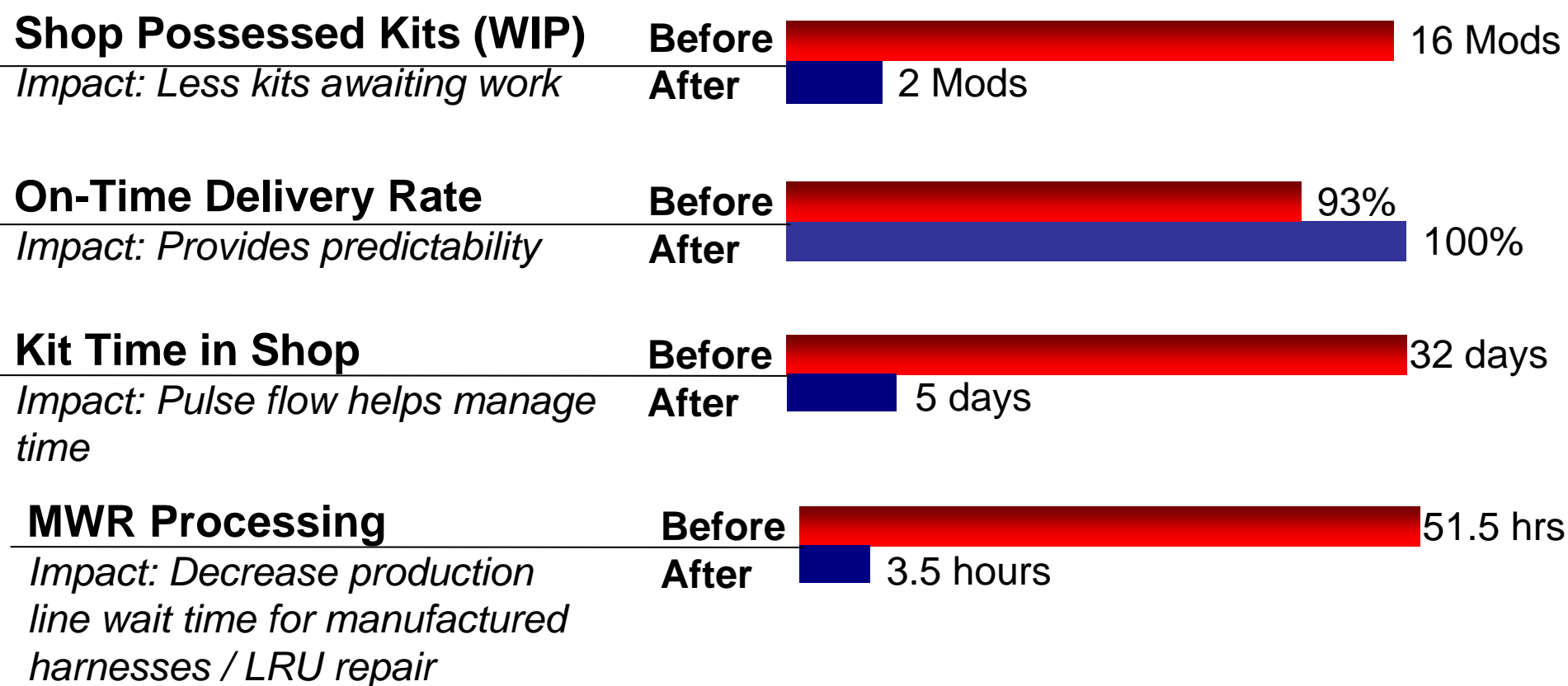




F-16 Harness Shop Metrics



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Aircraft Brakes Example



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■ Ogden Challenge:

- Product visibility and process control spaced too far apart
- Not meeting Warfighter demand for on time delivery
- Excess rework



■ Actions Taken:

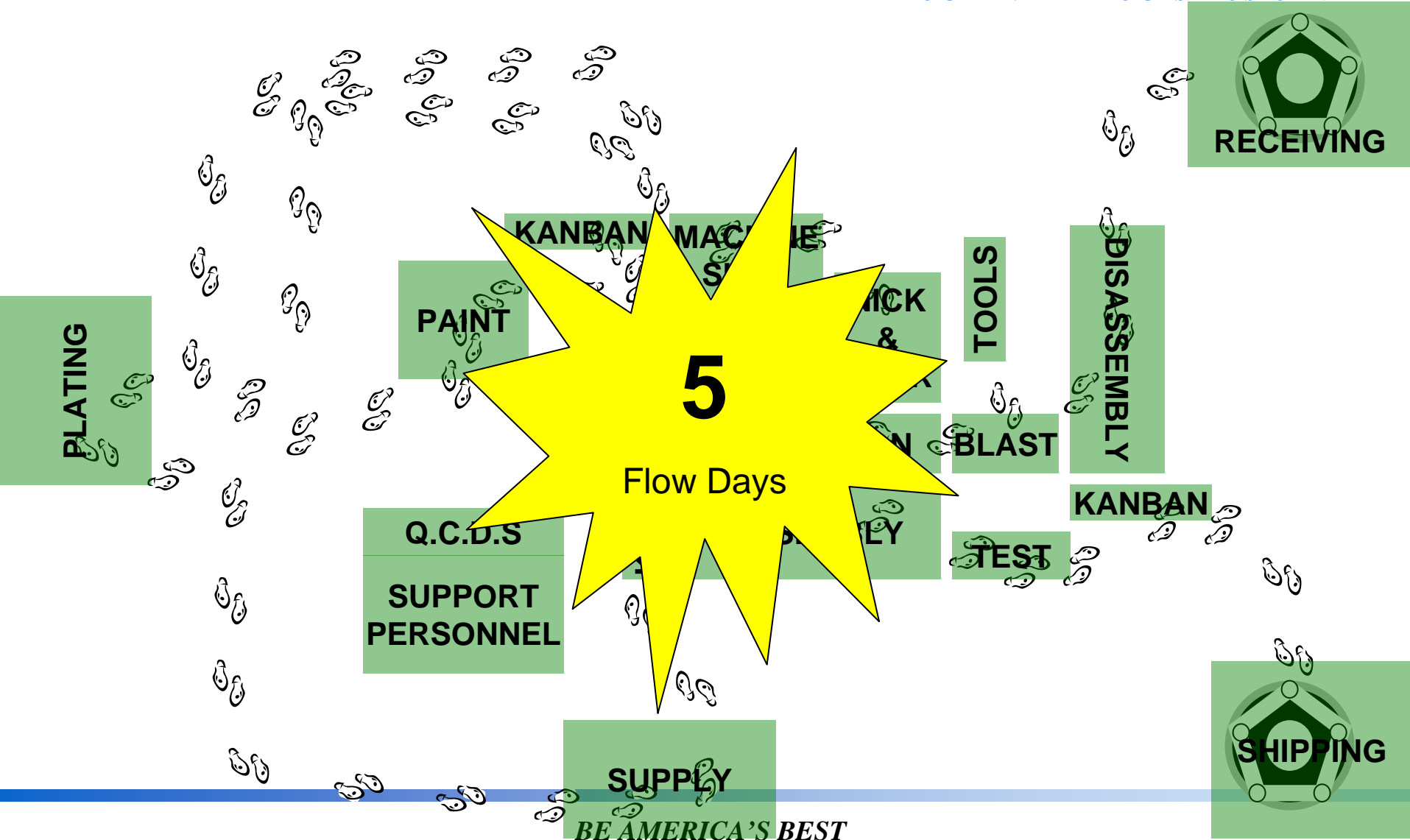
- Implemented LEAN cell
- Point of Use materials
- Co-located processes & equipment
- Eliminated “waste” in:
 - Transportation
 - Motion
 - Defects
 - Rework
 - Wait time for mechanic
 - Overproduction
 - Excess Inventory



Aircraft Brakes After Lean



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5

Flow Days

PLATING

PAINT

Q.C.D.S

SUPPORT
PERSONNEL

SUPPLY

BE AMERICA'S BEST

KANBAN MACHINE

MICK &

TOOLS

DISASSEMBLY

KANBAN

TEST

SHIPPING

RECEIVING



Aircraft Brake Metrics



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Aircraft Wheels Example



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■ Ogden Challenge:

- Product visibility and process control spaced too far apart
- Not meeting Warfighter demand for on time delivery
- Parts not available when needed
- Too much WIP--batching

■ Actions Taken:

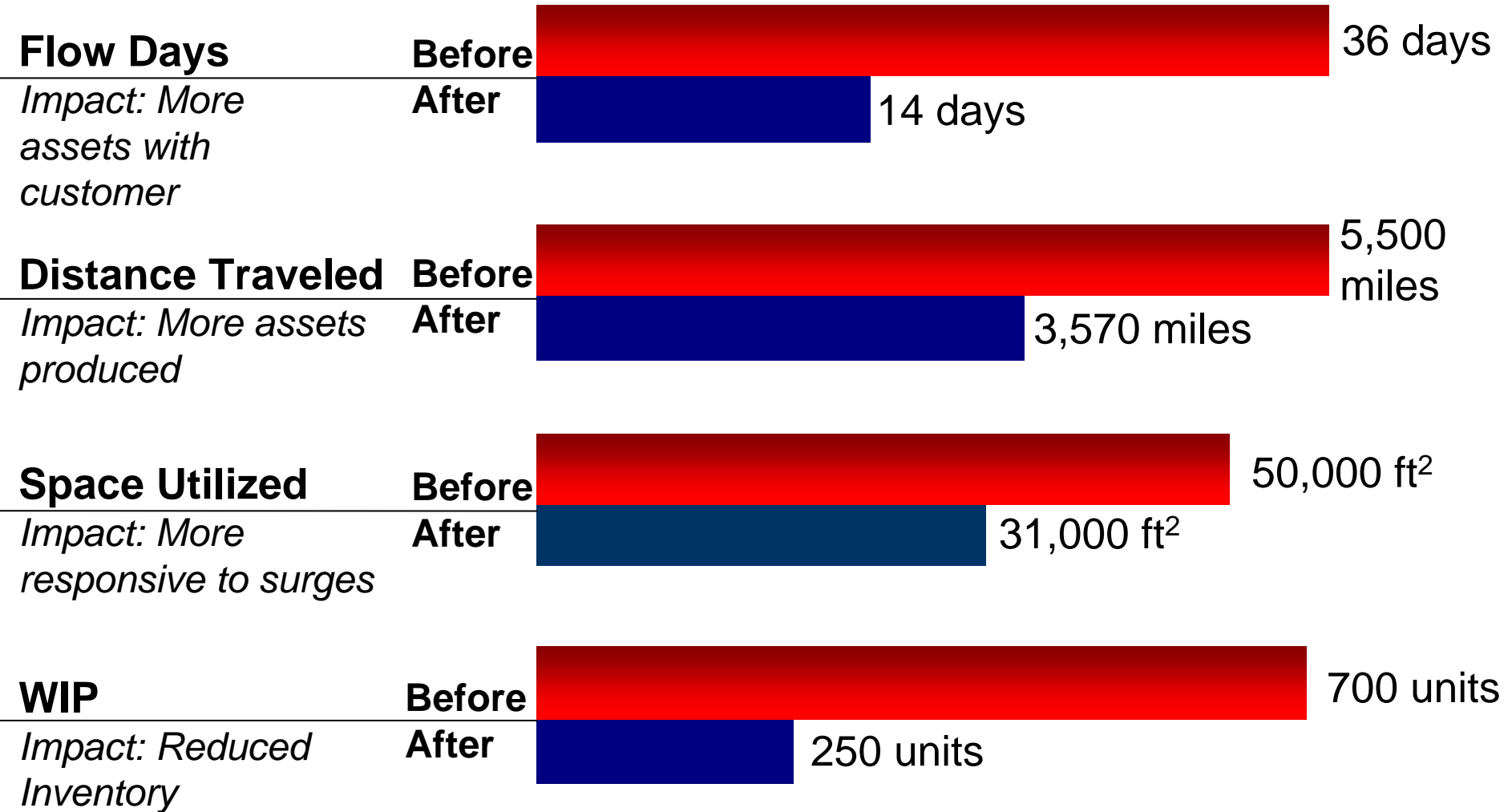
- Implemented LEAN cell design
- Developed kitting capability
- Visual Management
- Rigorous 6S campaign
- Established 1 piece flow



