

# Seating Hardware Systems



# HISTORY

Atwood Mobile Products, Rockford, Illinois, has been serving the non-Detroit automotive seating industry for several decades. Originally, our product line consisted of seat adjusters and reclining mechanisms which were sold to seating companies supplying the Van Conversion, RV, Commercial, Industrial, Truck, Bus, and Off-Road markets. Atwood was, and still is, in a unique position to supply universal products capable of accommodating numerous applications.

In 1994, Atwood purchased the assets of Better Products, Inc. located in Elkhart, Indiana. Better Products produced chair frames, lounge frames and bases, seat pedestals, pick-up truck pedestals, and other specialized items for aftermarket seating manufacturers located throughout the United States. Better Products also offered an organizational structure and culture suited to the short lead time demands of the aftermarket seating customers. Strategically, the Better Products operation presented a good fit with Atwood's existing product line and customer base.

Soon after the acquisition, seat adjuster and reclining mechanism production were consolidated within the Better Products facility from other locations.



As Atwood's involvement in the van conversion seating business grew, so did our involvement with regulatory certification testing and Federal Motor Vehicle Safety Standards. Since Atwood was supplying steel seating components from the floor up, obtaining safety restraint systems to compliment our seating hardware was a logical extension.

In 1997, Atwood acquired the rights to distribute Autoflug seat belts by purchasing the assets of The Compliance Group in Milwaukee, Wisconsin. The Compliance Group was a value added reseller of certified seating components and safety belts especially designed and matched for the van conversion industry.

The Compliance Group★★★★

Their expertise in the Federal Motor Vehicle Safety Standards and ability to communicate this through detailed installation manuals and other associated documentation earned them a strong position within the van conversion marketplace.

The Compliance Group was consolidated with the existing Atwood Elkhart Operations in February of 1997 and in August of 1997, Atwood introduced the Atwood Compliance System to the van conversion community.



**Atwood Compliance Systems**





## Positioned for the Future

Today, Atwood Mobile Products is positioned to provide its customers with the most comprehensive line of seating, components, safety restraints, and compliance systems within the Van Conversion industry. Atwood's seating hardware strengths are also evident in such industries as heavy truck, commercial, agriculture, and other off-road applications.

Engineered and fully tested products combined with a commitment to the highest standards in manufacturing processes defines our commitment to the industries we serve. Atwood realizes the importance of the continuous improvement process as it relates to the quality of the service and products we deliver.

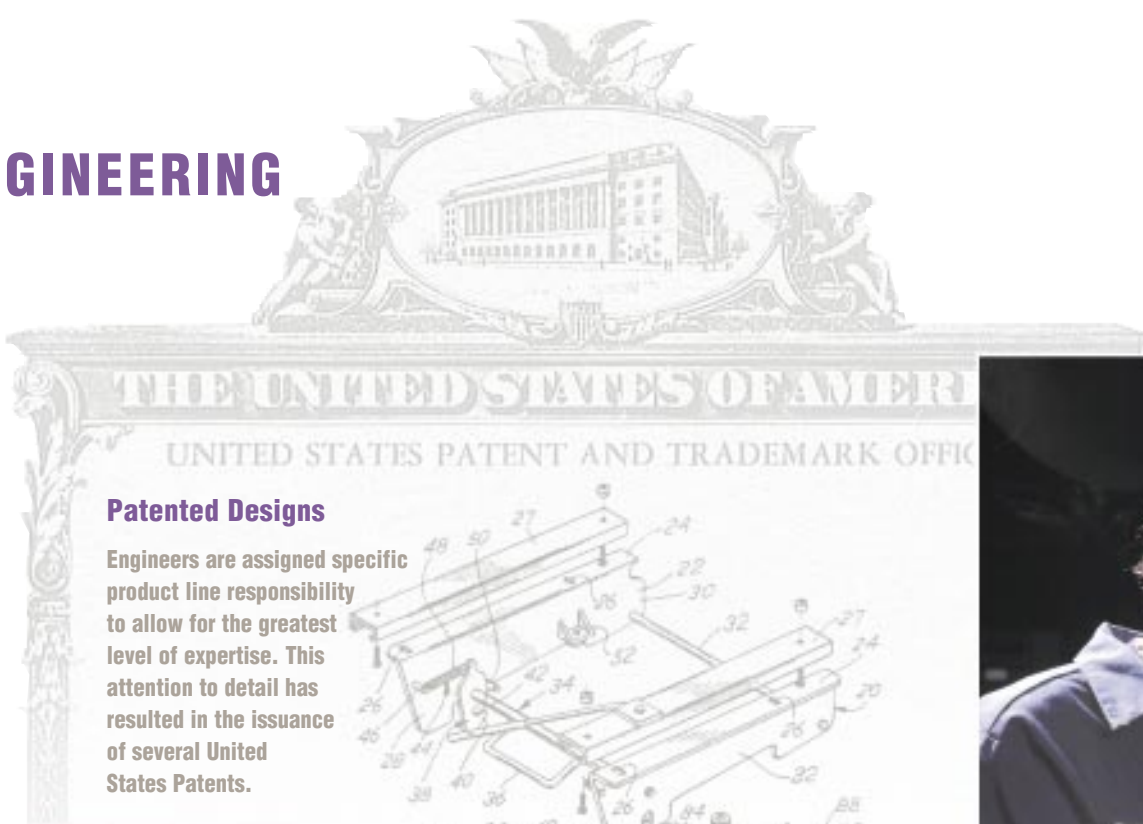
In April of 1996, Atwood Mobile Products was acquired by Excel Industries, an automotive supplier of window and window regulator systems. With the addition of Atwood Industries, Excel has further diversified its corporate holdings, its involvement in the automotive supplier market, and has increased annual sales revenues to over one billion dollars.



