Large Value Increase</td>
</tr>
<tr>
<td>Zoom -</td>
<td>Zoom Away From Map</td>
<td>N/A</td>
<td>Large Value Decrease</td>
</tr>
<tr>
<td>Menu</td>
<td>Toggle Ribbon Menu Display</td>
<td>Return to Prior Screen</td>
<td>Save and Return to Prior Screen</td>
</tr>
<tr>
<td>Focus</td>
<td>Highlights the Map Cursor Box for 5 seconds</td>
<td>Returns immediately to Moving Map Screen</td>
<td>Returns Immediately to Moving Map Screen</td>
</tr>
</tbody>
</table>
UPLOADING WAYPOINT AND OTHER FILES

A. Obtain Waypoint/Pointfile

- CN preloads World Terrain files ... and SUA files and Waypoint/Pointfile files for Minden.
- You have to load SUA and Waypoint/Pointfile files for your geographic area.
- ClearNav can use STX (Clearing Turnpoint Exchange), CUP (SeeYou), and CAI (Cambridge) files for turnpoint data. The STX format is preferred as it supports all of the ClearNav display features.
  - Pilots can usually get STX files for contests from the WW Turnpoint Exchange. They can also create STX files from scratch using Microsoft Excel, Notepad or other tools - or can convert other flat file formats to STX.

B. Copy files to USB Memory Stick (or SD Card)

The CN supplied USB Memory sticks are pre-formatted with the folders needed to support the upload and download operations.

Use the CN supplied USB Memory Stick - or format your own USB Memory Stick or SD Card using the folder and file structure that follows.

**Root Folder**

- Must contain ClearNavUpdater.exe and ClearNavUpdater.nks files to upload Map, WP, SUA, Language and version update files.
- May contain log files generated by the ClearNavUpdater.exe.
- May contain a new ClearNav version update - CN.exe and CN.nks files - copied from the CN site - required to perform the new version installation on your ClearNav system.

**Flights**

- Downloaded flight log files will be placed in this folder.

**Language**

- Language files are uploaded from this folder. English, German, Spanish and French language files are already pre-loaded in delivered units by CN - so this folder is typically empty.

**Map Data**

- **Globe**
  - New Terrain Map Globe files can be placed here for uploading. World Globe files are already pre-loaded in delivered units by CN - so this folder is typically empty.
- **Shape**
  - New Terrain Map Shape files can be placed here for uploading. World Shape files are already pre-loaded in delivered units by CN - so this folder is typically empty.
- **SUA**
  - New SUA files for your area can be placed here by the pilot for uploading.
- **Waypoints**
  - New Waypoint files for your area are placed here by the pilot for uploading.

C. Insert your USB stick into the ClearNav before you power up the unit

- The system will boot, display version information, and check security - displaying progress and status on the screen.
- The ClearNav application will detect the USB Stick or SD Card and will then run the Updater Program (ClearNavUpdater.exe) located in the root directory on the USB/SD device.
- The Updater System Update Screen will display to allow the pilot to select specific update options with the hand controller.

<table>
<thead>
<tr>
<th>UPDATER SCREEN</th>
<th>The 'Software' option is only used to upgrade the ClearNav to a new release. This option is only available if ClearNav application files(CN.exe and CN.nks) are placed on the USB Memory stick or SD Card.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The default option is &quot;Don't Update Now&quot;. Hit the controller select button to accept this option.</td>
</tr>
</tbody>
</table>
"Select All" will check all the options - and automatically highlight the "Update" command box to initiate the update. (You can up arrow and deselect/select options.)

Individually select or deselect each option: Languages, Map Data, Waypoints, Airspace - then highlight and select the "Update" command to initiate the update.

'Software' will update your device using the CN.exe and CN.nks files.

The other options will copy the appropriate files from the USB/SD device to solid state storage on the CN unit. These files then have to be loaded using a setup menu function.

**File uploads are only allowed during the power up cycle - you may download files to a USB Memory stick or SD card at any time.**

Supply Power for SIM operation at your desk using the [Portable Power Connector](mailto:0652).
**RIBBON MENU**

The Ribbon Menu can be displayed or hidden at any time by pressing the MENU button on the hand controller.

(Click Icon above to view function description below)

- The Ribbon Menu displays at the top of the map screen - press twice to view when navigating from other screens.
- The menu item last accessed will be highlighted.
- LEFT or RIGHT controller buttons are used to highlight the desired menu option - the sub menu list will display automatically.
- Parameter changes are immediately included in the moving map and/or ClearNav calculations as appropriate.

