

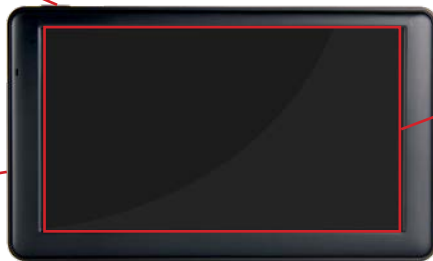


Display

Mount to the windscreen using supplied suction mount and arm.

On/Off button

Mini USB
Charge port



Touch Screen

Warranty Void if suction mount fails !! - It is advised that the suction mount is removed from the windscreen when the unit is not in operation and reattached on a day to day basis.

For a more permanent fixing, a mounting kit that can be secured to the vehicle is available for an additional cost.

GPS Receiver and Tilt unit

If the tilt function is required, the unit needs to be securely mounted on a flat surface with the 'Y' pointing towards the direction of travel.

12v DC Plug

Plug into 3 pin socket on vehicle.

Warning - Please disconnect the unit from the power supply, if you need to jump start your vehicle.



Magnetic Antenna

Install centrally across the width of the roof (if the roof is not metal use the roof mount plate supplied).

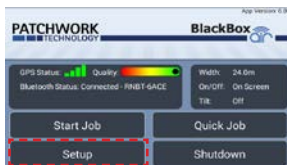
Important!! Completely uncoil the cable and route around the cab.

USB Power Socket

Charge the screen via supplied USB Cable. It is recommended that the charge cable is always connected to the screen whilst in use.

The following overview highlights where to find the common settings for guidance and area measurement.

To access the setup screens press **Setup** on the Home screen.



To return to the Home screen press the **Home** button.



Guidance Setup

Set the working width for guidance and coverage.

To offset the antenna position if not central or when using an offset mower.



Set the coverage recording On/Off method (see over).

To configure the built in tilt correction.

Coverage Recording On/Off Method

On Screen - Coverage recording can be turned on and off manually via the **Recording On/Off** button (see Guidance Screen Overview).

Always Record - Coverage recording continually records and cannot be turned off.

Auto Record - Air+ software feature (see Air+ Features > Auto Record for details).

Enable Tilt Correction (If required)



1) Press **Tilt Compensator**



2) Set **Tilt** to '**On**', enter **Height**, distance from the ground to the antenna.



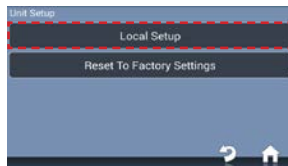
3) Position the vehicle on a known level surface, press **Zero Tilt**.

Local Setup

To access the local setup screen, press **Unit Setup**.



Next select **Local Setup**.



Select the country of use.

Select the display language.



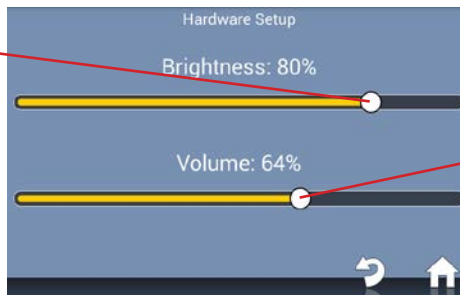
Set the units of measurement for the display.

Hardware Setup

To access the hardware setup screen, press the **Hardware Setup** icon.



Press and hold on the white dot then slide finger to adjust the screen brightness, release finger to set*.



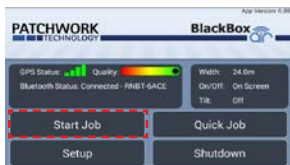
Press and hold on the white dot then slide finger to adjust the screen volume, release finger to set*.

*Alternatively press directly on the bar to adjust.

Important! Before starting a job ensure the correct Bluetooth device is connected and that the GPS Quality level is within the green. This ensures the best GPS performance for use with guidance and area measurement.

Start Job

Use this method for starting a job, to save Boundary Maps, use Field Recognition and the following Air+ features:- Pause/Resume job, Boundary Printing and Coverage Job Data Sync.



1) Press **Start Job**.



2) Enter the **Farm/Field** name and **Confirm**.