Excel Headquarters, Elkhart, IN

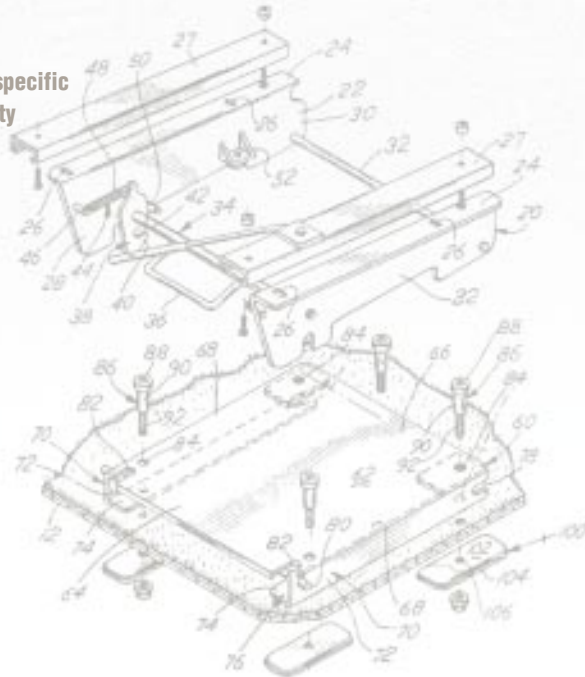
# DESIGN & ENGINEERING

The Atwood Marketing and Engineering Center is a separate 16,000 square foot facility established to enhance our new product development efforts. Engineering Design Services, Model Shop and Testing laboratory occupy this facility along with the Sales and Marketing Department for the Elkhart Operations.



## Patented Designs

Engineers are assigned specific product line responsibility to allow for the greatest level of expertise. This attention to detail has resulted in the issuance of several United States Patents.



## CAD/CAM Capabilities

Designers and drafting personnel utilize the latest in Computer Aided Design software capable of producing three dimensional models and performing finite element analysis.



