



Case Study



Symbion Power Improves Productivity, Reducing Inspection Processes from Months to Same Day Results

Overview

Region: UK, EMEA
Industry: Electricity Line Patrol, Utilities

Customer Profile

Symbion Power specializes in overhead line inspections for the electricity supply industry. They provide aerial surveys using the very latest technology in thermal imaging and corona discharge cameras, coupled together with an extensive range of visual patrols from air to ground .

Business Situation

Replace the paper-based system to conduct aerial power line assessments with a highly mobile tablet PC to improve the effectiveness and efficiency of the inspection as well as to improve the geographical location details of the helicopter crew.

Solution

Motion Computing LE1700 Tablet PCs were deployed at Symbion Power, a division of PDG Helicopters, to improve mobile mapping and work management. The lightweight design, integrated features and bright outdoor viewable screen made it the perfect cutting-edge alternative for their high flying work environment.

Benefits and Results

- Large, bright screen
- Semi-Rugged, portable design
- Eliminates paper maps
- Faster digital mapping

“Inspection data can now be returned to clients on a weekly basis or even daily in cases of emergency, where the same process of delivering the data with our previous paper-based maps could take months”.

Adam Crick, Managing Director, Symbion Power, Ltd.

Symbion Power is the leading aerial inspector of power line systems throughout the United Kingdom and for the past 22 years they have been at the forefront of technology adoption which aids them in conducting more efficient inspections.

When looking to move away from their time consuming paper-based method of inspections they wanted a solution that would not only simplify the inspection process but also facilitate an easier method of transferring inspection documentation to their customers.

Symbion Power chose the Motion LE1700 for its bright, easy-to-read screen, full functionality and durable, portable design. The LE1700 not only aided them in their inspections but simplified the entire process to a degree that has set Symbion Power at the top of the aerial inspections field.



“The brilliant screen of the LE1700, as well as its large display, make it ideal for our needs while in-flight.”



Overview

Symbion Power specializes in overhead line inspections for the electricity supply industry and provides aerial surveys using the very latest technology in thermal imaging and corona discharge cameras, coupled together with an extensive range of visual patrols from air to ground. Prior to deploying the Motion tablets, Symbion Power was using a paper-based system to conduct aerial assessments with maps and handwritten notes to detail inspection results, which was later manually transcribed into a spreadsheet. By deploying Motion Computing LE1700 Tablet PCs, they were able to improve both their efficiency in the air and quality of data collection with advanced inspection applications, digitized maps and improved GPS software all at their reach.

Symbion Power was formed in 2000 after the acquisition of AC Power. They have over 22 years of experience in the electricity supply industry, and employ specially trained pilots and staff to carry out their duties as surveyors and observers, all of which have a sound knowledge of electricity networks and extensive experience in the industry. Symbion Power's chief inspector has logged over 8000 hours of aerial patrols, equating to approximately 250,000 kilometers over power line surveys, setting their high standard of expertise.

Symbion Power's main line of business involves working with UK and Irish helicopter companies for engineering and safety patrols of distribution network operator's overhead line networks. They work with power generation and utility companies on regular planned patrols and on emergency patrols following storms. Over the years, Symbion Power has built its reputation as a leading aerial overhead line inspection company and their technological advances make them one of the most cost effective partners in asset management.

Electricity is carried across the country by a maze of high tension power cables and low tension wood pole lines. Adam Crick, Symbion Power's aerial linesman, is responsible for keeping the power grid running by inspecting thousands of kilometers of power lines from a helicopter. His helicopter can be equipped with a thermal imaging camera mounted underneath its nose. While the pilot flies the helicopter, Crick uses the camera to search hot spots, areas of unusually high temperatures which show up white on the screen to alert him of a failing connection. If the power line is not properly maintained, it will ultimately fail and melt. Once Crick and his pilot have discovered a hot spot, they call in a repair team that can be on-site in less than an hour if the fault is severe enough.

