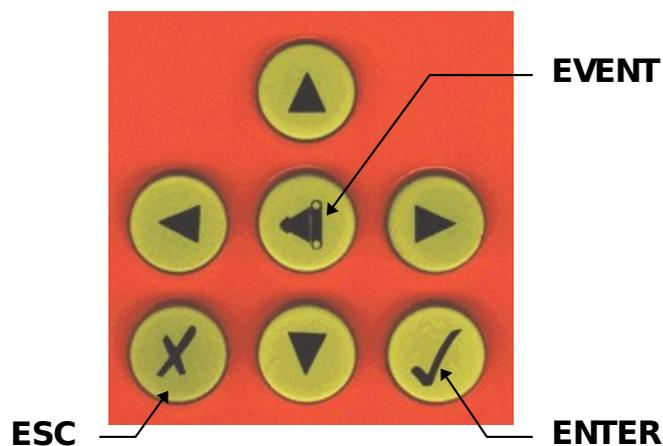


- The LX Colibri Logger is an FAI approved flight logger/recorder.
- It is operated via seven keys identified by symbols.
- All the data and flight information is displayed on a 2x8 character LCD matrix display.
- A BNC connector is used to connect the GPS antenna to the unit.
- The instrument is turned on by inserting the power lead (telephone type connector) into the appropriate socket on the Colibri.

All necessary data input and manipulation can be done using the seven keys as shown below:

- DOWN arrow
- UP arrow
- RIGHT arrow
- LEFT arrow
- ENTER
- ESCAPE
- EVENT



When power is applied the Colibri will display the program version followed by the serial number of the unit and the owner/pilots name for 20 seconds.

MAIN MENUS

The unit has four main menus. Pressing consecutively the right arrow key displays the next menu.

1. On power up the GPS STATUS page is displayed. Pressing the right arrow displays
2. the NAVIGATION pages (3 menus), then
3. the SETUP MENU, and finally
4. the VIEW LOGGER menu.

Pressing the left arrow returns to the previous menu.

GPS STATUS menu - After the initial start up procedure the logger automatically switches to this menu and commences acquiring satellite fixes. If the aerial is not connected or the aerial is covered by obstacles, such as buildings, then GPS BAD, SAT = 0 will be displayed. Satellite acquisition time from a cold start is under 60 seconds. A warm start is typically 30-seconds.

3 NAVIGATION menus – From the GPS STATUS menu pressing the right arrow brings up the 3 NAVIGATION menus (TP, TSK and APT). This shows bearing, track, distance and the first four letters of the selected turnpoint or airport. Pressing ESCAPE will cause the glider's ground speed to be displayed **in place of** the turnpoint's name. Turnpoints, which are stored in the database can be selected and also edited as required from this screen. Pressing the right arrow again takes you to the;

SETUP MENU- This page is not used during flight. It is normally used prior to the flight to define the logger and task parameters. All pilot and glider data are defined in this menu. From this menu pressing the LEFT arrow will return to the Navigation screen or the RIGHT arrow will lead to the VIEW LOGGER menu.

VIEW LOGGER menu – This is selected for flight analysis after landing. Flights made with the logger are stored in the unit (up to 100hrs depending on logging parameters) and the **information is retained even when the power is switched off**. Flights can be analysed via the Colibri's screen (after landing) without the need to transfer flight data to a PC. This menu will not be displayed if there are no flights stored in the logger.

All four main menus have **sub-menus**. To enter a sub menu use the **vertical arrows**. A detailed description of the sub-menus is contained further on in the manual. It is recommended you read this manual whilst referring to the menu structure diagram at the back of this manual.

The **ENTER** key always starts the edit procedure and confirms options selected or the data entered.

The **ESCAPE** key has two functions; go back a step in the menu and to accept the whole row in the editing procedure. Also the **ESCAPE** key cycles between the three navigation screens in the navigation menu. **During flight** this key starts the wind calculation procedure when pressed in the navigation page.

Menus in Detail

1 GPS STATUS menu

This menu is active when the instrument is switched on. There is **no edit** function, as this menu contains no user definable data. This means the data can only be read from the display. By using the UP and DOWN arrows the following pages of the GPS STATUS menu are displayed:

GPS OK SAT=6	GPS status and number of satellites acquired
LAT N 45 00.12	Coordinates of your current position (lat)
LON E016 45.15	Coordinates of your current position (lat)
ALTITUDE 230m	Altitude referenced to the ISA 1013 Hpa pressure level
12:13:44 12.05.98	Current Time/Date
BAT=12.1 DOP =3.3	Battery voltage and DOP (Dilution of Position. Which is a measure of the accuracy of the GPS position. The lower the number the better)
LOG:STOP Mem89.6h	Recording status; STOP or RUN is displayed and the Logger Recording Capacity in hours. Do not switch off the logger at the end of a flight until LOG:STOP is displayed.