Aircraft Wheels Metrics



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F-16 Example

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**Reduce depot possessed
F-16s by at least 10%**



**Produce better product in less
time with same aircraft output**



F-16 Value Stream Map



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Baseline F-16 Data



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Problem Areas

- 21 tows covering 6.94 miles
- Consumed 20 aircraft docks
- Mismatched tool boxes
- Workcard sequence didn't match production efforts
- Long delays for basic support
- Too few management decision points
- Visual Management ineffective
- Technician wait and travel times too long



F-16 Prior to Cellular Flow

Wheels Down

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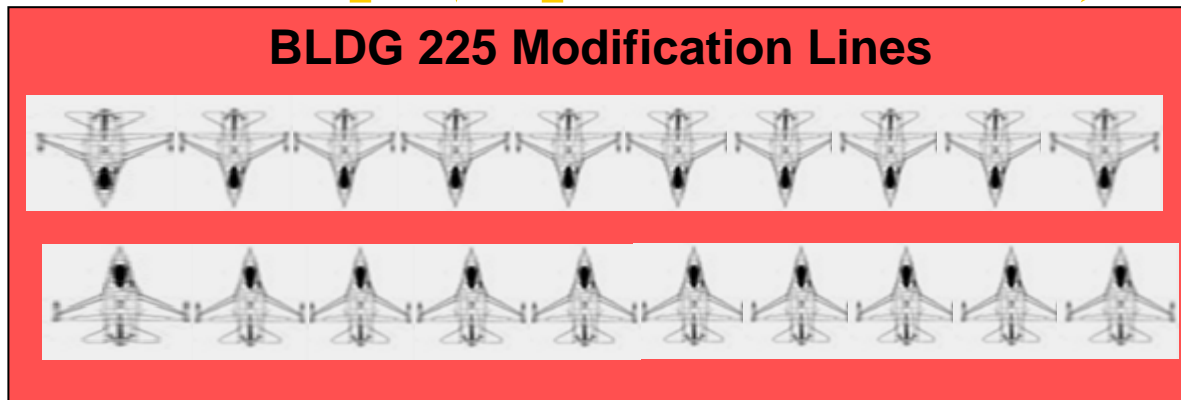


