DynaNav Systems Inc.
730 – 11731 Baynes Road
Pitt Meadows. BC, Canada, V3Y 2B3
www.dynanav.com
Toll Free: 877-33DYNANAV or 877-333-9626

THIS MANUAL CONTAINS INSTRUCTIONS FOR:

Operation of DynaFlight Aerial Application Systems

DynaFlight 3 Advanced Aerial Application Guidance and Management System

..... 0

OVERVIEW OF THE SIMULATOR: 4

What is the simulator? 4
How do I control it? 4

SOFTWARE INSTALLATION INSTRUCTIONS: 4

Install Logitech Joystick Software 5

INSTRUCTIONS FOR THE USE OF THE DYNAFLIGHT AND SIMULATOR 6

Note :- Before Starting the AirAg Simulator Program – Run the "Air Ag Office" in simulator mode and "Synchronize Air Card" on the "C" drive first See Manual below. 6
THE JOYSTICK ON THE PC COMPUTER FOR SIMULATOR 6
SELECTING FROM A LIST 6
Navigating the list: 6
SELECTING A BUTTON ON THE BUTTON PAD 7
What is a button pad? 7
What is it for? 7
Selecting a button 7
ROTATING THROUGH THE VISIBLE WINDOWS 7
What are 'visible windows'? 7
What does it mean to 'rotate through' them? 7
How do I rotate through the visible windows? 8
What windows are available to rotate through? 8
SPRAY ON/SPRAY OFF 8
SPEEDING UP/DOWN AND TURNING ON THE SIMULATOR 8
Joystick Throttle 8
Turning left and right 8
SELECTING A CUSTOMER 9
SETTING A NEW JOB 9
SELECTING A PRESET OR EXISTING JOB 9
FLYING BOUNDARIES FOR THE JOB (NORMALLY FOR HELICOPTER OPERATIONS) 10
FLYING AROUND YOUR NEW FIELD ON THE SIMULATOR 10
FLEXGUIDE 10
Free Form Field 10
Back and Forth 10
Race Track 11
Squeeze 11
Advance and Decrementing the Patterns and Swath lines 11
THE WINDOWS THAT ARE AVAILABLE WHILE 'ON THE JOB' 11
COMPLETING A JOB 12
THE ROADWAY WINDOW: 13
The primary navigation aid: the 'Roadway' 13
The 'Job Bar' 13
The 'Swath Progress Bar' 14
TT – Turn Time 14
THE "REVIEW" WINDOW: 14

THE "LIVE" MOVING MAP WINDOW: 15
POINT NAVIGATION MODE: 16
What is the Point Navigation Mode about? (NAV MODE) *16*
SHOW STATISTICS 19
JOB STATISTICS 19
Run Checklists *19*
Flow Rate *19*
Pilot Settings *20*
Fixing Problems *21*
DYNAFLIGHT 3 TOUCH SCREEN OPERATIONS 22
HOME SCREEN 22

New Job *23*

My Jobs *23*

SETTINGS PAGE 24

Devices Page *24*

HUD/MAP Page *29*

DATABASE Page *30*

RADIOS Page *32*

SYSTEM Home Page *34*
MOVING MAP PAGE 37

MARK - A Navigation Point – Add a Waypoint *37*

AB -Change Baseline *38*

GOTO - Select a Navigation Point Button 38

SUMMARY - - Job Summary Button 39

MENU Button 39

FLOW - AUTO/MANUAL 40

FLOW CONTROL - Access Button 40

½ SWATH - Select Button 40

ZOOM IN 40

ZOOM OUT 40

VIEW – Review 41

INSTRUCTIONS FOR BATCH EXPORT OF JOBS (AS APPLIED MAPS) **42**

AIRAG TUNEUP SOFTWARE: **46**

ACCESSING THE TUNEUP SOFTWARE 46
CHANGING THE SETTINGS ON TUNEUP 46
Time Items 46
Switches - System 47
Switches – Nav Windows 48
Choices 48
Flow Control 50
Service 50
Instruments 51

WARRANTY POLICY **52**

Overview of the Simulator:

What is the simulator?

The AirAg Simulator uses the actual software used on the Airborne Guidance Display system coupled with separate moving map to show relative position. When you have become comfortable with the method of operation of this simulator, you will easily be familiar with the actual operation in the aircraft.

How do I control it?

For the simulator on your PC Computer, you will use the Logitech Extreme 3D Pro (available at most electronic stores) or other joystick devices. In your Aircraft it is very easy, the 5-way top-hat switch along with one other button Enter switch on the pilots control grip runs the total DynaViz Guidance system operation. Also, spray on and off is sensed using pressure switches and/or a switch on the spray control lever or the DynaNav DynaFlow Pressure sensor system.

Software Installation Instructions:

The following are the instructions for the installation of the DynaNav DynaFlight-AirAg Simulator and AirAg Office Software.

The "DynanavAgCompleteFullInstall.exe" install program will install AirAg Office, AirAg Simulator, Air Card Tune up, PC Card Utilities, Synchronize Air Card and all the manuals. *Note: After installation run the **AirAg Office** software and the **Synchronze Air Card** in simulator mode first before running the AirAg Simulator - 'Start – Programs – DynaNav Ag – ----------' Also once the system has been installed, do a "Check for Updates" to get the latest software.*

Cautions:

You have to be running Windows 95, 98, 2000, XP, Vista, Windows7, 8 or 10 for this simulator to work. For best operation. the properties on the Shortcuts for all of the programs should be changed for "Administration" privileges or Right Click and "Run as an Administrator. Please contact our office for instructions on how to do this if you are unable to make it work.

Download "DynanavAgCompleteFullInstall.exe" from www.dynanav.com – Support - Software – Downloads – Simulators AirAg Complete Install:

- Go to the folder that you stored the "DynanavAgCompleteFullInstall.exe" with your browser (Windows Explorer) and Run this program (double click on this image). Best to Right Click and "Run as an Administrator"
- Step through the install wizard, normally accepting the defaults are OK, you may require to enter your name and company name.
- After this is installed, make sure your computer is connected to the Internet and go to 'Start – Programs – Dynanav Ag – Check for Updates on the Web'. This will check for the latest updates and ask you to Run an update wizard if there are any revisions to be downloaded. Once completed, you will have the latest software for all programs.

Install Logitech Joystick Software

Install the Software as supplied on the CD for the Logitech.

For Logitech Extreme 3D Pro Joystick

1. Install supplied Logitech software as per their instructions from the CD.
2. Open up “Game Controllers” Start – Control Panel – Game Controllers
3. Select Logitech Extreme 3D Pro Controller and select “Properties”. Test Throttle, etc. for operation.
4. Select the “About” tab and mouse click on “Logitech Profiler”
5. Under the “Profile” pull down menu select “Import” then browse and select “DynaFlight Air.wgp” which will be found under C:\ Drive – Program Files – DynaNav – Ag Complete. Once “DynaFlight Air.wgp” is selected click on “Open”.
6. A window “Profile Properties” now will give a profile name of “DynaFlight Air” and you will need to Browse to the Game file. Hit the “Browse” button and a window with “Look in:” should show up. Browse to “C:\Program Files\Dynanav\ Ag Complete”, now scroll to “myprog32”, select it and “Open”.
7. After this, under the “Profile” pull down menu “Select Profile” and click on “DynaFlight Air”.
8. Under the “Options” pull down, select “Global Profiler Settings” and check the selection for “Apply persistent profile and select “DynaFlight Air” as the persistent profile.
9. Also select “Start Profiler at system startup”
10. Select OK to the “Global Profile Settings” box, and then close the Logitech Profiler.
11. After this, run the Air Ag Simulator Start – Programs – DynaNav Ag – Air Ag Simulator. NOTE: If the buttons do not seem to work, make sure there is no a second “Flight Control by Joystick” program running. If there is, close the second one or close the Dynanav Air Ag Simulator and re-start the simulator.

- After this is finished, the program will be installed as a normal windows application and will be available run by using ‘Start – Programs –Dynanav AG - Air Ag Simulator’ and ‘Start – Programs – Dynanav Ag – Ag Ground’.
- Note: After installation run the AirAg Office and Synchronize Air Card software first before running the AirAg Simulator - ‘Start – Programs – Dynanav Ag – AirAg Office’.

Instructions for the use of the DynaFlight and Simulator

Note :- Before Starting the AirAg Simulator Program – Run the "Air Ag Office" in simulator mode and "Synchronize Air Card" on the "C" drive first See Manual below.

If you are running the program you should use the "Quit" button (Twice) to Exit the Simulator. If this does not work, you can TERMINATE THE SIMULATOR PROGRAM at any time, just hold the ALT key down and hit F4 (usually designated ALT-F4 by regular computer users).

The Joystick on the PC Computer for simulator

The TopHat, trigger, and the switch below the TopHat button3, is used to for the complete selection and operation of the system. The flying is controlled by; the throttle for speed and for turning, the left and right of the joystick is used. (In older simulators, the "Num Lock" must ON for this to work properly. If the buttons aren't working, try changing the "Num Lock" (on the number pad or other ways on a laptop).

Figure 1 Logitech Extreme 3D Pro

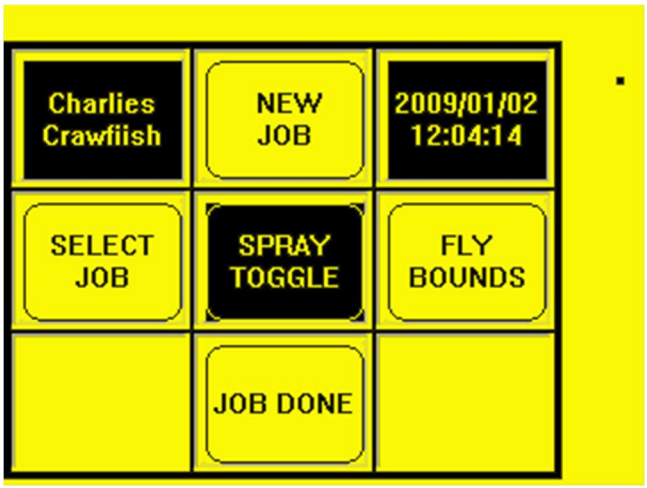
Selecting from a list

Navigating the list:

For BOTH the simulator on your PC computer and the Aircraft system, use the Tophat switch. Down is down the list one at a time, and up is up the list one at a time. Left is back up the list in larger jumps farther and farther each time you hit it (for long lists). Right is down the list farther and farther each time you hit it. Select the chosen item from a list by pulling the trigger (enter).

Selecting a button on the button pad

What is a button pad?



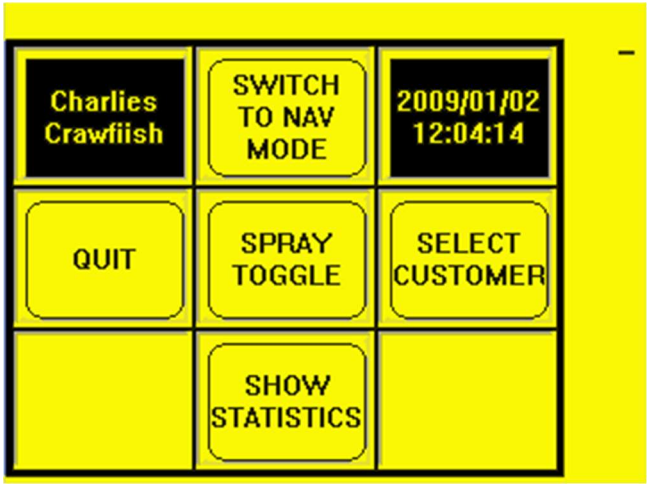
It is a tic-tac-toe pattern (a 3 by 3 set of squares which look somewhat like the set of buttons on the number pad of your keyboard). Each button has a small message or title on it.

The corner Buttons are information fields such as selected Customer and Job name.

What is it for?

Each 'button' on the button pad that is visible can be 'pushed' or activated through the tophat switch on the aircraft or Joystick control grip. When a button is pushed something happens. The text on the button pad hints at what will happen when the button is pushed and held for a second.

Selecting a button



When you are looking at a button pad, the individual buttons correspond to the layout of the same direction on the tophat switch on the aircraft. Pushing and holding the Tophat in the direction of the button will accept. NOTE: If the Tuneup Kit has selection "Using Fire Button on Hold" turned off, then the '**Trigger'** must be pulled to accept the selection.

Rotating through the visible windows

What are 'visible windows'?

So far we have described above a list and a button pad. These are individual 'windows' that can be made visible, one only at a time.

What does it mean to 'rotate through' them?

Since only one window can be visible at a time, and we might want to be able to select another window to look at or use, we will have to have a way to change to the 'next' window. If you think of the windows as a set of playing cards stacked up, you will get to the next one in the stack by putting the top window (card) onto the bottom of the stack. Each time we do this, we call this rotating through the windows, or 'windowing'.

How do I rotate through the visible windows?

We rotate through the windows once each time we hit the left 'Window' switch (**Button 3 on simulator joystick**) below the tophat. (*In the actual aircraft, we would push down the top hat button on the DynaGrip or special button set-aside for this purpose called the 'window' button.*)

While in the **Roadway Live** window, pushing the 'Window' button **once** brings up the next window. By waiting a couple of seconds before pushing the Window button, it will return to the Roadway Live window.

While in the **Roadway Live** window, pushing the 'Window' button **twice** brings up the third window. By waiting a couple of seconds before pushing the 'Window' button, it will return to the Roadway Live window.

While in the **Roadway Live** window, pushing the 'Window' button **three times** brings up the **Buttons** window. By continuing to push the 'Window' button, you will continue to rotate through the different windows until you come back to the **Roadway Live** window.

What windows are available to rotate through?

This depends on what is currently going on. When you first start up, there is only ONE window available, and that is the customer list, from which you must select the customer name you are going to work for (or alternatively you could select 'new customer', but that is ahead of us a bit). Once you have selected a customer, you will ONLY have the two button pads to work with until you select something to do. If you select the 'SELECT JOB' button, then chose a field (already in progress or pre-defined), you will now have to choose a Nav Point to navigate to, this will be explained later. You will now have 2 default windows to look through. Try this and see.

Spray On/Spray Off

In both the simulator and in the real aircraft, by pulling the **trigger** (**enter**) switch will toggle the spray recording on and off. In the real aircraft the spray on/off is sensed from the boom pressure switch and/or a switch on the spray lever to automatically record the spray on/off. NOTE: one of AirAg Tune-up settings is the minimum speed at which spray recording will take place, the default being more than 15 knots. If you want to spray at less than this speed, you will have to change this parameter using the AirAg Tune-up (see DynaFlight Tune-up below)

Speeding up/down and Turning on the simulator

Joystick Throttle

Use the throttle to set your speed, which is displayed on both the moving map as well as on the navigation window. The speed is variable between 0 and approximately 195 knots.

