PROCEDURE FOR SETTING UP A FLYING RALLY

1   **RULES AND REGULATIONS**
Before using these instructions, you should be familiar with the **Rules and Regulations** of the specific events.

The first issue is the **Permission** that needs to be obtained.
In South Africa we need to comply with AIC 19.1 to host a special air event. The form can be found on our website.

Then we need to **advertise**. Make sure it is on the SAPFA **calendar**. Then open the **Entry form** on the SAPFA website. Send out an advert to the SAPFA members via **Mailchimp**. And Send out an advert via the Rally Competitions **WhatsApp** group.

The Rules and Regulations are contained in:

>   Fun Flying Navigation Challenge
>   Precision Flying
>   Air Rally Flying

Let's hope that this written document enables everyone to run a Rally.

There are many alternative ways to do each of the following tasks. I describe the task, with some tips, tricks and rules, then to some specific instructions using specific software and tools.

1.1   **Directory and File Structure:** I use the following directory structure and file names. These instructions follow this structure.
E:\Flying\Rally\2011\110507 Parys with sub directories of Emails, Route & Scoring. File Name: Parys 2011.

2   **SETUP THE COURSE**

2.1.1   **Planning:** You could either do the initial planning on a Printed Map or using Ozi Explorer or even Google Earth.

2.1.2   **Map Size:** Consider the printed map size before placing waypoints.
A4 Portrait is 210 mm x 297 mm at 1: 200 000 = 20.5 Nm x 29.9 nm and this size is usually sufficient for a short event.
A3 Portrait is 297mm x 420 mm at 1: 200 000 = 29.9 Nm x 43.2 nm most events can be run on this size map.
A2 Portrait is 420mm x 594 mm at 1: 200 000 = 43.2 Nm x 59.8 nm some events must be run on this size map. Use only if essential.
The above distances include a 10 mm border around the printed map. To draw the printed map boundaries on planning map,

you can place a way point at one corner and then project the other corners using the above distances.

2.1.3 **Accuracy:** Note that while the points are features on the 1:250 000 map and must be planned on the 1:250 000 map, this map is not meant to be accurate, and is certainly not accurate enough for scoring a flying competition. Each point must be moved to the correct position. While the rules suggest a GPS survey of each point, the position on the 1:50 000 map is usually sufficiently accurate, and most times Google Earth is sufficiently accurate. If the point on the 1:50 000 or Google Earth is more that 72 m (This is 2 seconds at 70 Knots) away from the point on the 1: 250 000 map, the solution is to choose another point.

2.1.4 **Checking Waypoints:** Each waypoint must be checked on the 1: 50 000 map. At each waypoint, right click on the menu, select "Find Map" and then select the 1: 50 000 map. The waypoint can now be dragged to the correct position. The waypoints must be exported to Google Earth and checked in that program, but remember if you move any point, save the route as a .kml file and re-import into Oziexplorer."

2.1.5 **Naming:** Use the following names for the points and in this order: TOP, STRT, TP01...IFP, ILDP, ITOP, ISP, TP07...FIN, LDP.

2.1.6 **Rules for Waypoints:** Min distance of 5nm and max distance of 20nm between waypoints. STRT should be about 2-3nm away from TOP, and FP should be about 2-3nm away from LDP.

> **Fun Rally** 9 – 11 waypoints, including Start and Finish. Total Distance 100 Nm.
>
> **Rally Rules** min 11 and max 17 waypoints, including Start and Finish and IFP and ISP. (80 NM and 120 NM)
>
> **Precision** max 9 waypoints including Start and Finish. (Turning points are not necessarily timed checkpoints. There shall be 12 to 25 timed checkpoints, including take off, start point and finish point).
> No navigation test will have more than 8 legs. All legs shall be straight (no follow-the-features or arcs)
> No Secrets will be placed in the first 0,5nm of any leg.
> Correct photographs at TPs, SP and FP are mandatory. Each photograph has to be taken correctly on inbound track
> - The max. total number of targets and photographs is 25, the min. number 16.
> - The max. number of photographs is 10, the min. number 8.
> - The max. number of ground targets is 15, the min. number 8.

