QUICK GUIDE TO THE HIGH-FLYING BENEFITS OF

AR IN AEROSPACE

SCOPE AR®

Augmented Reality is helping the Aerospace industry meet stringent accuracy requirements while reducing training times, eliminating errors, and speeding processes.

The Aerospace and Defense industry exists at a higher plane of manufacturing. The components and end products being assembled must endure intense forces and pressures, are expected to perform without failure, and even the slightest mistake comes with extreme safety risks. They are also incredibly expensive to design, build, and operate, which makes any rework or errors, and the associated delays, also incredibly expensive.

To meet these extraordinary demands, Aerospace firms have developed highly technical and complex manufacturing processes. This then requires highly educated and highly trained technicians, further adding to the industry's cost structure and long production times.

But Augmented Reality (AR) can help in all of these areas, from reducing task and training times to increasing accuracy and ultimate performance. The result is faster processes, less errors, and reduced risk. And it's all available today.

AR BRINGS EXTREME ROI, EVEN ON SIMPLE TASKS

In the Aerospace industry, tasks that are simple and inexpensive in other industries instead can be enormously expensive. Processes such as torque applications, fastener attachments, and drilling have to be executed perfectly or will require costly rework or repair. To avoid these costs and delays, extensive manuals are created and methodical processes defined.

It is these types of applications where AR shines, and where the potential savings contributes to a high ROI.

The resulting ROI from just a single task can be significant, but the cost of labor and time are just two aspects of the benefits AR can deliver. Reducing or eliminating rework is another, since AR increases accuracy and helps ensure tasks are completed correctly the first time. Improving accuracy is also important to reducing downstream costs and potential safety risks. Add it all up and AR's value is easy to see and realize.
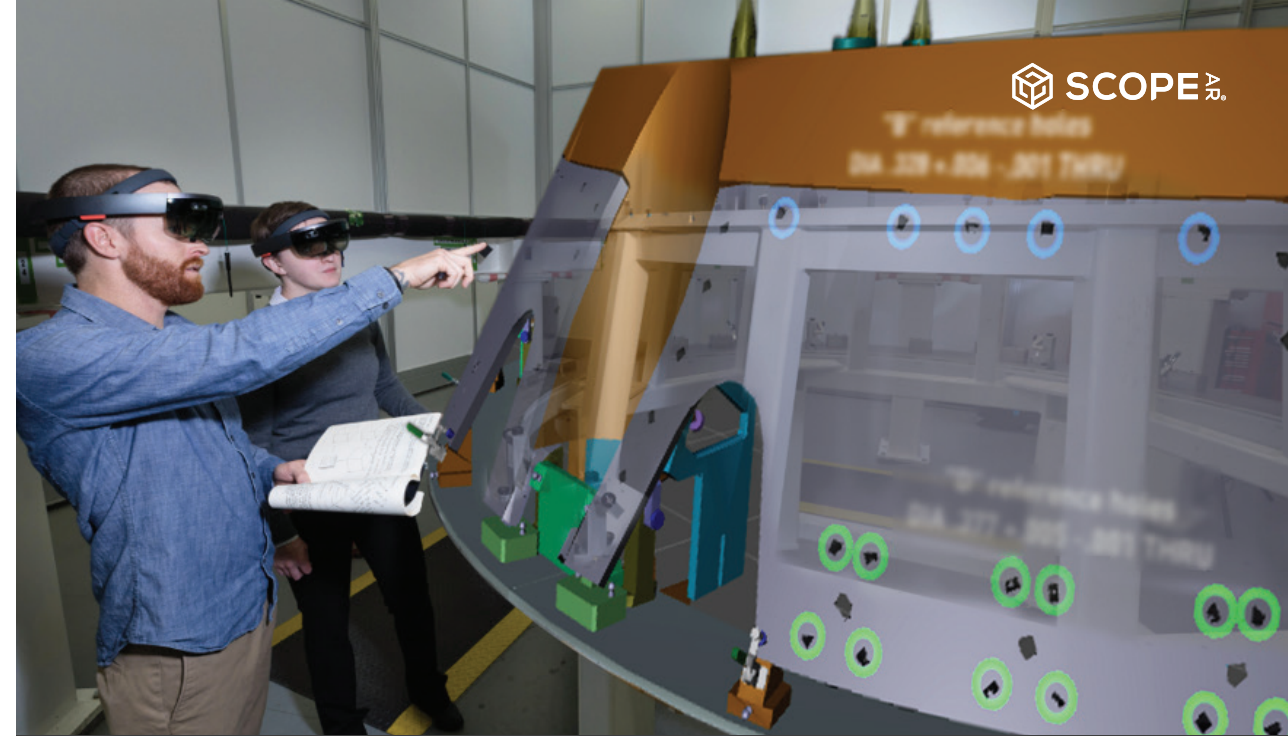
AEROSPACE APPLICATION: CABLE HARNESS FASTENERS

Aerospace vehicles typically contain thousands of miles of wire, requiring many fasteners and clips, all with precise attachment points. Simply marking the location of these attachment points can take weeks. Lockheed Martin used Scope AR to enable both a faster and more accurate location of the attachment points. A process that originally required 8 shifts and 2 technicians was reduced, using AR, to just 2.5 hours and a single technician.

93%
LESS TOUCH LABOR

LOCKHEED MARTIN

AR MAKES ANYONE AN EXPERT WITH LESS TRAINING

Training times can be lengthy in Aerospace applications given the potential consequences in cost, safety, and time. Safety is an especially critical component in this industry, which adds additional pressure to perform tasks correctly. This need for "information overhead" further increases the focus on training to ensure technicians have the expertise and access to information to perform each individual task accurately.