Turning left and right

The joystick uses only the left and right flight control for turning. The rate of turn is proportional to the how far you push the stick left or right.

Selecting a Customer

- When the system first Starts up, it will ask you to select the aircraft name (Tail number or other name given in the AirAg Office Software settings)
- After this you select the customer from the list and pull the Enter (trigger).
- If the customer is not in this list you may select "**Add New Customer**" at the top of the list. This will add a new customer using the exact date and time e.g. 2010/04/29 17:45:23. This can be edited later on in the AirAg Office software to the actual customers name.
- Also, you can select the 'Select Customer' Button at anytime to change to a different customer.

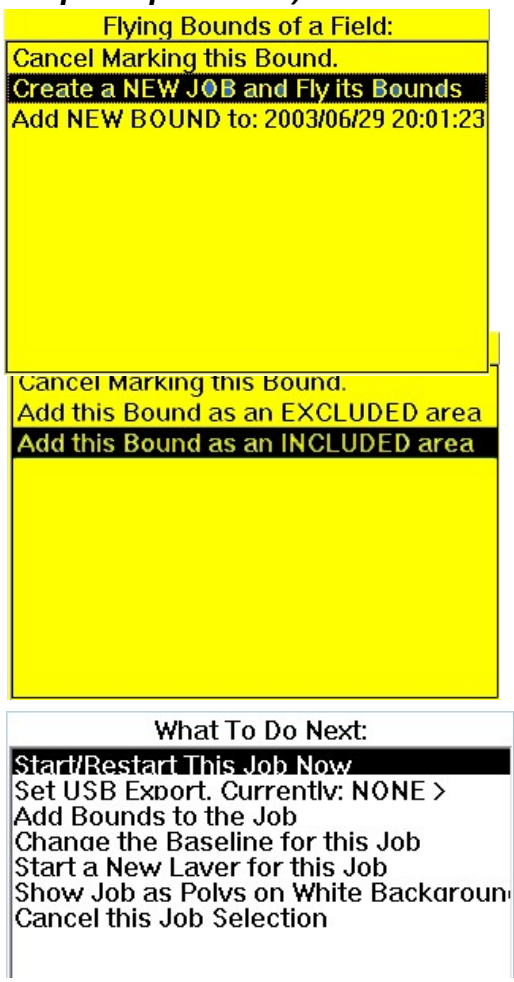
Setting a new job

- Select the **NEW JOB** button.
- You will now have all the parameters in a list using the parameters that you last used. This includes Customer, Swath Width and Pattern. You can change any of these parameters by scrolling to them and pulling the "Enter" Switch (Trigger) and then scroll to change and then "Enter".
- You will have the new Job Name as the exact Date and Time of this entry, which you can also change to a Job number by selecting and entering.
- The Pattern can be changed to any the standard 3 patterns as well as Free Form. Free Form gives all of the lines all of the time, the other types will automatically be set up upon how you fly the pattern during setup (explained in FlexGuide below).
- The swath width (in Feet or Meters) can be changed. Scroll up and down the list with the up and down buttons on the Tophat, then, pull the Enter (trigger) switch.
- The top of this list is "Start Job with Settings Below". When ready to accept the settings scroll to this and "Enter".
- Turn spray on (on simulator pull the Enter trigger switch), and it will inform you that an Origin has been set.
- Continue spraying on your first line, then turn spray off (on simulator pull the Enter trigger switch). A baseline will now be set, and your primary Roadway navigation window will now be visible. This will now indicate the next sequence in the Pattern, if one has been selected.
- You can use the Enter(trigger) button to toggle the Spray on/off. The AirAg Tuneup can be set up so that the first Baseline created by this Enter button method will not be marked as Sprayed (see AirAg Tuneup Software below). This is can be very useful for setting Baseline without actually spraying.

Selecting a Preset or Existing Job

- Select the **SELECT JOB** button.
- Select the job from the list available for this customer and pull the Trigger "Enter" switch.
- You will be asked to "Start/Restart This Job Now" or make changes to the job. Upon Entering this, you will be given the list of the original settings in the Job Settings window. Again, any available changes can be done here.

Flying Boundaries for the Job (normally for helicopter operations)



- Select **FLY BOUNDS** button
- Select "**Create a New Job and Fly its Bounds**" from the list. If you are adding bounds to your existing Job, the select "**Add NEW BOUND to**: (Job Name)".
- The next window is a black screen drawing tablet. By hitting your **'Enter'** button, you will toggle on/off your marking which will paint up on this screen. This screen will automatically scale itself to fit the area that you are marking.
- When the boundary is almost complete, toggle off marking with your **'Enter'** Button, then hit your 'Window' button and select "**Add this Bound as an INCLUDED area**"
- You can also "**Add this Bound as an EXCLUDED area**" to an existing area, which will mark the area flown as excluded from your job area.
- You can have as many Included and Excluded areas on the same job as you want by selecting the area, then select **FLY BOUNDS** and then select **Add Bounds**.
- When you have a selected job, you can also add Buffer Zones by selecting the job and the select Fly Buffer Zone from the list. This will then step you through a selection list for setting the parameters for the Buffer Zone. Again you Start and Stop recording by using your **'Enter'** switch.

Flying around your new field on the Simulator

For practice you will see the aircraft moving on the moving map pointed in the direction of flight. This map can be used as a reference for picking a field to do an application on.

FlexGuide

Free Form Field

- All of the navigation lines representing each of the swath lines will be presented on the screen during the turns. This allows the pilot to intercept any of the lines to do his application on. The score bar and the Job Review map will let the pilot know the areas that he has already covered.

Back and Forth

- After applying the first line (Baseline) on the field, the navigation screen will appear with the next line (swath -1) to the left of your first line. If you would like the line to your right, the use your Tophat switch up/down to increment the Target cursor to the line you want to

intercept (this target line number is displayed in the upper left corner of the Nav display). You can now do your teardrop turn to intercept this line to apply. After each line has been sprayed the next line in the series will be automatically targeted.

Race Track

- After applying the first line (Baseline) on the field, the navigation screen will appear with the navigation in Free Form indicating "**Marking Swath B by Spraying**" in the display window. You can now fly and intercept any line or the other edge of the field as required to spray the B line. After this line has been sprayed the navigation needle will now be displayed for three different lines:

  1/ A Nav line will appear that splits the Baseline and the Line B to start a Race Track pattern to fill in between Baseline and Line B

  2/ A Nav line just on the inside of Baseline (between Baseline and Line B) will be available to intercept that line and continue the Race Track pattern using Baseline and Line B to the same side as this line.

  3/ A Nav line just on the outside of Baseline will also be available to intercept that line and continue a Race Track pattern using Baseline and Line B to the same side as this line.

Squeeze

- After applying the first line (Baseline) on the field, the navigation screen will appear with the navigation in Free Form indicating "Marking Swath B by Spraying" in the display window. You can now fly and intercept any line or the other edge of the field as required to spray the B line. After this line has been sprayed the navigation needle will now be displayed showing the intercept to the line next to Baseline to continue a squeeze pattern between Baseline and Line B.

Advance and Decrementing the Patterns and Swath lines

- The Top Hat switch is used, while in the navigation window, to advance or decrement your target swath on your selected spray pattern. Advance of is accomplished by pushing the top hat switch **up** that will advance the selected pattern to the **right** of the direction that you are flying. Pulling top hat **down** will decrement to the **left**.
- By selecting the top hat switch to the left or right will appropriately select the line to be sprayed to the left or right of the direction of flight as well as put the navigation needles in Free Form mode to intercept any line that will best work for the pilot. After he has sprayed this line, the navigation needle can be reverted back to the pattern using the Up or Down on the top hat switch.
- In Free Form mode Up and Down of the Tophat will target a specific line (the Target Line shown in the upper left of the Nav window). To CANCEL the target line and go back to Free Form, push the Tophat left or right.

The windows that are available while 'on the job'

- You can 'window' through the available windows by hitting the 'window' button on the joystick or the center of the Tophat switch in the aircraft. See "**How do I rotate through the visible windows" in section above.**

- Using the "**Show Statistics**" then "**Change Pilot Settings**" – "**Select Nav Windows and Order**", the pilot has a choice of what windows and order that he prefers.
- The "**Roadway**" is the standard line navigation window shown as roadways.
- The "**Review**" window views the present field with center showing the Last Spray Point and baseline up. This is window can also be zoomed in and out.
- The "**Live**" window showing Spraying being recorded live on the map which rotates to show flight direction up. This view also has zooming capability.

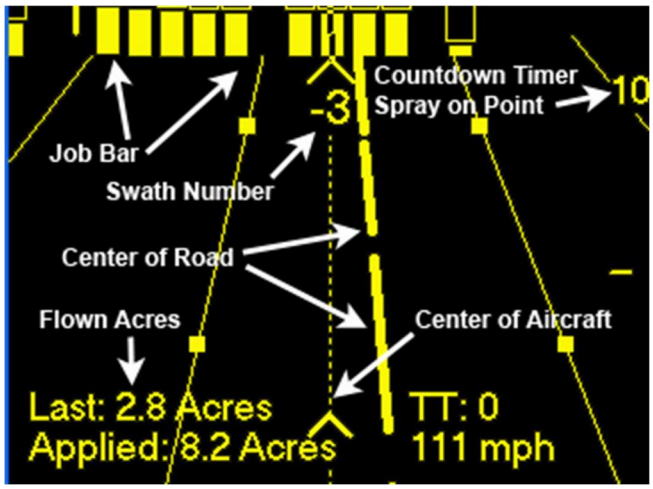
Completing a Job

- Once you have reviewed a job and are satisfied it is completed, Window to the buttons with "**Job Done**" and push this button.
- This will remove this job name from the list in the "**Select Job**" window. This does not remove the job from the data card it only removes it from the list so as to not clutter the available jobs for this customer.
- If you later need to put this job back on the card to do more on it, you can change its "Job Status" from True to False on the AirAg Office software. Once the Air Card is Synchronized, it will show up on the "**Select Job**" list for that Customer.

The Roadway Window:

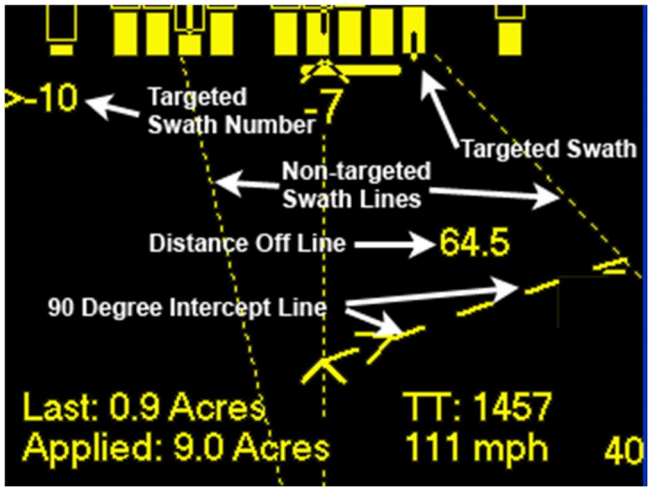
This window consists of one primary navigation aid, and other secondary aids.

The primary navigation aid: the 'Roadway'



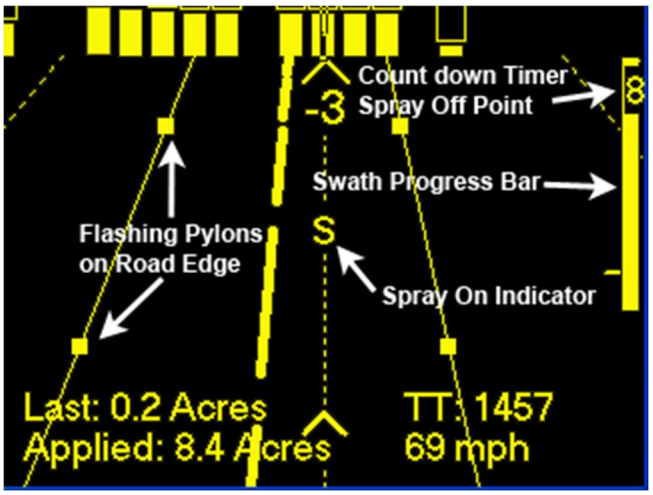
- The biggest difference between the simulator and the real instrument is that the real instrument is angled back. The 'roadway' appears in your peripheral vision like a line on the road, and behaves just like one. Its behavior will then make good sense when you are turning and shifting sideways.
- This line shows both your offset and your angle of attack to the targeted swath line. In Free Form you will see all of the swath lines show up as you are crossing them at an angle. The actual line number you are crossing shows in the center top of the Navigation Screen.
- When using a Pattern and you are intercepting a swath line, the Navigation screen will show you a 90 degree intercept line. Once you are close to the actual swath line, this line will disappear.
- The distance off line also shows (in feet or meters) on the middle of the same side as your swath line.
- The Target Line number shows on the upper left of the Navigation Screen.

The 'Job Bar'

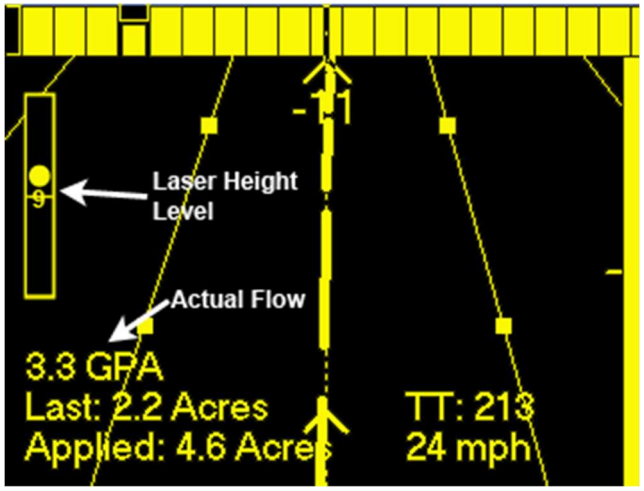


- This is the moving bar across the top. It has a white (bright yellow in aircraft) block for every swath in the field. If a swath has been sprayed, it will show a proportional amount relative to the longest spray line blacked out.
- In Forestry applications with jobs that are pre-defined with polygons the white block will be partial black relative to the longest line in the polygon and will turn all black if the line is totally sprayed.
- This 'Job Bar' moves side-to-side so that at any given time the center tick lines up with the swath you are currently over. This means that when you are moving ACROSS the field, the job bar is moving across the screen as fast as you are moving across the field.
- The width of the 'Job Bar' swath lines can be adjust by selecting the "**Show Statistics**" button and then select "**Change Pilot Settings**" and the "**Change JobBar Size ATrack"** for size while flying down the Roadway and "**Change JobBar Size XTrack"** for flying across the Roadways, wider for ATrack and smaller for Xtrack is best.

