



# GarMax ver 1.02h

## User Guide

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### Introduction

The purpose of GarMax is to upload user selected airspace, waypoint and airfield data into Garmin GPS's that have a moving map facility. There are several airspace data files that are shipped with the software, these lists contain UK class A, D, B, Danger, Restricted, Parachute, Military ATZ's airspace. The airfield and waypoint data files include :-

- 1) **2007 BGA waypoint list for glider pilots**
- 2) **Worldwide waypoint lists for glider pilots**
- 3) **UK Airfields, Private airstrips and Lists of European airfields**

Users only need a minimum of knowledge to get this software up and running. We have tried to keep it simple because it is software that is going to be used infrequently. The area most likely to cause "concern" for users is the setting up of their GPS - although this is quite straightforward.

For all those "proliferators" of software it will be somewhat disappointing as each installation requires a unique password provided by Crabb Computing – by e-mail or phone.

## **Acknowledgements**

GARMIN is a trademark of GARMIN International.

The data used to generate the airspace files was kindly supplied by Tim Newport-Peace of Specialist Systems Ltd. It is the same data that he uses in his excellent "Flight Check" programme which can be used to view GPS data traces and check for airspace infringements <http://www.spsys.demon.co.uk>

Ron Henderson has kindly allowed us to use his Windows upload / download facility in his G7toWin software his web site is <http://www.gpsinformation.org/ronh/>

The waypoint data files have come from the Soaring Society of America's web site which has been compiled and maintained by John Leibacher ( <http://acro.harvard.edu/SSA/JL/TP/> ). He has done an exceptional job which must be benefiting a great many pilots world wide. You can import FlightCheck, TaskNav and G7toWin formats

## **Technical support**

This is computer software interfacing to electronic hardware. The complexities of both are immense, but thankfully Windows and a standard communications protocol take care of 99% of the hard work - the other 1% is provided by Crabb Computing. It is inevitable that some people will discover "unwanted features" in the software and problems communicating with their hardware. If problems do arise please contact us and we will endeavour to sort them out.

**Crabb Computing : (01858) 575 665 e-mail : [paul@crabb.biz](mailto:paul@crabb.biz) Web : [www.crabb.biz](http://www.crabb.biz)**

# **PLEASE READ**

## **Conditions of use**

**This software is for the sole use of the purchaser and must only be used to upload data to the purchaser's privately owned GPS equipment. It is not to be used to upload data to anyone else's GPS equipment. We reserve the right to refuse software and data updates to anyone we suspect of abusing these conditions of use.**

## **Disclaimers**

**All data and information contained in the data files are provided without guarantee as to their completeness or correctness. Any conclusions drawn from the data and information are the sole responsibility of the user.**

**GarMax must only be used in conjunction with a current air map. GarMax must only be used as an aid because the data may be incorrect or out of date. GarMax users should always consult the relevant publications for current and correct information - especially airspace.**

Prudent pilots will, of course, check these values against their maps and - especially - continue to keep their eyes outside the cockpit.

## **Installation**

The installation requires 2 - 3 MB of hard disk space.

### **Windows installation downloaded from the internet**

- 1) Download the installation file from our website [www.crabb.biz](http://www.crabb.biz) and save it to a folder on your PC.
- 2) Locate the installation file on your PC using Windows Explorer and "Double Click" it
- 3) To run GarMax go to the "Start" menu, select "Programs", select the GarMax menu option and finally select GarMax to run.
- 4) Contact Crabb Computing and give us the 6 digit "Customer Code" and we will send you a "Supplier Code" to activate the software.

### **Windows installation from a Diskette**

- 1) Put the GarMax installation diskette into the A: drive.
  - 2) From the "Start" menu select the "Run.." option.
  - 3) Type A:Setup and press ENTER.
  - 4) Follow the installation procedure. Unless you have a very good reason not to, please use the default set up that the installation provides.
  - 5) To run GarMax go to the "Start" menu, select "Programs", select the GarMax menu option and finally select GarMax to run.
- 4) Contact Crabb Computing and give us the 6 digit number and we will send you an activation code

## **Setting up the GPS**

An impassioned plea !! It is assumed that the user has a basic familiarity with the operation of their GPS. We do not feel it is our job to teach GPS owners how to operate their equipment, so please make an effort to understand the workings of your GPS before reaching for the phone.