But AR shines in knowledge transfer as well by giving technicians the information they need when and where they need it. Instant and contextual access to information and instructions enables technicians to work without second-guesses and without work stoppages to refer to manuals or drawings. Faster training via AR also accelerates ramp-up so new technicians get to work in less time. And AR's process traceability can surface opportunities for additional improvements in efficiency and accuracy.

AEROSPACE APPLICATION: DRILLING

While developing the Orion spacecraft, Lockheed Martin first began exploring the benefits of AR during production. By focusing on a straightforward task that required extreme accuracy, they could quickly evaluate AR's value and easily measure the results. Using Scope AR technology in a drilling application, Lockheed Martin was able to reduce touch labor by 35% and further reduce technician training and ramp-up time by 85%.

85%
LOWER RAMP-UP TIME

35%
LESS TOUCH LABOR

# AR APPLICATIONS IN AEROSPACE ARE EVERYWHERE

Complexity is ubiquitous across Aerospace, as are lengthy training times and an overwhelming need for accuracy. But these are all areas where AR can reduce costs, increase efficiencies, and reduce risks. It's easy to find an application where AR can help. Here are just a few examples.

Quality Control in Aircraft Engines

A European manufacturer of commercial, regional, and business aircraft engines uses Scope AR to automate quality control checkpoints before their engines are shipped to customers. AR enables technicians to instantly see if harnesses are correctly positioned, even after the engine is installed on the aircraft wing.

Stress Monitoring in Spacecraft Shell

Monitoring the stress, pressures, and extreme conditions encountered by spacecraft has huge safety implications. Strain gauges and transducers are installed to help engineers understand and mitigate these stresses, but have to be precisely aligned and attached. Scope AR enables quality control technicians to quickly evaluate device alignment, reducing the process from an entire shift to just 45 minutes, a time reduction of 91%.
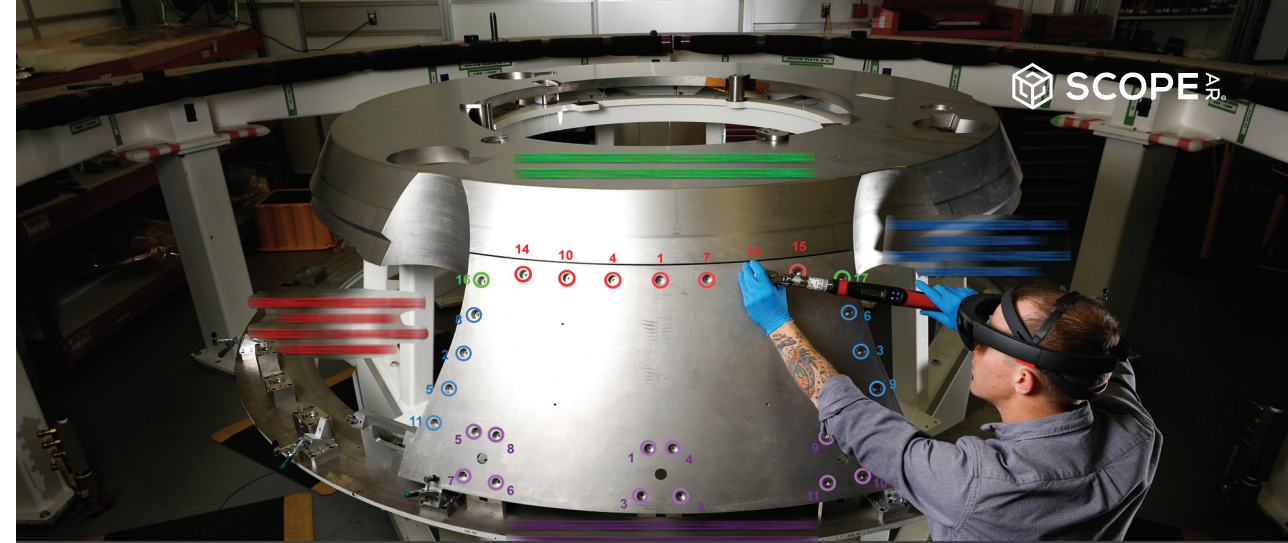
Torque Application in Aerospace

In another Lockheed Martin use case, threaded fasteners require precise torque loads to enable the best performance while avoiding damage to the fastened materials and the fastener itself. Specific applications can require long training times as well as extended processes time to account for differences in torque application across hundreds or thousands of fasteners. Scope AR puts the required data directly in the view of technicians to reduce a torque application process from 6 weeks to 2 weeks for an ultimate touch labor savings of 50%.

In Aerospace, every task has critical process, safety, and accuracy implications. AR helps ensure fulfilling each of these requirements, but doing so in less time, with less training, and with better results. By putting the required information right in front of technicians as they complete their work, AR can improve efficiency and speed knowledge transfer so teams can just get to work.

AR IS BECOMING MAINSTREAM IN AEROSPACE

AR is already returning real value across the Aerospace industry. Companies large and small are turning to AR to reduce costs while simultaneously increasing safety and reducing risk. It lessens training and process times while improving accuracy and quality. And, even the smallest applications are showing huge returns on the relatively small investments required to get started with AR.

But if you're not using AR, you're already behind. Leading, well-known Aerospace companies are already using AR in practice and realizing real and measurable benefits. They're also finding a deep competitive advantage, so you can't afford to wait for technology that's always around the corner. Today's AR is driving huge value for those who use it.

Aerospace is ideally suited for AR given both the complexity and expense of every process. The cost of a mistake can be enormous, but even the costs of everyday training, tasks, rework, and more can justify the benefits of AR. To learn more, contact Scope AR today.