Passenger Boarding bridges

JBT AeroTech Corporation
IFMA Airport Facilities Council | 03/05/2020
Future Products & Innovations

iOPS™ Intelligent Operations Performance Systems

Bag Jams - With History Chart

Bag Dimensioner Read Rates

99.57% In 0.43% Out

Bag Dimensioner Read Rates Summary

94.46% - 60191 Reads 5.54% - 3527 Reads

BHS Read Rates Summary

Array % Valid Reads % Failed
ML1-ATR 94.77% - 19564 Reads 5.23% - 1079 Reads
ML2-ATR 93.78% - 27400 Reads 6.22% - 1817 Reads
ML3-ATR 93.39% - 5555 Reads 6.61% - 393 Reads
ML4-ATR 96.99% - 7672 Reads 3.01% - 238 Reads

BHS Active Alarms

Alarms Per Day

BHS Top Five Alarm Durations

Top 1 Alarm Durations

Disconnected (TC3-16)

Battery Low (SLB108)

Memory Low (SC 2)

EDS Machine Not Ready to Receive (00000)

BHS Top Five Alarm Types

EDS Machine Not Ready to Receive
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- **iOPS**: Intelligent Operations Performance Systems

- **What is iOPS?**
  - Enterprise management system designed to monitor:
    - Gate Equipment Operations
    - Ground Support Equipment
    - Baggage Handling Systems

- **Why did JBT Develop iOPS?**
  - Provide real-time visibility
    - Tracking equipment assets, personnel, and performance KPIs
  - Reduce costs by operating more efficiently
    - Optimize equipment usage and utilization
    - Increase aircraft turns
    - Decrease energy and fuel usage
    - Decrease equipment downtime by improving preventative maintenance capabilities
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- **iOPS is modular by design**
  - Delivers what you need, when you need it
    - Data transforms to actionable info
    - Powerful visualization tools
    - Scalable and compatible with existing systems
    - “Widget” design allows for customizability

- **Network Options**
  - Hardwired, Cellular, or Both

- **Hosting Options**
  - Cloud, Local, or Hybrid
    - No matter your accessibility and data security needs, JBT has a solution
iOPS™ Video
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JetDock
JetDock
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Key Benefits

“Using smart controls our bridge simply drives & docks faster”

“Up to 60% Faster Docking Speed”

“Docking Times are Consistent & Predictable”

“Every Dock is as quick as the best operator!”

Note: Compared to existing pre-positioning controls
JetDock

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Phase 1

~3ft

Phase 2

Parked Location
Product Enhancements

JetDock

- **Improved operations**
  - Faster operation with less chance of aircraft damage
  - Quicker connection of GPU and PCA after docking
  - Every dock can be as quick as the best operator
  - Faster bridge parking for quicker push back

- **Consistent cab location relative to aircraft door**
  - Cab and wheel bogie aligned
  - Speed control for smoother and safer operations

- **Clean user interface**

- **Operator cues for guidance**

- **Multiple waypoints for object avoidance**

- **Maintenance setup improvements**
  - Individual waypoint editing
  - Direct return to park box

- **Multiple VDGS and MARS stand compatible**
FMEA resulted in areas that needed improvement
  » No single point failures

Improved operator interface
  » Safety logic to ensure proper operation

Deadman switch

Verification sensors for accurate location
  » Wheel bogie
  » Cab rotate
  » Extend
  » Bridge swing

Error checking to ensure proper operation

Mandatory wheel bogie protection
Lookout Sensors

JetDock
Ground Crew & Equipment

JetDock

- Stops PBB horizontal motion before any part of a standing person’s foot can be in a hazardous position.
- Improvement over Legacy Hoop Protection System
- Active protection in travel directions
- Passive protection at sides
- Safety Relay Error Checking

Ground Crew Safety and Equipment
- Test paths of PBB for different aircraft
- Where would Ground equipment and personnel
- PBB safety system- Ground Crew
  - Sensors, Estop, Alarms, Warnings
New or Refurbish?

- Projected life of a bridge is 20 years provided that the OEM`s required maintenance is performed.

- Bridge life can be extended by regular maintenance and capital improvement/upgrades throughout it’s life.

- Level of refurbishment is based on condition and budget.

- Contact OEM for a bridge assessment report with recommendations on repairs, refurbishment or replacement.
Considerations for New or Refurb

- Does your current gate support the aircraft mix you presently have?

- Age of the bridge and ancillary equipment.

- The location and amount of corrosion on the bridge.

- What control system are you looking to use.

- Level of maintenance done on the bridge during it’s life.

- Where do you want to be in 5,10,15, and 20 years into the future? (Master Plan)
Gate Layouts
Condition of Existing Foundation

Foundation Cracking

Foundation in Good Shape
Assessing Bridge Corrosion

Cab Area Roof  Tunnel Roof Rust
Zero-Time Refurbishments Can Be Completed Offsite

- Tunnel Section with Cab Off
- Tunnels Separated
New Cab Upgrade

A new cab replacement with PLC control systems is a quick upgrade with the most bang for the buck.

Most of the time this upgrade can be accomplished within a week depending on the bridge and other scope of work.
Tunnel Rollers

Guide Roller Failure

Rail Damage from Bad Rollers and/or misadjusted
Ball Screws

- Brinelling & Pitting
- Excessive Wear
- Return Tube Rupture
- Thread Cracking
Hydraulic Lift Columns

Hydraulic lift columns require different maintenance

Oil needs to be changed and watched closely for contamination
Control System

Motor-Generated Bridges

Solid-State DC Drive Bridges
Control System

Solid-State AC Drive

PLC Bridge
Console Faceplates

Thyssen Console PLC Bridge with HMI

Jetway Console PLC Bridge with HMI
**Console Upgrade**

- **PLC or PC**
  - Can be accomplished in the field (5-7 days)
  - Greater networking and communication capability (IOPS, AMS/BMS systems)
  - Object oriented programming and troubleshooting
  - More user friendly interfaces
  - Upgradeability
  - Built in diagnostics, easily expandable
Cable Systems

Festoon System

Pantograph System
Thyssen Cable System

Trolley System

Trolley System
Options

Rotunda Radius Strips

Cab Radius Strip
Options

Rotunda Curtains with Glass Inserts

Saloon Doors and Camera Options
Complete Light Modifications

T-8 modified from an old T-12 fixture

T-8 modified from an old T-12 fixture
Tunnel LED Light Kits

LED Tunnel Light Fixtures

LED Tunnel Lights either UPS or Battery Backup
LED Light Options

25 Watt Flood Light

Service Platform Light with Photo Eye
Safety Options

Fall-Prevention Handrails

Rotunda Tie Offs
Safety Recommendations

Wheel Guard System

Safety Shoe Option
Used Bridges
Refurbished Bridge
New Bridge and Ancillary Equipment

With new you can now look well into the future before upgrades are needed again.

New bridge and ancillary equipment improves reliability and reduces maintenance costs.
Refurbishment Considerations

- Plan ahead regarding when you want the project completed. (Seasonal)
- Plan on 6 months time frame from when the project hits the street until completion.
- Consider internal processes.
- Make sure T&C`s are clear and decisive.
- Scope of work shall be clear.
- Take pictures of project or clarify with OEM before scope is written.
- Will it be an RFP or RFQ?
Decision Time

➢ A refurbishment can be developed and adjusted to meet any bridge or budget.

➢ Decision to go new or refurbished is solely based on budget and master plan.
Questions?