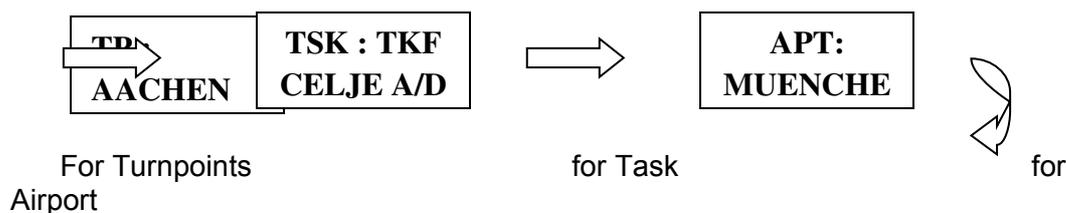
NOTE: The logger capacity figure displayed on the above screen doesn't indicate the remaining portion of unused_memory ! It displays the **total memory** available for flight recording, which depends upon the logging time interval and additional data options selected for recording. **As old data is automatically overwritten by new data** (ie. the current flight) you **don't** need to clear the memory prior to flight. Hence, after a flight you will find the logger memory number displayed has remained unchanged. However, changing the recording interval or selecting additional data recording options (see section 5.1.d of the manual) will change the amount of memory available and change the value displayed.

2 NAVIGATION MENUS

There are 3 navigation menus available; **Turnpoint (TP)**, **Task(TSK)**, and **Airport (APT)** which allow in-flight navigation to the selected turnpoint or airfield. Each menu is explained below. Also editing of the turnpoint and task data is possible. The navigation screen in each of the three menus looks like this-

123°t CUND
126°b235k

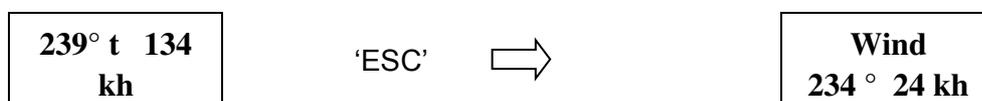
123° is the current track of the aircraft, **126°** is the bearing to the TP, **235km** is the distance to the TP and **CUND** is the first four letters of the turnpoint (designator). The Colibri counts down the distance to a TP in 1km increments, except when within 10km of the TP. Then the Colibri displays the distance to the TP in 100 metre increments. This is very useful as you approach the turnpoint and often loose sight of it under the nose of the aircraft. To select the navigation menu use 'left/right' arrow keys. From the Status Menu, pressing the 'Right' arrow brings up the Turnpoint navigation screen. Pressing the 'Right' arrow again brings the Task Navigation menu, 'Right' arrow again to the Airport menu.



When you have reached the menu you require, wait 2 seconds, the Colibri will display the following data, as per figure 1.

230°t
AACH

From the above screen, press the 'ESC' key to replace the TP name with the aircraft's groundspeed, 'ESC' again to display the wind calculation. 'ESC' again to return to the beginning.



The wind calculation is active only during thermalling. After two turns the wind direction and speed will be presented. The wind calculation is based upon ground speed changes during the climb. It is recommended that you keep the aircraft's speed constant whilst thermalling to ensure the most accurate wind measurement possible.

2.1 TP (Turning points) Navigation menu

To select a turnpoint from the Colibri's turnpoint database, use the 'up' and 'down' arrows, the turnpoints are sorted alphabetically, holding down the 'Up/Down' key will increase the scrolling speed through the

TP database. When the desired TP is displayed release the arrow key, and after a short pause, the navigation data, i.e. track, bearing and distance to the selected TP will be displayed. The **navigation display** will be shown as above (fig 1.).

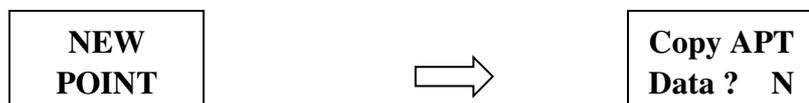
If required TP data, i.e. coordinates and name can be edited any time. The procedure is started by pressing 'ENTER', whilst in the TP navigation screen. The screen will display;

TP	□
MENU	□

Using the 'Up/Down' arrow keys, the pilot can select from the following options; **NEW POINT, EDIT TPOINT, DELETE TPOINT** and **EDIT TASK**.

The turning point capacity of Colibri is 600 turning points in the well-known DA.4 format. This is fully compatible with LX 5000, LX 20 and other LX instruments.