The 'Swath Progress Bar'



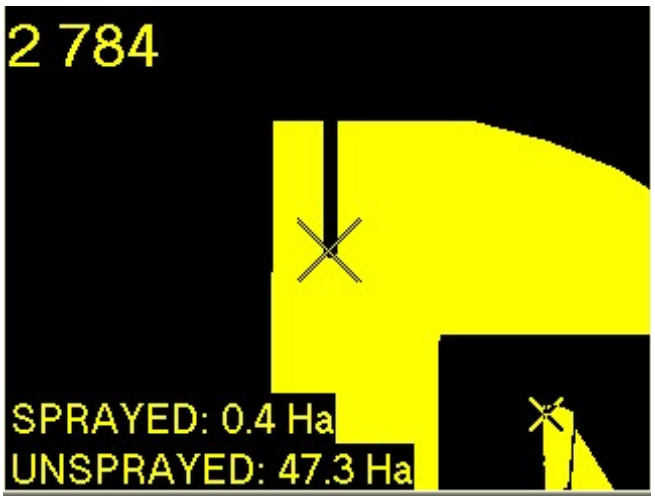
- This one moves along the right-hand-side of the screen. If you are coming up on a part to be sprayed or been sprayed, you will first see the number of seconds to this counting down before spraying should be turned on/off. The Black either has been sprayed is not to be sprayed. When the leading edge of the white is one second from crossing the center, the screen flashes, indicating that spray should be turned ON.
- When the back part of this white bar reaches one second from crossing the center of the instrument, you get another flash of the screen, indicating that you should turn spray OFF.
- This instrument gives you 12 seconds of view of the swath you are on at any given time.
- If you are PAST the last portion of the line to be sprayed, you get a count-down at the bottom on the right hand side to indicate how many seconds you are now past the area to be sprayed.



TT – Turn Time

- This is a timer that displays the time from Spray off to Spray on. Resets each time.

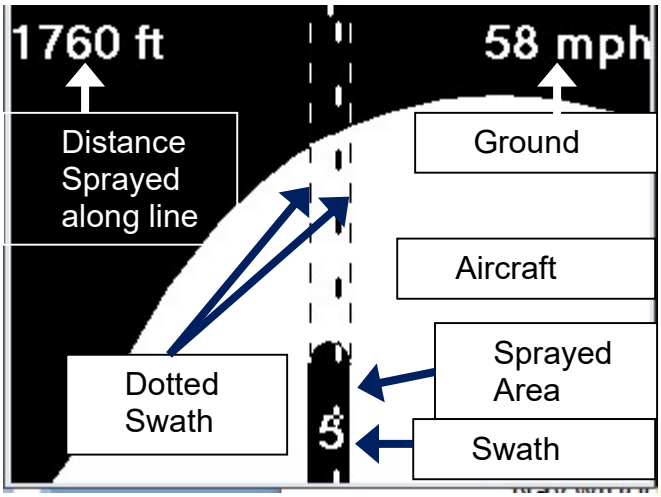
The "Review" Window:



- When you first enter this window, it will show you at the last point on the field, This point is in the center of the display screen.
- The small window on the right is an overview of the complete job area.
- First, you can **Zoom** in and out by moving the top hat switch up and down. Then push left or right to begin scrolling around. The next time you visit this window, it will be at the zoom that you left it at. The numbers on the upper left of the screen tell you which swath number you are on (the center X), and how many meters along from where you first started spraying the baseline.
- When you push the window button once again, you be back to the Nav Window.

The "Live" Moving Map Window:

- When you Rotate windows using the 'Window' button from the Nav window (or once when spray is ON), it will be a 'Live rotating moving nav map' version of the field, with you in the lower center.
- The dual Dotted Line is the actual width of your selected Swath and in the direction of your flight path Projected as the swath width.
- This is an ideal tool for navigating parallel curved lines and for 'painting' long runs on rising/falling terrain such as in Forestry and Mosquito applications.
- This Instrument can also be used for Clean-ups and Headland applications.



Point Navigation Mode:

What is the Point Navigation Mode about? (NAV MODE)

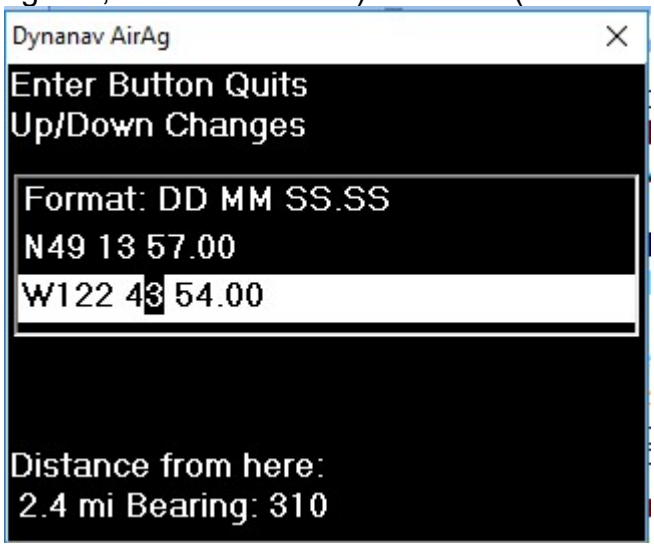
If you select the SWITCH TO NAV MODE button you will have new set of buttons to choose from. With appropriate choices, you will be presented with a full moving map (scalable), and a point nav instrument to use that will show you the distance and bearing to any chosen nav point. It is specifically designed to get you exactly over top of this nav point. Try it to see what happens as you pass over a given nav point.

How do I select an existing nav point?

- When you first hit NEW JOB you will then select a Nav Point from the existing stored points. This Nav Point will direct you to that location while flying to spray or apply your First Baseline.
- If you have selected **Switch to Nav Mode** button, you will have a set of buttons available, one of which is SELECT LOCATION. You will be presented with a list of existing nav points to choose from in a list. Select and enter the desired one and the Nav windows will be available in the Window rotation.

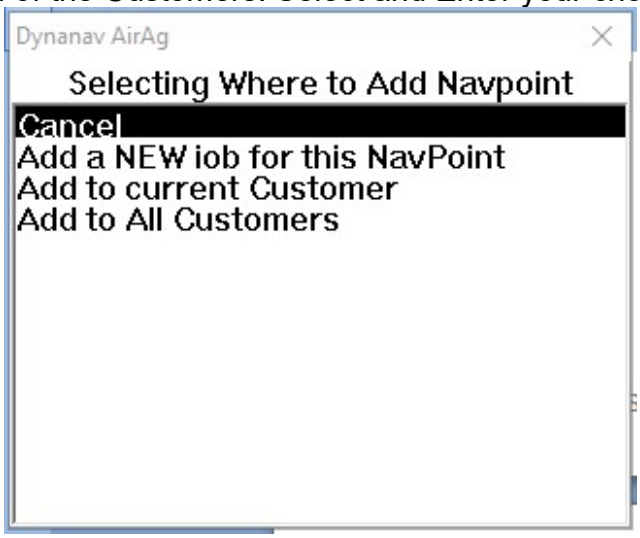
How do I add a new nav point?

- In the aircraft, you can add a new point by flying over (or parking over) a point and hitting MARK LOCATION. You will be presented a window showing the exact Latitude and Longitude of the Marked point as well as you can select which form of Latitude Lngitude you are given. This can be changed from DDMMSSS (Degrees, Minutes, Seconds) DDMMMM (Degrees, Decimal Minutes) or DDDD (Decimal Degrees).

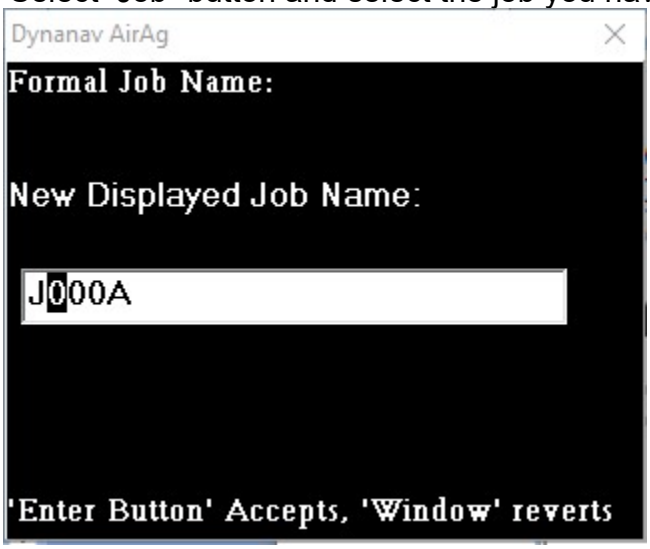


- You can now change this location to a new location by using your Tophat switch to scroll left or right to the next digit and up and down to change the values. Once the correct latitude and longitude is entered, you will see the distance to the new Nav Point is from the original nav point.
- At any time you can reset the numbers back to the original by pushing the **Window** button. Once the correct position is displayed the hit the **Enter** switch.

- You will now be asked to select and enter this point for ONLY the current Customer or All of the Customers. Select and Enter your choice.



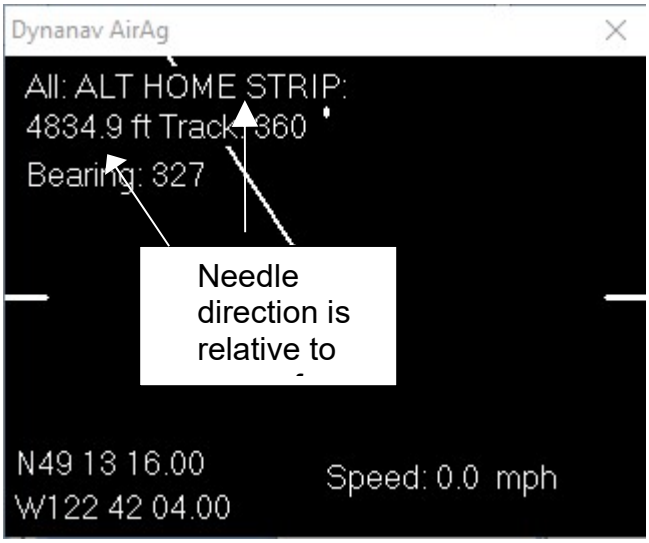
- If you select “Add a New Job” it will bring you to a window to give a Job Name (Number). Once completing Job Name, Enter and then “Cancel Nav Mode”. Now push the “Select Job” button and select the job you have created the Nav Point for.



- If you have selected the Add to Customer selections will then be asked to enter whether it is a Customer Strip (runway) or a Customer Field. Select and Enter your choice.

- At this point you can select this Nav Point to navigate to by Selecting the **Select Location** button and selecting this point from the list.
- **NOTE:** When ever you add a Nav Point, it is recorded forever. You may edit and rename this Nav Point name in the AirAg Office software as well. You can also add new Nav Points in the AirAg Office software. There is no limit to the number of these points.
- Each job will have its own nav points automatically stored. Last Sprayed Point and First Baseline Point are always automatically created for each job.

Instructions for the use of the Point Nav Instrument window:



- This Point Nav instrument automatically comes up if you are far enough away from your selected job or if NEW JOB has not been first sprayed yet. This Point Nav instrument is also available when in the Navigation Mode.
- This instrument will automatically replace the “Rotating Job Map” window when far enough away from your spray area. Also It is one of the windows in the window rotation once a Nav Point has been selected.
- It puts you in the middle of the screen. The target is at the other end of the line leading from the center of the screen (you). You steer to get the target straight ahead of you (aim for the target).
- The distance to the target is displayed at the top, and your current ground speed is displayed at the bottom. It shows Bearing and Track as well as your target Latitude and Longitude. The units displayed will depend on your pilot preference selection.
- As you get close to your target a set of squares of different sizes will stack. Try visualizing the squares as tunnel you are looking down through when you are over top the target point. All the squares line up when you are dead over the target.

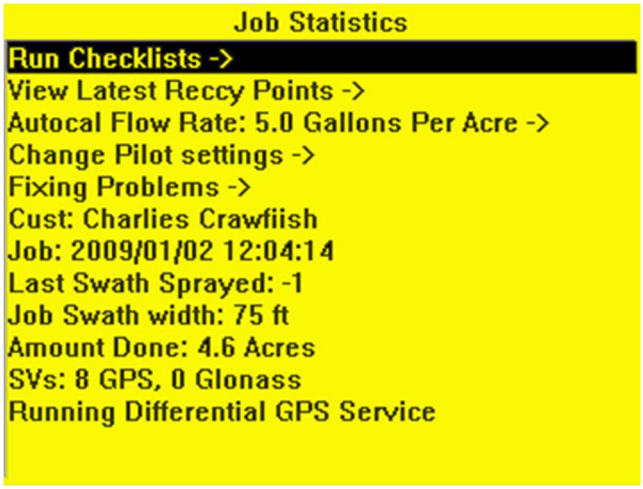
Instructions for use of the Moving Map in the Navigation mode of the DynaFlight unit:

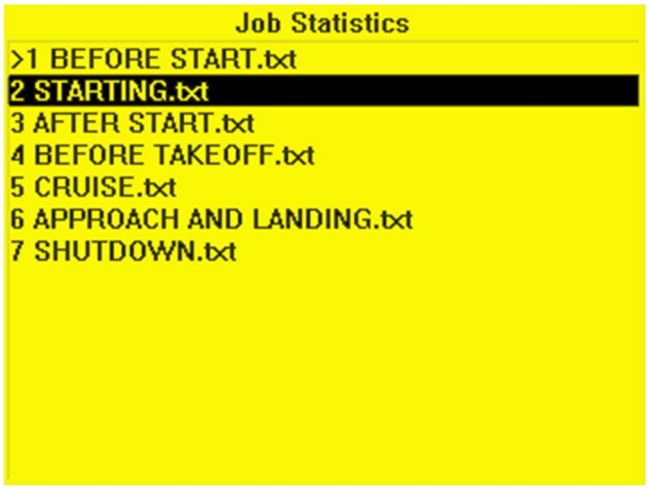
- This map is north-up.
- You are always at the center of the moving map.
- It is scalable from 0 to 8, with the scales 3 to 8 being the ones that are most often used.
- Each scale may or may not have a map image in it where you are flying. If there is no map image, a black screen is presented as background.
- Any features such as nav points are displayed to scale over the background, and a ‘rubber band’ connecting your current location to the nav point selected.
- Use the SELECT MAP SCALE button to choose the scale you wish to use. The best strategy is to start at scale 8 and work down to the one that best suits your current needs.