GarMax uploads waypoints to the GPS waypoint list and it uploads airspace data into the GPS track log. To upload successfully, the GPS needs to communicate with the PC. To ensure this we need to configure the following areas of the GPS.

- 1) Attaching the upload cable
- 2) INTERFACE SETUP or INPUT/OUTPUT
- 3) WAYPOINT LIST
- 4) TRACK LOG SETUP
- 5) DATUM ( set to WGS84 )

### **Attaching the upload cable**

The GPS end :-

The round end of the upload cable with the 4 holes goes in the back of the GPS. There is a groove in the round plastic end that matches up with a ridge in the GPS socket - this ensures that the plug is correctly oriented.

The PC end :-

The 9 pin PC serial port connector end of the upload cable goes into either the COM1 port or the COM2 port of the PC. If the only available port on the PC is a 25 pin type, you will need to get a 25 - to - 9 pin converter. Most computer supply shops sell these.

## Setting up the GPS interface

To set up the GPS to communicate with the PC you need to get to the relevant set up screen in the GPS. Depending on the model this may be called

- a) INTERFACE
- b) INPUT/OUTPUT
- c) I/O

It is normally reached from the main MENU or SETUP MENU. Each GPS has several types of interface available to it. This interface may have been set up to communicate with another electronic device e.g. a data logger. You will need to remember what this set up is before changing it so that you can set it back after you have finished uploading data with GarMax.

The interface screen that you need to select should look as follows:-

### INTERFACE SETUP

```
-----  
GRMN/GRMN  
HOST  
WAITING....
```

```
---- OF ----  
PACKETS
```

## Setting up the GPS waypoint list

If you are using GarMax to upload a list of waypoints to the GPS then you need to understand what happens :-

- 1) If the GPS USER WAYPOINT list is empty then the upload process will add waypoints to the list until it is full.
- 2) Some GPSs allow 250 waypoints, some allow 500. If you try and upload more waypoints than the GPS can store it will ignore any extra waypoints.
- 3) If you upload waypoints from GarMax which have the same name as those already in the GPS, then the ones already in the GPS will be updated and any new waypoints will be added.

It is probably less confusing if all the user waypoints are deleted from the GPS before uploading a new set. The best method is to use the DELETE ALL? option in the WAYPOINT LIST. This is normally accessed by scrolling through the list until it gets to the bottom. The GPS then scrolls onto the DELETE ALL? option. This is far quicker than trying to delete individual waypoints.

## Setting up the GPS track log

The GPS track log is used to store the airspace data. The track log area needs to be cleared so that it can receive the airspace data. The GPS also needs to have its track log recording facility turned off so that the airspace data is not overwritten by GPS track log data.

Setting up both these areas is carried out from the "TRACK LOG SETUP". This is accessed in different ways depending on the model.

- 1) It is a MENU item on the Garmin 45, 38, 89 and 90.
- 2) It accessed by pressing ENTER on the moving map page of the Garmin 12, 12xL, II+ and III.

When in the "TRACK LOG SETUP" there are 2 settings that need to be changed -

- 1) "RECORD TRACK" must be set to NO.
- 2) "CLEAR TRACK LOG" is used to clear the existing track log data so that it is ready to receive airspace data from GarMax.

You also need to understand what is happening when using GarMax to upload airspace to the GPS.

- 1) Airspace that is uploaded using GarMax is added to the track log area of the GPS. It does not overwrite existing track log data. Once the track log is full, extra airspace points will not be uploaded to the GPS.

- 2) On the "TRACK LOG SETUP" page it shows how many points have been used and the corresponding amount of memory that is used - they represent the same thing.
- 3) Unless you are building up airspace bit by bit from several airspace files, we recommend completely clearing the track log area of the GPS before uploading airspace.

### **Setting the correct map datum on the GPS**

All the airspace and waypoint data provided with the GarMax software use the WGS84 map datum. It is recommended that you set up your GPS to use this map datum otherwise there will be discrepancies.