2.1.7 **Maximum Points:** AirObserver's software allows: Max 30 waypoints, Max 30 En-route Points.

2.1.8 **Maps:** Check that the route can be plotted on the required map size. i.e. A4 Portrait. It might be necessary to produce a special map for your route using the Map Merge utility.

2.2　**Set up the Waypoints in OziExplorer**

　　2.2.1　**Load Ozi Explorer**

　　2.2.2　**To find the map:** To find the correct map in OziExplorer: Open "load" then "load map file". Double-click on the area you are looking for in the 1:1000 000 Aeronautical map. In the Map View Window, move the red rectangle to the area you want. In the main map on the screen R-click on the area and click on "Find map at cursor". Double-click on the 1:250 000 map. In the Map View Window, move the red rectangle again to the area you want. To get the map above, below or next to the area you are working on, click on the green arrow icon and choose either "Find Maps North of this Map" or South , West or East.

　　　　NB: although you are working on the 1:250 000 map, it will be printed as a 1:200 000 map.

　　2.2.3　**Producing Waypoints:** To produce a waypoint, click on the "Wpt" icon. This enables you to make a waypoint. Left-click to make the waypoint. Click on "Wpt" again to disable it.

　　2.2.4　**To rename the waypoint:** R-click on the actual waypoint (not on the yellow flag), R-click on" Properties" and rename it. Use the terms TOP, STRT, TP01...IFP, ILDP, ITOP, ISP, TP07..._FIN, LDP.

　　　　To work out the distance between two waypoints, disable the waypoint icon and click on the "Line" and "Distance" icons. Left-click on the two desired points and you will see the distance in the table.

　　　　Place TOP in centre of runway, and LDP at about 10m behind the end of the runway. Place LDNP 10m beyond the other end of the runway. TOP and LDP will be joined to the route, but not LDNP. This is so that you can change the take-off direction easily.

　　　　To find out the total length of your route, and the position of each waypoint, click on "View" and "Route Editor" then double-click on R1. The waypoints can now be added to the route. If the waypoints are not in the correct order, use the "Move Waypoint Up in the List arrow. Highlight all the TPs and click "Select All"(deselect if there are photos) "Add" "Ok". The column "Acc. Distance" provides the Accumulated Distance.

　　2.2.5　**Write it down:** On a piece of paper, list the waypoints and their descriptions eg: Start – T-junction, CP1 – dam wall. Also write a description of the photos (you can do this later when you do the photos). Also write down the distance from each photo to its previous turnpoint for use when filling in the Master Answer Sheet.

Check the Waypoints: Each waypoint must be checked. They must be a feature on the 1:250 000 map. Find the 1:50 000 map at each waypoint and move the point onto the centre of the feature. Remember if you have to move it by more than a few metres this will create a perception problem for the competitors. (Max 200 m) If you right-click on a waypoint, on the menu select "Find Map" a list of the maps available on the computer will come up, which include this particular waypoint. Note the maps have different scales.

Check other airspaces etc by loading the route onto the 1:1000 or the 1:500 aeronautical maps.

Sort the Waypoints: If the way point are not in order, Open the Waypoint file (Using Excel Or Quattro) (XXX.wpt) file and sort the waypoints into order, and save. OR ii you export of Google Earth, they can be rearranged in order and re-imported.

2.2.6 **Save the Initial Waypoint File:** Once you are happy with the selected waypoints in Ozi Explorer, save them for import to Google Earth as follows: Save\ Export to Google Earth, Click on "Save" in the window. use a logical directory structure and name for your file. E.g. E:\Flying\Rally\2011\110507 Parys\Route\Parys 2011.kml

2.2.7 **For Precision**, place waypoints (see rules for waypoints in 2.1.5). Name them Sec1, Sec 2 etc. Place them in order on the LHS list, and save.

2.3 **<u>Check the points in Google Earth.</u>**

2.3.1 **Open the Turn points in Google Earth:** In Google Earth, Open the particular file: "File", "Open" Double-click on the year eg 2011, then on the event.