---

### RIBBON MENU FUNCTIONS

<table>
<thead>
<tr>
<th>ACTION/NOTES</th>
<th>DISPLAYS (Mouse over to see context example.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TASK FUNCTIONS</strong></td>
<td></td>
</tr>
</tbody>
</table>

The RIBBON MENU - TASK icon gives the pilot one location to control all task functions.

Four screens are available via tab selection: Edit, Action, Task Map and Task List.

**EDIT** - Supports changes to any attribute of the Active Task. This screen is used to create or modify tasks.

**ACTION** - Allows the pilot to control Task Start, Active Leg, Turn Initiation, Final Glide Start, and Speed to use in time calculations.

**TASK MAP** - Displays a real-time view of all task legs and suggested turn area penetration depths calculated using a dynamic model and achieved or entered speeds.

**TASK LIST** - Lists all existing tasks - and supports a range of task maintenance functions including:

- Activate/Edit (a new / or existing task)
- Delete (the selected task)

The following link presents a view of all task functions in more detail.

---

GLIDE TO FINISH OR NEXT TURNPOINT

- "TO FINISH" or the name of the next Turnpoint/Waypoint will be displayed in the destination window.
- Glide to Finish will display a checkered flag in the ribbon menu - Glide to a Turnpoint will display the red pennant.
- The system will display the distance and altitude difference for the glide target as appropriate.
- If you have not reached the current target task turnpoint, the system ask for a confirmation when Glide to Next Turnpoint is selected.
- ClearNav navigates to the closest point on the bottom circumference of the Finish Cylinder. After crossing the circumference, ClearNav switches to the center of the Finish Cylinder at ground level as the navigation point.
- The altitude margin (Arrival Height AGL) value set in the Final Glide settings is added to the Finish Cylinder MSL altitude for calculating final glide margin.

SET MACREADY

- Up/Down Buttons = 0.5 Knots Change
- Zoom +/- Buttons = 1.0 Knots Change

The MC setting immediately impacts all system calculations and associated graphical displays.

The size of the thermal tracks, plotted as circles in the flight track on the main map page, immediately change as the MC is changed.

Green areas reflect measured lift rates that meet or exceed the entered MC value. These can be used as a tool to understand and identify thermal and other lift patterns.

SELECT DESTINATION TP

Displays TP List in Alphabetic order - use controller LEFT and RIGHT buttons to select desired list.

- Selected TP becomes Current Destination on Moving Map Screen. (Equivalent to TP selection using Moving Map Cursor.)

  If a task is in progress, navigation to the current task turnpoint is suspended - but can be restarted by selecting 'Resume' on the moving map or 'Resume Task' on the Action screen. All task metrics from the start are retained.

- Select hand controller FOCUS or MENU buttons to exit list with no TP selection.

Controller Left/Right buttons select letter to use as a 'filter'. The list cursor will highlight the first occurrence of a TP matching the 'filter' value.
**ClearNav Operations Manual**

- **Up/Down Buttons** = Scroll 1 Row
- **Zoom +/- Buttons** = Scroll 10 Rows

**SET CLEAN (BUG) %**

- **Up/Down Buttons** = 1 % Change
- **Zoom +/- Buttons** = 5 % Change

**SET WATER BALLAST %**

- **Up/Down Buttons** = 10 % Change
- **Zoom +/- Buttons** = 20 % Change

**SELECT AUTO/MANUAL WINDS**

**AUTO/MANUAL WIND SELECTION AND ENTRY**

ClearNav uses your selected wind type in all calculations.

'Auto Wind’ uses ClearNav’s last calculated Winds ... or current winds from a CAI 302 or other supported device.

Last calculated ClearNav winds may be from much earlier in the flight ... or could be zero (000/0) if the flight just started. You have to circle in a thermal to allow ClearNav to generate a new calculation based on GPS measured wind drift.

'Manual Wind’ requires input of Wind Direction and Speed - Unit types (ex. mph, degrees) are displayed on the top of the Auto/Manual selection screen.

**AUTO/MANUAL WIND DISPLAYS**

The Auto or Manual wind speed and direction information is displayed in a gray cell in the lower left corner of the Moving Map.