The map datum set up is accessed from the main MENU or SETUP MENU and may be referred to as "NAVIGATION SETUP" or "DATUM/UNITS". You will need to refer to your GPS user manual for specific details of how to do this.

### **Setting the number of track log points to be displayed on the GPS**

In the Garmin 38,45,89,90 and 12XL the track log can be configured to only display the last 200 points (it could be a different number depending on how it was set up). This means that only a limited amount of the airspace will be visible. To avoid this the "Map Configuration" screen on the GPS needs to be entered and the "Plot Pts" or "Track log" number needs to be set to a value larger than the actual total number of track log points in the GPS. I would suggest 2250.

## **Overview of the GarMax software**

GarMax allows you to select specific airspace and waypoint data from the files supplied and upload it to your GPS. The selected data can also be renamed and saved on your PC as a separate file for future use. This facility allows users to build up files of airspace and waypoint data that are relevant to them.

There are 4 types of data files supplied with GarMax that the user can access:-

- 1) Master waypoint files ( \*.WPP )  
These files can be opened and viewed as a list of waypoints. Waypoints in the list can be added to, modified or deleted BUT you CANNOT save any changes back to the original master waypoint file. If you want to save changes then you need to save it to a different file name. This is to prevent you from losing the original master data.
- 2) User waypoint files ( \*.WPU )  
These are files containing lists of waypoints that the user has created and saved for future use. The data in these files can be overwritten, deleted or added to as required.
- 3) Master airspace files ( \*.ASP )  
These files can be opened and viewed, but they cannot be modified, nor can they be overwritten This is to prevent you from losing the original master data. They can be opened as both a "Source List" or as a "Destination List".
- 4) User airspace files ( \*.ASU )  
These are files containing lists of airspace data that the user has created and saved for future use. The data in these files can be overwritten, deleted or added to as required.

## **Uploading waypoints using GarMax**

### **Selecting a waypoint file**

- 1) Start the GarMax programme.
- 2) Click on the "Waypoints" tabbed page to make sure you are in the waypoint area.
- 3) Click on the "Open File..." button. This takes you into the "Open File" window.
- 4) Select the type of file you require from the "List files of types:" drop down menu. This is either "Master Waypoint file" or "User Waypoint file".
- 5) Click on the file you want to open, then click on the "OK" button. This will take you back to the waypoints screen and the waypoints in the selected file will be displayed in a list.
- 6) The number of waypoints in the list is displayed above the list. If there are more waypoints than the GPS can store then you will need to reduce the amount in the list by deleting waypoints with the "Delete" button OR filter out the ones that you don't want by using the "Filter.." option.

## Filtering waypoint data

- 1) Click on the "Filter" button. This takes you into the "Filter Waypoints" window.
- 2) Select the type of filter required and then fill in the filter information. When finished, click on the "OK" button. The waypoints are then filtered. If the list is quite large you may have to wait a few seconds. You will then be returned back to the main waypoint list.
- 3) The new number of waypoints will be displayed above the list.
- 4) If the filtered list is OK then it can be uploaded to the GPS. It can also be saved as a user waypoint file by clicking on the "Save As..." button. This will take you into the "Save As" window where you can name and save the user waypoint file.

## Uploading the waypoint list to the GPS

- 1) To upload the list of waypoints to the GPS click on the "Upload to GPS..." button. This will take you to the "Upload to GPS" window.
- 2) Before you upload to the GPS you will need to make sure that the GPS is set up correctly, connected to the PC via the cable and that there are enough empty waypoints available in your GPS.
- 3) Click on the "Upload via COM1" button OR "Upload via COM2" button depending on which port the GPS is connected to on the PC.
- 4) If the upload is progressing successfully you should see a counter on the Garmin "Interface" screen displaying how many waypoints have been uploaded so far. If nothing appears to happen and you are returned straight back to the "Upload Waypoints to GPS" window, then you should check that your GPS interface is set up correctly and also that you are connected to the correct COM port on the PC.
- 5) When the transfer is complete check your GPS to make sure that the waypoints have been uploaded.