Show Statistics

Job statistics

- This contains both information as well as where you can change the settings for Pilot Preferences, Flow Control, Laser Height, etc. The lines with the right hand arrow are adjustable information, the rest is the Job Information.





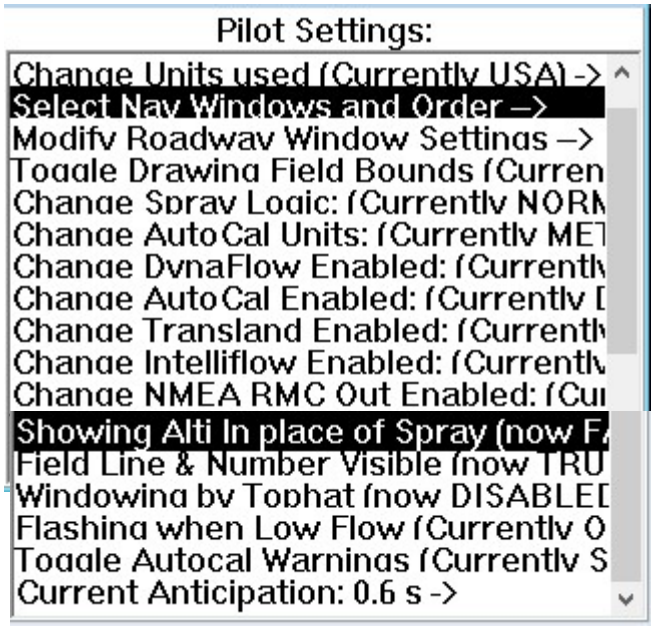
Run Checklists

- This is a utility to have a complete set of checklists to be able to call up and step through and check off using the Tophat and Enter switches. (Optional Check Lists)
- As each of the sections have been completed, a right arrow > is placed before the item.
- For each time you step through the items and get to the end, the list will automatically go to the next item.
- These Checklists are in standard text format and available for you to edit or create new ones. They are on the AirCard in the Dynanav folder in a file folder called “Checklists”. If editing or creating, make sure you keep the same format as on the original lists.
- At any time you can jump to or go back to any of the checklists.

Flow Rate

- This is where you can change the flow rate for the flow control. Select and then change the rate to you desired rate and pull the Enter switch.

Pilot Settings



Change Units

- By selecting this, you can change the units such as Length Units (Feet or Meters), Area Units (Acres or Hectares) and Speed Units (Knots per hour,Meters per Second, Miles per Hour or Kilometers per Hour).

Select Nav Windows and Order

- In the Window rotation, you have a choice for which Nav Windows you want displayed. The are as described above for '**Roadway**', '**Review**' anf '**Live**' as well as the DynaView(2) (an optional touchscreen computer for job review and other functions). Choose the the setting that works best for you.

Modify Roadway Settings – see below

Toggle Drawing Field Bounds

- This toggles (on/off) the Polygon boundaries being shown in the Review Map and Live Map.

Change Spray Logic

- In certain installations where the connection to the Spray on/off electrical connections are reverse to the Normal "Power On for spray" logic, then this setting can be changed for INVERTED Logic.

Modify Roadway Window Settings –

Toggle Special Roadway Display

- This toggles (on/off) the Navigation Display from the standard parallel Road lines to the Special Roadway that visual looks more like roadways painted on the ground.

Toggle Using Pylons

- This toggles (on/off) the flashing pylons that are on the sides of the Roadway. These flashing pylons are intended to help you see the display in your peripheral vision while still looking outside of the aircraft.

Change Roadline Pixel Width

- This lets you change the size of the centerline width. Sometimes the centerline can be increased in size for better visibility, particularly if the display is positioned farther from your eyes.

Change Roadway Width

- This changes the total width of Roadway from the left edge of the Roadway to the right edge of the Roadway as displayed on the bottom of the Nav display window.

Toggle Ticklers

- This turns on/off the rotating visual “Ticklers” that will begin to grow on the side of the Roadway display if the pilot is more than 1 foot off course.

Auto Advance Swath

- In a pattern, the Swath will advance to the next swath in the pattern when you break line after turning spray off. If you want to manual advance the swathh with the tophat switch, then turn this setting “Off”.

Change Angle Sensitivity

- The angle that the Roadway more than the actual actual angle. This angle sensitivity can be changed to Normal, Low or lowest.

Roadway Perspective

- This toggles (on/off) the Navigation Display from the standard parallel Road lines to the Special Roadway that visual looks more like roadways painted on the ground.

Change JobBar Size A-Track

- The width of the ‘Job Bar’ swath lines can be adjusted for along track. The JobBar will change in size as you fly directly alomg track to across track 90 degrees.

Change JobBar Size X-Track

- The width of the ‘Job Bar’ swath lines can be adjusted for cross track..

Fixing Problems

- The most important thing in this window is to “Save Diagnostic Informatiion” if you are having problems. This will store information from the GPS engine plus other things onto your AirCard so we at DynaNav can determine where the problem is most likely to be.

DynaFlight 3 Touch Screen Operations

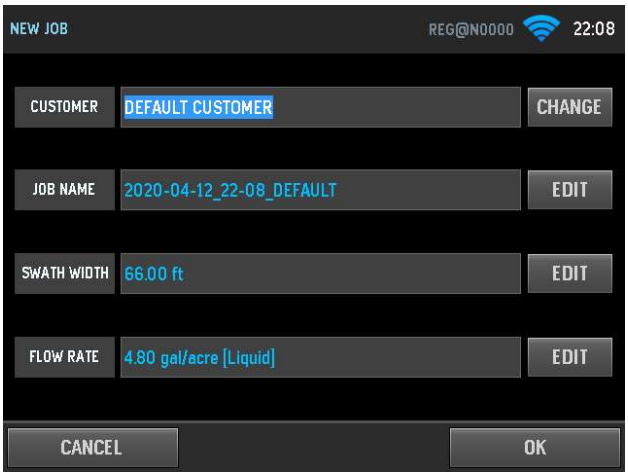
The DynaFlight 3 Touch Screen system has a unique interface consisting of Icon Buttons and Pages for viewing information or inputting. The interface is uniquely designed to give the pilot rapid access to his required view or input with a single or very few button pushes. With basic review of this manual, the pilot will be able to operate the system efficiently while flying from the beginning.

Home Screen

When the system has fully booted, this page will be displayed. This page consists of buttons to activate or access the appropriate work flow section. It also has the **SHUTDOWN** button to do before powering the system down as well as a **SOFT RESTART** in order to restart the software in case a problem has shown up that requires a restart.
NEW JOB starts a wizard to create a new job (see New Job Page Below)
MY JOB lists all your existing jobs on the DynaFlight unit. (see My Job Page Below)
SETTINGS accesses all the functions and features of the system to operate the way the Pilot desires, as well setup all the connections to external devices, such as Flow and Gate Controllers, Laser, Network and Communication connections. etc. (See below sections)
DROPBOX and DYNANAV CLOUD is where you can access your Upload and Download areas from the Web (If connected to the internet).

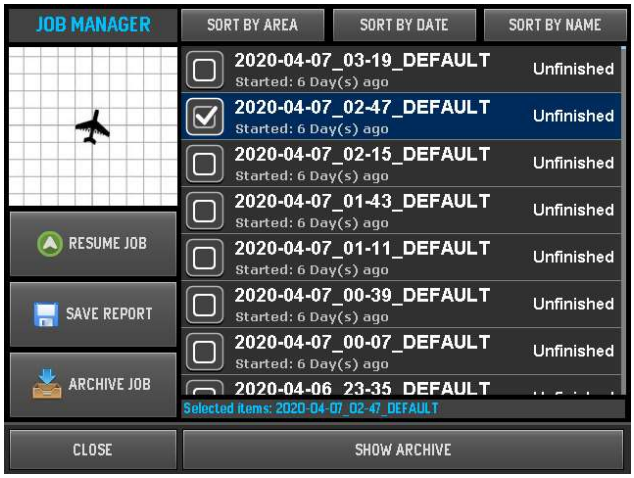
New Job

When you select the New Job button, first starts with this page so you can select or create a customer, Job Name, Swath width and Flow Rate (GPS, LPH, Lbs./Acre or Kgs/Ha). The Job name is automatically give the current Date and Time with the Customer name. This Job name can be renamed to whatever you want by touching the Edit Button. Once you hit OK, it will then



My Jobs

This area is your Job Manager to: Select JOB(s), then RESUME, SAVE a REPORT or ARCHIVE the job. Also, when you select a job (with the check box) that you have worked on, the applied map will appear in the upper left corner of this page.



SETTINGS PAGE

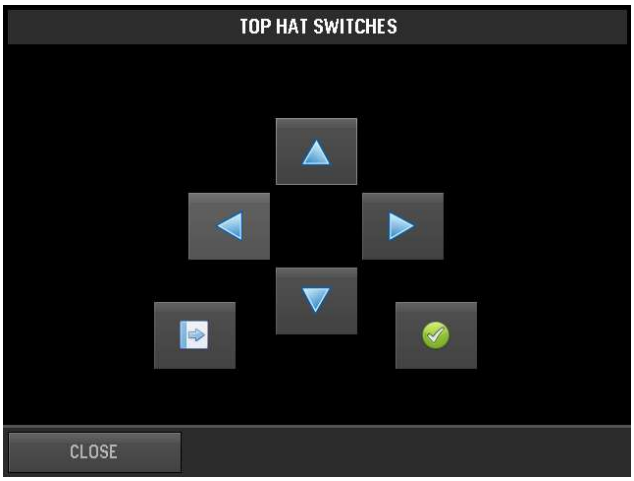
accesses all the functions and features of the system to operate the way the Pilot desires, as well setup all the connections to external devices, such as Flow and Gate Controllers, Laser, Network and Communication connections. etc. (See below sections)

Devices Page

This page gives access to the TOP HAT Control switches, FLOW CONTROL settings, MARKING switch input settings, DRY GATE selection, AUTOSPRAY settings and the LASER ALTIMETER settings.

TOP HAT SWITCHES

This page has 2 functions; To allow the pilot to select items in the DynaViz display in case there is a failure of the Top Hat switches; Also this can be used to test if the Top Hat Switches are



functioning.

Flow Control Page

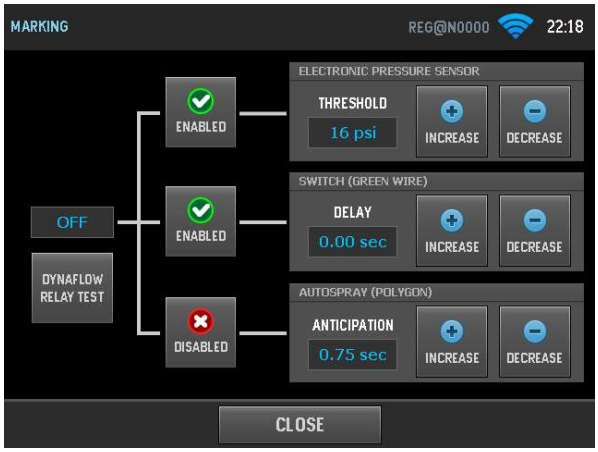
In this FLOW CONTROL page gives all the necessary inputs and feedback to setup the Flow Control as well as test the functioning of the Flow Control. For the **FLOW SENSOR,** you can input your Flow Meter Calibration number (Gals/Minute or Liters/Minute), also if the boom is on, you will see the actual flow in the **Current Reading**.
In the **PRESSURE SENSOR** area, using the RELAY THRESHOLD button, you can set the Boom Pressure that you want to mark the GPS on/off for the “As Applied” map. Also when there is no pressure on the Boom, you can set the Boom Pressure to ZERO for boom pressure calibration, If you have suck back on your boom, you should see the negative PSI up to -5 PSI displayed during operation.

In the **VALVE** sections, the Valve can be set to Auto or Manual mode, change the direction in case the Valve Motor wires are reversed, and also test your valve manually by pushing the OPEN or CLOSE buttons.

Using the ADVANCED button, will bring you to the special section to change the Mode of the Flow Controller, Such as whether the ACTUATOT TYPE is and Electric Motor Valve, or a Hydraulic Motor Controller for the Pumps that are run by a Hydraulic system. The Hydraulic Motor section also is used for operating a Pump that is run by an Electric Motor. To setup, contact our DynaNav team to help you using our TeamViewer Support.

MARKING Page

This MARKING page is set up the methods of marking Spray on/off on the GPS system. Also, it can be used to test the Switch input to see if it is working. If the Switch (Green Wire) input is used for marking then the box will show ENABLED, push this to Disable. The ELECTRONIC PRESSURE SENSOR is where you can set the Boom Pressure for Marking Spraying on/off by the digital boom pressure coming from the DynaFlow Controller.



The AUTOSPRAY function (used for polygon work only) can set the Anticipation of when the AutoSpray will turn on and off for the boundaries of the polygons. This also applies for variable rate maps as well. As shown, it is currently disabled.

DynaFlight 3 marking modes and Features

1. Mark Spray On/Off by Green wire input to IO Control box.
    a. Applying a positive voltage to this wire will send signal to Paint the application on the moving map. However, if there is a problem with this marking. It can be turned off in the settings in the “Switches” on the DynaFlight 3 Touchscreen. At this time you can use the Mark with Enter Switch as described below.
    b. If using the DynaFlow Flow Control system for controlling the Spray On/Off by activating and controlling a Hydraulic or Electric motor driven pump, the Green wire is then used to start and stop the Pump. The Green wire must be connected to the Pilot Spray Active switch to supply power to the green wire when Spray On condition is required.

       Note: as the DynaFlow supplies a signal to the Hydraulics and Electric Motor controller during “On” condition, should communications fail at this point the signal will stay on. As such, it is required that the system be wired so that either the main power to the Motor is controlled by a relay that is parallel to the Pilot Spray Active switch so it will shut off the pump or the relay interrupts this signal line as a failsafe.
    c. When using a DynaFlow Flow Controller with the DynaFlight 3 system, and it is being used for normal Flow Control using an electric controlled valve, then the Green Wire can be used by connecting to the “Relay” output of the DynaFlow controller. This Relay output is controlled by the Pressure sensor in the system and is set in the software to the pressure required to start and stop marking.