3) Check working **Width**, select **Guidance Mode** and press **Confirm** to begin job.

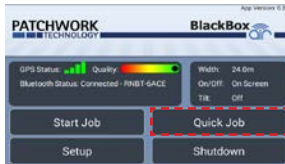
Guidance Modes

Straight - Sets a straight guidance line between set point A and point B, which is then replicated both sides of the original line at equal intervals based on the entered width.

Curved - Creates a curved guidance line based on the path driven between set point A and point B. The line is then replicated both sides of the original line at equal intervals based on the entered width.

Quick Job

Use this method to start a job, when a job or multiple jobs do not require boundary maps to be saved or job recording.



1) Press **Quick Job**.



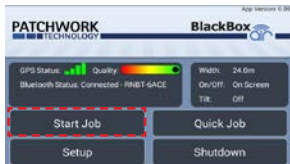
2) Launches the Guidance screen, ready for work.

If a Farm or Field name has been entered incorrectly or is no longer required it can be easily renamed or deleted from the system using the job maintenance tools.

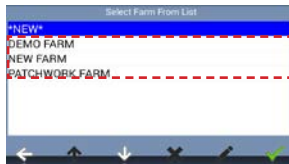
List Bar



Renaming/Deleting a Farm or Field



1) Select **Start Job** > **Farm**.



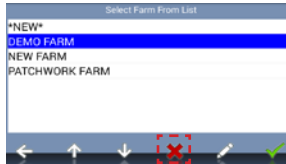
2) Highlight the **Farm** name and go to step 3) to adjust the farm.



Or press **Confirm** and go to step 4) to adjust the field.



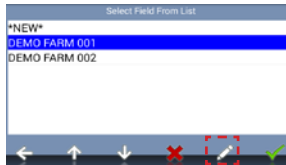
3) Press the **Edit** button to rename, enter the new name and press **OK**.



Or press the **Delete** Button to remove the Farm and all its Fields.



4) Highlight the **Field** name.



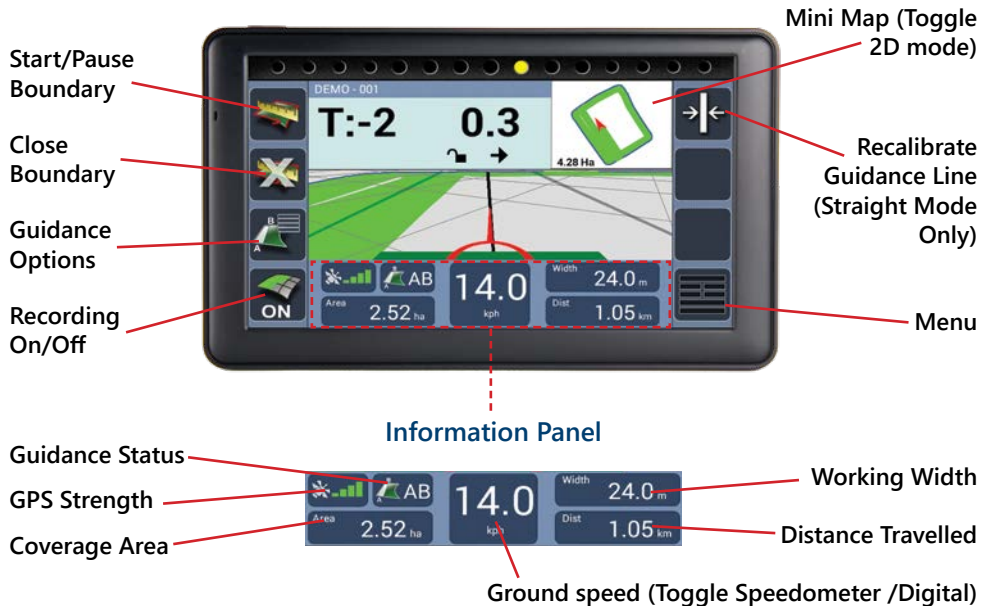
5) Press the **Edit** button to rename, enter the new name and press **OK**.



Or press the **Delete** button to remove field.

Warning!! Deleting a farm or field will permanently remove **all** boundary and coverage map data associated with it.