## Adding, editing and deleting waypoints

The add, edit and delete buttons allow you to add a new waypoint to the list, edit the details of an existing waypoint in the list or delete a waypoint from the list.

NOTE:- Once a waypoint has been edited or deleted, to undo the changes you will have to re-open or recreate the list.

The details of a waypoint are as follows:-

Latitude	-	N or S, degrees minutes and decimal minutes
Longitude	-	E or W, degrees minutes and decimal minutes
Code	-	The short code that appears in the GPS waypoint list - cannot be empty
Description	-	The long description that appears in the GPS waypoint details - it can be empty

## Setting a reference waypoint

The "Set Reference Waypoint" button allows you to set the currently highlighted waypoint as a reference waypoint. This allows you to calculate the distance and bearing from that reference waypoint to any of the other waypoints in the list.

## Importing Waypoints from other formats

The "Import File..." button allows you to import Waypoint files from 3 different formats – FlightCheck (.FLC), TaskNav (.TPT) and G7toWin (.WPT). Up to date Waypoint lists for the world in the above formats can be downloaded from John Leibachers website <http://acro.harvard.edu/SSA/JL/TP/>. Once the file has been downloaded you need to locate the file and import it – then use the "Save File As..." button to save it in GarMax format.

## Downloading waypoints using GarMax

This button allows the user to download Waypoints stored in the GarMin and save them as a User Waypoint file (.WPU).

- 6) Click on the "Download from GPS..." button. This will take you to the "Download from GPS" window.
- 7) Before you Download from the GPS you will need to make sure that the GPS is set up correctly, connected to the PC via the cable and the interface is set to GRMN/GRMN.
- 8) Click on the "Download via COM1" button OR "Download via COM2" button depending on which port the GPS is connected to on the PC.
- 9) If the download is progressing successfully you should see a counter on the Garmin "Interface" screen displaying how many waypoints have been downloaded so far. If nothing appears to happen and you are

returned straight back to the "Upload Waypoints to GPS" window, then you should check that your GPS interface is set up correctly and also that you are connected to the correct COM port on the PC.

- 10) When the transfer is complete you can return to the main GarMax window to view the downloaded Waypoints. The Waypoints can be saved using the "save File as..." button.

## **Uploading airspace using GarMax**

**NOTE:** For Southern UK use the **ST\_D\_A.asp** airspace file, for Northern UK use the **NT\_D\_A.asp** airspace file

GarMax allows the user to select which blocks of airspace they wish to upload to their GPS. This means that the user can select just that airspace which is relevant to them. To facilitate this there are 2 lists:-

Source List:

This list is NOT uploaded to the GPS. It holds the complete list of airspace from which the user can select individual blocks of airspace. The airspace that is selected is transferred to the "Destination List" by clicking on the buttons between the two lists.

Destination List:

This is the list that is uploaded to the GPS. It can be built up of airspace blocks from several files. Airspace can be added to this list using the "Open file..." button below the list OR it can be transferred in from the "Source List" by clicking on the buttons between the two lists.

### **Selecting an airspace file for the "Source List"**

- 1) Start the GarMax programme.
- 2) Click on the "Airspace" tabbed page to make sure you are in the "Airspace" screen.
- 3) Click on the "Open File..." button below the "Source List". This takes you into the "Open" window.
- 4) Select the type of file you require from the "List files of types :." drop down menu. This is either "Airspace Master file" or "Airspace User file".
- 5) Click on the file that you want to open, then click on the "OK" button. This will take you back to the "Airspace" screen where the selected airspace blocks will be displayed in the "Source list".
- 6) To highlight a single airspace block click on the required line. To highlight several individual airspace blocks hold the CTRL key down and click on the required lines. To highlight a series of blocks, highlight the first line, hold the SHIFT key down and move to the end of the series and click on it.
- 7) To move a highlighted block to the "Destination list" click on the ">" button. This will remove them from the "Source list" and add them to the "Destination list".
- 8) To move all of the airspace blocks in the "Source List" to the "Destination list" click on the ">>" button.