If the Manual Wind option is selected, the Auto Wind speed and direction is displayed directly above to advise that ClearNav is using Manual Wind - and to show you the current Auto Wind value. If you only see the gray box, you are using Auto winds.

The wind display can also include a numeric compass bearing - by selecting this feature in the Preferences/On-Screen Options menu.

- **Select ClearNav Wind Source. This is immediately used in all calculations.**
- **Enter Wind Speed and Direction for Manual Wind.**

**MANUAL WIND ENTRY**

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DIRECTION</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up or Down</td>
<td>5 Units</td>
<td>1 Unit</td>
</tr>
<tr>
<td>Zoom + or -</td>
<td>10 Units</td>
<td>2 Unit</td>
</tr>
</tbody>
</table>

When two sets of wind information are displayed in the lower left corner of the map - this means Manual Wind has been selected.

The Manually Wind value/vector is displayed in the gray box. The Auto Wind value/vector is displayed immediately above.

The display below shows the same information - however, 'Numeric Wind Direction’ has been selected in the Preferences Menu and the wind compass direction is also displayed.
**SET ALTITUDE**

- Up/Down Buttons = 0.1 mBar Change
- Zoom +/- Buttons = 0.5 mBar Change

ClearNav will default to the GPS field elevation at the start of each flight when it obtains a position fix. Manually entered values will not be overridden.

**SET SCREEN LIGHT INTENSITY**

Power Save - Screen automatically sets to low intensity after 25 seconds - resets to high intensity with any controller button press.

Low, Medium, High - adjust screen intensity to accommodate ambient light conditions.

Off - turns display off to reduce current drain to a minimum. The system automatically switches to PowerSave mode with any controller button push.

**ON-LINE CONTEST METRICS**

When invoked from the ribbon menu, the OLC function performs a real-time evaluation of your current flight to calculate metrics and scores. i.e. it does not constantly calculate these metrics in the background.

The Check Box for 'OLC On' is important, because the OLC function has to track a few specific benchmarks throughout the flight to correctly calculate metrics. If you have the box unchecked before the flight - or if you uncheck during the flight - the OLC metrics may not be totally correct.

When invoked from the ribbon menu, a "Loading, Please Wait" message will display.

The "Finish Point" is for setting the goal, if it is not your takeoff point, which is the default.

The app displays the achieved OLC distance and achieved FAI triangle. The FAI Triangle distance displayed assumes the finish will be completed at the Finish Point.

Also displayed is the total distance assuming return to the finish point - along with total score (OLC Plus, unhandicapped) - also assuming returning to the finish point.
The app assumes the triangle will be closed within 1 km horizontally and vertically per the OLC rules.

**THERMALLING TRACKS**

Pilots can toggle Thermalling Tracks on or off ... or erase all tracks created to that point in time. Erased tracks cannot be recovered.

ClearNav Thermal Tracks are based on real-time climb metrics and provide effective graphical guidance to the strongest lift areas.

The MacCready setting allows the pilot to display thermal 'tracks' that meet or exceed the entered MC value.

A high MC will typically produce small plotting circles that identify the highest lift rates found in thermal cores. Lower MC values will typically broaden the plotting circles to match the larger areas of lower lift found around the core.

**SETUP MENUS**

Setup Menus allow the pilot to create and edit:

- PERSONAL SETTINGS
- GLIDERS
- SPECIAL USE AIRSPACE
- WAYPOINTS
- FLIGHT RECORDER
- TOOLS

**RIBBON MENU OPTIONS**

This checkbox menu allows you to control which items are displayed on the ribbon menu.
SELECT / ADD PILOT

SELECT ACTIVE PILOT OR ADD NEW PILOT

SELECT - Highlighting this row/cell and hitting the controller Select button makes that pilot active and returns one level up to the Personal Preference menu.

DELETE - The controller left/right buttons allow selection of the Delete function for existing pilot records.

The system will display a Delete Confirmation window and ask for verification. 'YES' is the default.
The current active pilot is displayed at the bottom left of the Select / Add Pilot Screen.

**ADD NEW PILOT NAME**

A blank row of individual cells is displayed to capture and manipulate text input. A grid of all available alphanumeric text values is displayed immediately below.

Text is 'entered' a character at a time by toggling between the two grids. The location of the active insertion point ... or selected character is highlighted by the system.

When you are on the capture row, the hand controller left/right arrows allow you to select the insertion point for the next letter or number. Hitting the controller select button then toggles you to the grid where you can select a letter or number.