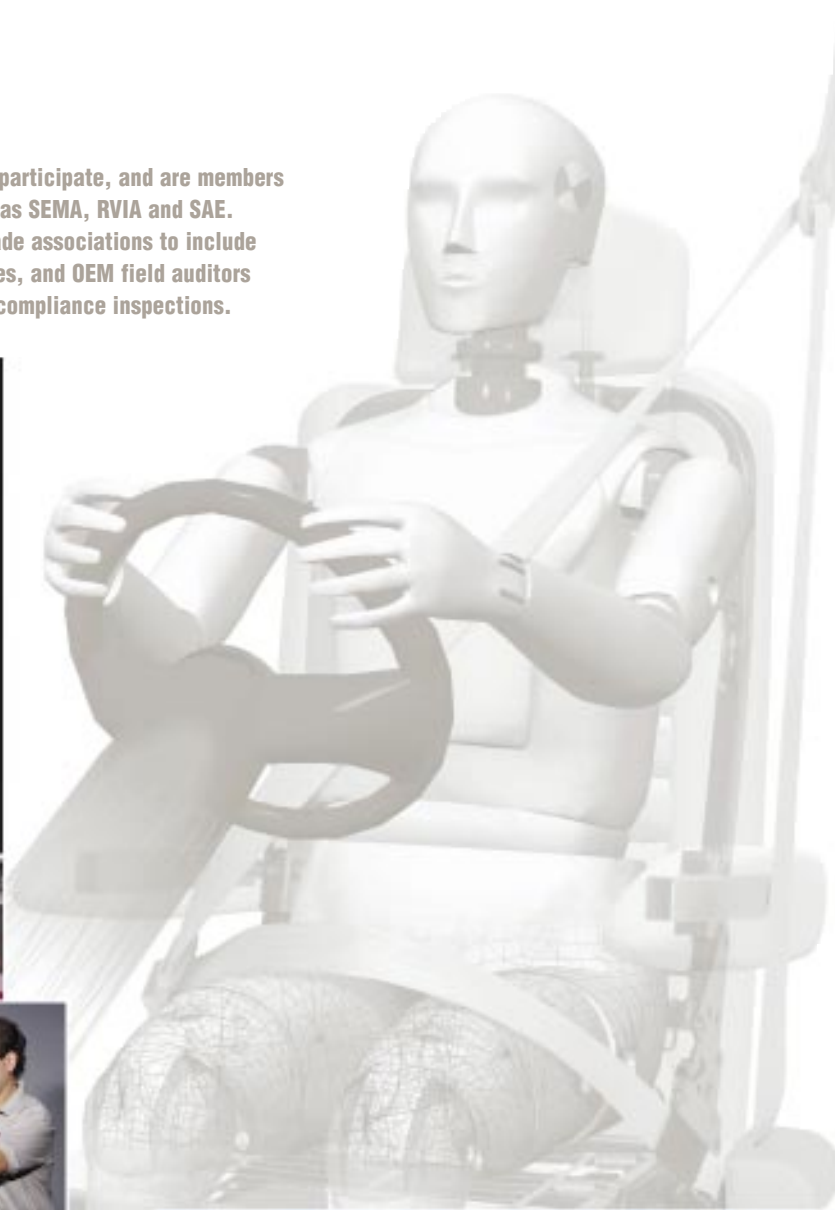
## Product Testing

Our testing laboratory is outfitted with computer controlled pull-test machines capable of accommodating full-size vehicles for compliance and developmental testing purposes. The model shop is equipped with a variety of machinery necessary to produce customer samples and prototype parts.



