Rapid Deployable System (RDS)

The deployable system utilized by the RDS is based on structural/mechanical principles that deliver measurable improvement over existing deployable tent systems.
The Challenge of Rapid Deployment Structures

The challenges for any command, when it comes to temporary structures, are the operational efficiency of the shelter, along with the interoperability of the total system components. Whether used during combat service or peacekeeping efforts – for homeland defense or field operations – to meet the critical requirements of the Department of Defense, tents were heavy, cumbersome and difficult to install.

Most fast set up or rapidly deployable structures rely on a “scissor system” design to achieve the structural base of the shelter. Feedback from the field recognizes the negative factors associated with these types of shelters – including reduced efficiency, performance, ease of use, technical support and pack size.

Under Canopy / Erection Time: Pole tents, frame tents and older-style rapid assembly shelters require the use of many parts, heavy fabric and large stakes, ropes and guylines. Up to 8 personnel are needed to transport the current tents and erection time of 60 minutes – and in some case, over an hour. The footprint needed to erect these tents is large due to the guy ropes for staking, and the operating terrain is limited.

Ease of Use: Setting and striking tents needs to be a quick, flawless and fluid exercise. Using tent products with the scissor system make setting up the tent challenging and transportation cumbersome. Damaged and misplaced parts are a common occurrence.

System Requirements: When choosing a tent system, units often have to pick a single important feature, while sacrificing a plethora of other critical features. There was no “complete” system or package. And, most tents and temporary structures in the military arsenal need extra parts (or “weather” kits) to achieve snow load rating and wind rating. Carrying these extra kits is problematic, as well as properly installing them – and this additional cost is an unnecessary burden.

Integration of System Components: The need for system components such as ECU’s, generators, lights and communication equipment are more important than ever. And the challenges faced by users of the various shelter systems are successfully integrating a variety of system components into a shelter. Also, the shelters need to easily complex with other shelters and vehicles to easily create command post and remote military base operations.
The Eureka! Solution: RDS: Rapid Deployable System

An Integrated, Fully-Functional, Cross-Operational and Rapidly Deployable Mobile Shelter System Utilizing a Structural Truss Frame

The Eureka! RDS was developed for the US Armed Forces as a rapidly deployable and tactical use shelter that maximizes modularity, ease of use, operational effectiveness, durability and versatility. This unique system comes in a variety of sizes, and was designed to meet the entire spectrum of requirements from all branches of the military.

The RDS frame system consists of a truss-style frame for rugged and durable installation – and the synchronized gear system make it fast and easy. This patented design has been tested and passed at Aberdeen Proving Ground, one of the most diverse and rigorous test sites utilized by the Department of Defense.

The RDS was developed to achieve the following goals:
- Structural Efficiency
- Durable Performance
- Ease of Deployment

All in a compact and lightweight package.
**Structural Efficiency**
Prior to the RDS, all other fast set up structures relied upon “scissor system” designs. The two key design advantages of the RDS versus scissor systems are:

1. **The Creation of a Structural Truss**
   The advantage of the structural truss is a static load strength to pass 10 pounds per square foot snow loads without additional braces that often increase set up time and added expense.

2. **Fewer Moving Parts/Locking Pin Locations**
   The advantage of fewer moving parts/locking pin locations is less failure modes and greater system reliability.

When the RDS is deployed, it forms a structural truss. Each section has a four-sided structure of compressive members with two diagonal tension cables. Upon deployment, the cables are tensioned, becoming the major load bearing element.

Other quick erect tents do not use the structural trusses. Tubes in scissor systems design have pins in each end and at the mid-span – and become the major load bearing element. In addition, the hole at the mid-span is located at the point where the tube has the greatest bending stress during deployment and the greatest opportunity for damage.

The RDS design also allows for high point loading at the hubs. These hubs are structural members that efficiently transfer the point loads from fabric or from hanging equipment to the truss system.
**Durable Performance**

Scissor systems (like most other frame design systems) require tie-downs for stability. The RDS structural system does not require tie-downs or wind guys – staking the support legs are sufficient to meet all wind and load requirements. In addition, the RDS-695 does not require any additional cables or supports or any special "equipment kits" to meet snow, wind or wind/rain loading.

