



### APPLICATION

Adhesive/sealant dispensing and assembly  
- Automotive headliner, aircap, lamp retainers

### Objective

The dispensing and part-handling system must apply hot melt adhesive, then attach and seal an aircap and two lamp retainers to the vehicle headliner.

### Parts

- Headliner (to which the hot melt is applied)
- Aircap
- Left- and right-hand lamp retainers

### Material

Hot melt adhesive  
➤ Applied at 350°F

### Customer Benefits

This system provides several benefits:

- Faster, more accurate, and highly repeatable application of adhesive
- Accurate and simplified assembly process
- Reduced manual labor and adhesive waste
- Lower overall process cost and higher productivity



The headliner in the dispense position surrounded by e-lock guarding.



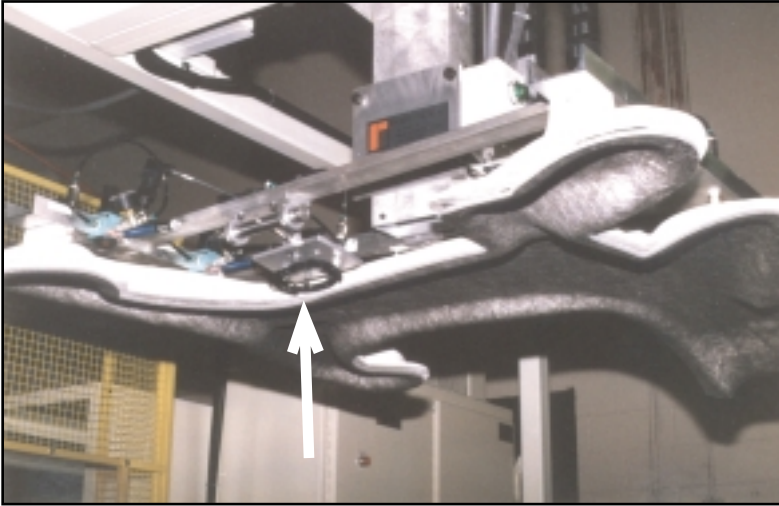
The vacuum pick-and-place mechanism raised after placing the air cap and lamp retainers on the dispensed headliner.



The adhesive bead outlining the aircap seal perimeter on the three-dimensional headliner surface.

### Key System Features

- **HS Series High Speed Program-A-Spenser™** 3-axis Cartesian-coordinate dispensing system
- Dispense envelope: 66" x 52" x 12" (x-y-z)
- Vacuum pick-and-place mechanism
- Pneumatic headliner shuttle
- Multi-point load-fault indicator
- Bead path programming and design flexibility for changes in shape and size of assembly parts
- Multiple operator safety features highlighted by electronic safety mats and e-lock guarding
- Hot melt adhesive supply unit with 20' heated hose and automatic hot melt gun



View from underneath the pick-and-place mechanism. Aircap and lamp retainers (arrow) are held by vacuum.

## Sequence of Operations

1. Operator loads a headliner onto a "nest" fixture and presses the "Cycle Start" button.
2. The headliner shuttles into the dispense position.
3. While the hot melt is robotically dispensed, the aircap and lamp retainers are manually placed on their respective fixtures.
4. The operator touches a second "Cycle Start" button to lower a vacuum-cup pick-and-place mechanism onto the parts in the previous step.
5. The pick-and-place mechanism lifts the parts and waits for the headliner.
6. The dispensed headliner automatically shuttles under the vacuum-held parts.
7. The vacuum-held parts are lowered and pressed in place on the headliner.
8. The pick-and-place mechanism releases the parts and raises allowing the operator to remove the headliner assembly and repeat the steps above.

## Systems & Support

Robotics, Inc. has decades of experience designing and building automated dispensing systems. We provide complete system solutions, including start-up and installation assistance, training, field service support, and complete documentation. Dependent on your specific project considerations, Robotics Inc. staff will design and build a system that is right for you.

## Information

Robotics, Inc. has designed and built hundreds of dispensing systems for a variety of industries. For more information on this application or other products and services, contact a Robotics Inc. Sales Representative:



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## Process Specifications\*

<b>Parts</b>	Automotive (SUV) headliner and aircap (both fiberglass-foam composites), and plastic lamp retainers
<b>Total Cycle Time</b>	75 seconds
<b>Production Rate</b>	48 assemblies per hour
<b>Dispense Rate</b>	Up to 700 ipm (500 ipm avg.)
<b>Total Bead Length</b>	250"
<b>Material</b>	Hot melt adhesive
<b>Material Application Temperature</b>	350°F
<b>Bead Diameter</b>	0.125"-0.25"

\* Values are based on customer's specific requirements and do not necessarily indicate optimum values. Call for further information regarding system capabilities and product specifications.

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