2.3.2 **Check the positioning of each turnpoint:** Keep the route in OziExplorer open, and keep checking between the two programmes. You can also check the positioning in the 1:50 000 map if necessary.

2.3.3 **To move a turnpoint:** Double-click on the turnpoint to zoom it in, right-click on it and click on "properties". This enables you to move the turnpoint. Click "OK". Use the list you wrote on the piece of paper to find the exact point.

2.3.4 **To Join the Turn points:** Please note this line is only for the purpose of choosing the photographs. The Line does not connect to the waypoints. "Add", then "Path", then click on each waypoint, consecutively. Change the name of 'Waypoints' to the name of the route, eg: 'Vereeniging 2011'. Change the name "Path" to "Route"

2.3.5 **To move the line:** The line will not be in the correct position. To move it, double-click on a turnpoint, to zoom in, then right-click on 'Route' and then 'Properties'. This allows you to move the line. When the hand touches the line the red endpoint of the line

turns green – it's then movable. Click "OK" and continue. FP must have a line joining FP to the start of the runway. SP must join to the end of the runway.

2.3.6 **To add an Arc:** Between two points, select a point that is the centre of a circle that would join the two points along an arc. Name it R1. In google Earth, use the Ruler function, choose "Circle", and with your cursor on R1, pull the circle out to join the turnpoints. Make sure the radius of the circle is on the first turnpoint numerically. Right-click on the circle, and from the end of the circle, press Backspace until only the Arc remains.

2.3.7 **To add a Follow-the-Feature**: Between two points, delete the Route, then using the Add a Path feature on Google Earth, go along the feature slowly, Left-clicking the mouse, and using you UP and DOWN arrows, until you get to the next TP.

2.3.8 To Add all the Parts of the Route Together: Join each section separately and name them in order – eg: TOP to TP3 is Route1; T3 to TP4 is a Follow-the-Feature so it will be Route2 follow the road; TP4 to TP9 is Route3; TP9 to TP10 is Route3 Arc1; TP10 to LDNP is Route4.

2.3.6 To check the route distance double-click on "Route", Add all the Route sections together. R-click on Route "Properties" "Measurements" Length – change to nm

2.3.9 **To save:** Right-click on "Waypoints" (the kml file) and rename to the Rally name. "eg: "Parys 2011". R-click on this file "Save Place As" and choose correct directory. Save as a kml file instead of a kmz file. Then overwrite it. Note that Google Earth will save the data in the directory structure below the cursor position. If the cursor is on CP5, then only CP5 will be saved. The "Route" must be just below the kml file before you save.

At this point, it would be wise to continue with the photos, since you might want to change a waypoint to fit a particular photo. Be careful that changes are carried forward to all documents you have created.

3   **PHOTO SHEETS**

3.1   **Rules for Photograph sheets:**

Consult the rules for Photos, before proceeding.

Fun rallies have turnpoints and enroute photos on the same sheet, in consecutive order, only one enroute photo per leg.

Rallies have separate turnpoint and enroute photos. Enroute photos are in consecutive order and may be divided into two separate parts of the route. Enroute photos must be in direction of flight and must be within 300m left or right of track. Enroute photos must be

taken within 300m of track, and must be more than 0,5nm from previous TP.

Turn Point photos may be taken at any angle, not necessarily in the direction of flight. Incorrect photos for turnpoints must be taken more than 1nm away from the turnpoint.

Precision photos are all correct and in direction of flight. Enroute phots must be within 100m left of the track.