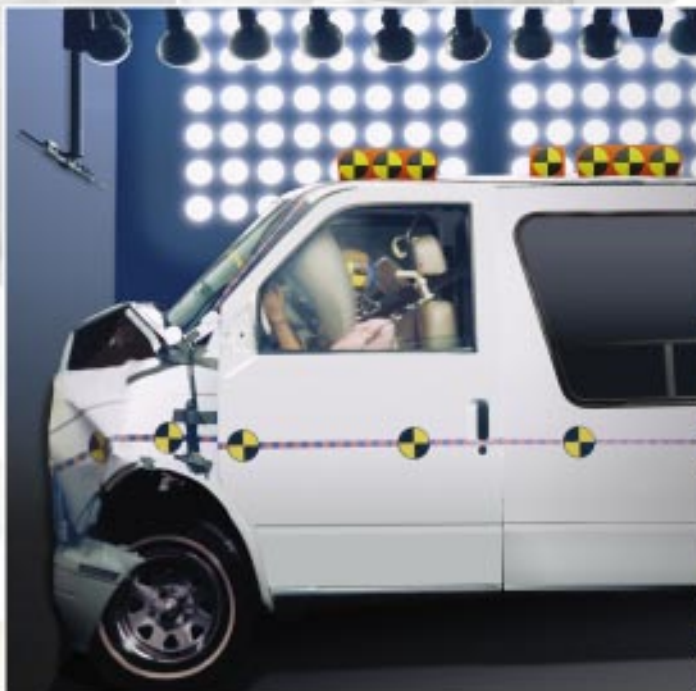
## Industry Involvement

Engineering Department personnel participate, and are members of, several trade associations such as SEMA, RVIA and SAE. Industry contacts extend beyond trade associations to include OEM body builders, NHSTA associates, and OEM field auditors responsible for incomplete vehicle compliance inspections.



## Compliance Manuals

Atwood Compliance System manuals are the most comprehensive in the industry and are routinely updated as required due to model year chassis changes, new product introductions and as revision to federal standards dictate.



All of these elements combine to provide customers with seating systems that meet the requirements of the Federal Motor Vehicle Safety Standards.



# MANUFACTURING

The Elkhart Operation consists of 150,000 square feet dedicated to manufacturing, order entry, quality assurance and accounting. Customer orders are processed within a fully integrated manufacturing computer system and are reviewed on a daily basis.

In an effort to improve speed to market and customer response, numerous investments have been made in capital equipment and computer systems throughout the plant.



**Robotic Welding for increased consistency**

Standard products, such as chair frame bottoms, are fixtured and welded on robotic welders specially designed to minimize cycle times, fixture change-overs, and variability in the weld consistency. Short run and non-standard products are manually fixtured and welded by trained and certified personnel. Visual checks as well as inspection gauges are utilized to ensure consistent product.

**Automatic Tube Cutting Machine reduces setup time**



Seat adjuster rails are produced on two roll forming lines which are equipped with material sizers, multiple presses and coil feeders. Roll forming produces consistent and uniform bends which are so critical to the overall performance of a seat track system.

Our automatic tube cutting machine reduces the time needed for the set up required for multiple tube lengths through CNC technology and automatic loading capabilities.



**Roll forming equipment for uniform bends**





### CNC Laser Cutting Capabilities

Our CNC laser cutting machine is capable of accepting 3/8" material and will interface with computer aided drawings for quick turnaround of prototypes, as well as short run components.

Reclining mechanisms are assembled on a line equipped with special riveting machines and components designed to conform with strict tolerances. Each recliner goes through a final check for performance prior to packing.



Over two million seat adjusters a year travel down this conveyer line. Line personnel continuously check for fit and function throughout the assembly process. In addition, seat tracks are routinely taken from finished goods and fully inspected for conformance to design specifications.

Sofa and lounge bases are also carried along a conveyer belt during the assembly process. Each power unit is fully cycled and checked for amperage draw to ensure that drive motors are installed and operating properly.



### Powder Paint Coating for a superior finish

Powdercoating provides a durable and attractive high-gloss black finish. Each component is washed to remove any debris and oil left over from the manufacturing process prior to the application of the vinyl powder which is baked onto the metal surface. The spray booth is specially constructed to regulate temperature and humidity which can impact the quality of the surface finish.



# SEATING HARDWARE

## CHAIR FRAMES

Atwood chair frames offer the strength of tubular construction in a variety of configurations. Chair bottoms feature the patented UNI-BRACE design which is capable of accepting numerous manual and power seat adjusters available within the aftermarket. This universal hole pattern allows customers standardization without sacrificing flexibility.



Chair Frame with flex-o-lators, arm rests and head rest

Chair frames are available with springs, flex-o-lators, arm rests, head rests, and manual and power reclining mechanisms.

Other accessory items such as manual and power lumbar supports are also available.

## SEAT ADJUSTERS

Seat adjusters are available in a standard and heavy duty configuration depending on the strength requirements of the application. All upper and lower rails have the same mounting hole dimensions for universal application and are available in 4, 5, 6, and 7 inches of travel. Each track can be adjusted and locked in 1/2" increments of travel.



Universal Seat Adjusters

Seat adjusters can be ordered locking or non-locking, and also with standard 5/16" or 8mm metric threaded studs. Tracks are available with a black powder coat or zinc dichromate finish. A variety of wire form handles are also available to suit specific chair configurations.