Technology in Flight

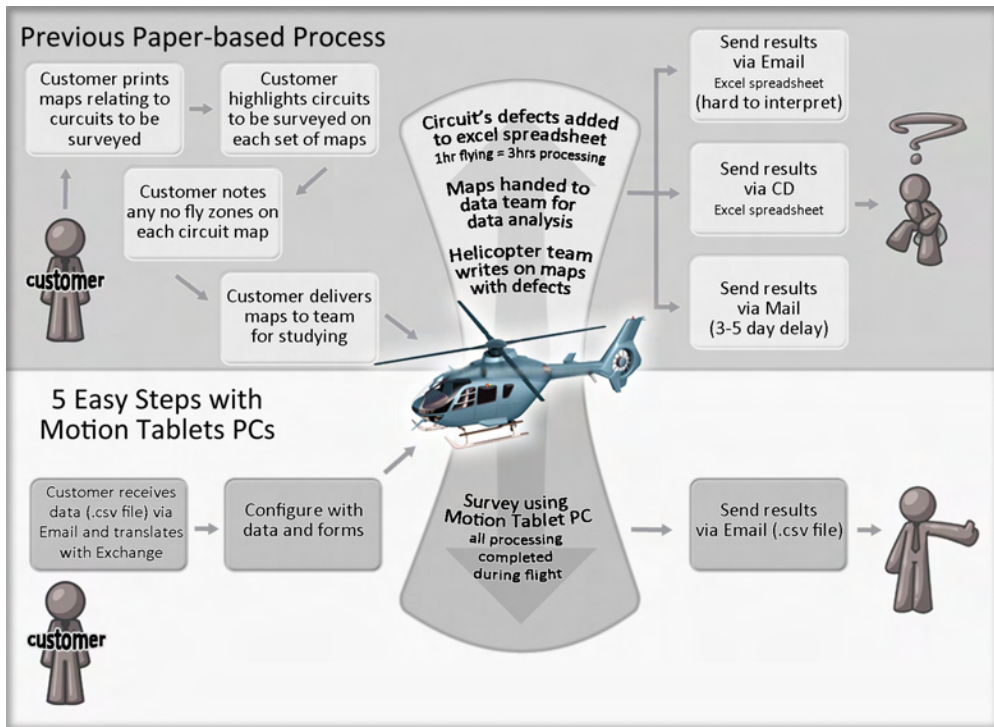
Symbion Power is one of the few companies in the UK that specializes in thermal image and corona discharge patrols from both the air and the ground; therefore they needed the very latest in technology to carry out computer-aided inspection services. "Our task was to find a solution that would remove the need for paper maps in the aircraft and to use the latest advances in mapping, data capture and GPS to improve the efficiency and quality of the aerial inspections," Adam said.

The solution Adam selected, first deployed in late 2008 for Northern Ireland Electricity, was the Motion Computing LE1700 Tablet PC loaded with GeoField software from Sigma Seven, a suite of mobile mapping and work management field tools. "The application was easy to configure on the LE1700 and the solution provides us with the map information we need as well as the tools necessary to make capturing the inspection results both quick and easy. The brilliant screen of the LE1700, as well as its large display, make it ideal for our needs while in-flight."

This technology, together with the GeoField solution from Sigma Seven, enables Symbion Power to import clients' asset databases, show the information over a map layer which is updated according to GPS location, and input defects against each asset being surveyed. This automatically generates a defect list for each asset and circuit and produces a simple sharable file to allow easy export to their clients in many different formats.

Before the patrols, Symbion Power imports simple data into the application from their client that includes X;Y coordinates, Circuit ID, and Asset ID which produces a shapefile containing all of the assets to be surveyed. After patrols are complete, the data is exported and delivered to Symbion Powers' clients in a format compatible with their GIS. "This process removes the previous need to go through all the paper maps by hand and add the data to a spreadsheet before sending it on, which could take months. We can now carry out this process weekly, or even daily if necessary," Adam added.

“Not only have we removed the need for paper maps, but we’ve improved the efficiency and quality of our aerial inspections.”



Efficiency Gains in the Air and on the Ground

As a result of deploying the tablets for use during inspections, the data flow is now much more efficient and cost effective. Adam explains, “We can even make up ‘no fly zones’ by literally drawing on the screen and giving it a name. This is made up as a layer and not directly associated to an actual asset, giving us the ability to view this area regardless of the type of surveys taking place. The data can be kept for future patrols and deleted at the click of a button if no longer applicable. Paper-based maps never gave us this ability. They required the manual input each and every year and could easily contain errors or missing information.”

Due to the added amount of information that can now be attached to an asset during flight when compared to the paper-based map surveys, Adam calculates that they now fly approximately 15 percent fewer kilometers each day, gathering and including more information into the system as they

conduct the inspections. However, the addition of the tablets results in a significant increase in productivity because automatically generated data can be sent to clients on a daily basis.

With paper map surveys, it can take up to three hours to collect data for every hour flown. This is directly proportional to the amount of defects found on each circuit, but it shows that over the course of a five to seven hour flying day, it could take up to 15 – 21 hours to collect the data and send it to the customer. Additionally, because the data was recorded on paper maps, it had to be stored somewhere and delivered by hand to the data collection team. Now, the Motion Tablets carry out this process automatically, so each day’s surveys can be sent on landing if required. This efficiency requires fewer staff resources and improves productivity of each observer, as they can now go from contract to contract without worrying about the data process.