Avoid placingER photos within about 5NM of the TP from which the next group of photos begins (usually TP6) to make an easy changeover for the pilot from one group to another. (eg: place photos from SP to TP5, then from TP6 to FP)

3.2   **Open a Template**

3.2.1 Load Corel Paint Shop Pro Photo X2.
3.2.2 Open some previously saved photos for a similar rally. Only open psp files, not jpeg files.
3.2.3 On the sheet of paper you made with a list of the turnpoints, mark whether the photos are correct or incorrect.
3.2.4 Go to Photo Sheet 1
3.2.5 To get to the Rasters select on the toolbar "Palettes" then " Layers"
3.2.6 R-click on each Raster (listed on the RHS) and delete, leaving titles intact, and yellow circles. To get to the Raster Layer Toolbar: Click twice on the tiny box next to the x in the "Layers" box on the RHS.
3.2.7 To rename the route, open the Raster containing the previous name, and expand on the Raster by clicking on the little black dash on the left of the box. Click on the name of the route, and change it on the window that opens. Do this for each page of photos.
3.2.8 To change the colour of the photosheet, double-click on the New Path Raster on the RHS of Corel, and change the Stroke Colour using the Swatch.
3.2.9 To add extra Circles (Elipses) and Titles on Photos, R-click on the item you want to copy, and click on "Copy", then click on the position you want to place it, R-click and click on "Paste as New Vector Selection" click again to paste it in place. R-click to Edit if necessary.
3.2.10 Save the template to the new rally directory.

3.3   To Take and Insert Turnpoint Photos from Google Earth:
3.3.1 Go to Google Earth. Go to the route. Centre the desired photo centrally on the screen. Click off 'route' and Click off that particular CP.
3.3.2 Go back to Corel. 'File'. 'Import'. 'Screen capture'. 'Start'. R-click to activate photo cutting tool. L-click and drag to take photo. Return to Corel "Enhance photo" "One Stop Photo Fix". 'Image Resize' to 99x64 (choose one side) then 'Crop' the other side to

the dimensions shown in the toolbar above. Resolution 300. To use Crop Tool: Enter 99 in Width window, or drag RHS cursor to extreme FHS, then drag bottom cursor until the window shows 64. Click on the green "Apply" arrow. Turn "Lock Aspect Ratio" off.

3.3.3 Edit the photo further if necessary.

3.3.4 'Edit'.' Copy'. Click on the correct position on the photo sheet. 'Edit'. 'Past as New Layer. Disable the Crop cutting tool, and click on Arrow tool to position correctly. R-click on the photo "Arrange". "Send to bottom". Reposition the circle and the title by clicking on the edge of the circle to enable it to move. Move enroute photos to their appropriate consecutive position on the LHS.

3.3.5 To Take and Insert Enroute Photos:

3.3.5.1 Do as for turnpoint photos.

3.3.5.2 On Google Earth click on 'Placemark' and position over desired point. Title it as Leg whatever or as TP whatever.

3.3.6 To use a photo from elsewhere on your computer, R-click on the photo, "Open With" and select "Paint Shop Pro".

3.4 **Save the Photo Sheet.**

When you have completed a photosheet, save it as a psp, then open another photosheet. Make sure the CPs and Legs are in order. Click on SPS on LHS and save as psp. Only once the Route is ready for printing do you save them as PDF's for printing.

3.5 **To save the Google route:**

R-click on the name of the route on the LHS toolbar eg: "Parys 2010.kml". "Save Place as" "Save" When it asks you if you want to overwrite it, reply "Yes"."

4 **<u>TO PRINT THE MAP</u>**

In order to print a correctly scaled map, please note that a direct print from Ozi explorer will not be correct depending on the original JPEG projection. The Maps we have will be correct in the Latitude (East to West) but too short in the Longitude (North South). At Johannesburg this needs to be stretched by 12%. Note that the original maps do not have co-ordinate lines on them and also note that Ozi Explorer will print the turn point markers with a symbol that covers the feature.

The newer .tif maps now correctly scale but the colours and wording are not clear. If you convert the .tif map into a .jpg format and the re-calibrate, the resulting print is much clearer.

I have developed the following procedure which addresses all these points, but uses Ozi Explorer to Print the Maps to Adobe Acrobat Writer, then imports the PDF file into Corel Paint Shop Pro. Stretch the image to the correct dimensions and then manually draw in the turnpoint markers, route and also label the map.