For heavy over-the-road truck isolation seating systems, Atwood can also provide an isolation track with up to 11.5" (292 mm) of travel.

## RECLINING MECHANISMS

Atwood has two types of reclining mechanisms for chair frames. One is the ratchet style, or tooth engagement, and the second is a Taumel style. The tooth engagement recliner provides 2.5 degrees of incremental recline and is spring assisted for quick upright positioning. All components are produced from progressive dies. The more critical parts are produced from fine blanking dies to ensure consistent tolerances. Tooth segment blanks are broached for precise fit.



Remote Stem Recliner

The Taumel style recliner is actuated with a handwheel located directly on the recliner at the side of the chair. It is commonly used in Europe and is in constant engagement, even while being positioned by the seat occupant.



Taumel Recliner with Handwheel

There is also a power assisted Taumel style recliner available with enhanced design features which have eliminated chocking, or slight seat movement when the chair is unoccupied.



Power Recliner



## SOFA AND LOUNGE FRAMES

The Atwood line of sofa and lounge frames feature the same sturdy tubular construction as the chair frames. Sofa bases are available stationary, or with power recline and slide. Double power units allow the sofa to recline into a flat bed, and also allows for the entire unit to be moved forward and backward at the touch of a switch.

Powered actuation is accomplished through precise metal drive screws and nuts made from a composite material which do not require lubrication. Dependable 12 volt motors and flexible cables are used to power the sealed right-angle gear boxes connected to the drive screws. Components can be removed for service or replacement.

Fully manual sofa base systems are also offered which operate smoothly requiring little effort to release the reclining hinge. Manual forward and rearward adjustment can also be accomplished with a pair of seat adjusters mounted between the base and sub-base of the sofa.



Hidden Cushion Sofa

The Atwood hidden cushion sofa represents a unique approach to a three cushion sofa while maximizing rear space when in the upright position. The third cushion tucks below the seat cushion when it's not laid out flat as a bed. By moving the third cushion below the seat when in the up position, space is created behind the sofa where third cushions are most commonly mounted.



Bi-Fold System with Add-a-Shelf, Headrests and Armrests

The number one style used within the van conversion industry is the two cushion bi-fold system. For those wishing to add a third cushion, the add-a-shelf option is best suited. Add-a-shelf brackets attach to the rear of the sofa base and provide a platform for either an additional cushion, or a wooden shelf which can be pulled down and used as a counter when tailgating.



Jack Knife

For applications where the sofa needs to be installed upright against a wall and fold out to a bed without moving the base, the jack knife base is your best bet. Jack knife lounges are used primarily in motorhomes and travel trailers, and provide the best option when dealing with a zero clearance installation. Atwood also has jack knife bases for dinette application as well.



Lounge Fold Down

For those situations where the only requirement is that the sofa back is hinged, Atwood offers the lounge fold down. By gently pulling up the release lever, from the front or rear of the sofa, the hinged back fully reclines to create a bed. As with the other sofa and lounge bases, the lounge fold down is made from tubular construction which delivers strength and trouble free operation. All bases carry a powder coat finish for a superior high-quality appearance.



Double-Power, Bi-Fold System with Add-a-Shelf, Headrests and Armrests

Each sofa and lounge base is designed to accommodate various applications based upon space and movement constraints. There are also numerous sizes of lounge seats and back frames available as well. Options include head rests, center fold out trays, and arm rests for the back. Consult with your Atwood Representative when determining size requirements for your application.



## SAFETY RESTRAINTS

In addition to seating hardware, Atwood also offers seat belts designed for Van conversions. Atwood is the North American distributor of Autoflug Safety Restraint systems. Autoflug is a division of Autoleaf, a German supplier of OEM belt systems to such notable companies as Mercedes Benz and Audi/Porsche.

Belts are available in six colors which match OEM interiors and are fully certified to FMVSS 209. Belt sets come individually boxed per seating position and are clearly labeled for ease of identification. Mid-ship belts offer a quick release D-loop enabling the belt system to be completely removed with the chair.

The Atwood Compliance System includes all attachment hardware necessary for installation of the belt system in compliance with federal standards.