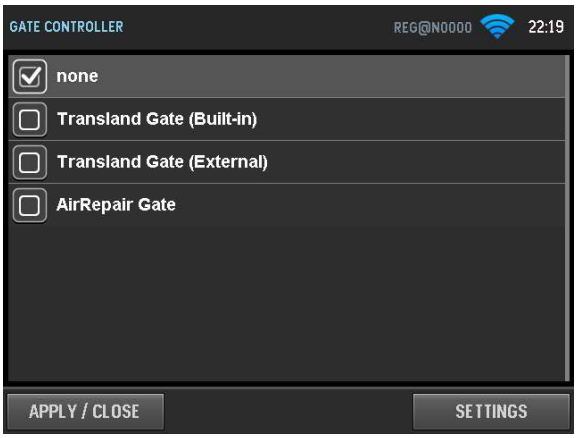
2. Mark with the Enter Switch on the DynaGrip. This switch works as a first click – marking on, second click marking off. There are many states that this will work in.
    a. Mark Only with Enter Switch. This state is turned on by the DynaViz and TopHat switch – Go to Statistics – Pilot Settings and click on “Enter Marks Always” and set for “True”. This is very useful if your normal marking using a money handle or pressure switch that fails during the day and you need to complete your flying before going for repairs.
    b. Mark the Baseline with the Enter Switch – If you turn off the “Enter Marks Always” as in “a” above, the Enter switch can be used to mark the Baseline without doing any spraying. However, after you hit the Enter Switch, which will mark your first point (A) of the baseline, you can turn your spray on and off along that line and it will not mark the last point (B) until you hit the Enter switch the second time.
    c. During your application, if the marking with the input to the Green wire or the pressure sensor fails, then the Enter Switch can be used to toggle Spray On and Spray Off to complete your application. This feature is always active ready to go.

3. When the DynaFlow Flow Control is used in the DynaFlight 3 system, then the settings for “Switches” in the touchscreen can be used to mark by the digital pressure that is coming from the DynaFlow Processor. The pilot can set the pressure to turn marking on at a specific pressure such as 15 PSI and the GPS will mark spraying

above this pressure and will spray off at below this pressure. All other marking is not necessary using this method of marking.

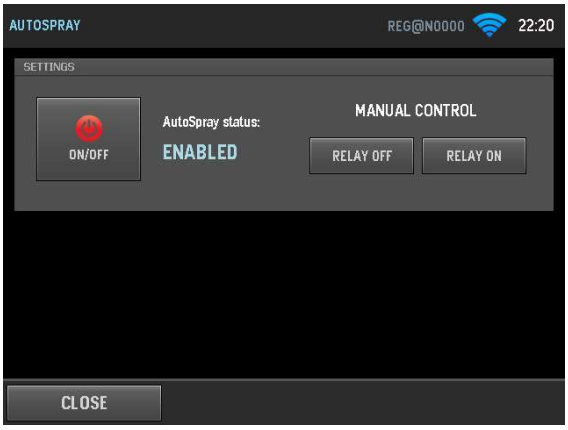
Dry Gate Page

This page is to simply select which Gate Controller is being used. In the case of the Transland Hydraulic Gate Controller, you can select whether it sending data to the “External” touchscreen system, or if the Transland Software is integrated in the DynaFlight 3 Touchscreen, then you would select “Built-In”.



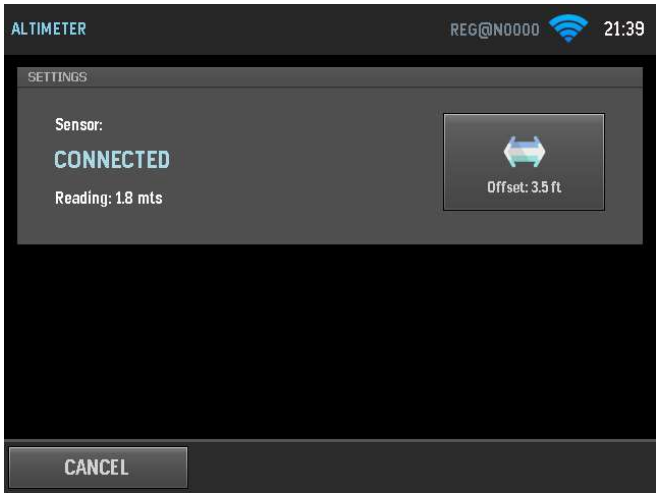
AutoSpray Page

This Page shows whether AutoSpray is enabled as well as you can test the system by pushing the RELAY OFF and RELAY ON buttons.



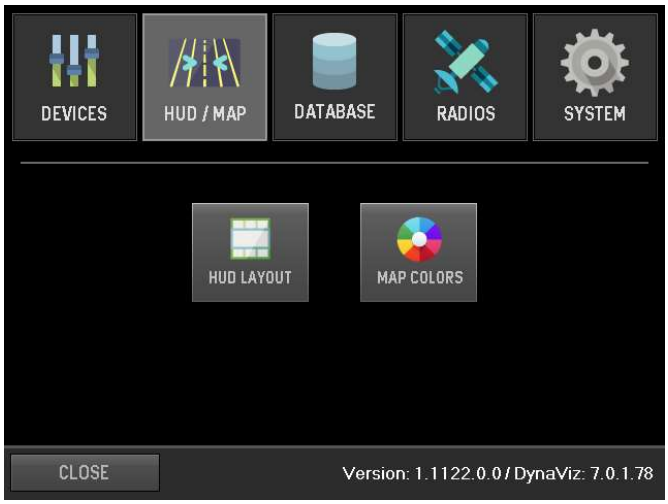
Altimeter Page

The ALTIMETER page shows whether the Altimeter Sensor is connected as well as being able to set the Offset of where the Altimeter is placed and the Boom of the aircraft, as such displaying the actual altitude between the ground and the Boom or Hopper Gate.



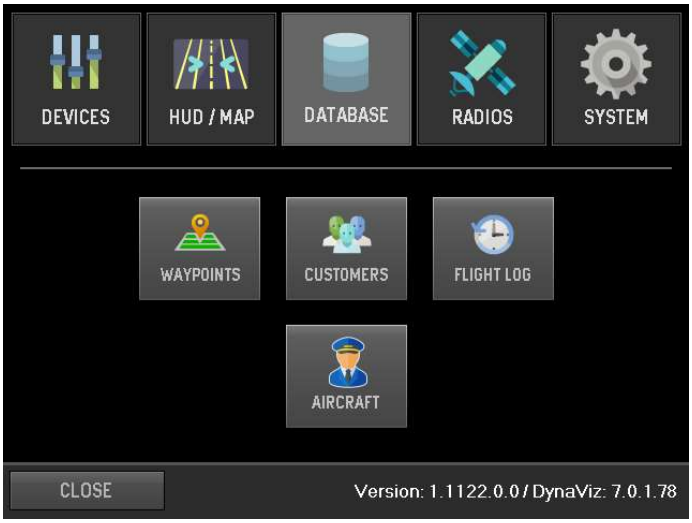
HUD/MAP Page

Using the HUD Layout (future release) you can change the Layout of the HUD displays to suit the pilots needs. This capability is already part of the TUNE-UP kit in the AirAg Office installation. The Map colors is presently to set for Day/Night operations.



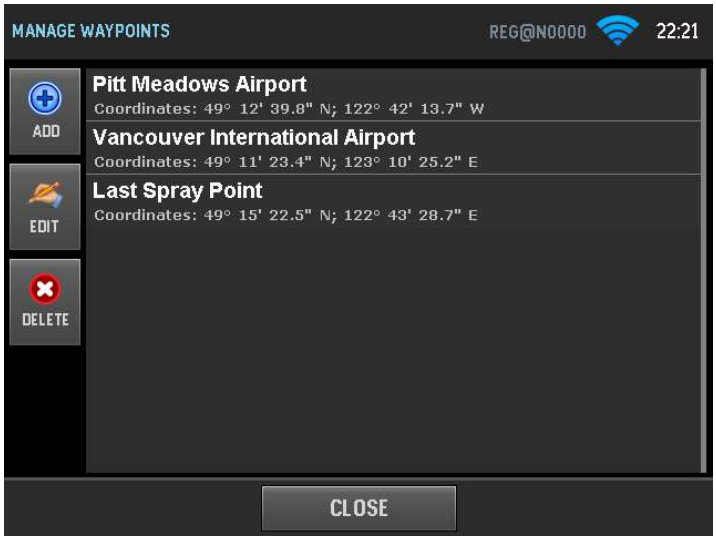
DATABASE Page

The DATABASE Page is where you can access the different data files to add, edit or delete; WAYPOINTS, CUSTOMERS and AIRCRAFT. Also, this is where you can access the Flight Log of where the aircraft has flown along with its Spray Boom On and Off points. This log goes back one full calendar year from the current date. This is a backup file in case there the flight data has been inadvertently mis-placed.



WAYPOINTS Page

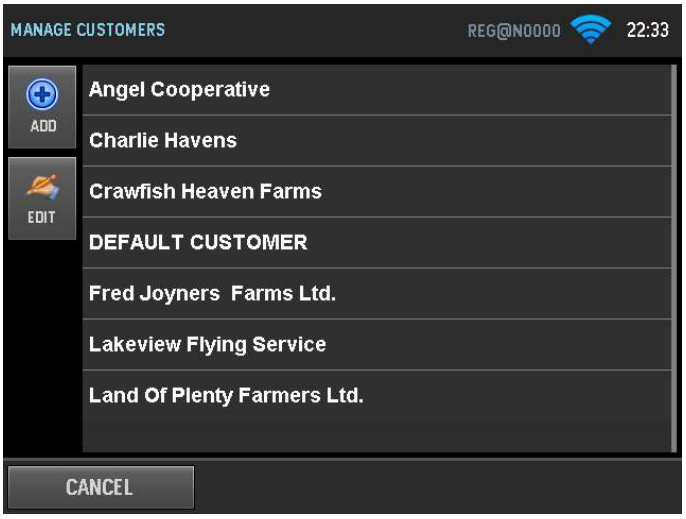
The Waypoints Page is where you can ADD, EDIT or DELETE your Waypoint in the library. NOTE: Every time you Spray Off or Close the Gate, the Last Spray Point is automatically stored



and replaces the previous Last Spray Point. Waypoints can be quite descriptive as well and can be a point to a field or landing strip or an airport.

MANAGE CUSTOMERS Page

The MANAGE CUSTOMERS page is where you can ADD or Edit Customers. NOTE: For Data safety reasons, the Customers cannot be deleted here in the Aircraft.

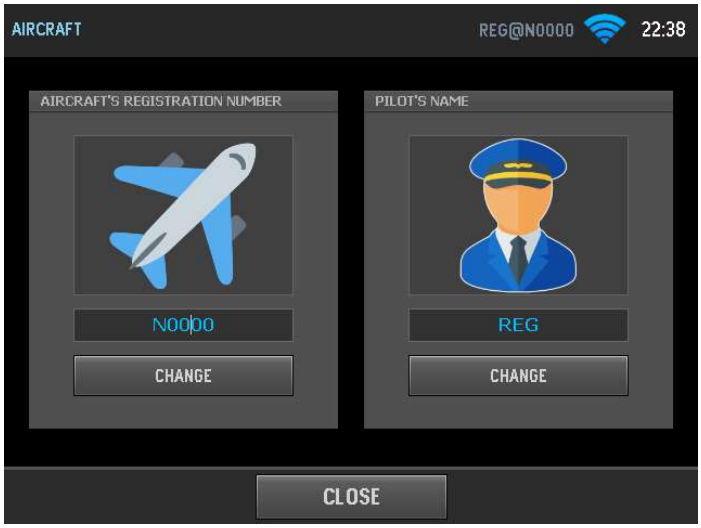


FLIGHT LOG Page

This page is where you can generate a Report of the Flight Log (Based on the last 365 days of flying) and save to the USB Data stick for storage or analysis.

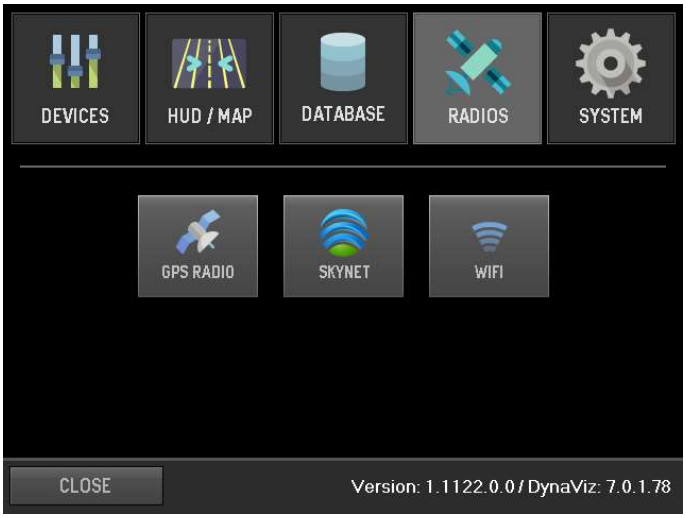
AIRCRAFT Page

This AIRCRAFT page is where you enter the PILOTS NAME and the AIRCRAFT REGISTRATION NUMBER. These two entries will make up the address of the files being transferred between the Ground Management and the Aircraft and will be imbedded in the Job Reports.



RADIOS Page

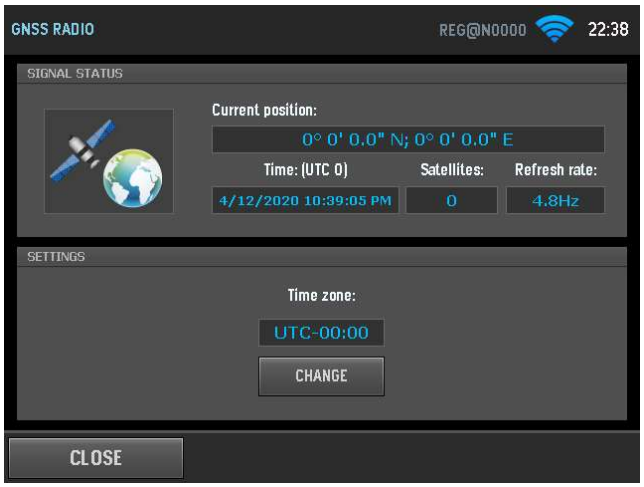
The RADIOS page is where you can check the parameters of the built-in Radios and GNSS



Receiver.

GPS RADIO Page

This Page shows the Status information of the GNSS Receiver. Also this is where you can set your local time Zone for Job Reference Date and Time.



