

## SECTION 10. SERVICE LOOP HARNESES (Plastic Tie Strips)

**11-135. GENERAL.** The primary function of a service loop harness is to provide ease of maintenance. The components, mounted in the instrument panel and on the lower console and other equipment that must be moved to access electrical connectors, are connected to aircraft wiring through service loops. Chafing in service loop harnesses is controlled using the following techniques.

**11-136. SUPPORT.** Only string ties or plastic cable straps in accordance with paragraph 11-158 should be used on service loop harnesses. A 90° or “Y” type spot tie should be installed at the harness breakout point on the harness bundle. Ties should be installed on service loop harnesses at 4 to 6-inch intervals.

**11-137. ANTI-CHAFING MATERIAL.** When service loops are likely to be in contact with each other, expandable sleeving or equivalent chafe protection jacket material must be installed over service loop harnesses to prevent harness-to-harness chafing. The sleeve should be held in place with string ties at 6 to 8-inch intervals. Harness identification labels should be installed, with string tie, within 3 inches of the service loop harness installation.

**11-138. STRAIN RELIEF.** The strain relief components may be installed to control routing where close clearance exists between termination and other components or bulkheads. Strain relief components provide support of the service loop harness at the termination point. Connector strain relief adapters,

heat-shrinkable boot, or a length of heat-shrinkable tubing should be installed. The heat-shrinkable boots will provide preselected angles of wire harness termination when heat is applied. Heat-shrinkable tubing should be held at the desired angle until cool.

**11-139. “SERVICE LOOP.”** Primary support for service loop harness(es) should be a cushion clamp and a connector at the harness termination. Service loop harnesses should be inspected for the following:

**a. Adequate Length.** Components should extend out from their mounting position a distance that permits rotating and unlocking (or locking) the electrical connector. Usually a distance of 3 to 6 inches, with all other components installed, should be sufficient.

**b. Bundle BreakOut Point.**

(1) Bundle breakout point should be adequately supported with string tie.

(2) Service loop must maintain a minimum bend radius of 3 times the harness diameter.

(3) The breakout point should be located directly behind, beside, below, or above the component so that the service loop harness does not bind other components.

(4) Plastic ties should not be used between the service loop breakout and the electrical connector when they are likely to chafe against adjacent wire.

**c. Service Loop Routing.** The service loop harness should be routed directly from the breakout point to the component. The harness should not contact moving mechanical components or linkage, and should not be wrapped or tangled with other service loop harnesses.

**d. Service Loop Harness Termination.** Strain relief should be provided at the service loop harness termination, and is normally provided by the connector manufacturer's back-shell, heat-shrinkable boot, or tubing.

**11-140.—11-145. [RESERVED.]**