Removeable straps



## SEAT PEDESTALS

Atwood can supply a variety of chair pedestals for first and second position seating for vehicle conversions ranging from pickup trucks and SUVs to full-size vans. Front seat pedestals can accommodate power and manual seat adjusters and come with, or without, seat belt attachments depending on whether the application is load bearing or not. Since the recommended pedestal design will vary by vehicle and seating position, call for details regarding pedestal availability.

The most popular pedestal for second position seating is the patented Atwood Quick Removable system. This design utilizes a permanently flush mounted base plate with detachable top pedestal which is removed from the vehicle with the seat assembly. These units too are available with seat belt attachment points.



Fixed Pedestal



Removeable Pedestal



## INSTALLATION HARDWARE

Atwood can supply fully tested and certified installation hardware for second and third row seating for full-size and mini conversion vans. Compliance manuals and wall posters are available with exploded views showing where each labeled component is installed. Rear sofa hold down clamps are also available in standard and quick release.



Dodge Seating Installation Hardware

## Other Atwood Products

### Product Literature

Atwood Mobile Products offers a wide range of products for many markets, including but not limited to, the RV, Industrial, Agricultural and Marine industries. Product literature is available by calling 815-877-5700 or asking your regional salesperson. Brochures are available for:

**Atwood Water Heaters**

**hydro flame™ Furnaces**

**Atwood and Wedgewood® Ranges**

**ProTechTor® Gas Detectors**

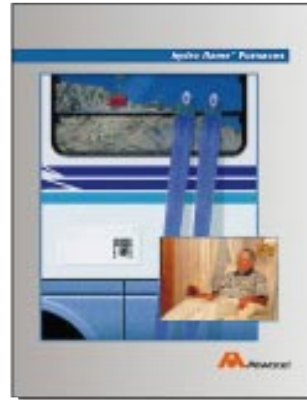
**ProTow'd® Chassis Components**

**Towable RV Chassis Components**



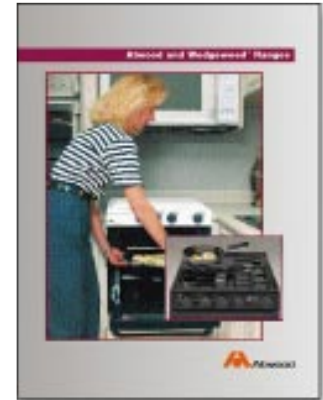
#### Water Heaters

- RV
- Marine



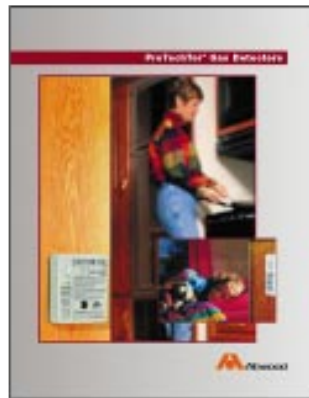
#### hydro flame™ Furnaces

- RV



#### Atwood and Wedgewood® Ranges

- RV



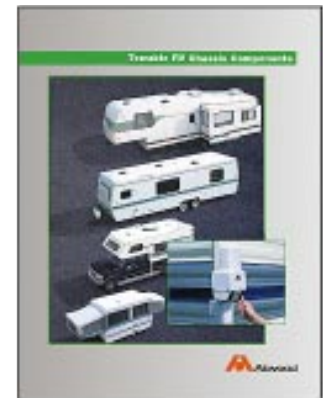
#### ProTechTor® Gas Detectors

- RV



#### ProTow'd® Chassis Components

- 5th Wheel Trailers
- Horse & Stock Trailers
- Industrial Trailers
- Commercial Trailers
- Utility Trailers
- Gooseneck Trailers
- Agricultural Equipment
- Specialty Equipment



#### Towable RV Chassis Components

- Pickup Campers
- Travel Trailers
- Tent Campers
- 5th Wheels or trailers

 **Atwood**

**EXCEL**  
AN EXCEL INDUSTRY

**Atwood Mobile Products**  
WORLD HEADQUARTERS  
4750 Hiawatha Drive  
Rockford, IL 61103-1298



PHONE: 815-877-5700 FAX: 815-877-7469  
INTERNET: <http://www.atwoodmobile.com>

