



**CASE STUDY**

**HVAC Filter Manufacturer Sees Immediate and Long-Term ROI with  
Nationwide Field Service Solution**

Kleen Air Research provides sales and service of commercial air filters to customers nationwide. With a 56,500 square foot corporate office and manufacturing facility in Florence, Alabama, Kleen Air also occupies over 40,000 square feet of additional warehouse space located throughout the United States. Founded in 1981, Kleen Air currently employs more than 211 service technicians, filter manufacturers, managers and administrative team members. Service technicians and managers are strategically located in 50 geographic districts around the country and provide regular service to more than 13,000 customers in 41 states, with a corporate fleet of over 90 trucks. Over 3 million filter change-outs and additional services were performed in 2007 in commercial, industrial, and institutional accounts. Kleen Air's service personnel live in the areas they work, which enables them to provide local and emergency attention to the majority of customers.



**The Challenge:**

Despite having a fleet of over 90 trucks and 152 service technicians, Kleen Air Research managed its scheduling, work orders and billing manually. Every week, administrative team members would schedule the service stops for technicians across 41 states, then print and ship the multi-page, paper work orders to each technician, overnight, via Federal Express. At every service stop technicians made, up to 10 stops per worker, per day, they would fill out their route paperwork by hand, logging standard billable items such as products used, services rendered and time spent at each account.

At the end of every week, technicians were required to compile their completed, weekly paperwork and ship their packets overnight, back to Kleen Air's headquarters for billing. Literally thousands of pages of paperwork were being sent across the country every week, costing the company approximately \$12,000 in weekly shipping charges.

But shipping costs weren't the only problem faced by Kleen Air. Frequently, the inbound paperwork from the field technicians could be outstanding for weeks, and their handwritten forms were often illegible or incomplete. Kleen Air was experiencing extensive billing delays of up to 90 days which, along with incorrect billings due to the incomplete or illegible, manually-written data, were causing extensive corporate and customer frustration.

Field technicians also were not on a unified, corporate cell phone plan and there was no corporate data plan. Workers had their own phones and individual voice plans over various carrier networks, whose expenses were difficult to manage.

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**1 100 JOHNSON FERRY ROAD • SUITE 575  
ATLANTA, GA 30342**

**800-452-7418  
678-904-9040  
FAX: 678-904-9041**

**WWW.BARCODEID.COM**

Additionally, the manual scheduling process for Kleen Air field technicians was inefficient. Schedulers were often unaware of client proximities in distant cities and were not routing their technicians' daily runs effectively, resulting in higher fuel costs and fewer clients served daily.

Kleen Air's initial attempts to automate its field service systems failed. The devices recommended to them had no cellular communication capabilities, they were not rugged, they had no comprehensive repair coverage and there was no centralized device management system. In an environment where field workers frequently drop their devices, rugged equipment and comprehensive service were a must. And with IT resources located at Kleen Air's headquarters, centralized device management was vital.

### **The Solution:**

BarCode ID Systems approached Kleen Air Research with a comprehensive solution to automate their field service processes, eradicate manual paperwork, reduce or eliminate weekly shipping charges, and integrate voice and data plans to put all field workers on the same network with immediate access to essential corporate data. Kleen Air engaged its own local software contractor to develop its field scheduling software.

Using a team approach, BarCode ID Systems engaged its Business Partner, Motorola, and cellular carrier AT&T to present Kleen Air with a comprehensive statement of work and a nationwide plan to solve these numerous problems and automate their manual processes. To eliminate weekly shipments of paperwork and manual data entry, BarCode ID Systems recommended the rugged Motorola MC7094 mobile computer with integrated cellular voice connectivity to AT&T networks, and a custom AT&T APN (Access Point Name) for data access to and from Kleen Air's servers. A remote device management application was an essential component of the solution, enabling corporate IT personnel at Kleen Air to manage, troubleshoot and update all 152 mobile devices in the field from one central location over the APN. Along with the remote device management solution, an application center component would retain all device settings in each computer's volatile memory, in the event of battery loss. Motorola's "Service from the Start" comprehensive service plans were purchased for each device, providing 3-day turn around for repairs as needed. BarCode ID Systems also specified, designed and preprinted 185,000 harsh-environment labels for technicians to tag HVAC equipment being serviced on all routes.

