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Supporting Our Warfighters Around the World



OVERVIEW

Upgraded Munitions Assembly Conveyor (MAC II)

Supporting warfighter readiness
with a cost -effective, deployable
Munitions Assembly System.

Organization: D&D Machinery and Sales, Inc.

Used by the Air Force and Allied Forces
to assemble air -delivered munitions
anywhere around the Globe.



MAC II weapons operations – Dyess AFB, TX

MISSION CONTEXT

PROBLEM STATEMENT

- ▶ Legacy system too heavy with limited capacity
- ▶ Unable to support 2,000 lb. JDAM requirements
- ▶ Need for lightweight, rapid deployment, with fast assembly
- ▶ Air Force Combat requirements:
 - Modular
 - Rapid setup/teardown
 - Increased bomb assembly efficiency
 - Safety – reduced manual lifting and handling of heavy bombs

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JDAM sitting on MAC II cradle

SOLUTION OVERVIEW



*MAC II palletized
on MHU-141 munitions trailer*

- ▶ MAC II (AE32K-9) was developed for new generation requirements
- ▶ Compact, lightweight, fully palletized
- ▶ Uses Commercial -Off-The-Shelf (COTS) components
- ▶ Over 120 systems have been manufactured and deployed worldwide



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KEY FEATURES & INNOVATIONS

- ▶ Rapid assembly/disassembly
- ▶ Improved air lines and tool trays
- ▶ Bomb hoist integration
- ▶ Compatibility – wide range of munitions GBU/JDAM and general -purpose bombs
- ▶ CAD-driven engineering with 3D printing and CMM precision
- ▶ Air transportable on a C -130 or C-17



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Conventional bombs on MAC II cradles

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*355th Munitions Sq. Davis -Monthan AFB, AZ.
During AF Combat Operations Competition*

OPERATIONAL BENEFITS



- ▶ Agile Combat Employment (ACE)
- ▶ Increased sortie generation rate
- ▶ Reduced manpower requirements (35% -50%)
- ▶ Improved safety; reduced fatigue and injury
- ▶ Decreased setup from 4 -6 hours to 1.5 -2.5 hours
- ▶ No tools needed for setup
- ▶ Minimal downtime due to COTS parts

RAMS (OLD) VS MAC II (NEW)

JDAM operations –Barksdale AFB, LA.



▶ Rapid Assembly Munitions System (RAMS):

- Limited to 500lb. bombs
- Designed in the mid -70s
- Heavy steel construction

▶ MAC II

- 2,000lb. JDAM bomb capacity
- Designed in 2000 using COTS components
- Lightweight aluminum throughout



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PERFORMANCE TEST RESULTS

- ▶ Successfully fielded globally
- ▶ ISO 9001:2015 certified manufacturing
- ▶ Climate tested: +125F to -25F @McKinley Climatic Laboratory
- ▶ Proven @ Operation Inherent Resolve
- ▶ Red Flag and ACE proven rapid deployment



Assembled MAC II undergoing climate testing

ACQUISITION & COST



2,000lb. JDAMs on MAC II cradles Al Udeid AB, Qatar

- ▶ 100% in-house manufacturing = cost efficiency
- ▶ COTS components reduce sustainment costs
- ▶ Unit cost: \$500,000 ROM
- ▶ Contract type: firm fixed pricing



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IMPLEMENTATION & INTEGRATION

- ▶ Integrated into Air Force munitions operations
- ▶ Fully palletized = transportable & deployable worldwide
- ▶ Compatible with numerous bomb applications
- ▶ Interoperability with the UK, Australia, Germany, and other NATO allies



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JDAM operations with the MAC II during a chemical threat exercise

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STRATEGIC IMPACT

F-16 from Edwards AFB releasing a JDAM



- ▶ Aligns with DoD priorities:
 - Readiness (faster sortie generation)
 - Affordability (COTS sustainment)
 - Innovation (CAD/CMM/3D printing)
- ▶ Impacts the San Antonio defense industrial base with jobs, materials, and resources.



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WAY AHEAD

Get In Touch

Contact us for collaboration, research opportunities, and shared visions of tomorrow. Let's shape the aerospace future —together.

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Bombs on MAC II hoist system

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