Guidance Screen Overview



Important! Do not start a boundary recording from the corner of a field.

1) After starting a new job, position your vehicle along the edge of the field at least 30 metres from a corner and press **Start/Pause Boundary**.

2) Set **Boundary Type** to **Boundary**.

3) Set the **Offset** to the distance from the antenna to the edge of the field.



The image shows a 'Boundary Setup' screen with four buttons. The first button is labeled 'Boundary Type: Boundary'. The second button is labeled 'Offset: 12.0m'. The third button is labeled 'Start'. The fourth button is labeled 'Cancel'.

4) Press **Start** and drive around the field back to the start point. The BlackBox will automatically close and save the boundary map, then display the field shape and size in the mini map. If the boundary doesn't close, press the **Close Boundary** button.

N.B. During the boundary run the boundary recording can be paused and restarted using the **Start/Pause Boundary** button, if there is a need to drive around obstacles.

To do a new boundary map redo steps 1) to 4).

Tip! Field Boundary Maps are saved to the system using the Farm/Field name entered when 'Starting a Job' and the next time the field is entered the system will Automatically Detect the field, displaying its name on the Home screen.

N.B. The green coverage recording can be turned on and off using the '**Recording On/Off**' button if '**On Screen**' has been set.

1) Position the vehicle in the field where the job will begin. (When using a curved line it is important to use the longer edge of the field to set a guide line).



2) At the beginning of a straight run press the **Grid area** to set point **A**.

Grid
area



3) Drive to the end of the run and press the **Grid area** to set **B**. The guidance line will appear ready for guidance.

N.B. When following a guidance line gently drift into position when lining up, then once aligned look up and aim for a feature, looking at the screen from time to time to ensure you are still on line.

Setting and Using a Guidance Line



4) Turn onto the next run then line up the red arrow to the guidance line and follow it along the run.



5) Once the run is complete turn onto the next run and the next AB line will appear to line up to.

Finishing a Job

To complete a field boundary map or guidance job to start a new one, press the **Menu** button and then **Next Job** to start a new job with the same settings or **Finished Job** to return to the Home screen.

To power off the BlackBox press **Shutdown** > **Yes** and disconnect from power supply.

Tip! Pressing the **Grid area** a third time allows the guidance line to be reset and if using the 'Straight' guidance mode, recalibrated to realign with current location.

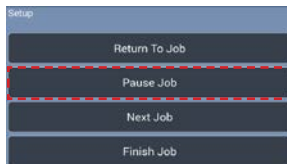


The following setup instructions are exclusive to Air+ software users, the Air+ software is a paid for upgrade which is available to all BlackBox Air users and includes the following features :- **Pause Job | Auto Record | Headland Guidance | Headland Warning | Job Data Sync and Tracking | Boundary Printing**

Pause Job



1) When in the Job screen, Press **Menu**.



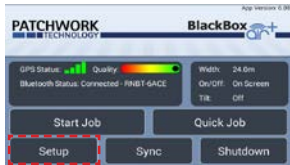
2) Press **Pause Job**, this will save the coverage area and any guidance lines that are set.

Resuming a Paused job

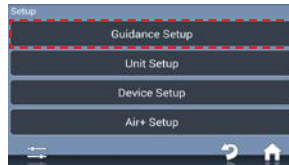
To continue a Paused job, press **Start Job** and an option box will appear with the option to continue the paused job. Pressing **Yes** will resume the job with a red marker in the mini map to show where the job was paused.

Auto Record

Auto record automatically turns the coverage recording OFF when 75 percent of the working width goes inside a previously recorded area and turns back ON when 25 percent of the working width is outside the recorded area.



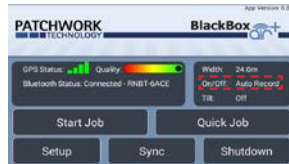
1) On the Home screen, press **Setup**.



2) Then press **Guidance Setup**.



3) Select **On/Off**, choose **Auto Record** from the list and press **OK**.



4) Press **Home**, Auto Record is set ready to begin a job.

Headland Guidance

Headland guidance uses an existing Field Boundary Map (see Measuring Field Area) to create a guidance line based on the working width. This guidance line is to guide the user when working the headland of the field.



