the generic illustrations, and are also listed in the glossary which contains balloon and aeronautical terminology. Some terms and names used by manufacturers are also included.

Envelope

The envelope is usually made of light-weight and strong synthetic fabrics such as ripstop nylon or Dacron®. The material is cut into panels which are sewn together in vertical rows that are called gores due to their triangular shape. The traditional envelope shape is a teardrop. The gores are reinforced with sewn-in webbing called horizontal and vertical structural load tapes which are continuous to the top center of the balloon where they are sewn into a load ring. Galvanized, stainless steel, or Kevlar® cables transfer basket loads to load tapes which in turn support the load. The nylon "skirt" at the base of the envelope is coated with special fire resistant material to keep the flame from igniting the balloon.

The deflation port is located at the top of the envelope and allows for the controlled release of hot air. It is covered by the deflation panel sometimes called a top cap, parachute top, or spring top. *[Figure 2-4]* In a balloon with a parachute top, partial opening of the parachute valve is the normal way to cool the balloon. Balloons with other types of deflation panels may have a cooling vent in the side or the top. Many balloons are also equipped with turning vents, which allow for the pilot to turn the balloon on its vertical axis while in flight. Turning vents help a pilot align the basket for landing, or in the case of commercial balloons, align the balloon's logo toward the crowd.

Figure 2-4. *Deflation system.*

Special Shape Balloons

Balloons that do not have a traditional "teardrop" shape are called special shape balloons. *[Figure 2-5]* They may be completely engineered systems which have been designed to resemble cans, sports balls, cartoon characters, cars, etc.

Figure 2-5. *Special shape balloons.*

Some balloons have appendages added to the envelope. Appendages are pieces added to a balloon envelope in order to create a particular shape or rendition, not necessarily keeping with a standard shape balloon. To be designated an appendaged envelope, less than 10 percent of the total capacity of the balloon is contained within the appendage. While the appendaged envelope has the same general flight characteristics as a standard balloon shape, there are some differences. For example, the added weight of the appendage may cause the overall envelope to weigh significantly more than teardrop balloons of equal size. Appendage balloons also have the tendency to rotate during aggressive climbs and descents.

A special shape envelope requires a substantial amount of engineering to ensure the envelope is properly stressed, and the balloon has no undesirable flight characteristics due to the shape. Special shape balloons built in the United States or the United Kingdom are normally issued Standard Airworthiness Certificates, but special shape balloons imported from other manufacturers in other countries may be issued an Experimental Airworthiness Certificate. A balloon with an Experimental Airworthiness Certificate usually may not be flown for compensation or hire, which negates the marketability of such a balloon. Additionally, an experimental balloon may not be flown over congested areas,