The RDS is an efficient truss structure, and it is proportioned in a rational, optimized manner. Its part count is lower than typical scissor systems, which require extra members to distribute applied loads. Lower part count means that structural members may be sized significantly larger than scissor systems without weight penalty. These larger structural sections are far less susceptible to damage than the smaller member in scissor-type structures.

Due to the advanced structural design of the RDS roof trusses, it is exceedingly strong and capable of supporting significant point loads. Many objects that use to take up valuable floor space may now be suspended from the extremely ridge and stable roof allowing for more flexible usage of the shelter.
Ease of Deployment

The RDS has been designed to streamline and simplify the deployment process. One key factor to achieve this has been to minimize lifting forces and eliminate all overhead lifting during deployment. Because there is little lifting (and no overhead lifting), service-personnel remain in a comfortable standing position throughout most of the deployment. Scissor systems require a significant overhead upward lift.

In addition, based on its unique, patented system, the RDS utilizes gears to synchronize the movement of its members during deployment. The main benefit of a geared system is that it provides consistent synchronization throughout deployment. In contrast, scissor systems provide poor synchronization during the initial deployment stages, which results in confusion during deployment and increase the likelihood of accidental breakage.

Another key benefit of the truss system configuration is shelter sizing. Scissor systems are constrained by width. The greater the width, the higher the loads on the pins. This constraint is better managed with the RDS allowing for the widest tent in its class. This provides the field commander greater flexibility in space utilization.

<table>
<thead>
<tr>
<th>RDS-150</th>
<th>RDS-480</th>
<th>RDS-635</th>
<th>RDS-695</th>
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</thead>
<tbody>
<tr>
<td>16’ 6” x 10’ 1”</td>
<td>20’ x 24’</td>
<td>20’ x 31’ 9”</td>
<td>23’ 6” x 29’ 6”</td>
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Made to Meet the Challenge

Because of its design, deployment procedures and structural integrity, the RDS offers a viable solution for today’s warfighter. And, through product demonstrations and in-use field reports, the feedback has been outstanding.

Superior Tactical Deployment
The RDS can withstand impact of weighted items stored on top of it, when it is in its packed state. It has a self-contained frame system, which enables the user to reduce embarkation equipment and storage containers. It does not require structural support during transportation, which enhances the speed of operational readiness. In addition, the Eureka! RDS has the ability to store and stage on tactical vehicles such as the Amtrak, 7 –Ton Trucks, Helicopters and many other transport vehicles used by the Armed Forces.

Fast, Easy, Versatile and Durable . . . Beyond Compare!
The RDS-695 is designed to exacting standards. It was dropped in location and rolled in place, then set up by a 4-person team without any damage. In fact, operations using the RDS were recognized as having the ability to reduce the number of personnel required to erect the tent, reduce the footprint of the convoys due to the pack out state of the frame and consistently be under canopy in less than 14 minutes.

No Ropes or Guylines Depicts a Well-Designed Structure
The use of external lines and ropes is not needed to support the RDS. This not only speeds installation, but reduces the footprint needed for remote operations. Detachable end walls allow all models to easily complex together. And, the RDS requires NO SPECIAL KITS for snow, wind or rain load.
A Shelter – and Integrated Components – Made to Meet the Challenge

A truly innovative company will surround themselves with experts from every field, and Eureka! is no exception. When it comes to making sure the RDS is fully integrated and all system components are top-notch, we’ve partnered with the best in class suppliers: Jameson, LLC, Applied Companies and Raytheon Solipsys, to name a few. Integrating superior lighting, GENSETT and ECU and communications/command post equipment AND the RDS into a convenient trailer make operations self contained. Each field unit will have the best equipment to meet the needs of any operation, whether military or civilian, and the systems will fully integrate with equipment already in the field.

The Eureka! Advantage

The Eureka! Tent Division of Johnson Outdoors Gear LLC has more than a century of tent and soft shelter experience. Our commitment to innovation in all phases of design and manufacture led us, in 2006, to the design and introduction of the Rapid Deployable Shelter (RDS). Through a partnership with Hoberman Designs, Inc., the RDS uses synchronized gears for faster, easier set-up.

And, over the past 100 years, Eureka! has been making history as the innovation leader in the tent industry . . . all including superior craftsmanship, attention to detail, consistent innovation and excellent comforts. Eureka!'s commitment is the same as it was 100 years ago: to provide the best gear at the best price. You can be sure that your Eureka! tent, shelter or pack will provide years of trouble-free service, no matter where your mission takes you.
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