To Print Master Map:

4.1   In Ozi Explorer. " Load". " Load Map File" select appropriate map. " Load Waypoints from File" select appropriate file.
4.2   Make sure you have gridlines on: Map/Gridline Setup. (Grid On. 5 min. Label interval 10min.) Autoscale Off. Clip to Neat Line On.Close.
4.3   File. Print. Map image. "Selected to scale". Choose scale (usually 1:200 000) Select area to Print on the map, click and drag to select area. Setup. Choose Adobe. PDF. A4/A3. OK. Preview. Make sure it fits on the A4 or A3 you chose. Print. Close
4.4   Preview. Make sure route is all on the map and there is sufficient border all around.
4.5   Print a map with the points on, for ref when making the clue sheet. Mark this sheet in the corner of the map, so you don't mix it up.

To Print Blank Map:
       .
4.6   To get a map without the points printed on it: Map/Clear all abovePrint./Print Map Image/Setup/Print to Adobe Acrobat /OK /Preview/. Make sure it will print to the correct place. Print. Save as Map pdf
4.7   Print to PDF.
4.8   Make waypoints on 3 of the 4 corners of the map, within the route, on the Lats and Longs. (use about 4-6 blocks only)Properties/EditPosition. Position each point exactly on the Lat and Long by changing the numerals in the Lat and Long windows to nearest round numbers. Save/Save.
4.9   Make a route though these waypoints: View/Route Editor/double click on R0. Add the points. OK. "Print" "Print route list" Select the appropriate route.
4.10   Now convert the real distances to map distances: Convert nm to kms then to mm (Multiply nm X 1,852 to get m) X 1000000 and divide by 200 000, depending on the map scale Use calculator on computer. Write the results under the column "Distances" on the Route List you just printed.
4.11   Load Corel Paint Shop Pro. Open the Adobe map at 300 DPI. OK. (In the window, delete the dpi figure given and type in 300.) "OK"
4.12   Crop. Click on RHS icon under Snap Crop Rectangle On. "Merged opaque". Double-click to crop. (Do not crop top and left sides, because they contain the Lats and Longs)
4.13   Print 100% scaling and Centre on Page/Choose Portrait or Landscape./ "Print"
4.14   With a normal ruler, measure the distance between the waypoints you positioned.   They should be the same as the figures from the computer printout. Work out the difference in % by dividing Route Distance by the measured distance. If not correct then in "Image" use "Resize" command. Turn off "Lock Aspect Ratio". Stretch the map to the correct size (within a mm) by changing "Height" to %. "OK"
4.15   Print. And recheck the scale.
4.16   This is your Open Class Map. Save it as a. jpeg map Name it "Map" under the appropriate event and save it as a psp as well.

To Print the Fun Class Map:

4.17   In Corel: Open the psp map.

4.18   To make ellipses : On LHS toolbar Select "Image" or "Shape" then on the top toolbar choose "Palettes", and change the Line Width to 5 pixels. On the RHS "Materials" toolbar choose the colour blue for the outline and "transparent" for the centre. Select the Ellipse tool on the LHS toolbar and draw the ellipse over the airfield. It must encompass the entire airfield. Turn the ellipse into a circle. To move ellipses select the ellipse using the Selection Tool on LHS toolbar, R-click on the ellipse, and drag it.

4.19   For other turnpoints make smaller circles by R-clicking on the circle you have just made and selecting "Paste New Vector Selection" and taking the circle to the next turnpoint. Left-click to apply. Repeat with all turnpoints.

4.20   To make line joining turnpoints: Click on Pen Tool (LHS toolbar). On the top toolbar change the line width to 5 pixels. Make sure the line is blue. click and drag to join Turnpoints. Leave the circles clear. Start from START and end at FINISH. For "follow the features" use the Draw Freehand icon (Top Tool Bar) or leave out those lines entirely, as they tend to obscure the route.

4.21   Fill in Turnpoint titles: Select "Text Tool" (LHS toolbar) In "Materials" toolbar on RHS click on black for Foreground and black for Background. On top toolbar select Size 14, Arial.

4.22   Left-click on the turnpoint. Type in the name of the turnpoint, using START, TP1, etc and FINISH. "Apply"   Click and drag to position and swivel it around to face direction of flight.