### **Selecting an airspace file for the "Destination List"**

- 1) Click on the "Open File..." button below the "Destination List". This takes you into the "Open" window.
- 2) Select the type of file you require from the "List files of types :." drop down menu. This is either "Airspace Master file" or "Airspace User file".
- 3) Click on the file you want to open, then click on the "OK" button. This will take you back to the "Airspace" screen where the selected airspace blocks will be displayed in the "Destination list".
- 4) To highlight a single airspace block click on the required line. To highlight several individual airspace blocks hold the CTRL key down and click on the required lines. To highlight a series of blocks, highlight the first line, hold the SHIFT key down and move to the end of the series and click on it.
- 5) To move a highlighted block OUT of the "Destination list" click on the "<" button. This will remove it from the "Destination list" and add it to the "Source list".
- 6) To move all the airspace blocks OUT of the "Destination list" click on the "<<" button.
- 7) The number of airspace points in the list is displayed above the "Destination list". If there are more points than the GPS can store, you will need to reduce the amount in the list by removing some of the airspace blocks with the "<" button.
- 8) If the list is OK then it can now be uploaded to the GPS. It can also be saved as a user airspace file by clicking on the "Save as..." button. This will take you into the "Save As" window where you can name and save the user airspace file.

### **Uploading the airspace "Destination list" to the GPS**

- 1) To upload the airspace in the "Destination list" to the GPS click on the "Upload to GPS..." button. This will take you to the "Upload to GPS" window.
- 2) Before you upload to the GPS you will need to make sure that the GPS is set up correctly, connected to the PC via the cable and that there are enough empty track log points available in your GPS.

- 3) Click on the "Upload via COM1" button OR "Upload via COM2" button depending on which port on the PC the GPS is connected to.
- 4) If the upload is progressing successfully you should see a counter on the Garmin "Interface" screen displaying how many track log points have been uploaded so far. If nothing appears to happen and you are returned straight back to the "Upload waypoints to GPS" window then you should check that your GPS interface is set up correctly and also that the GPS is connected to the correct COM port on the PC.
- 5) When the transfer is complete, check your GPS moving map to make sure that the airspace blocks you wanted have been uploaded - this is best done in conjunction with a CURRENT airspace map.

### **Airspace file details**

The following list of master airspace files which contain blocks of airspace are grouped in different ways. The files that are likely to be of most use are :-

Note :- all the files end with ".ASP"

