

Northwest Airlines



Mini Load System cuts order picking cycle time, saves space & improves inventory accuracy

MINNEAPOLIS – It's an announcement no traveler wants to hear: your flight has been delayed – or worse, cancelled – because some small but essential part on the airplane has malfunctioned. And while naturally you want the part fixed or replaced, you also want it done quickly so your flight can be on its way.

Northwest Airlines found the best way to minimize these Airplanes on Ground (AOG) situations is to get the necessary parts to its mechanics as quickly as possible. Implementing a Daifuku distribution system, Northwest has reduced cycle time for picking parts orders by 60%, cutting delivery time for mechanics by 21% for an average of 32,000 parts orders each month.

Northwest has also improved inventory accuracy for the 60,000 SKU's – literally millions of parts – stored in the warehouse. Finally, at 25 feet, 9 inches, the high-density mini load uses every available inch of vertical space. This allows the system to store 7,000 totes, 20% more than a standard 15-20 feet.

Northwest Airlines System Highlights

Application Requirements

Reduce order-picking cycle time, improve inventory accuracy for more than 60,000 SKU's and make full use of available vertical space

Daifuku Solution

- Three-aisle Mini-Load automated buffer with 70,000 storage locations
- Ergonomic workstations with U-shaped conveyors for input/output to the mini load
- Real-time inventory control software with interface to Northwest's host computer

Key Customer Benefits

- Order-picking cycle time
- Order delivery time reduced 21%
- Near 100% inventory accuracy
- Productivity nearly doubled
- 12,000 square feet made available for other expansion
- Improved ergonomics for stock clerks



The end result at Northwest Airlines is faster parts deliveries to the mechanics who maintain Northwest's fleet of more than 400 aircraft. So more than likely, your plane is ready to go when you are.

configuration, opening up 12,000 square feet for other expansions.

Ergonomic workstations create efficient picking process

Daifuku worked closely with Northwest to design an ergonomic front-end workstation and an efficient order-picking process. Work tables are set for the average height of Northwest's stock clerks, monitors on swing arms can be height adjusted, and workers are given maximum counter space.

As totes are delivered to the pick workstations, the terminal displays the items to pick, the pick quantity, and which hanger receives the order. Each tote is divided into as many as 48 compartments for maximum space efficiency. Delivery personnel loop back and forth between the maintenance hangers and the warehouse picking up orders and returning unused parts, which are returned to the mini load. For high-priority AOG orders, the system triggers a yellow light at the workstation that stays on until the AOG part is picked.

Although faster order picking – especially for AOG orders – was Northwest's first priority, the Daifuku system has helped nearly double productivity. Developed with input from stock clerks, the order-picking process flows from left to right at ergonomic workstations. Stock clerks no longer have to stoop or stretch to reach parts. The mini load is also on track to achieve the return on investment used to justify the system.