4.23   To edit a turnpoint, select the "Pick Tool" on the LHS toolbar and double-click on the text.

4.24   To Save: Save as .psp and also as .jpeg. Add "Fun" to savename eg: "Map Fun Rally.jpg"

4.25   To Print: Make a CD and take it to the printers.

4.26   Please note that the Map must be printed to the correct size, (The Windows or Microsoft products cannot be used to print the map as they do not have a 1:1 print option) Open the "Map Fun Rally.jpg" in either Corel Draw, Adobe Photoshop or Corel Paint Shop Pro, and print at 100% scale. Please check the first copy for the vertical and horizontal distances, this must be within 1 mm of the correct size)

5   **ANSWER SHEET**

5.1   In Excel open a previous rally's answer sheet.

5.2   Use your written list of descriptions of turnpoints to fill in the new answer sheet.

5.3   For the en-route photos, you could measure the individual distances in Ozi Explorer or create a route through the points as detailed below in 7.3

5.4   Change the name of the rally.

5.5   Save the Master Sheet into the Rally file.

5.6   Delete the answer and Y/N and save it again as an Answer Sheet"

6   **CLUE SHEET**

6.1   This process has a high potential for errors, and could make the whole competition fail. I suggest that you set up a process to catch errors in this area. For example. One person complies the clue sheet, a second person then checks the clue sheet by plotting the map, and go back and forth between the two with the corrected clue sheet until no errors are found. For a National or International event, send all the details to a third person to check with a printed map and hand tools to make sure no errors are found.

6.2   Limit the maximum distance between the known points and the new Waypoint to 125 mm, (13.5 Nm, 25 Km)

6.3   When using clues from two different points, make sure that the construction lines cross are > 45 degrees.

6.4   When using distances from two points, make sure that the second intersection does not have the same feature (ie T Junctions at both intersections)

6.5   Make sure that the solution is unique enough. (ie if the waypoint is a T junction, and there is a second T junction within 10 mm you will need to add a sketch, or description for confirmation)

6.6   Angles should be stated to the nearest whole number, distances to the first decimal and coordinates to the first decimal of seconds.

6.7   Be careful that clues are not given in circular references. (Ie TP04 is from TP05 and TP05 is from TP04)

6.8   Print out a blank clue sheet.

6.9   While you can measure the clues on the Ozi Explorer computer map, it should also be confirmed on the printed map.

6.10   Type in the clues.

6.11   Clues in the envelopes must be at least 3 turnpoints ahead of the turnpoint where they are opened

7   **CREATE THE ROUTE FILES IN OZI EXPLORER**

7.1   **Load OziExplorer.** In Oziexplorer load the 1:250 000 map.

7.2   **Open the sorted waypoint file** Load/load map file/import Google Earth. Find the kml file for your rally.

7.3   **Make 2 routes.**

(1) For Rally only, create a Route from TOP, Start, CP1, Fin & LDP and save this route as Event.rte

Or (1) For Precisions only, create a Route from TOP, Start, CP1, through the secrets .Fin & LDP (Including the secrets in the correct order, and save this route as Event Sec.rte)

And (2) For the Photos: If you have plotted the positions of the photos, you can use the route to measure all the photo distance. Create a route through all the turnpoints and photos in order of flight, then print the route list.

View/Route Editor. Double-click on R1. Highlight all the points by clicking "Select All". Add/OK. "Show" (on top toolbar) to make line come up in blue. Click on R! to find the list in the route editor. Save/Save Waypoints to File Event.wpt. Over write if you saved an old waypoint file.
Save/Save Route to File/Event + photos.rte. Print this Route.
File/Print/Print Route List. Select the route by clicking on it. Font size 10. Print
View/Route Editor Double-click on R1
Delete all the Photos in the RHS column. OK. Print/Print Route List. Select route by clicking on it. Change font size to 10. Print. Show. Save/Save Route to File Event rte (by deleting the words "+ photos", but not the file), and Save.

Print both Route Lists and check that they are according to the rules.