BLDG 233
Bead Blast & Paint

BLDG 24
Hangar Prep

BLDG 236
Fuel & Leak
Checks

BLDG 233
Flight Test &
Delivery Prep

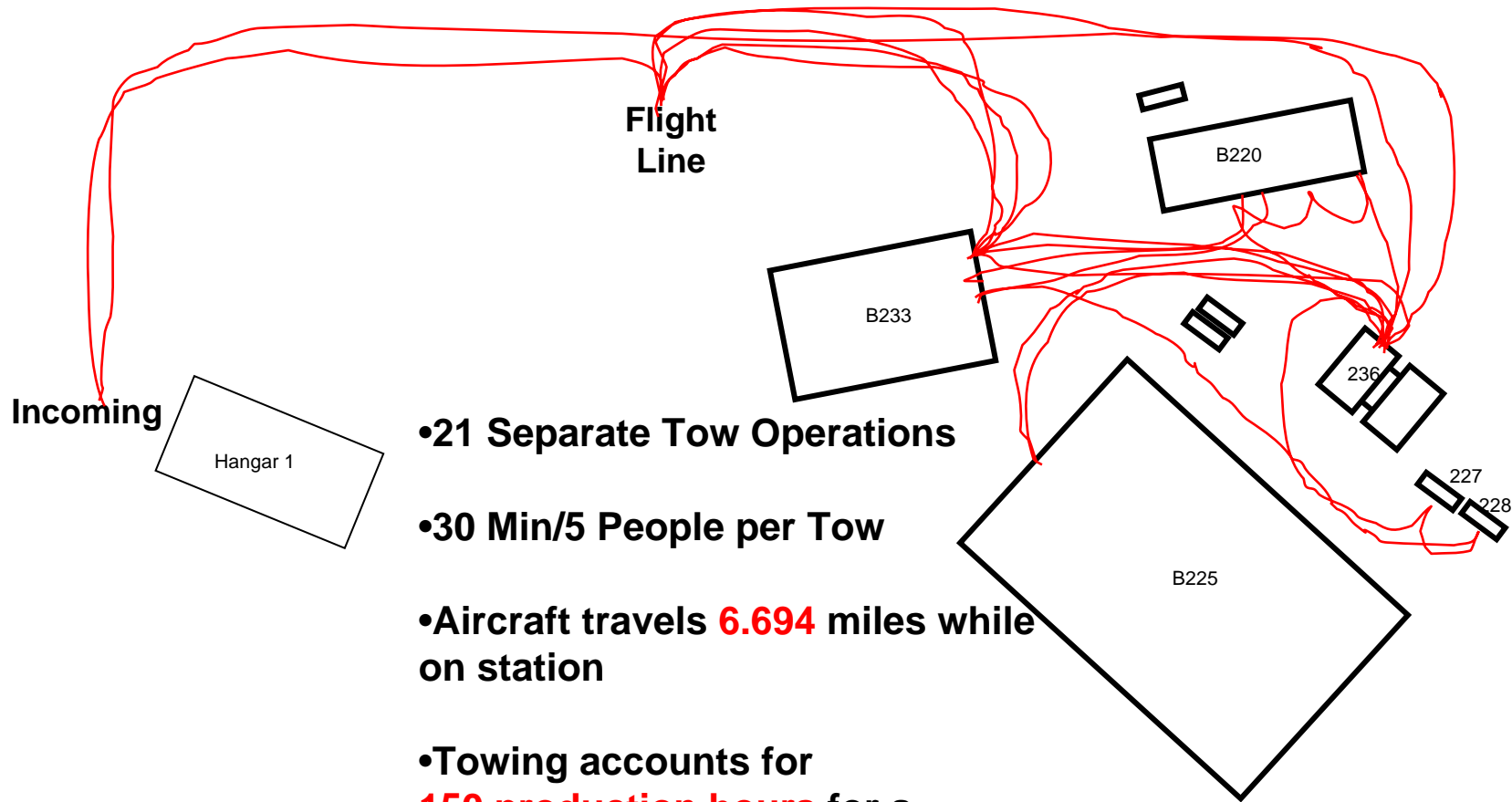
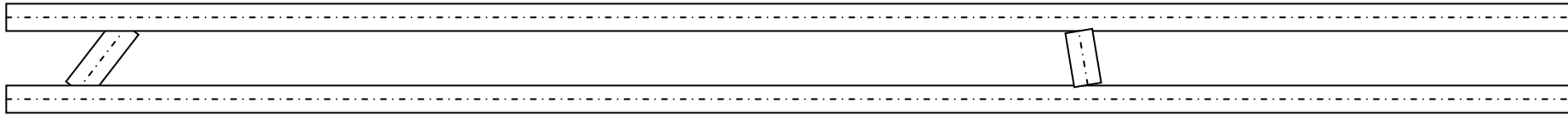


Wheels Up

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F-16 (CCIP) Aircraft Towing



- 21 Separate Tow Operations
- 30 Min/5 People per Tow
- Aircraft travels **6.694** miles while on station
- Towing accounts for **150 production hours** for a “Perfect” Aircraft



Solutions



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- True Cellular Flow from wheels down to wheels up
- Tows reduced 50%, “pulls” in place of some “tows”
- “Super Cells” all operating to Takt Time
- Onsite computers
- Standard Work / Work Sequencing
- Point of use, vending machines, scaled tech orders and special tools, std tool boxes
- Standardized Visual Mgt with easy color identification
- Strong focus on 6S and Continuous Process Improvement