2.1.1 ENTERING A NEW TURNPOINT- from the airport data base.



Press 'Enter' when 'NEW TPOINT' is displayed on the screen, 'Copy APT' is shown, press the 'Down' arrow, to select 'Y' for yes, then press 'Enter'. The copying procedure will follow. The Colibri has its own airport database and additional turnpoints can be copied from this database. Replace the four stars with country designator you require, ICAO airport code (up /down arrows and Enter).

APT ****

APT EDDM

Confirm by pressing 'Enter' and a new turnpoint will be added to the TP database for further use. With an unknown ICAO code, simply press 'Escape' and select the country.

APT **
GERMAN**

Replace the four stars with the first four letters of the airport's name. You can enter less letters, say the first letter only, then press ESCAPE. Now the display will jump to the first airport whose name starts with that letter (use the UP or DOWN arrows to make your selection).

**APT

Confirmation with all four stars with the 'Escape' key, which will show you all the airports of the selected country (or State.). After pressing 'Enter' the airfield will be definitively be copied to the TP database and ready for navigation. NOTE an APT database has not yet been compiled for Australia.

2.1.2 **ENTERING a NEW TURNPOINT**

Manual entry of a new Turnpoints data is possible, select the 'N' option from the Copy APT menu.

**NAME

Input a maximum of 8 Characters for the turnpoint's name. After the input of all the characters, the coordinates (LAT, LON) and the altitude the following message appears.

**DATA
OK Y**

Select 'Y' using the UP or Down arrows if the data is correct. If you select 'N' the input procedure will recommence.

2.1.1 **EDITING AN EXISTING TURNPOINT**

Select the 'EDIT TPOINT' option and press 'ENTER',

**EDIT
TPOINT**

Enter

<p style="text-align: center;">TP NAME</p>

Select the TP by entering the first four letters of the TP's name and change the data as required. You can cycle alphabetically through the TP's using the 'Up/ Down' keys by entering just the first letter (or none). Use the 'Up/Down' keys to enter a character where the cursor is flashing and use the 'right' arrow key to move across to the next character. Four presses of the 'Right' arrow key will bring you to the start of the TP database, i.e. the first turnpoint.

2.1.2 DELETING A TURNPOINT

Select the TP and confirm the delete procedure with 'Y'.

2.1.3 EDITING A TASK

Up to 100 tasks can be stored into the Colibri's memory. To **edit a stored task** use this menu.

With 'EDIT TASK' displayed press the 'Enter' key and the task database is accessed. The first stored task, Task 00 displayed. Using the vertical arrows you cycle through the tasks numerically, stop when the TSK you wish to edit is shown. Press the 'Enter' key. Note; The task is designated with numbers (0-99), the number of turning points in the task (max. 10) and the distance. See figure below,

<p style="text-align: center;">TSK 00 5pt 376 km</p>

If no tasks are stored in the Colibri, the message 'NOT PROG' will appear, however, the task can be programmed as per editing a stored task.

Press 'Enter' again to display the first TP of the task, TP0, which is the start point. You can use the 'Up/Down' arrow keys to cycle through the turnpoints of the task. Press 'Enter' when the desired TP is reached. You then have three options. With the '**INSERT POINT**' option an additional TP one position lower than the one selected will be entered. The '**DELETE POINT**' option will delete the selected turnpoint and hence reduce the number of Turnpoints of the task. The '**SELECT POINT**' option will overwrite (replace) the selected turnpoint with a new one. The turnpoint selection procedure is the same as described above, i.e. replacing stars with characters. To close the procedure press '**ESC**' **until you reach navigation menu.**

NOTE; The tasks from this menu can be transferred to your PC, however it is much easier to compile tasks on your PC first then upload them to your Colibri, as per turnpoints

2.1.4 EVENT BUTTON

This special key has two functions during the flight. A quick press will activate the event function which changes the sampling rate interval briefly as defined in the Logger Setup menu. After a longer press of the event button the following will appear on the display:



TP-QUICK
AP: 19:43

'AP' stands for actual position, and means your current position is stored as a turnpoint with the following name 'AP:19:43'. 19:43 is the time you marked the position, which allows you to distinguish several EVENT marked positions from one another in the TP database. The names of these 'AP' turnpoints can be changed using the edit function if required. This feature can be used to mark thermals, an outlanded glider (hopefully as you fly over it!) etc. As the marked position is stored in the turnpoint database, you can select one of the marked points in the NAVIGATION screen and fly to it later if required.

2.2 TSK NAVIGATION MENU

This menu has two important functions.