8 **CREATE AN AIROBSERVER COURSE FILE**

8.1 **Open Airobserver** Use the /Setup/ Create Course from Ozie to Create Course files from route file. Save the Course file using the same name. Browse to the Ozie rte. File (without photos)

8.2 Change the CP directions to True for the TOP, ILDP, ITOP, LDP and gate width to 100 m: Setup/Course/Edit Existing Course. Browse to Course File. Change the 1000 to the True Heading (which you will find in Ozi) and the gate width in the last column to 100 Find out/decide in which direction the pilots will take off. If necessary, move TOP and LDP around.

8.3 Change the CP and Sec width to 926 m (0.5 Nm) for Open and Precision (or 1856 m (1.0 Nm) for Fun Rallies) and any other points to 0: Edit/Replace. Type in ,926, in the Whats Next window. Type in ,1852, in the Replace With window. Replace All.

8.4 Save the course file as **event.crs**: Exit/Save/Load Edited Course – answer Yes!

With the correct Air Observer Course file (Parys 2011.crs) and any old track file (xxx.G00) you can now produce a correct time sheet:

9 **PRODUCING THE TIME SHEETS**

In order to produce a time sheet, you will need the correct Air Observer Course file (Parys 2011.crs) and any old track file (Test.G00).

.

9.1   Excel Spread Sheet Programs. Frank Eckard has written a series of spreadsheet programs to run the events. These Spreadsheet programs are in the form of an Event Master File and then a file for each competitor. Each Competitor has their own spread sheet, the same file name should be used for the spread sheet and the downloaded track file to avoid confusion. This is now described below.

Create a new directory under the event directory with the name "Scoring"
e.g. E:\Flying\Rally\2011\110507 Parys\Scoring.

9.1   Move the Course file into this directory. Find an old GOO File, copy it into the Scoring directory, and rename it "Test.G00". Copy the Event Master Sheet and Competitor sheet into this directory. e.g. Rally Scoring.xls and 0.xls

9.2   Open Air Observer, load the course file. Now load the old track file: Load Flight Log. Go to File/ View Results. This is a simple text file, please check that the 5th Line (Below =========) starts with TOP: If you have plotted the course correctly, this line should be correct. And check that the 6th line start with LDP: this could be wrong if the old track file does not go through the landing point. Add a line so that the lines read as follows.

File Name:
Course Name:
Date:
Check-point
=================
  TOP:
  LDP:
STRT:
  CP1:

Once this file is corrected, Close it and Save changes.

This text file now contains the Take off Point, Turn Points, Secrets and Landing point with the distances between. Please note that these distances are as calculated by Air Observer and will not agree with Ozi Explorer or Google Earth as they use alternative earth models.

9.3   Open Rally Scoring.xls on the /Flight Log + Sec Sheet. Insert the data from the text file created in step 9.1 above. Alternatively: In Log Timing Sheet, cell A1, right click and Refresh, now browse to the above text file and import OR: Open the text file created in step 9.1 above. (Open / All Files, Browse to the correct director and file, open as Delimited, Next, Space Delimited Next). Copy all the data into

Rally Scoring/ Flight Log +Sec /A1 box.

9.4   Now go to the sheet "Course".
    9.4.1   In column A insert the leg numbers next to the CP's starting with "0" next to "STRT", "1" Next to "CP1" etc and the last number next to "FIN".
    9.4.2   Correct the distance from TOP to Start (red figure) – obtain the correct figure from the Route List you printed in 7.3. Modify the calculated time to the next highest whole number of minutes. ie Time to Start is time to fly at 70 Knots plus 3 minutes plus second to round off to whole minutes.
    9.4.3   Correct the distance from the Finish to the LDP (red figure). Modify the calculated time to the next highest whole number of minutes. ie Time to LDP is time to fly at 70 Knots plus 5 minutes plus second to round off to whole minutes.
    9.4.4   Now correct any distances along curved tracks. When you over-write the formulas, I suggest you change the font to RED.
    9.4.5   For Precisions in column G, insert extra time for each procedure turn eg. "00:01:00"
    9.4.6   Check the leg distances and total distance with the route sheet produced from Ozi Explorer. Note it won't be exactly the same as they measured on different earth models.