SKYNET Page

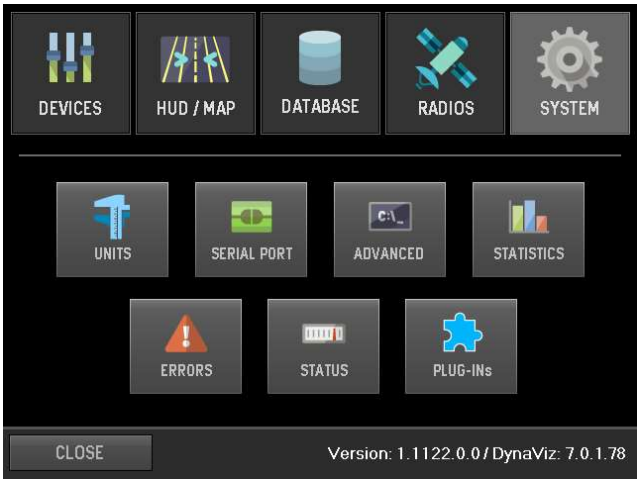
The SKYNET Page (Soon Enabled) is where to setup the Aircraft to Aircraft communications to be able to share jobs between the aircraft as well as their relative position to your aircraft.

WIFI Page

This WIFI Page gives you the ability to connect to your Local Wi-Fi network at your Base. Also, you can TEST if you actually have a valid internet connection.

SYSTEM Home Page

The SYSTEM Home page is where core System parameters can be adjusted, viewed or set.

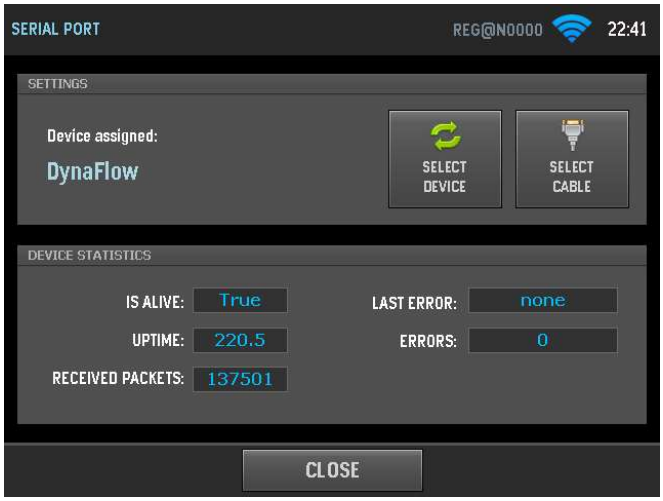


UNITS Page

In this UNITS Page, you can select between Imperial or Metric for units that the system functions in.

SERIAL PORT Page

This SERIAL PORT Page is where you can select devices that connect to the Serial Ports such as the Flow Control. There are 2 serial ports and as such the Select Cable is to access which cable is connected to what device.
Also, the DEVICE STATISTICS will show if it has a connection as well as if it has ERRORS, IS ALIVE, UPTIME and RECEIVED PACKETS.



ADVANCED Page

This is where, your DynaNav Support Team Member can log into files and the Main system (Using TeamViewer) to make file adjustment and do service routines or even repair the system live.

STATISTICS Page

This Shows

ERRORS Page

STATUS Page

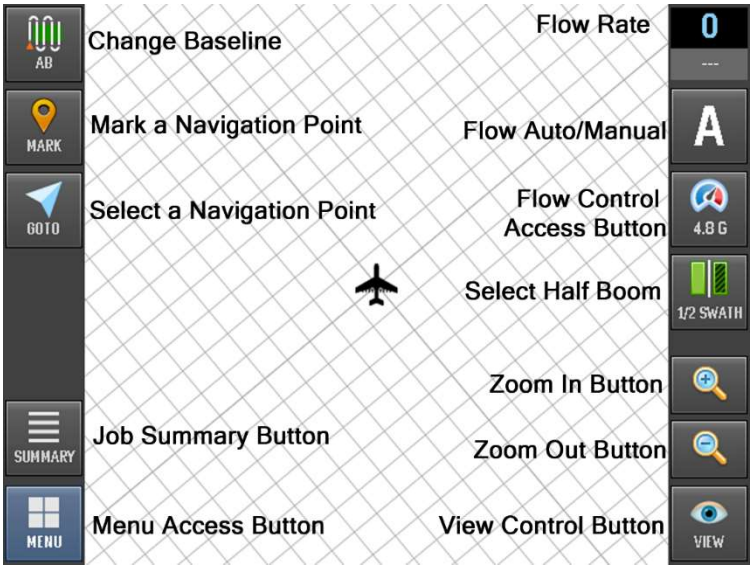
Shows Temperatures and Voltages of the System.

PLUG INS Page

DROPBOX and DYNANAV CLOUD is where you can access your Upload and Download areas from the Web (If connected to the internet).

Moving Map Page

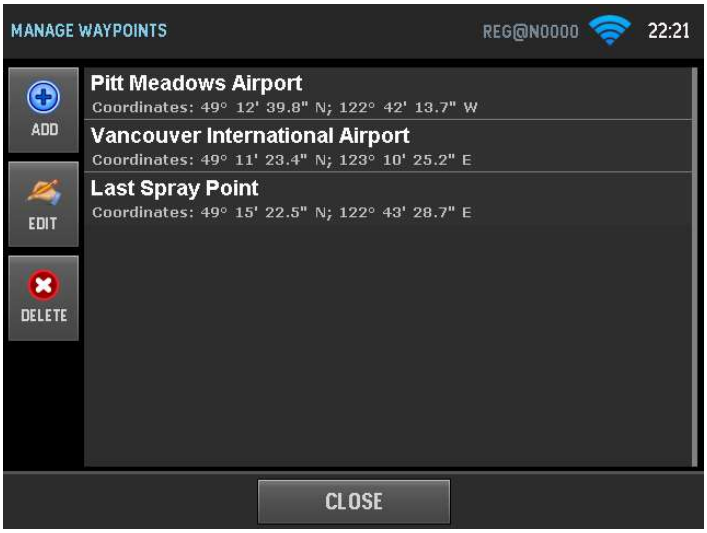
The Moving Map Page not only gives you the painted lines of your application using Auto Zoom, but has Function Icons surrounding it for quick access to these Functions. Some of these Function Pages will be described further in this manual, others are obvious as to their function.



MARK - A Navigation Point – Add a Waypoint

Upon pushing the “Mark a Navigation Point” on the Moving Map Page, it will bring up the Waypoint Page. It will load your Latitude and Longitude that the aircraft is at the moment you touch the button. With this, if you are at the location you want or was flying over, you can now just “Edit” the name to whatever is best to describe the location. If you are adding a Waypoint simply press the “Edit” button and change the Lat/Long to your desired one and Name it. You then click on the Visibility selection of either THIS JOB or PUBLIC. Then press “OK”. The points marked as “This JOB will only be stored for the current job you are on, and the ones Marked PUBLIC will be available at all times when you press the “Select a Navigation Point” Button.

Also, If you access the “Manage Waypoints” Page from the Settings – DataBase page, you will be able to ADD, EDIT or DELETE a Waypoint.

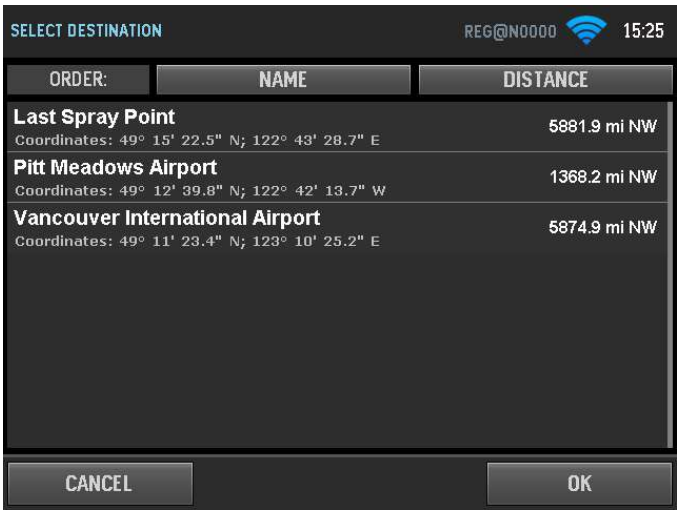


AB -Change Baseline

This Button is to Change a Baseline on the JOB you are working on.

GOTO - Select a Navigation Point Button

This Page is where all the Navigation Points are displayed in order to select and go. . NOTE: Every time you Spray Off or Close the Gate, the Last Spray Point is automatically stored and replaces the previous Last Spray Point. Waypoints can be quite descriptive as well and can be a



point to a field or landing strip or an airport.

SUMMARY - - Job Summary Button

This Page gives a complete summary of the Job being worked on at this time. Also, in this page you can push the MANAGE POLYGONS to access the available polygons to ADD to the job.

MENU Button

This MENU Page brings you to the JOB MENU as well as a quick access to a CALCULATOR. The primary function is to exit the JOB so you can start another JOB. Also. If you need to go to SETTINGS to do any adjustments of changes to the system while you are on the JOB, this is

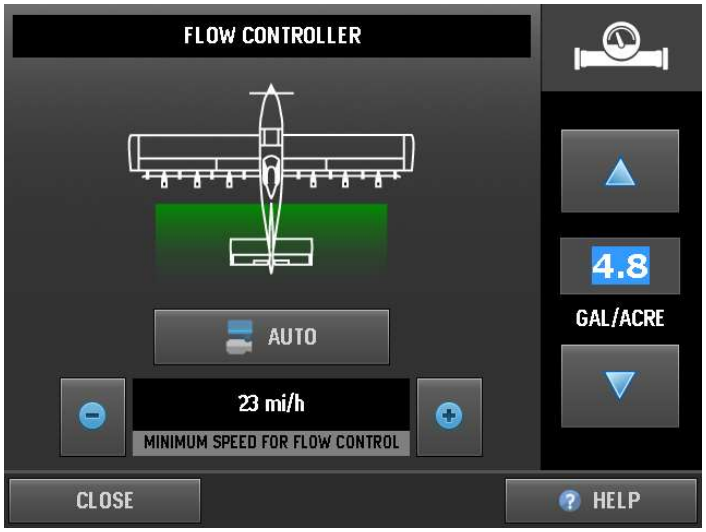
where to access this.

FLOW - AUTO/MANUAL

This is a Toggle Button to switch the Flow Control between automatic and manual mode.

FLOW CONTROL - Access Button

By pushing this button, you have instant acces to the Flow Control page to bump the flow up or down as well as Set the Flow Rate by pushing on the FLOW Number. Also, for helicopters, you can set the minimum Speed for the Flow to stop changing.



½ SWATH - Select Button

This is where you toggle ½ Boom that will adjust the Flow Control to match.

ZOOM IN

This Zoom In button can be used for both the Live Moving Map or the Review Map to zoom in on the Map. When in Review Mode, you can use your finger to drag the map to where you want. First drag the map so the area you want to zoom in on is in the center, then Zoom In.

ZOOM OUT

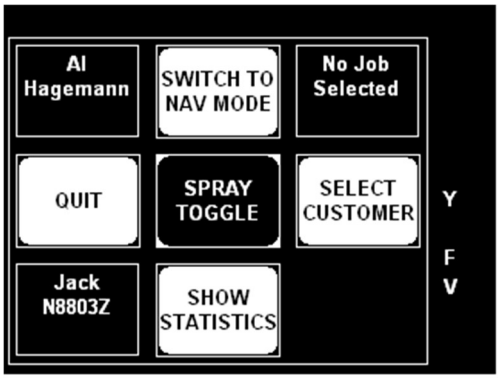
This Zoom Out button can be used for both the Live Moving Map or the Review Map to zoom out on the Map. When in Review Mode, you can use your finger to drag the map to where you want. First drag the map so the area you want to zoom in on is in the center, then Zoom Out.

VIEW – Review

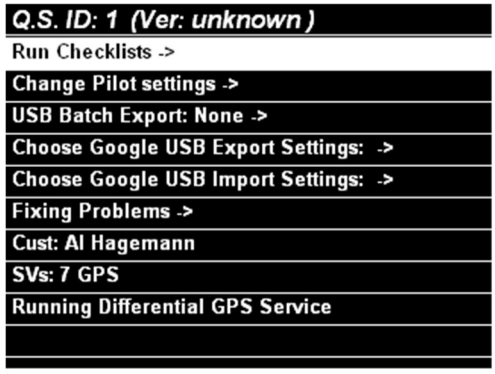
This button changes the Map window to a Review Map. From here you can Move and Zoom In and Zoom Out as described above ZOOM IN and ZOOM OUT. Also, when Clicking on the VIEW button, you will get a choice of where to go on the map. As per the below Icons

Instructions for Batch Export of Jobs (as Applied Maps)

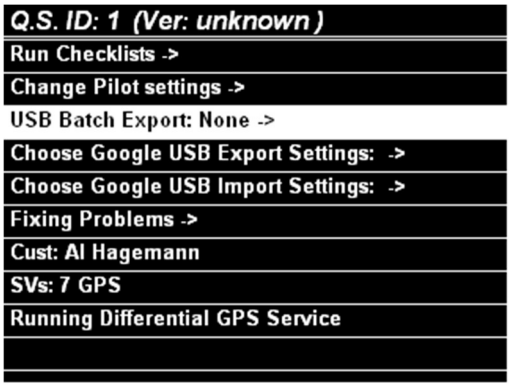
1. While the system is powered, make sure the Shapefile Import / Export USB stick NOT inserted in the Dynanav GPS.
2. You MUST have GPS satellite availability so that the unit will know the current time. Best time to do is before shutting down the system.
3. Begin by selecting Show Statistics Button which will show this list:



Then



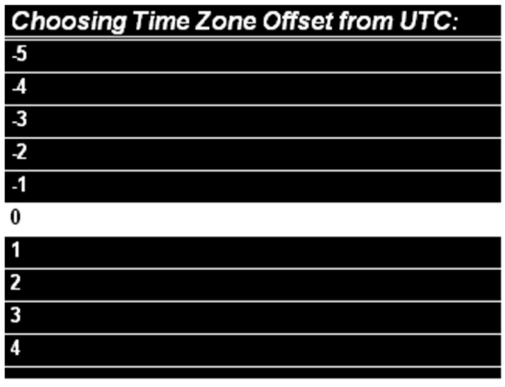
4. Now scroll down to the “USB Batch Export” item and then hit ENTER switch.
5. In this list, any item with a “>” in it should be reviewed / changed to meet your needs.