After piloting a brief demo and integrating their scheduling software, Kleen Air rolled out the BarCode ID Systems' solution to all 152 service employees nationwide. As an additional value-added service, BarCode ID Systems staged and preloaded all devices with the proper applications and configuration settings, so Kleen Air would receive devices that were ready for immediate deployment. BarCode ID Systems' Professional Services team also provided training for Kleen Air IT staff on the remote device management system.

The next evolution in the Kleen Air Research solution will be the addition of mobile printers, which will allow field technicians to create and print work receipts for customers, eliminating the existing 3-part forms currently used for receipts. The mobile printer addition will replace manual paper forms, thereby eliminating data entry errors and the costs of preprinted forms, while further enhancing the customer experience.

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## The Results:

While full cash return from the from the BarCode ID Systems' field service solution was realized in approximately 14 months, the billing timeliness and accuracy improvements, labor savings and shipping cost reductions realized by Kleen Air were immediate and dramatic.

By using a fully-automated scheduling and work order system, Kleen Air's field workers no longer had to await weekly scheduling packets, nor did they have to ship completed work order packets back to corporate. This alone reduced Kleen Air's shipping costs by approximately \$12,000 per week or over \$600,000 annually. Weekly schedules were transmitted directly to each worker's mobile device, and dispatchers could quickly and efficiently reroute workers with schedule changes or add additional stops when necessary. Technicians would complete the work order information via drop down menus and data entry screens on their MC7094s, then transmit data back to Kleen Air's headquarters for immediate and accurate billing. The number of days outstanding for receipt of service data from field technicians was reduced from 15 days to virtually zero. Service stops were staged more accurately for each technician's territory and could be revised from dispatch immediately, resulting in reduced fuel costs of three gallons per driver, per week—over 22,800 gallons of gasoline per year. Additionally, Kleen Air's customer service was vastly improved with more accurate and timely billings.

Through its strong team approach with Motorola and AT&T, BarCode ID Systems demonstrated a thorough understanding of the issues faced by Kleen Air Research and provided a complete, unified, comprehensive solution, which removed numerous operational challenges and dramatically improved Kleen Air's field service business. BarCode ID Systems' industry experience with integrating Motorola devices across a wireless WAN was essential in making the project a success. Additionally, the value-added solution of remote device management ensures that the field service solution is manageable—both now and in the future—by Kleen Air's centralized IT staff. By removing the task of returning field devices to headquarters for simple maintenance, firmware upgrades or application troubleshooting, Kleen Air realizes additional savings in shipping and downtime costs throughout the field. The BarCode ID Systems/Kleen Air Research solution is a success story with dramatic ROI in field mobility, fleet management and mobile workforce management.

*Kleen Air Research Inc is a true American business success story. Founded in 1981 by Marvin and Jean Holley, and son, Dwight, the company has consistently experienced phenomenal growth, from a home-based administrative office and operations center, to outgrowing its facilities 7 times. The business model is both unique and innovative in the air filter industry. Kleen Air Research provides both sales and service of air filters to customers nationwide. Careful planning, extensive training and fully automated administrative and routing systems help to ensure efficiency and consistent, timely service throughout the year. More information on Kleen Air Research is available at [www.filterpro.com](http://www.filterpro.com).*

*BarCode ID Systems is a mobile computing and bar coding systems integrator, privately owned and headquartered in Atlanta, Georgia. Founded in 1993, the company focuses on providing end-to-end supply chain data automation solutions for virtually any industry, specializing in manufacturing, distribution, healthcare and retail environments. With sales and engineering offices in the Southeast, Midwest and Northeast, BarCode ID Systems provides internal and external data management solutions for the growing mobile enterprise. BarCode ID Systems is an authorized Motorola® Business Partner, Zebra® Premier Partner, Microscan® Preferred Partner and Intermec® Honours Partner. For more information, contact Julie Leonard, Marketing Director, 800-452-7418 x9045 or visit our web site at [www.barcodeid.com](http://www.barcodeid.com).*

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