



AMMTIAC Success Story

AMMTIAC DEVELOPS 3D MODEL OF THE C-5's AFT RAMP CRADLE

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Customer:	Warner Robins –Air Logistics Complex (WR-ALC) at Robins Air Force Base (AFB), GA was tasked with implementing a structured, detailed engineering program to ensure increased aircraft availability, dependability, safety, and mission readiness, while reducing maintenance requirements and cost.
Challenge:	The WR-ALC wanted to reduce maintenance requirements and costs for an upgrade of the C-5's Aft Ramp Cradle. Depot level maintenance used a hand crank cradle that supports the C-5 ramp without the need for a crane. Field units need this ramp cradle to prevent damage to the aircraft and fixtures when removing the aft ramp. The current cradle design has limitations as to how much it extends vertically, forcing ground crew <u>s</u> to reposition the aircraft twice so that removal and reinstallation can occur. Additionally, modifications have to be made to the cradle to allow it to accommodate the removal and installation of the forward ramp.
Approach:	AMMTIAC designed an upgraded ramp cradle with greater extension that can service aircraft in place. Additionally, the new ramp cradle can support both the forward and aft cradles in a single package. A critical element of engineering design is the ability to convert drawings to 3-D models. AMMTIAC staff completed the process of reverse engineering the cradle stand from incomplete 2-D paper drawings, developed a 3D model of the ramp cradle assembly, and provided a 100 percent level III drawing package. The AMMTIAC team completed the manufacture of the prototype ramp cradle and delivered it to WR-

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	ALC in July 2013.
Value:	The new design eliminates the need for the ground crew to reposition one of the largest aircraft in the AF inventory, thus saving considerable time and man hours while improving ground crew safety. This in combination with the additional capability to allow for the removal and installation of both the forward and aft ramps reduces maintenance man-hours for C-5 ramp removal and installation by approximately 30 percent or \$57,600 annually.