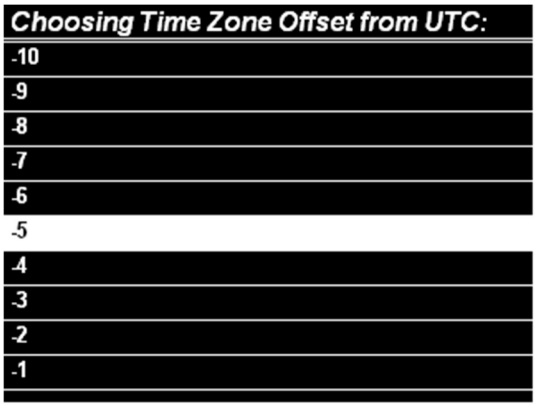
Then

6. If the Set Local Time Zone Offset line does not have the correct offset for your locale, Highlight it and ENTER and this list will appear:

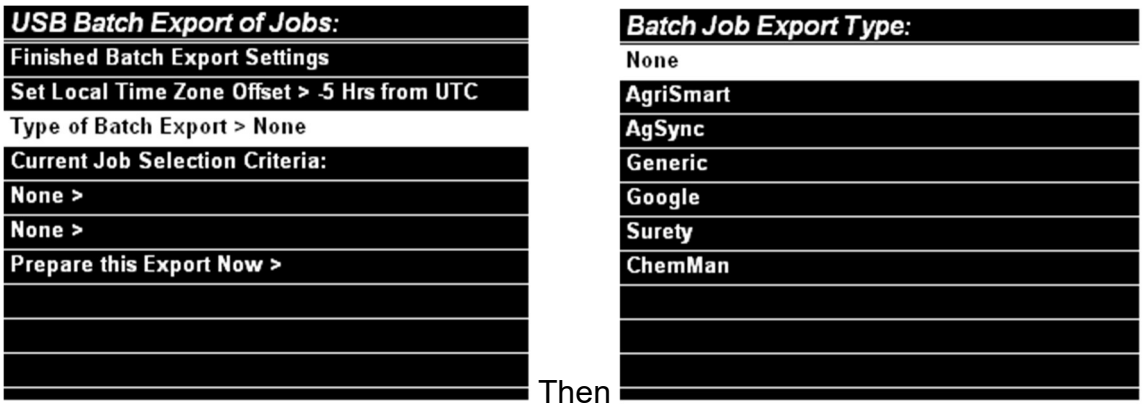
Then



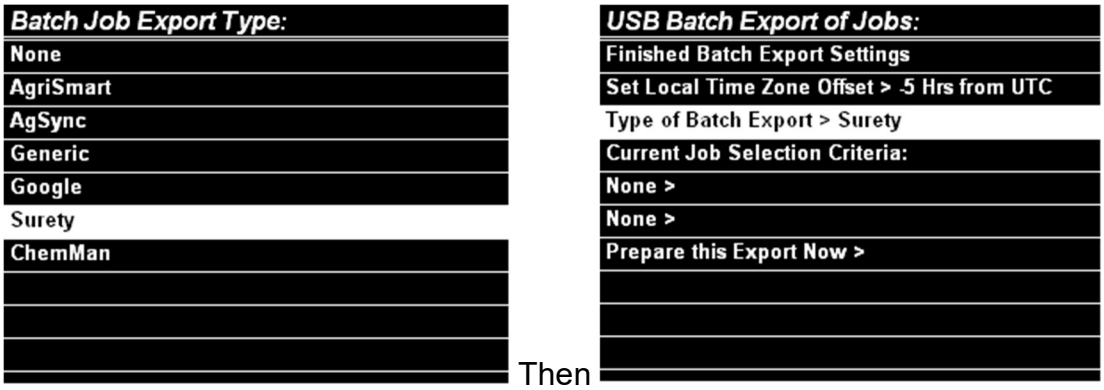
7. Select the time zone offset that is appropriate for your time zone. Note, for example, that the Eastern Standard Time Zone offset is -5 hours
8. Select the appropriate Time Zone and hit ENTER, and the system will revert to the prior list with this choice:



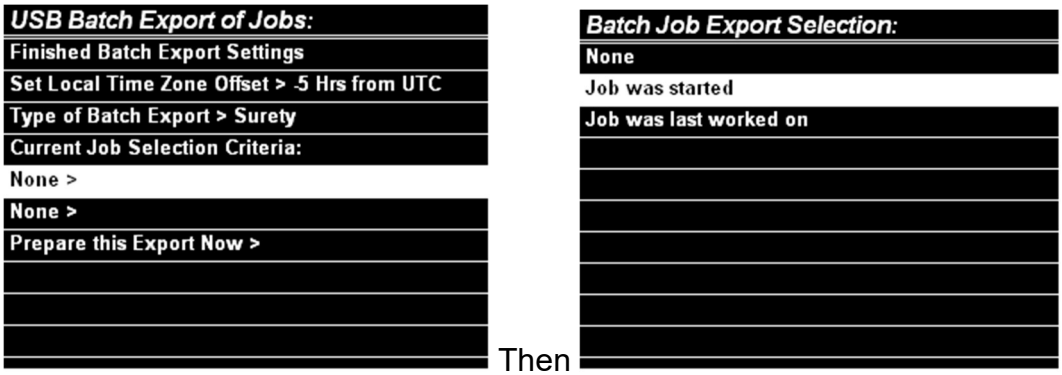
9. Now highlight 'Type of Batch Export' in the list:
10. On hitting the Enter button, the following list appears with the choices of Export Types available



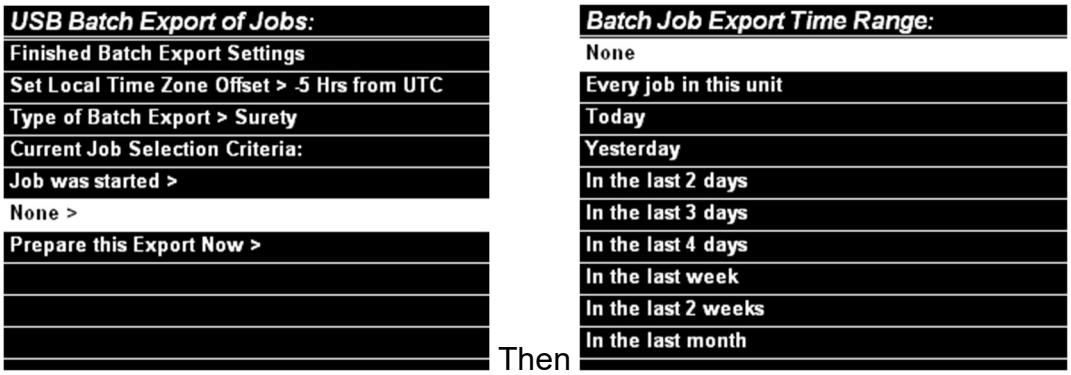
11. Highlight the type of export you want:
12. On hitting the enter button, you are returned to the prior Export List:



13. Now scroll down the list to the first “None” of two “Current Job Selection Criteria” that determines how the jobs to be exported are selected, hit ENTER:
14. You must select a value for either of these criteria, scroll to one of these then Hit the ENTER button. DO NOT select the first item “None”. Note this selection relates to the time window that you select in the next Criteria;



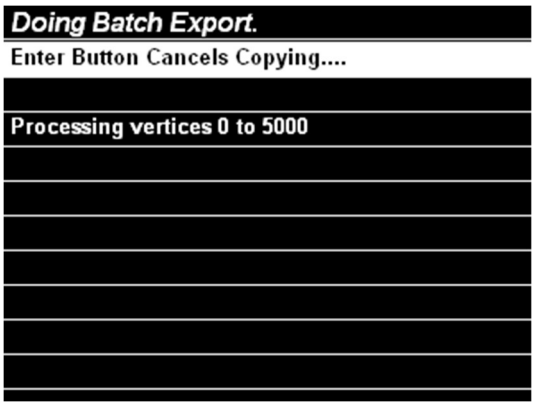
15. Now scroll down to the second criteria showing “None”:
16. Hitting the Enter button will then bring you to this of time Ranges you can choose from:



17. In this Time Range list, you decide how far back you want to go in your batch export of jobs. WARNING: If you choose “In the last week”, then ONLY the jobs of the week you are in will be included, starting on Monday. So, on Tuesday, only Monday and Tuesday will be included. This criteria also applies to Months and Years.
18. Once selected, hit the ENTER and you will be returned to USB Batch Export of Jobs window

19. What remains is to highlight and select the last item in the list “Prepare this Export Now”.
20. Once you hit ENTER, it will switch to a this processing window:

Then



21. When the export process is finished, the window will switch back to the buttons.mThis process may take almost no time at all for one or two jobs, but may take considerably more time if a lot of jobs are being exported.
22. When the export process is completed, and the system has switched back to the buttons, then you my insert the Shapefile Exchange USB stick, and within a few seconds these exported files will begin to be copied out to that USB stick.
23. When that process is finished the system will revert back to the buttons again, and you may remove the stick. However, sometimes the OS is still writing to the stick AFTER the Dynanav has finished exporting the files, so it pays to be a bit patient and wait 30 seconds to make sure the unit is finished all the writing to the stick.

AirAg Tuneup Software:

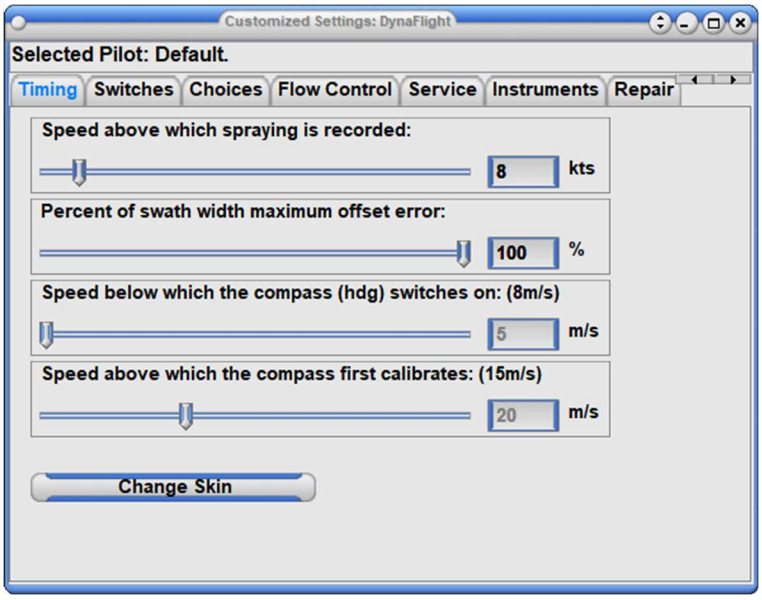
Accessing the TUNEUP software

The software is installed as part of the AirAg Office software on the Base Computer. First plug in the aircraft PC Card into the PC Slot on the ground computer or the USB Data Drive into the USB Slot, then run “Synchronize Air Card” by using ‘Start – Programs – Dynanav Ag – Synchronize Air Card’. When the program is operational, change the drive letter to the letter assigned by the computer for the PC Card or the USB Data Stick of the Aircraft (for the simulator setup, select ‘C’ Drive). If you are not sure which letter, use your Windows Explorer to see which drive letter assigned. If the drive letter is correct then the green message will appear saying “(PC Card Name) is good”.

Changing the settings on TUNEUP

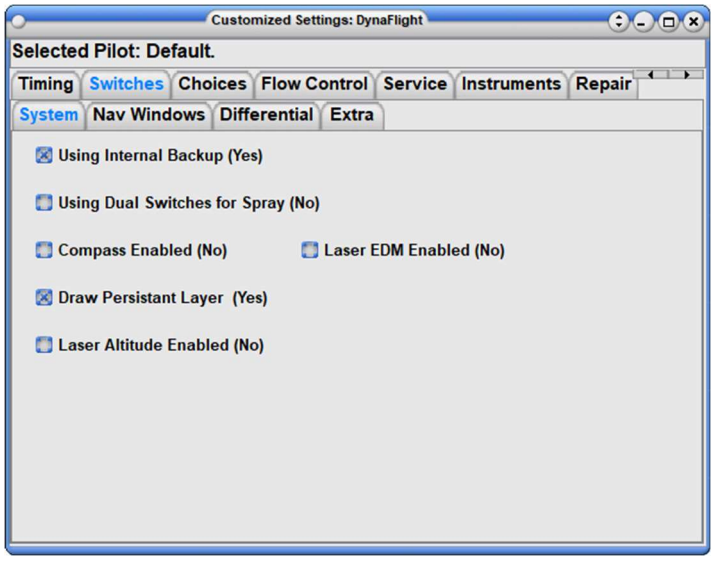
The following is an explanation of the individual switch settings. The numbers in the brackets show the default values – use these if you are not sure of what is required.