"Southern" is all of southern UK up to and including Manchester

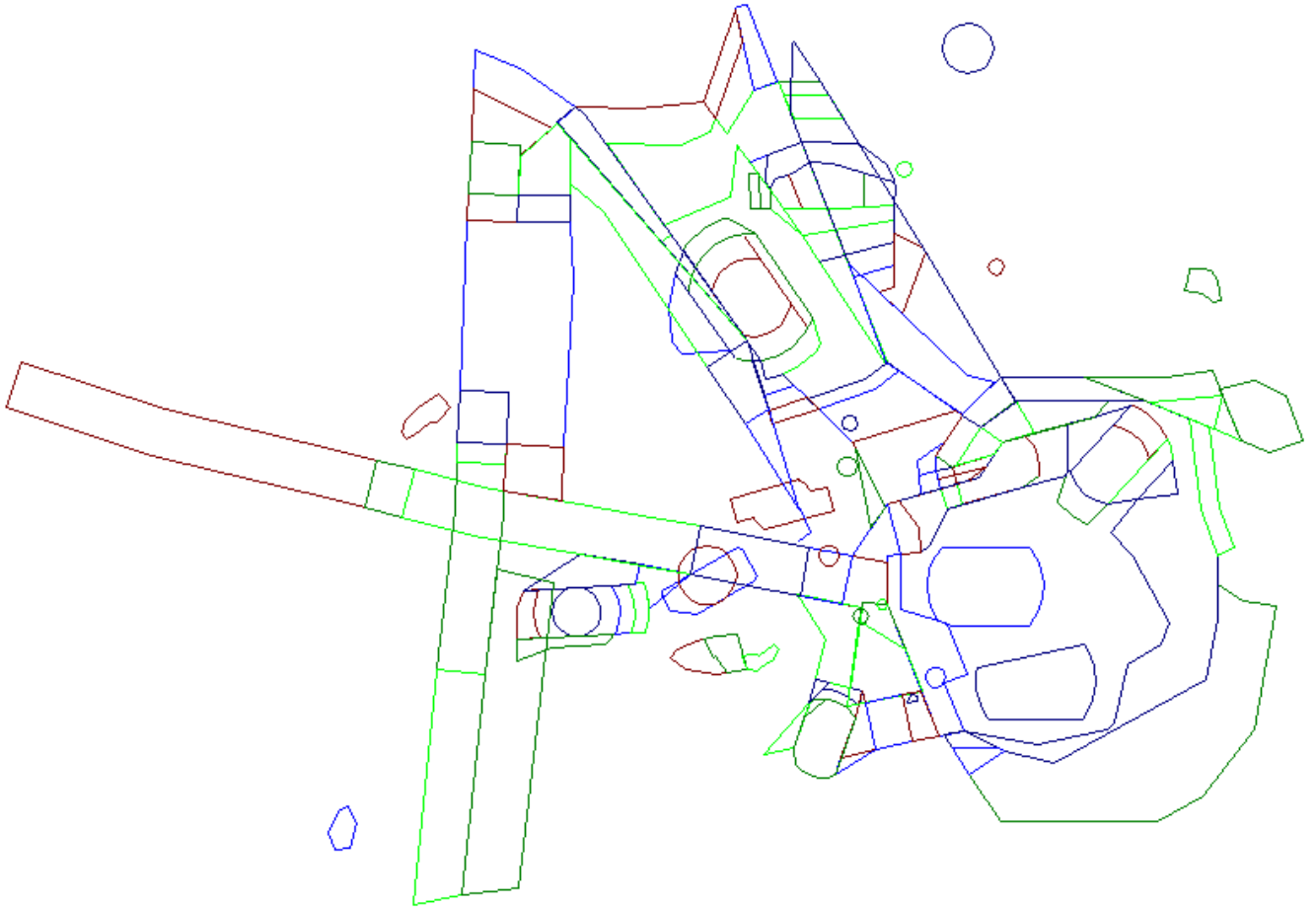
"Northern" is all of northern UK down to and including the Daventry CTA

<b>ST_D_A</b>	<b>1011 pts</b>	<b>Southern class A, D, B – some Airways, Restricted / Danger zones, up to Manchester – This is the MAIN FILE – a lot of upper airspace above FL100 has been excluded. NOTE : - Cardiff CTR/TMA has not been included – you may wish to add it from ALL_D_A</b>
<b>NT_D_A</b>	<b>982 pts</b>	<b>Northern class A, D, B – some Airways, Restricted / Danger zones, down to the East Midlands CTA – This is the MAIN FILE</b>
<b>ALL_D_A</b>	<b>1951 pts</b>	<b>ALL A, D, B – some Airways, Restricted / Danger zones, this will NOT FIT IN YOUR GARMIN !!. Use it to select airspace that does not appear in one of the files above – NOTE you will need to remove some airspace to make space for the any newly selected airspace segments.</b>

