



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



JDAM sitting on MAC II cradle

SOLUTION OVERVIEW



*MAC II palletized
on MHU-141 munitions trailer*

- ▶ MAC II (A/E32K -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



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 1000lb. bombs
- Designed in the mid -70s
- Heavy steel construction

► MAC II

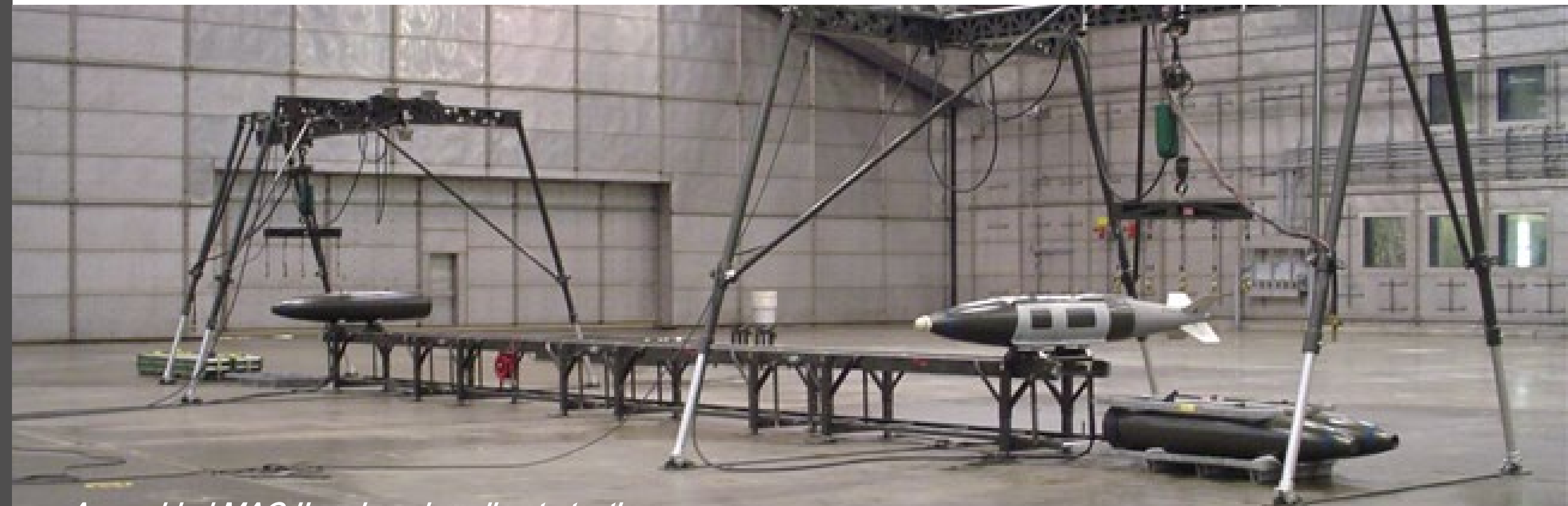
- 2,000lb. JDAM bomb capacity
- Designed in 2000 using COTS components
- Lightweight aluminum throughout



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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

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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

D&D
MACHINERY



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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MAC II Tactical Package



Complete MAC II system

Two MAC II trailers:

Two Compressors

One Lighthall

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MACII Compressor system (2ea) is a highly versatile, diesel-powered mobile rotary screw, single stage air compressor. This standout feature allows operators to seamlessly adjust both air pressure and flow directly from the digital control panel without requiring tools.

Compressor Performance

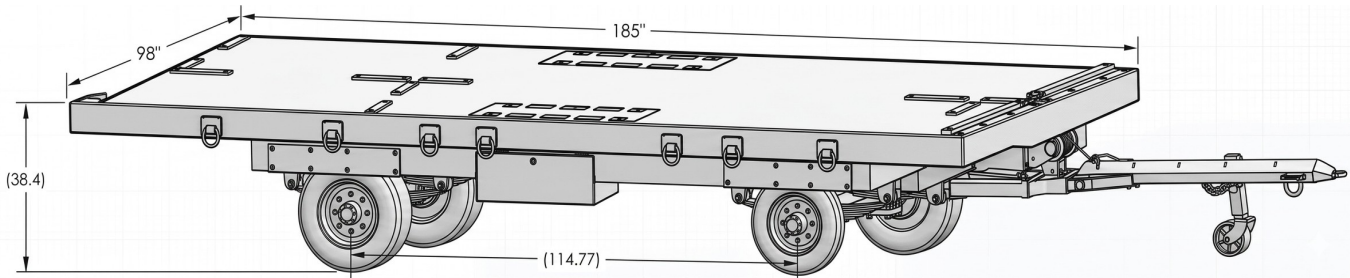
- Free Air Delivery (Volume): 185 CFM (5.2 m³/min)
- Rated Operating Pressure: 100 PSIG (6.9 bar)
- Adjustable Pressure Range: 80 to 150 PSIG (5.5 to 10.3 bar)
- Air Discharge Outlets: 2 x 3/4-inch valves (19mm)
- Engine: Doosan D24, 4cyl, 2.4L, 12.2hrs @ full load, fuel capacity – 34.5 gal (‘

Dimensions with Running Gear

- Length – in (mm) 137.4 (3490)
- Width – in (mm) 68.5 (1740)
- Height – in (mm) 67.5 (1715)
- Track Width – in (mm) 60 (1524)
- Tire Size – in 15
- Shipping Weight – w/o fuel – lb (kg) 2269 (1029)
- Working Weight – w fuel – lb (kg) 2477 (1124)



MAC II Trailer Bed 185.5” x 98.5” (4712 x 2502mm)



MAC II Mobile Light Tower is a towable telescoping 25’ tower with (4) LEDs with a 6kW water-cooled diesel generator. The system produces 259,200 lumens. Enough to light a 6-acre area continuously for 19+ hours.

- Dusk-to-dawn sensor for AutoStart
- Cold weather package (glow plugs, coolant heater, tank fuel warmer, battery blankets, and 0W-40 synthetic oil)
- Quiet low speed 1,800rpm, 4cyl diesel for longer life
- Four 480-watt LED lamps (64,800 lumens each)
- LED heat sinks to control heat offering extended life
- Field serviceable with replacement LEDs
- IP 65 and IP67 rated to withstand extreme environmental conditions
- -40 to +80C, waterproof, dust/dirt proof, and humidity resistant.



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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