- The system actually adds cells incrementally to the capture row - starting with one cell. The small left/right arrows below the row show how many cells are available.

**EDIT PILOT NAME**

This screen allows you to edit the currently selected pilot name ... 'Default Pilot' in this example.

The screen displays a row with the currently selected name - and allows you to delete characters or change text ... selecting from a grid of all available text values.

Text is deleted and/or changed a character at a time by toggling between the two grids. The location of the active insertion point ... or selected character is highlighted by the system.
When you are on the capture row, the hand controller left/right arrows allow you to select the insertion point for the next letter or number. Hitting the controller select button then toggles you to the grid where you can select a letter or number.

- In this example, 'P' was selected and the system activated the text selection grid - positioning the highlight to 'P'. You can move to any other value on the text grid using the left/right and up/down buttons - and hit the controller Select Button to accept.

**FINAL GLIDE SETTINGS**

'Arrival Height, AGL' is used by the final glide calculator ... and the calculation engine for the purple amoeba ('Purple Arrival Height'). The purple amoeba shows your glide range in all directions from your current altitude to an altitude equal to your 'Arrival Height, AGL'.

As you change the 'Arrival Height, AGL' you will see this value applied automatically to the 'Purple Arrival Height' parameter. No direct modification to the latter is permitted.

The 'Red Arrival Height' parameter is used by the calc engine for the red amoeba. This is typically set to zero to reflect real-time glide range to the ground.

**CONTROLER ALTITUDE INPUT**

- Up or Down: 100 Units
- Zoom + or -: 500 Units

The 'MSL Glide Range' altitude is used to calculate dynamic glide range in all directions from your current altitude to the entered MSL altitude, i.e. the MSL Altitude represents an operations floor. MSL Glide Range is displayed on the ClearNav Map as a circle (in zero wind) defined by a thin black line. This real-time calculation incorporates glider polar, ballast %, bug %, MC, and winds.
**MAP DISPLAY OPTIONS**

**Tracks** - allows pilots to display or hide 'ground' tracks. The tracking data is retrained so the pilot can switch this on/off without losing track history. 'Clear' Tracks will erase track history.

**Tracks Control Menu**

- Tracks On
- Tracks Off
- Tracks Erased Message

**Map Items** - allows pilots to select background features that should show on the moving map. Terrain, Roads, Water Bodies, City Areas can be turned on or off individually.

**Map Items Control Menu**

- All Features ON
- All Features Off

**Waypoint Names / Numbers** - allows pilots to select Control and Waypoint Name display options. You can display long name or short name with or without the turnpoint number. The short name is five characters long.

**Waypoint Names/Number Format Control Menu**

- Long Names
- Short Names

**MAP ORIENTATION**
A black reference sailplane is displayed and track is always upward on the map display. The map terrain features and waypoints rotate under the reference sailplane as heading is changed - matching the pilot's view outside the cockpit.

Map rotation is suspended if you hit the controller up, down left or right buttons to move the cursor. The sailplane image will change to the white variant to reflect this state. Rotation will restart if the Select button is pressed - or when the rotation suspense timer expires in ~ 20 seconds.

In Track Up mode, the reference sailplane is positioned in the lower third of the display to present the maximum view of terrain and waypoints ahead.

Map terrain features and waypoints remain stationary fixed to north - which is assumed to be the top of the screen. The white reference sailplane rotates as heading is changed.

The reference sailplane is positioned in middle of the display to present the maximum view of terrain and waypoints ahead with any course change.

The TRACK UP mode display will auto-change to North Up when the ClearNav detects the ship is circling. (i.e. an ongoing course change of 20 degrees + per second for more then 10 seconds.) The display will revert to Track Up when circling ends.

FOCUS COLOR - allows pilots to select the color the provides the best resolution considering sun glass tint and the ambient light conditions.
The UNITS menu allows the pilot to select the entry and reporting basis for all displayed metrics and parameters. Selectable options include:

- **SPEED** - Kilometers/Hour, Miles/Hour, Knots
- **DISTANCE** - Kilometers, Miles, Nautical Miles
- **ALTITUDE** - Meters, Feet
- Vertical Speed - Knots, Meters/Second
- **SUA Altitudes** - Meters, Feet

The Language Menu allows selection of the desired system language. Selectable options include:

- DEUTSCH
- ENGLISH
- ESPANOL
- FRANCAIS

This function allows you to display additional flight/task metrics on the moving map. All will appear immediately when selected - except the voltmeter display, which will only appear if the voltage drops to or below the designated threshold.

