

## Case History 102

**Industry:**

Automotive-Lighting manufacturers

**Components/Products:**

Tail, stop, indicator, fog and headlights for all types of vehicles.

**Background:**

Plastic lens covers for tail light assemblies come in all shapes, sizes and colors; clear, red, amber, silvered or a combination of each. Suppliers of lighting products have opened manufacturing plants in countries around the world to satisfy the local content requirements of the automotive manufacturers.



Normally three major parts make up any lighting unit; the reflector lens which is also the rear housing, the lens cover (shown above) and the electrical components. There are at least three potential applications common to lighting manufacturers depending on the “local styles” and manufacturing process, but there can be more.

## The Problems:

The lens cover and reflector lens/housing are made from various plastics and during manufacturing, dust is attracted to these surfaces due to the build up of static electricity.

Lens cover. In the above photograph there is a black edge to the lens cover (could also be red). This is paint which is applied to the underside of the cover to make a neat edge. For good paint adhesion and minimal overspray the cover must be static free and the dust removed. If not, the part is reworked or scrapped.



Reflector lens/rear housing. The reflector lens is produced by applying a silver coating to the inside of the reflector lens/housing using a vacuum plating process. Before the coating is applied, the cover must be static free and the dust removed. Otherwise the lens will magnify the imperfections, the silver coating will have poor adhesion and the light beam will be irregular, resulting in scrap.

Lens cover joined to reflector lens/housing. Dust on the outside of the finished lamp unit can easily be removed, but dust on the inside is totally unacceptable. Depending on the manufacturing process, both the lens cover and the reflector lens/housing may need static and dust removed before they are ultrasonically welded together. If not, a distinct haze or mist will be seen when the unit is illuminated causing the lamp assembly to be scrapped.

## The Solution:

Based upon the part configuration and manufacturing process both **Ion Air Cannons** and **Super Ion Air Knives** from EXAIR have been successfully used in the USA and UK to remove the static charge and dust particles. **Problems solved.**

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