### **Waypoint file details**

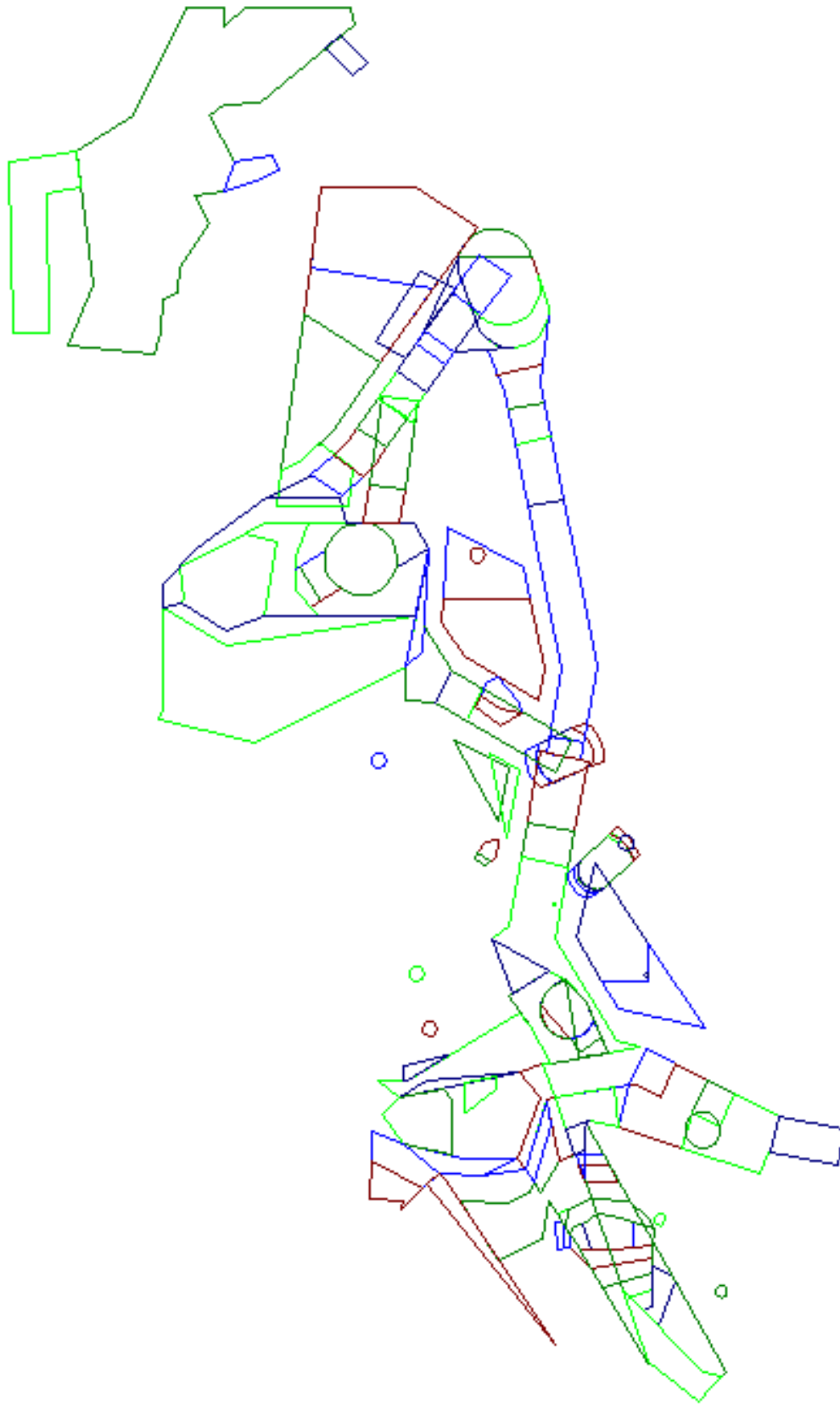
There are many master waypoint files included, which contain sets of waypoints from countries around the world. Their names give a good indication of their origin. The most important one for glider pilots in the UK is :-

<b>BGATP07.WPP</b>	1006 waypoints	The 2007 BGA waypoint list for the UK.
<b>AF_UK.WPP</b>	244 Airfields	in the UK, with altitude AMSL and ICAO codes for licensed airfields where applicable.
<b>AF_*.WPP</b>	European airfields,	with altitude AMSL and some ICAO codes where applicable :- Austria, Belgium, Denmark, Finland, France, Greece, Holland, Ireland, Norway, Portugal, Spain, Sweden, Switzerland.
<b>AF_STRIP.WPP</b>	Unverified unlicensed private airstrips -	only to be used with prior permission from the owner of the airstrip – these could easily be out of date – the data is quite old! .



### **Garmax Southern Airspace File 2007- (ST\_D\_A.ASP)**

This is the main file of Southern Airspace that is used for loading into Garmin



**Garmax Northern Airspace File 2007- (NT\_D\_A.ASP)**

This is the main file of Northern Airspace that is used for loading into Garmins