The requested parameters will be displayed in pre-mapped locations to group like items together... i.e. Altitude items will appear in the same column, time items in the same column, etc. The displayed values are not moveable from the the mapped locations.
### On-Screen Option selection menu.

This is the baseline map presented when no additional on-screen items are requested.

This is the map generated when all on-screen options are requested.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>OPTION</th>
<th>DISPLAY</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALTITUDES</strong></td>
<td>Pressure</td>
<td><strong>2703</strong></td>
<td>Pressure Altitude is supplied by the ClearNav pressure transducer. (The SIM will display a N/A value.)</td>
</tr>
<tr>
<td></td>
<td>AGL</td>
<td><strong>2707</strong></td>
<td>Altitude AGL is approximate and calculated by subtracting terrain elevation from MSL Altitude.</td>
</tr>
<tr>
<td></td>
<td>2nd Altimiter in Feet MSL</td>
<td><strong>3323</strong></td>
<td>Second Altimiter - Always defaults to MSL in feet.</td>
</tr>
<tr>
<td><strong>TASK DATA</strong></td>
<td>Ground Speed</td>
<td><strong>58</strong></td>
<td>Calculated Speed over Ground.</td>
</tr>
<tr>
<td><strong>DISPLAY OPTIONS</strong></td>
<td>Time Since Start</td>
<td><strong>00:03:02</strong></td>
<td>Time since last valid start.</td>
</tr>
<tr>
<td></td>
<td>Time To Finish</td>
<td><strong>00:38:55</strong></td>
<td>Time To Finish is the estimated time (hh:mm:ss) to task finish – calculated by dividing the Distance To Go by the Predicted Speed.</td>
</tr>
<tr>
<td></td>
<td>Total Time</td>
<td><strong>00:41:57</strong></td>
<td>Total Time is the estimated time to complete - calculated by adding the Time Since Start to the Time To Finish.</td>
</tr>
<tr>
<td></td>
<td>Distance Achieved</td>
<td><strong>11</strong></td>
<td>Distance Achieved since last start.</td>
</tr>
<tr>
<td></td>
<td>Distance To Go</td>
<td><strong>112</strong></td>
<td>Distance To Go is the distance from your current location to remaining turnpoints to the finish point.</td>
</tr>
<tr>
<td></td>
<td>Speed Achieved</td>
<td><strong>57</strong></td>
<td>Achieved Speed is the average speed since the start of the task.</td>
</tr>
<tr>
<td><strong>SOARING</strong></td>
<td>Current Average Climb</td>
<td><strong>3.1</strong></td>
<td>Average climb rate in the current thermal.</td>
</tr>
<tr>
<td><strong>PERFORMANCE</strong></td>
<td>Flight Average Climb</td>
<td><strong>3.6</strong></td>
<td>The average climb rate since take-off – or since the last task start.</td>
</tr>
<tr>
<td></td>
<td>L/D to Destination</td>
<td></td>
<td>LD required to reach destination.</td>
</tr>
</tbody>
</table>
### ClearNav Operations Manual

#### L/D Current Glide
LD achieved in current glide.

#### Speed-To-Fly Units / Hour
Speed To Fly - Computed for MC, Wind, Bugs and Ballast.

#### Ground Speed
Speed over Ground

#### Local Time
Local Time

#### WIND
**Numeric Wind Direction**
This option allows display of the wind compass directions in degrees magnetic as a numeric value ... in addition to the vector arrow.

#### Headwind Component
Calculated Head Wind Component

#### TRACK AND BEARING
**Track/Bearing**
The Track/Bearing window displays the sailplane’s current track and bearing to the active waypoint.

**Bearing/Distance**
This option adds Bearing info - to the Distance window at the top center of the moving map.

#### Track Error
Deviation from direct track to destination - Degrees.

#### VOLTMETER
**Voltmeter**
Battery Voltage

---

#### FLARM

**Flarm**
The FLARM options allow the pilot to control the FLARM warning audio and visual displays.

**Flarm display and audio options are controlled on the first screen.**

**Alarm Suppression options allow the pilot to control the length of the alarm warnings - and the sensitivity threshold.**

---

CLEARNAV - USER MANUAL (V5.12 DEV)

SETUP MENU - GLIDER

AVAILABLE FUNCTIONS

SELECT/ADD GLIDER
EDIT GLIDER ID
EDIT GLIDER TYPE
POLAR

SELECT / ADD GLIDER

SELECT - Highlighting this row/cell and hitting the controller Select button makes that glider active and returns one level up to the Glider menu.