1) When in the job screen with the Field Boundary loaded, press in the area as shown above.



2) The headland guidance line will appear indicated by 'H:', ready to guide.



3) To switch back to AB guidance press on 'H:'.

Tip! Alternatively Headland Guidance can be activated in **Guidance Options** by selecting **Headland** and deactivated by selecting **Track**.

Headland Warning

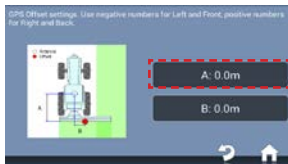
Headland warning creates a headland zone from the Field Boundary Map at a distance specified by the user as the 'Headland Size'. As the user approaches the edge of the zone a distance counter will countdown to zero alerting the user to stop or start the implement.



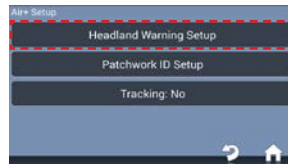
1) On the home screen, press **Setup > Guidance Setup**.



2) Press **Antenna Offset**, then **tick** and select **A**



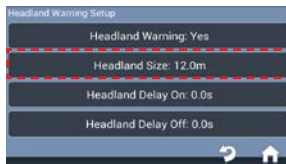
3) Enter the distance from the antenna to the working part of the implement.



4) Press **Home**, then **Setup > Air+ Setup > Headland Warning Setup**.



5) Press **Headland Warning** and select **Enable**.



6) Press **Headland Size** and enter the distance required.



7) **Headland Delay On / Headland Delay Off**, these can be set to alert the user earlier, i.e. if 2 seconds is entered the user will be alerted 2 seconds before the edge of the zone.



8) Press **Home**, Headland Warning is now setup ready to begin a job.

Using in the Job Screen

N.B. A Field Boundary Map (see Measuring Field Area) needs to be created for the field.



The headland zone edge is displayed as a Red Line in the 2D mini map and 3D guidance view.

Headland Warning Purge

When set to 'ON' the feature is disabled to allow coverage recording in the headland zone.

When the user drives in and out of the headland, a countdown starts at 25m, when 0 is reached the green bar will change to white. This is the point the implement should be turned on or off depending on the current state.

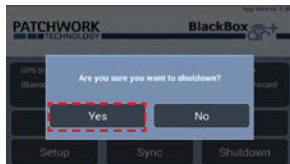
Job Data Sync and Tracking

Warning!! This feature requires a mobile data connection and will reduce the available usage of the mobile data plan.

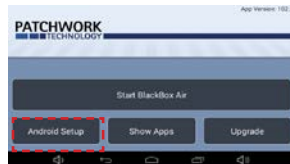
N.B. A BlackBox Core account is required to utilise these features, for more information call +44 (0) 1291 673366 or visit www.patchworkgps.com/farm-data-recording.

Using a mobile phone as a Wi-Fi hot spot or in built mobile data (if available), the job data sync and tracking features use the mobile to send data to the BlackBox Core PC software. Within BlackBox Core complete boundary map and coverage job data can be viewed and printed, and the tracking data used to show the current position of the BlackBox and where it has been.

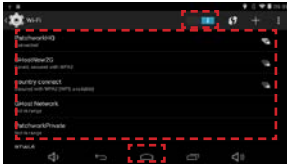
1) On a Mobile Phone that has mobile data access, enable the phone to be used as a Hot Spot (refer to the mobile user guide) and make a note of the access code.



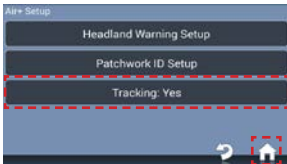
2) On the BlackBox home screen, press **Shutdown** > **Yes**.



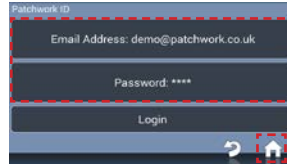
3) Press **Android Setup** > **Wifi**.



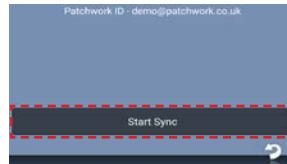
4) Enable Wi-Fi. Choose the name of the hotspot and enter the access code. Once connected press **Home** and then **Start BlackBox Air**.