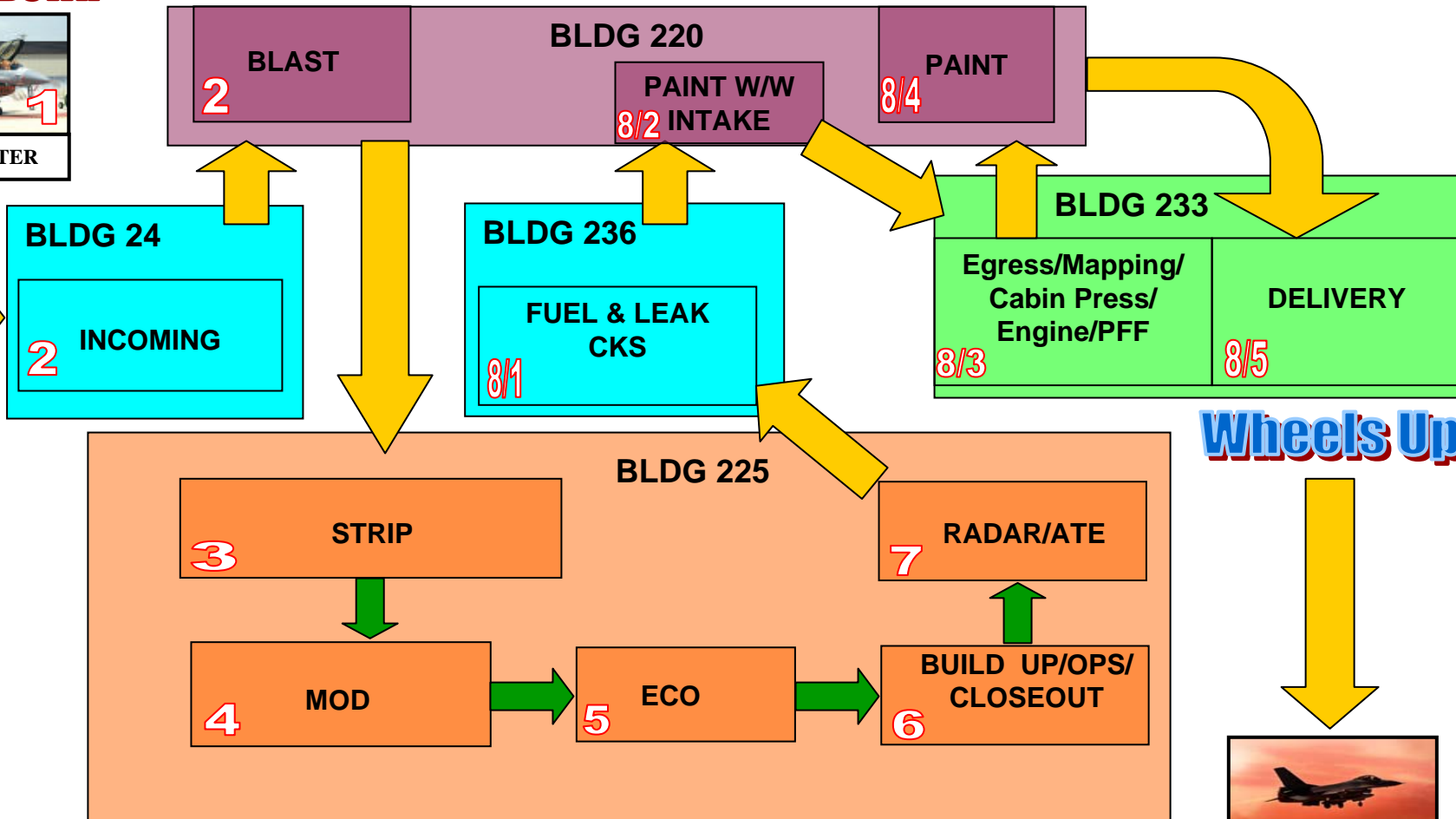
Mechanics stay on aircraft



F-16 Cellular Flow Process

Wheels Down

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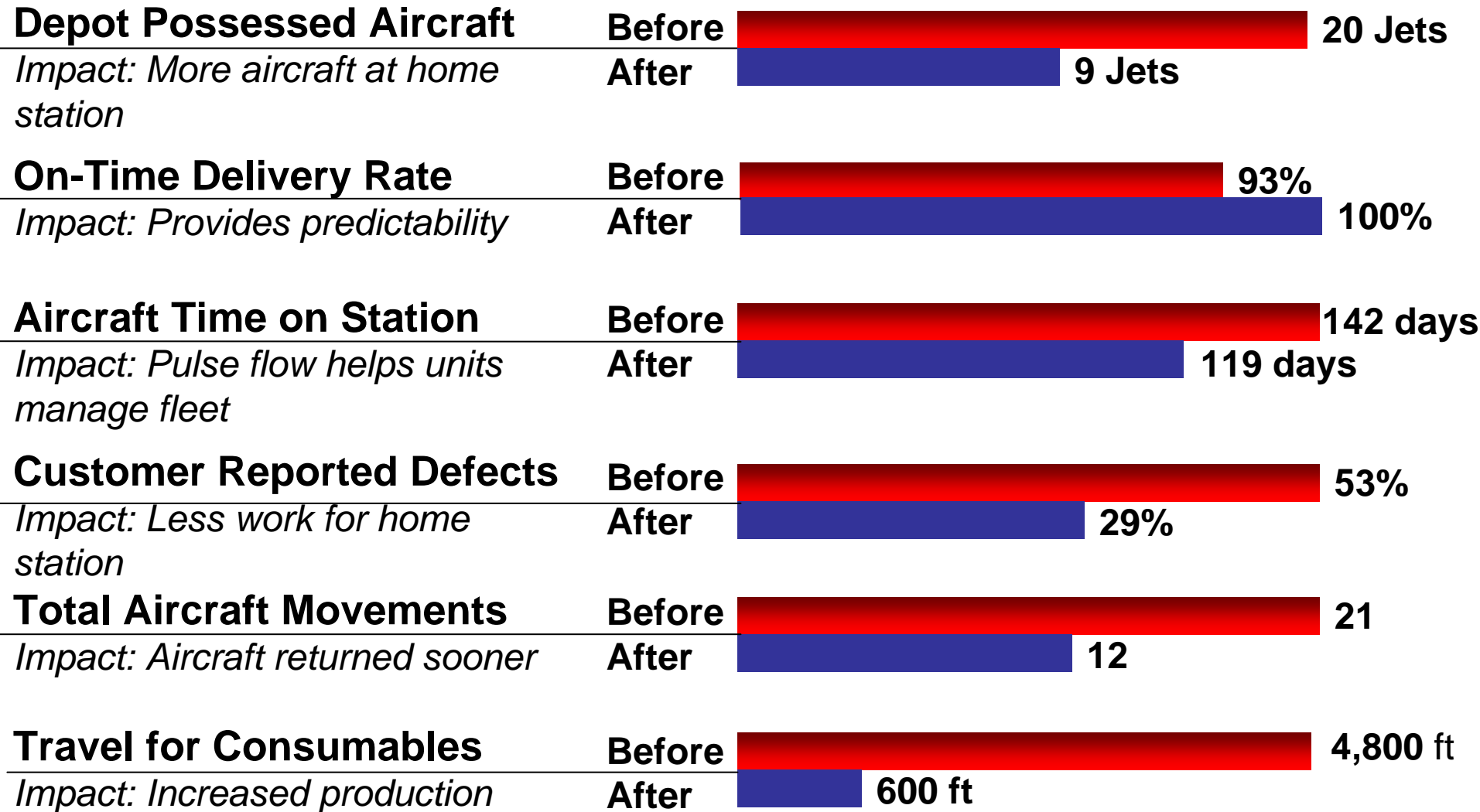
Wheels Up





F-16 Results

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Summary

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Focused, Positive, Competent, Disciplined and ACTIVE *Leadership* at All Levels Was the *Key* to Our Successful Lean Transformation Within The 309 MXW MRO Operation

PROVING

Lean Philosophies Can Be Implemented and Sustained Throughout a Large Maintenance, Repair and Overhaul Operation



Questions

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