DELETE - The controller left/right buttons allow selection of the Delete function for existing glider records.

The system will display a Delete Confirmation window and ask for verification. 'YES' is the default.
ClearNav Operations Manual

**ADD NEW GLIDER ID**

A blank row of individual cells is displayed to capture and manipulate text input. A grid of all available alphanumeric text values is displayed immediately below.

Text is 'entered' a character at a time by toggling between the two grids. The location of the active insertion point ... or selected character is highlighted by the system.

When you are on the capture row, the hand controller left/right arrows allow you to select the insertion point for the next letter or number. Hitting the controller select button then toggles you to the grid where you can select a letter or number.

- The system actually adds cells incrementally to the capture row - starting with one cell. The small left/right arrows below the row show how many cells are available.

When the system creates the new Glider ID, it automatically assigns a Glider Type record equal to the last entered Glider ID.

Use the Edit Glider Type function to update type.

**EDIT GLIDER ID**

This screen allows you to edit the Glider ID of the currently selected Glider ID ... 'KK' in this example.

The screen displays a row with the currently selected name - and allows you to delete characters or change text ... selecting from a grid of all available text values.

Text is deleted and/or changed a character at a time by toggling...
EDIT GLIDER TYPE

EDIT GLIDER TYPE SCREEN

This screen allows you to edit the Glider Type of the currently selected Glider ID... 'KK' in this example.

The screen displays a row with the currently selected name - and allows you to delete characters or change text... selecting from a grid of all available text values.

Text is deleted and/or changed a character at a time by toggling between the two grids. The location of the active insertion point... or selected character is highlighted by the system.

When you are on the capture row, the hand controller left/right arrows allow you to select the insertion point for the next letter or number.

Hitting the controller select button then toggles you to the grid where you can select a letter or number.

No change is made to the Glider Type record associated with this ID.

ADD/EDIT POLAR SCREEN

This screen allows you to enter or edit the Polar for the currently selected Glider ID... 'KK' in this example.

Use the controller up/down keys to select the desired polar parameter and hit Select to bring up the entry screen.
The controller Up and Down ... and Zoom + and Zoom - keys will change the values.

<table>
<thead>
<tr>
<th>BALLAST</th>
<th>WEIGHT</th>
<th>BEST GLIDE</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up/Down</td>
<td>1 Unit</td>
<td>5 Units</td>
<td>1 Unit</td>
</tr>
<tr>
<td>Zoom +/-</td>
<td>5 Units</td>
<td>10 Units</td>
<td>5 Units</td>
</tr>
</tbody>
</table>

The specific unit types (metric vs imperial) displayed are determined by the options selected in the Personal Preferences (Units) menu.
SUA Warning Margins

This menu allows you to set the distances and altitudes that will trigger airspace warnings. All warnings open a new window that shows glider position relative to the airspace - which is highlighted in blue. SUA radio frequency, airspace type, and dimensions are also displayed. The warning window can be closed by selecting the ‘OFF’ option in the lower left part of the window.

SUA Warning Margins are accessed via a sub-menu.
This option controls the Above SUA Warnings.

**SUA - IGNORE SUA'S ABOVE**

This option suppresses warnings for airspace at altitudes that you cannot realistically reach during the flight.

**IGNORE SUA'S ABOVE**

**SUA - MAXIMUM PERMITTED ALTITUDE**

This option controls the Above SUA Warnings.

**MAXIMUM PERMITTED ALTITUDE**
LOAD/UNLOAD SUA FILES FROM CLEARNAV STORAGE

This feature allows you to identify the SUA files ClearNav will use for the current flight. The system contains a storage area to stage files uploaded from Memory Sticks or SD Cards. Although these are resident in system storage, the CN Navigator application will not use them unless specifically directed.

SUA - 12 HOUR OFF LIST

This feature allows the pilot to turn off the alerts for a specific SUA for 12 hours.

Position the cursor over the SUA and press Select to display the SUA information.

Highlight '12 Hour Off List' to suppress warnings for 12 hours.
SUA - ALARMS

This option allows the pilot to turn the SUA Alarms on or off.