6) To enable Tracking, press **Setup** > **Air+ Setup** > **Tracking** and then **Enable**. Press **Home**, the BlackBox is now sending tracking data to Patchwork Core.



5) Press **Setup** > **Air+ Setup** > **Patchwork ID Setup**. Enter ID details and **Login**. The BlackBox is now connected to the BlackBox Core account, press **Home**.

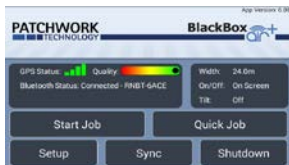


7) To sync job data, press **Sync** > **Start Sync**, boundary map and coverage job data will be transferred from the device to BlackBox Core.

Boundary Printing

N.B. BlackBox Core can be used to store, view and print boundary maps, for more information call +44 (0) 1291 673366 or visit www.patchworkgps.com/farm-data-recording. Alternatively they can be printed using a PC via the following method :-

- 1) Once the boundaries to be printed have been mapped (as per 'Measuring Field Area') take the tablet and USB cable to a Windows PC.
- 2) Fit the USB cable into a spare slot on the PC and ensure the other side is connected to the tablet.



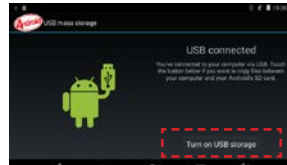
- 3) With the tablet powered, navigate to the BlackBox Air+ home screen.



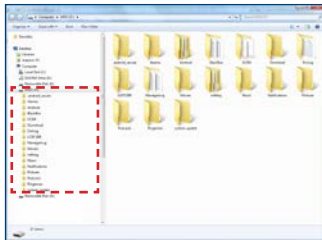
- 4) Using your finger swipe down in the top left of the screen to display the Android navigation bars.



5) Swipe down in the top left a second time to display the USB options and from the list press on **USB Connected**.



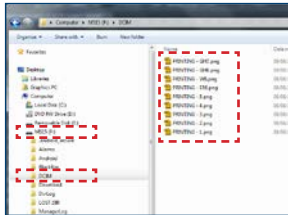
6) An app called 'Android USB Mass Storage' will open, press **Turn on USB Storage** and press **OK** to the message box.



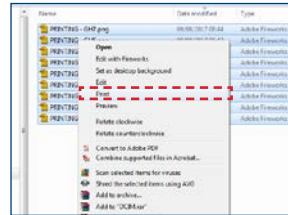
7) On the PC in most cases it will automatically detect the storage device (tablet storage drive) and open it automatically to display the folders, if not, open windows explorer and locate the storage device drive.

Tip! Files can also be copied from the DCIM folder to a folder on the PC for storage and backup.

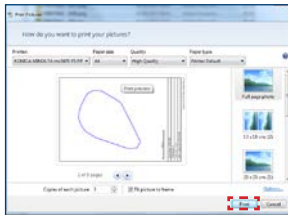
Air+ Features



8) Locate the folder labelled 'DCIM' and open it. All the boundaries that are printable will be stored here.



9) To print the boundaries, right mouse click on the file or select multiple files and right click one of them and from the drop down menu click **Print**.



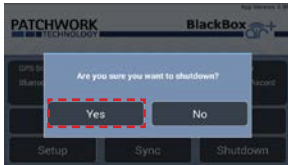
10) Choose your printing preferences and click **Print**.



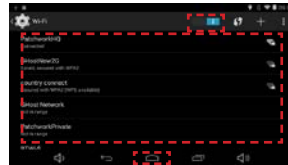
11) Once the required boundaries have been printed, on the Tablet press '**Turn off USB storage**' and disconnect the USB cable from the PC.

Software Updates

To update the software take the Tablet with charge cable (plug into a charger to ensure the tablet does not power off) near to a Wi-Fi internet connection and follow these steps:-



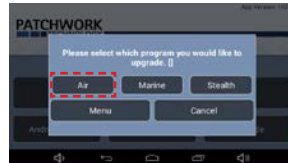
- 1) From the Home screen press **Shutdown** and **Yes**.
Press **Android Setup** > **Wi-Fi**.



