Technicians inexperienced at rib lacing should seek assistance to ensure the correct knots are being tied. STC holder videos are invaluable in this area. They present repeated close-up visual instruction and guidance to ensure airworthy lacing. AC 43.13-1, Chapter 2, Fabric Covering, also has in-depth instructions and diagrams as do some manufacturer's manuals and STC's instructions.

Rings, Grommets, and Gussets

When the ribs are laced and the fabric covering completely attached, the various inspection rings, drain grommets, reinforcing patches, and finishing tapes are applied. Inspection rings aid access to critical areas of the structure (pulleys, bell cranks, drag/anti-drag wires, etc.) once the fabric skin is in place. They are plastic or aluminum and normally cemented to the fabric using the approved cement and procedures. The area inside the ring is left intact. It is removed only when inspection or maintenance requires access through that ring. Once removed, preformed inspection panels are used to close the opening. The rings should be positioned as specified by the manufacturer. Lacking that information, they should be positioned as they were on the previous covering fabric. Additional rings should be installed by the technician if it is determined a certain area would benefit from access in the future. *[Figure 3-30]*

Water from rain and condensation can collect under the fabric covering and needs a way to escape. Drain grommets serve this purpose. There are a few different types as described in the materials section above. All are cemented into position in accordance with the approved process under which the work is being performed. Locations for the drain grommets should be ascertained from manufacturer's data. If not specified, AC 43.13-1 has acceptable location information. Each fabric covering STC may also give recommendations.

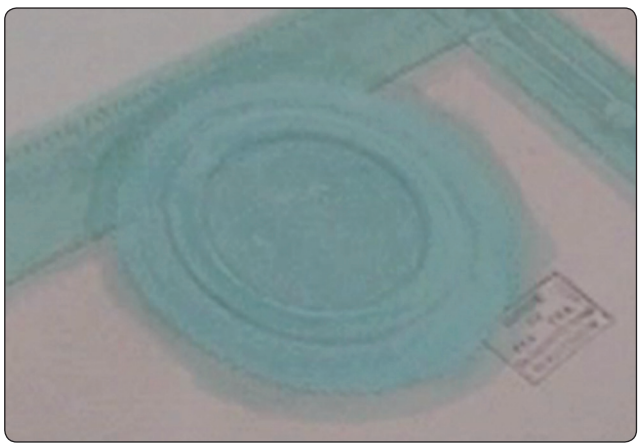

Figure 3-30. *This inspection ring was cemented into place on the fabric covering. The approved technique specifies the use of a fabric overlay that is cemented over the ring and to the fabric.*

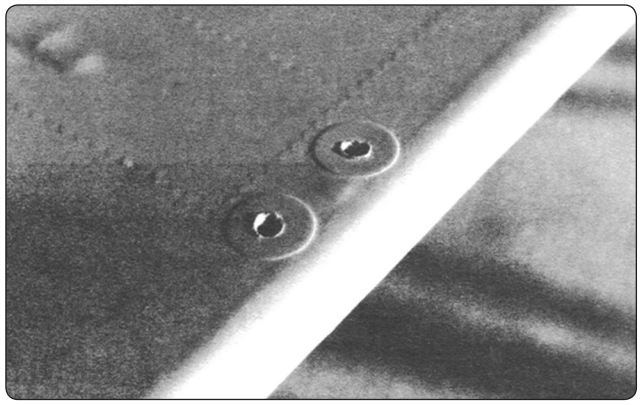

Figure 3-31. *Drain grommets cemented into place on the bottom side of a control surface.*

Typically, drain grommets are located at the lowest part of each area of the structure (e.g., bottom of the fuselage, wings, empennage). *[Figure 3-31]* Each rib bay of the wings is usually drained with one or two grommets on the bottom of the trailing edge. Note that drain holes without grommets are sometimes approved in reinforced fabric.

It is possible that additional inspection rings and drain grommets have been specified after the manufacture of the aircraft. Check the Airworthiness Directives (ADs) and Service Bulletins for the aircraft being re-covered to ensure required rings and grommets have been installed.

Cable guide openings, strut-attach fitting areas, and similar features, as well as any protrusions in the fabric covering, are reinforced with fabric gussets. These are installed as patches in the desired location. They should be cut to fit exactly around the feature they reinforce to support the original opening made in the covering fabric. *[Figure 3-32]* Gussets made to keep protrusions from coming through the fabric should overlap the area they protect. Most processes call for the gusset material to be preshrunk and cemented into place using the approved covering process cementing procedures.

Finishing Tapes

Finishing tapes are applied to all seams, edges, and over the ribs once all of the procedures above have been completed. They are used to protect these areas by providing smooth aerodynamic resistance to abrasion. The tapes are made from the same polyester material as the covering fabric. Use of lighter weight tapes is approved in some STCs. Preshrunk tapes are preferred because they react to exposure to the environment in the same way the as the fabric covering. This minimizes stress on the adhesive joint between the two.