These SUA boundaries will still show on the maps and other displays as appropriate.

This option allows the pilot to set the SUA warning alarm volume.

This option allows the pilot to suppress SUA warnings for the following airspace types.

- Danger
- Airway
- Wave
- Window
- Glider
- Prohibited
CLEARNAV - USER MANUAL (V5.12 DEV)

SETUP MENU - WAYPOINTS

**SELECT HOME FIELD**
This screen allows you to select the home field for all navigation functions.

Use the left/right buttons to position the list to the selected alpha value ... then scroll up/down and hit 'Select' to make that waypoint your home airport.

**LOAD/UNLOAD FILES**
This function allows you to manage waypoint files on your system.

AVAILABLE WP FILES - The top section shows the files that are in the ClearNav storage area, but not loaded. This is the staging location used to store files uploaded from your memory stick or SD card. Highlight the file and hit select to 'Load' the file - the waypoints in the file will then be available for navigation purposes.

LOADED WP FILES - The center sections shows loaded files - containing waypoints that are available for navigation functions. You can move files back to the Available WP Files area by highlighting the file and hitting the controller 'Select' button. The waypoints in the file will not show in any navigation function.

DELETE WP FILE - The lower section allows you to completely remove files from the system - highlight the file and
hit 'Select' to totally delete the file and contained waypoints from the ClearNav system.

EDIT WAYPOINTS
This screen allows you to edit Waypoint Attributes.
The uploaded waypoint file must be in STX format.
FLIGHT RECORDER - MAIN MENU

- **PILOT NAME**
The Pilot Name currently selected in Personal Preferences will be the default for the Flight Recorder Declaration. This menu item allows you to edit the currently selected Pilot Name.

- **GLIDER TYPE**
The Glider Type currently selected in Personal Preferences will be the default for the Flight Recorder Declaration. This menu item allows you to edit the currently selected Glider Type.

- **GLIDER ID**
The Glider ID currently selected in Personal Preferences will be the default for the Flight Recorder Declaration. This menu item allows you to edit the currently selected Glider ID.

- **TRANSFER FLIGHT LOGS**
The menu item allows you to transfer flight logs from the ClearNav to a Memory stick or SD Card.

The system will ask you to insert a stick or card if none is detected.
A list of available files will be displayed ... along with a dropdown menu allowing you to select the file sample rate.

Log Interval - All ClearNav log files are recorded at a one second interval. However, you can select a 1, 2, 4 or 10 second interval when you create a log file on your memory stick or SD Card to submit your flight. The longer intervals will create smaller files - but may impact your task length or number of fixes in a turn area or sector. The original ClearNav file remains unchanged - so you can transfer again with a different interval if required.

Select ‘TRANSFER LOG’ and hit the controller SELECT button to initiate the transfer to your memory device. An asterisk will be appended to the beginning of the log name on the list to indicate the file has been transferred.

PILOT EVENT

This menu item allow you to record a Pilot Event record in the current flight log.

IGC DECLARATION

This function allows you to make an IGC declaration.

The current UTC Time and Date, currently selected Pilot Name, Glider Type, ID, and Task will be used in the declaration.

This declaration will be appended to any flight logs created going forward.

A change to Task, Pilot, Glider Type, or ID will require creation of a new IGC Declaration prior to takeoff.

A declaration cannot be made if the glider is in flight.
This screen displays real-time GPS and ClearNav data and status information. This display should update constantly.

SIM Options allow you to Enable SIM operation and select Playback Speed or Pause SIM operation. Free Flight or IGC File Playback are other options.

This screen allows you to set the HH value to local time. The up/down button on the controller moves HH in one hour increments. All flight log and declaration information is stored in UTC time.

This screen displays real-time Serial Port data and status information. This display should update constantly.
**FLARM STATUS**

This screen displays real-time FLARM data and status information. This display should update constantly.

---

**CAMBRIDGE 302 MENU**

**GET LOGS**

The menu allows you to get flight logs from the Cambridge instrument.

**UPLOAD WP**

The menu also allows you to upload WPs to the Cambridge instrument.

**CAI INFO**

Real-time CAI data and status information.

---

**DIAGNOSTICS**

This screen reports ClearNav diagnostic data that will be used by NK technicians to research operational issues.

---

**ABOUT CLEARNAV**

This screen reports unit serial number, installed software and firmware versions, and the unit sealed status.