



UNUSUAL PAYLOADS

RAISING PERFORMANCE
WITH THE PUSH OF A BUTTON

Our Most Interesting Payloads and Applications

Finding a portable tower that meets all your equipment needs can be challenging. You'll likely end up settling for a tower that isn't designed for your application. The result? Your expensive equipment is not being used optimally, leaving you to wonder if your time and money could've been better spent.

You don't have to settle for a jerry-rigged or underperforming tower. At Tower Solutions, we ensure towers are configured specifically for their application.

We've worked with hundreds of unique tower applications and have never failed to deliver. By now we are confident we've seen it all, and we want to share some of the most intriguing applications with you. Here are three of the most interesting payloads we have lifted.

Unique Payloads Tower Solutions Has Worked With

FAA Rotating Radars

One of the most demanding payloads we have lifted is the Airport Surveillance Radar (ASR-11). The ASR-11 is an integrated primary and secondary radar system used by the FAA at terminal air traffic control sites. The radar protects our air space through the Joint Surveillance System (JSS), a joint US Air Force and Federal Aviation Administration (FAA) system. The JSS consists of many



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SURVEILLANCE



COMMUNICATIONS



TACTICAL SUPPORT



LIGHTING

long-range surveillance radars operated mostly by the FAA at airports. In some instances, the FAA requires a system that can be relocated to a specific site for monitoring the air, and then subsequently moved to a new location with little effort.

The ASR-11 secondary radar is over 20 ft long, rotates at 12 rpm, and weighs nearly a ton. Building a portable tower to lift the radar was a challenge that the FAA believed only Tower Solutions was fit for. One of our standard towers would simply not do. Because of the sheer size of the FAA rotating radar, other towers would sway, twist, and tilt under the forces of the dynamic movement.

The PTX-100 is already Tower Solutions' most robust and stable tower, capable of lifting 2,000 lbs. to 120 ft in 8 minutes with the help of guy wires and outriggers ([learn more about the PTX-100 here](#)). Tower Solutions worked closely with the customer to integrate several cable management systems, a payload lifting crane, a highly custom lightning protection system, and custom enclosures and performed significant analysis to ensure optimal performance in harsh conditions. The customer was more than satisfied with the customization, and this tower still operates protecting our airways today.

High Speed Tracking

Tower Solutions has made plenty of self-erecting towers for the US and foreign defense customers. Learn about our military applications here. As a result, when we were approached by a customer searching for a tower to hold their high-speed optical tracking equipment, we were excited to take on the challenge. However, the technology that goes into their high-speed imaging cameras makes this payload one of our most advanced to date.

The customer uses high-speed, high torque servo-controlled gimbals to rotate their cameras to track, record, and analyze test events. The camera achieves sub-microsecond shutter speeds and has sensors sensitive enough to capture enough photons of light in just that microsecond. The resulting video is of enough quality to allow for missile flight analysis.

With these systems requiring such precision, we needed a tower durable enough to hold them steady during a high acceleration event that would make most towers twist significantly. That is where we came in. We were entrusted with building a tower that would integrate with and securely lift the 1,000 lbs. system to 30 ft and keep it from twisting when the gimbal would swing rapidly to optically track its target. Our solution included a guy wire system with extended arms for added leverage. The six guy wires are then monitored to ensure proper tension distribution and subsequently optimal performance of the system when needed. The customer also required that the large camera not be removed when the tower trailer is transported so a highly customized shock and vibration equipment mount was included to absorb the forces imposed by unpredictable transport and hence protect the sensitive equipment from damage.



Predator/Reaper Drone Ground Data Terminal (GDT)

Tower Solutions' most dependable tower application for over twelve years is Predator/Reaper drone GDT support. Reapers aren't launched from thousands of miles away. Reapers must be launched within the line of sight of a nearby GDT at the forward operating location. The reason is until the Reaper drone reaches a certain height, satellite control isn't possible due to the terrain and curvature of the earth. Once the Reaper is high enough to clear these obstacles, it switches to satellite communication, and control is transferred to a pilot that could be located anywhere in the world. The tower allows the ground control of the drone to be extended allowing for a larger area of control prior to linking with the satellite.



The GDT has a primary satellite link consisting of a microwave communication dish and support equipment to track and control the Reaper during takeoff and landing. [Learn more about the Reaper drone here.](#) Tower Solutions was chosen to support the dish because of the unmatched stability of our towers. in point-to-point narrow beam applications. Currently, we have made over 190 towers for the medium-altitude drone GDT application.

Whatever Your Need, We Have the Solution

By now you may have noticed that we are a solution provider. As a team of engineers, we are always eager to build towers that meet and exceed the requirements of challenging payloads. And with the variety of equipment that we have already worked with, we are confident that we know how to raise any equipment you need. With custom mounts and tower additions (such as generators, guard rails, and AC cooled shelters), all you have to do is give us your unique requirements and we'll deliver a tower that amplifies your payload's capabilities.

[Contact us today to talk with our engineers and specify what it is you need raised.](#)