- 2) Ensure Wi-Fi is on and select your Wi-Fi router from the list. Enter the Password and **Connect**. Once connected press **Home**.



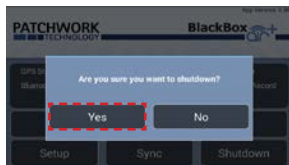
- 3) Press **Upgrade**.



- 4) Press **Air**, then **Install**, when complete press **Open**.

Connecting a Tablet to the GPS Receiver

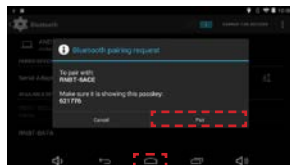
From time to time the Tablet and Air GPS Receiver Bluetooth connection can become unpaired, if this happens follow these steps:-



1) From the Home screen press **Shutdown** and **Yes**. Press **Android Setup** > **Bluetooth**.



2) Ensure Bluetooth is ON, press **Android BT** and **SEARCH FOR DEVICES**.



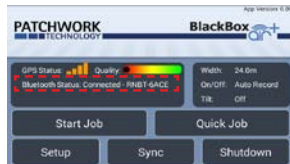
3) Select the device in the list and then **Pair**. Once complete, press **Home** and **Start BlackBox Air**.



4) Press **Setup** > **Device Setup** > **Register New Device**. Select the Device (check Mac Id) and press **Accept** > **Yes**.



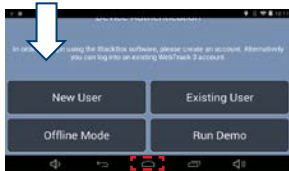
5) Press **Change Device**, highlight the device in the list and press **OK**.



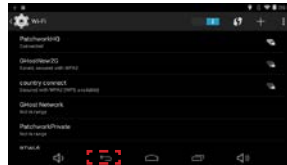
6) Press **Home** and after a short time the system should connect to the Bluetooth.

Connecting to a New Tablet

If the Air software is launched on a tablet that has not been registered with any devices the Device Authentication screen opens:-



1) Swipe down from the top of the screen and press **Home**.



2) Connect to a Wi-Fi internet connection as per 'Software Update' step 2. Once complete press **Back Arrow**.



3) Press **Bluetooth** then follow 'Connecting a tablet to the GPS Receiver' steps 2-3.



4) Press **Offline Mode**, select the Device in the list and press **Accept**, once complete the Air software will launch to the Setup Wizard screen.

Problem	Cause	Solution
Bluetooth not connecting	No power to the GPS Receiver and tilt unit	Ensure the unit is connected to a working power source.
	Screen and Receiver did not connect during start up	Disconnect GPS receiver and tilt unit from power source, power off the Android tablet. Re-power the GPS Receiver.
	The tablet and GPS receiver have become 'Unpaired'	Refer to 'Connecting a Tablet to the GPS Receiver' section of this booklet for instructions on pairing.
No GPS Signal	Antenna is obstructed.	Ensure the antenna in its current position has a clear view of the sky.
	GPS Receiver not powered	Check the power LED is lit and it is connected to the power source.
Guidance line not displaying correctly	Using curved guidance and the line has been set to short	When setting a curved line ensure that it is set on the longest edge in the field and the full length of the run.
	In Headland Guidance mode 'H:' displayed	Press the H: to toggle back to AB track guidance.

Problem	Cause	Solution
Guidance off to the one side	Left or right antenna offset has been set	Go to Setup > Guidance Setup > Antenna Offset , set the B to 0m.
	Interference due to other radio equipment	Mount the antenna in a different location and retry.
	Antenna cable coiled tightly	Uncoil and route around Cab.
	Tilt not calibrated / mounted correctly	Ensure mounted correctly see 'Installing the Unit', then Go to Setup > Guidance Setup > Tilt Compensator and Zero Tilt when on a flat surface.
Screen powering down	Charge lead not connected	Ensure the USB charging lead is connected via the USB power socket of the Screen and the Receiver.
Coverage area not working	The coverage area On/Off method is not set correctly	Go to Setup > Guidance setup > On/Off and choose the method required.



PATCHWORK
 **TECHNOLOGY**

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