Time Items



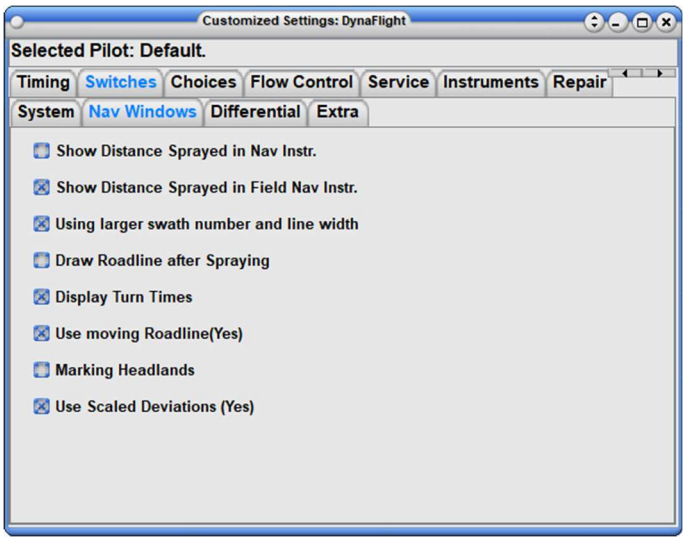
- **Speed above which spraying is recorded: (30kts)** – Below this speed the DynaFlight will not record any spraying activity. When the valves are opened for testing or flushing on the ground, it will not record this as an application.
- **Percentage of swath width maximum offtrack error: (15%)** – Most Aerial Spraying this will be set for 100%. If during application, you want to re-apply the swath if you are more than a certain percentage offtrack, then change this setting. When you are off track by more than this percentage, the DynaFlight will not record this on the job review map as a valid scoring on this line. This will leave a gap that is painted on the job review map so that you can go back and intercept this line and apply the materials in this gap for complete coverage. This does not have an effect on spraying headlands. For unusually heavy terrain, this should be set high. If using the Rotating Moving Map for application, then set this to 100%.
- **Speed above which the compass (hdg) switches on: (8m/s)** - Not Applicable for DynaFlight-AirAg
- **Speed above which the compass first calibrates: (15m/s)** – Not Applicable for DynaFlight-AirAg

Switches - System



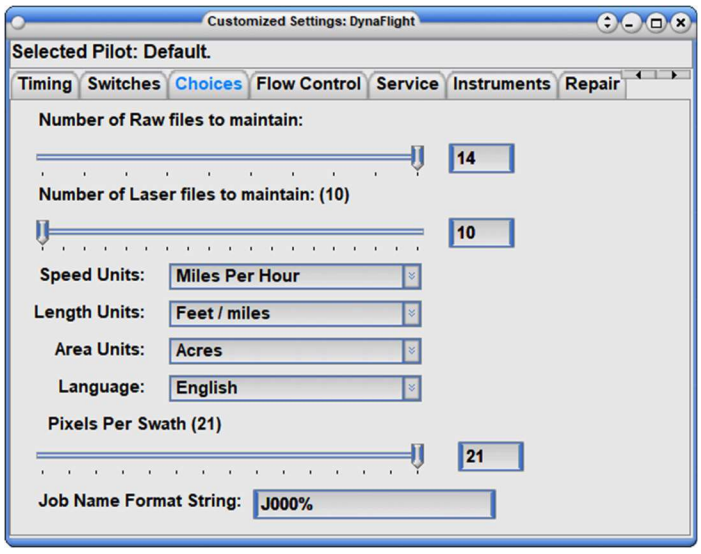
- **Using Internal Backup (Yes)** – This turns On/Off the internal data storage in the Air unit for data recovery if
- **Moving Map Background Images Enabled (Yes)-** This is if there has been a map images for the Moving Map window available and can be disabled if you do not want them to show up.
- **Using Dual Switches for Spray (no)** – This option is used for buckets and other application systems that use a gate that has separate switch actions for opening and closing of the gate. For this option the Spray1 and Spray2 inputs are wired to the separate open and close switches
- **Compass enabled (no)** - Not Applicable for DynaFlight-AirAg
- **Laser EDM enabled (no)** – Not for AirAg but fro certain Mapping functions such as LIDAR Mapping.
- **Draw Persistent Layer (Yes)** – This creates a dotted boundary around polygons to be able to see the outer boundary even though it has been sprayed off. When the job is completed you will still be able to see the boundary of the polygon (field).
- **Laser Altitude Enabled (No) –** If the Laser Altitude module is installed, then this should be enabled to alow for the information to be displayed in the Nav Window.

Switches – Nav Windows



- **Show Distance Sprayed in Nav Instr.** Shows the lineal distance in middle of Roadway Screen of each time you have the Spray turned on. Resets to zero on next spray event.
- **Show Distance Sprayed in Field Nav Instr.** Shows the lineal distance in middle of Rotating Map Screen of each time you have the Spray turned on. Resets to zero on next spray event.
- **Using larger swath numbers and line width (yes)** – If you would like to see larger number and guidance needle width for more visibility.
- **Draw Roadline after Spraying (no)** draws a white line down the center of the black sprayed area.
- **Display Turn Times (no)** – If you do not want to have the turn times (TT) displayed on the guidance display, you can un-check this option.
- **Use Moving Roadline (yes)** Changes the center navigation needle from a dotted moving line to a solid line.
- **Marking Headlands (no)** Changes the system to put an extension line where the aircraft is spraying off line at an angle other that the Baseline.
- **Use Scaled Deviations (Yes)** – Normal Roadline Needles uses Logarithmic scaling so that the needle is more sensitive as it approaches centerline and less as it moves away from centerline. By un-checking this option, the needle will be linear (you may want to use this if the swath widths are less than 10 meters or 30 feet)

Choices



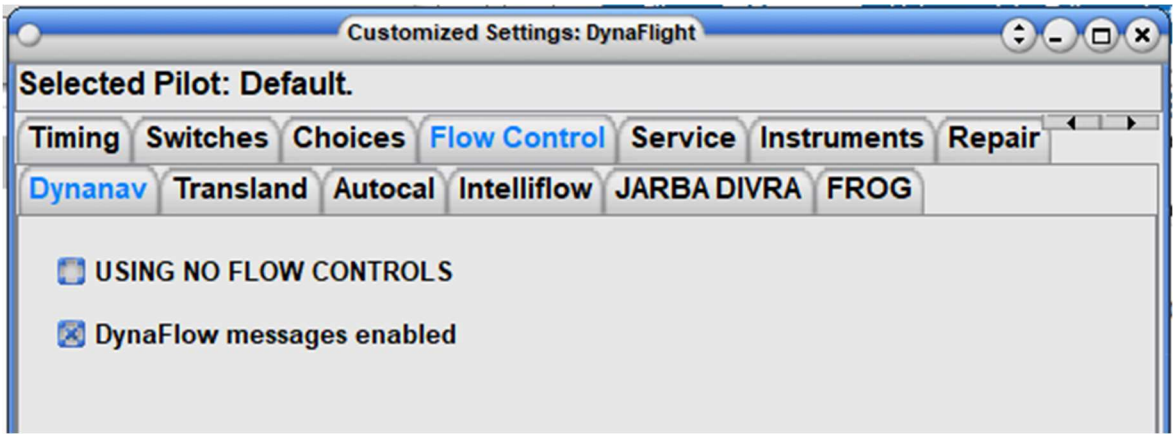
- **Number of Raw files to maintain: (8)** - As each Raw file uses 1 meg of memory on the aircraft PC Card. If the PC Card has lots of memory, then the number of Raw Files can be increased. These Raw Files record the actual flight path as well any event such as the Spray on/off for later recovery.
- **Number of Laser files to maintain: (10)** - Not Applicable for DynaFlight-AirAg
- **Speed Units:** - This is a choice box of the speed units displayed on the Navigation Window. These choices

are: Knots; Meters Per Second; and Miles Per Hour.

- **Length Units:** – This is a choice box of the length units that are displayed in the various windows. These choices are: Feet/Miles; Metric; and USA Survey foot.
- **Area Units:** - This is a choice box for the area units in the various windows. The choice is Acres or Hectares.
- **Language:**- You can select the language to operate the DynaFlight aircraft system
- **Pixels Per Swath (21)** – This is the setting for the # of pixels per swath on the Job Review Map. It will always be an odd number e.g. 5,7,9,11, etc. For larger Areas this can be less so as to see as much of the area in the review window, for small areas this can be increased to see more detail. (recommend 21 pixels for most operations).
- **Job Name Format String:**- You can set the format for the job name should you need to enter one in the New Job window as well as when you create a Navigation point to a field and want to assign it a number. The First letter(s) are optional, e.g. for Active Flying Farms, you could use AFF0000% where the following zeros represent the number of numbers that can be assigned (in this case 4 numbers) and the % allows you to add a following letter for multiples of the same job or area. Such as AFF0121A and then AFF0121B.

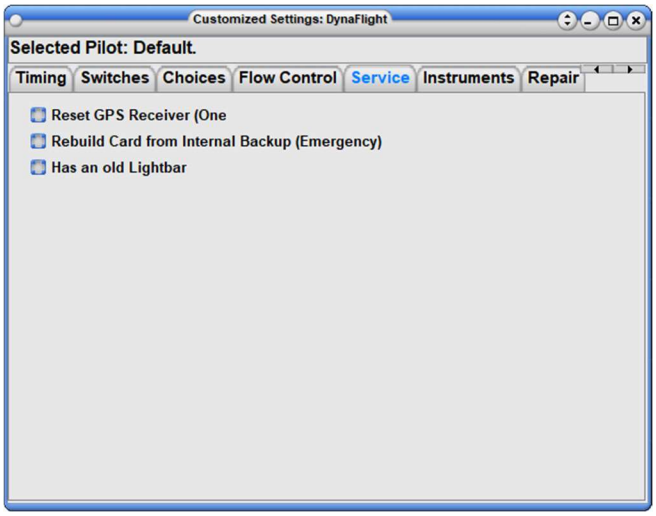
Flow Control

- **Flow Control** – Dynanav DynaFlow is a default in the Pilot Settings in the DynaFlight system. Also in Pilot Settings, you can shoose to Enable or Disable the different flow controllers – Autocal, Transland and Intelliflow.
- **Flow Control** – **Transland** hydraulic Ag Gate system can be enable here. also can be enabled or disabled in the Pilot Settings in the DynaFlight system.
- **Flow Control** – **AutoCal** this is used when the DynaFlight-AirAg system is coupled to the AutoCal Flow control system. Turn this on to operate in the Aircraft. – also can be enabled or disabled in the Pilot Settings in the DynaFlight system.
- **Flow Control** – **Intelliflow** flow control system enables the data messages to control the Intelliflow from the DynaFlight system.
- **Flow Control** – **Jarba Divra** is used to output data to give GPS info to the Jarba Divra system.
- **Flow Control** – **Frog** this is used when the DynaFlight-AirAg system is used on the FROG Bucket system from Heli-Alpine.



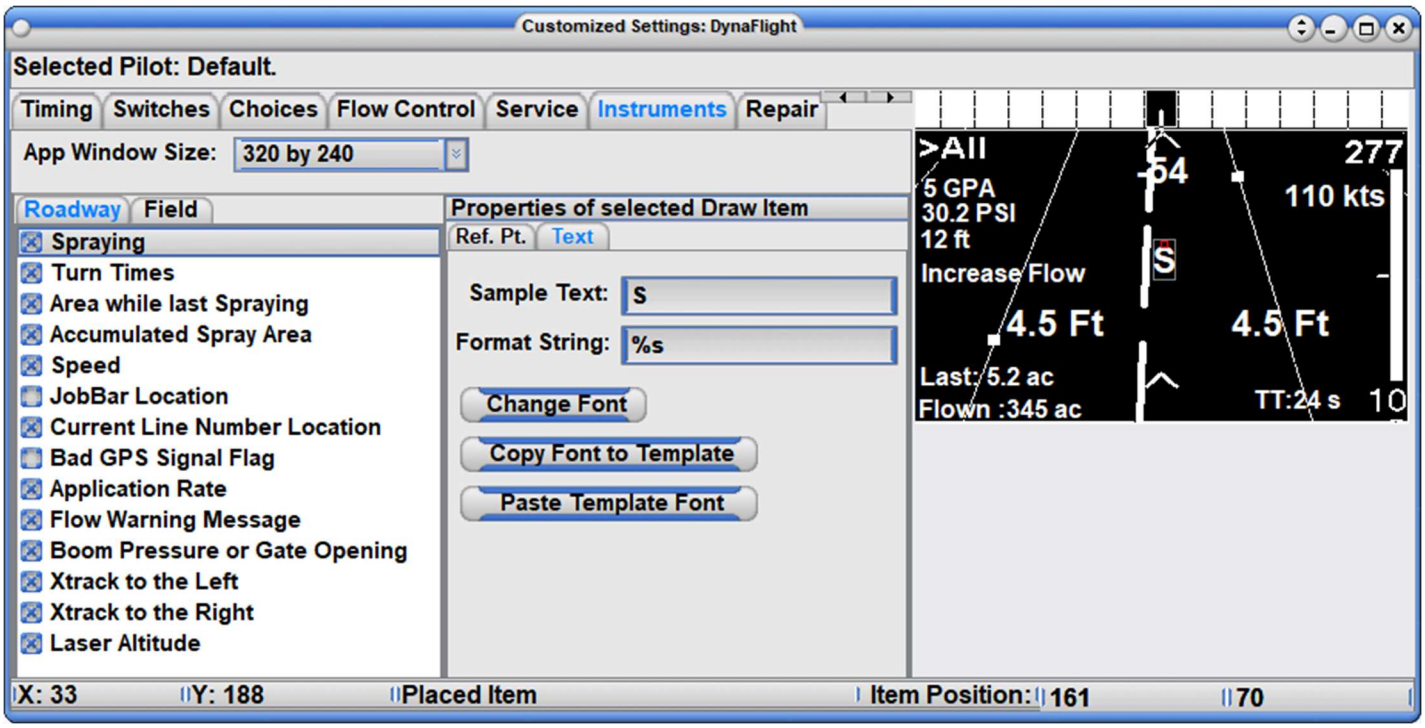
Service

- **Reset GPS Receiver (one shot)** – This is used when the DynaFlight-AirAg system is moved to a new location and the GPS receiver does not want to lock onto the new location. This resets the receiver to look for the new location.
- **Rebuild Card from Internal Backup (emergency)** – If job has disappeared during a bad shut down, this can be used to rebuild the job from the data stored internal in the Air unit.



Instruments

- **App Window Size** – This is to select the size of the display that is being used such as the DynaViz is 320 by 240, and the DynaFlight 3 has either the HUD or Small HUD
- **Roadway** – When selecting the different items in with a check box, they will be displayed. If you want to edit any of these items, by selecting then adjusting the Properties of selected Draw Items such Font and Font Size as well as the location on the screen. When adjusted and synchronized with the aircraft data Card or USB, then the aircraft display will show as it is in this window.
- **Field** – This is where you can again put the information you require in the placement you require for the Live Moving Map.



WARRANTY REGISTRATION for DynaFlight, DynaFlow and Vektor systems.

Company Name: _____ _____
Contact Name: _____ _____
Address: _____ _____
_____ _____
City: _____ State/Province: _____
Country:_____ Postal code: _____
Phone: _____ Fax: _____
E-Mail: _____ Web: _____
Product Name: _____ Ser. # _____

WARRANTY POLICY

DynaNav Systems Inc. (DynaNav) warrants that its DynaFlight™ products are free from defects caused by faulty material or poor workmanship for a period of one (3) years from the date of sale. Date of sale shall mean the date of the invoice to the original customer for the product. DynaNav gives full software support for one (3) years from the date of sale for the version of software purchased. Beyond this date the customer can keep his software up to date by downloading and installing them into his unit at no charge. Shipping F.O.B. Pitt Meadows.

Optional extended warranty packages are available for purchase through the ServicePak program.

Products not manufactured by DynaNav carry the same warranty which DynaNav receives from the manufacturer of the product and no other warranty. All ordered replacement parts or parts replaced during the warranty period assume the un-expired portion of the original parts warranty.

THE WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXCLUDED.

DYNANAV SHALL NOT BE LIABLE FOR THE LOSS, DAMAGE OR EXPENSE ARISING DIRECTLY OR INDIRECTLY OUT OF THE PURCHASE, INSTALLATION, OPERATION, USE OR LICENSING OR PRODUCTS OR SERVICES. IN NO EVENT SHALL DYNANAV BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE DUE TO ANY CAUSE.