1. **Navigation** - It allows in-flight navigation using only the turnpoints of the task. This prevents manually cycling through the entire TP database when on a task. Please note after the task has started, i.e. you have entered the start point cylinder or sector, **there is an automatic change over to the next Turnpoint of the task after rounding the current TP.**
2. **Task declaration for the logger** - after take off **the selected task is written into the logger** and will remain there till landing. **The selected task is automatically declared after take off.**

Only **one TSK** can be memorized in this menu. To input a task in to this menu use one of two methods:

Press the 'Enter' key and the 'EDIT TASK' option is displayed, Press 'Enter' again and you can cycle through the TP's of the task, changing the TP's as required. That is, press 'Enter' when the old TP is displayed and you then have the SELECT, INSERT,DELETE TPOINT options.

OR

Press the 'Enter' key and the 'EDIT TASK' option is displayed, press the 'Down' arrow key and the 'COPY TASK' option is displayed. Press 'Enter' again and the 100 (0-99) task database stored in the

Colibri is accessed. Use the 'Up/Down' keys to copy the task you desire.

NOTE: - Editing task in this menu will not change the task as stored in the task library (0-99).

How to fly the TSK

Prepare the task using copy or edit method as described above. The task stored into the IGC logger must have following structure:

- TAKE OFF
- START POINT
- TURNPOINTS
- FINISH POINT
- LANDING

TAKE OFF and LANDING are classed as turnpoints as well. Which means they should be entered using the TP library. The stored tasks in the TP library don't have take off and landing points. So after having copied a task from the library, you will

find the TAKE OFF point = START point and the FINISH point = LANDING point. Using EDIT procedure it is possible to change these two points so the task matches the FAI structure shown above. TASK declaration is easier to do using the LXFAI program and uploading the task via the 'WRITE FLIGHT INFO' menu option.

IN FLIGHT

Immediately after take off the TASK navigation screen will change automatically from the TAKE OFF point to the START POINT (TSK:STA). That is the navigation screen will automatically display data to guide you to the start point of the task.

Once you reach the START point (photosector, cylinder ...) an acoustic alarm is activated and a **manual change-over** to the first turning point is necessary (use the 'Down' arrow key). Often you fly through the start point sector many times before actually commencing your task (i.e. in competitions). You must manually select the first Turnpoint of the task to tell the Colibri you have actually started the task.

When you reach the first TP of the task, the Colibri will **automatically** changeover to the next turnpoint of the task and display navigation data to this turnpoint. No manipulation is necessary.

Important Note;

Task editing during the flight is possible without any limitations (i.e. for POST), but the task as declared in the logger will remain unchanged. **Therefore there is no chance you can destroy the FAI deceleration in the logger during the flight.**

It is highly recommended that you check the task (declaration) before take off. Do it simply by pressing the 'Down' arrow key when in the Task Navigation screen. The Takeoff, Start, Turnpoints, Finish and Landing points will be displayed in order. Flying out of this menu has no influence on the FAI declaration. To jump over a TP not reached in flight use the 'Down' arrow key or edit the task as described above.

2.3 APT NAVIGATION MENU

The Colibri is able to memorize approx. 5000 airfield points. From this Colibri database it is possible to select airports and navigate to them. Additionally, the airports are separated by distance, building an **near airport** table. The selection of an airport is completely the same as coping **them into TPs**.

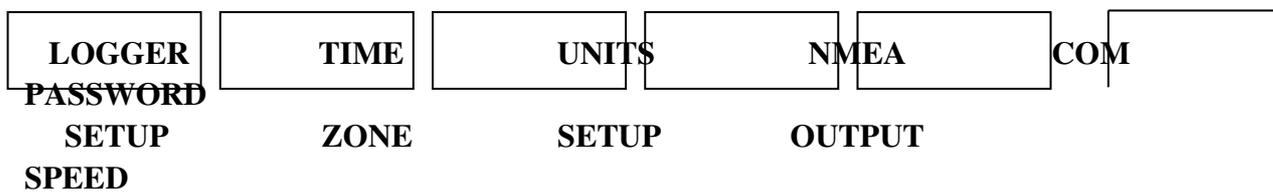
The near function is active permanently, the nearest airport is to be **found by pressing the 'up' arrow**.

3 SETUP MENU

All the important logger parameters are defined in this menu. Press the 'Right' arrow key from the APT navigation screen to display the SETUP MENU.

SETUP □ MENU □

Using the 'Up/Down' arrows the following sub menus can be selected.



3.1 **LOGGER SETUP**

All important logger parameters are defined in this menu. With 'LOGGER SETUP' displayed press 'ENTER' and the RECORD INTERVAL menu option will be displayed. From the RECORD INTERVAL menu the 'Down' arrow will display in order additional menus, they are; OBSERV. ZONE, OBS. ZONE BEEP, I-RECORD DATA, J-RECORD DATA, FLIGHT INFO. Press the 'Enter' key to select the displayed menu. Various settings can be altered as required and detailed below.