9.5   Now go to "MASTER" and correct the Event name, dates, etc.

9.6   Now go to the Penalties. For **Rally** Or **Fun Rally**, copy the appropriate values into Column C to F. Please note that the spreadsheets will only calculate according to one set of penalties. (You can't use these spreadsheets to run both a fun and open class event, in one set of files)

9.7   Save the master file. Eg. Rally Scoring.xls.

9.8   Fix up the references in the competitor file as follows: Open the competitor file "0.xls". Click on "0"on the Start List. On the "Logger Result" tab , right-click on cell A1, "Refresh". Browse to the correct competition directory and Import the file Test.TXT, then delete this data, without deleting the query. Go to cell A1, then sheet "Time Sheet". Left-click on cell B5 and save the competitor file "0.xls"

10   **USING THE PRECISION SCORING SPREADSHEETS**

10.1   Once the spread sheets have been set up as above, Open the spreadsheet "Precision Scoring".

10.2   Now for the START LIST. Fill in the entries. First is the shared aircraft, and then from fastest to slowest. Then the second group of shared planes. Once the list is finalised, check that the formulas still refer to the correct lines.

10.3   Insert the FIRST PAPERS time into START LIST / Cell J2.

10.4   Click on START LIST / Cell A4, this will open file 0.xls. **<u>OR…..</u>** Insert the number of competitors in cell E1 and use the Macro in cell H1 or H2.

10.5   In file 0.xls / TIME SHEET cell A5, insert the file name (ie 1 or 2 or 3), then save with the same name.

10.6   Print the Time Sheet for that competitor.

10.7   Go to point 10 and repeat until all Time Sheets are Printed. **<u>OR….</u>** The macros will do the above automatically.

The Rally or Precision can now be run.

11   **<u>PRODUCING THE RESULTS</u>**

11.1   In Air Observer, download the Track file.

11.2   In Air Observer, load the Course file Event.crs and then load the track file X.G00

11.3   Open the competitors worksheet. X.xls and load the results into Logger results. Competitor File / Logger Result Sheet. Right click on cell A1, at the bottom of the menu is "Refresh". Browse to the correct competitor file, and Import.

11.4   In RESULTS correct penalties for the 1 minute turns, examine all other Nav penalities and then correct the Other Penalties and Print the results.

12   **<u>FINAL RESULTS</u>**

12.1   Select RESULTS B7 to N37, Edit Copy.

12.2   Go to FINAL RESULTS Cell B7 and Edit Paste Special / Values.

12.3   Sort the list (B7 to N37) by TOTAL and PRINT.

13   **MONEY**

     13.1   Please balance the cash receipts with the competitors, subtract the cash spent on printing etc. You can do this on the Final Results Sheet.

     13.2   Pay the balance to SAPFA's Bank Account at

         Deposits into:
         South African Power Flying Association
         Nedbank, Brits
         Br Code 187-646
         Account No 1876 019840

         Please use the Rally Name as reference so we can link the deposit to the entry.
         .

     13.3   You can email the calculations to and slips to SAPFA at mauritz@sapfa.co.za.

LOGGER DOWNLOAD INSTRUCTIONS

- Identitfy logger against competitor (race) number and tick it off against the logger sheet
- Plug the square USB plug into the logger. The logger light should come on
- Open Air Observer
- Menu / logger / download
- Browse to the scoring directory
- Save as competitor number. Ok / Save (F2 or P2)
- File / Course / File / Flight log
- The text file will then automatically be exported to the scoring directory.
- You will now have a 2 goo (for example) and a 2 txt
- File / View Results.
- Check that the 6th line is TOP and the 7th line is LDP
- If not, check runway direction and use the appropriate course file.
- Save
- Open Rally / Precision Scoring Program in Excel
- Go to the Competitor Sheet
- Browse to the competitor's Logger Download page
- Put the cursor on Cell A1
- R-click for the drop-down menu. / Refresh
- Import the correct txt file.
- Add penalties from the observation answer sheet.
- Print / Save
- Clear Logger by clicking Logger / Clear
- Disconnect the logger from the laptop.