Appendix G

Navy Request to Congress for Funds, FY 1983

This document shows that the Navy found problems with Raychem’s Poly-X.
MODIFICATION OF AIRCRAFT
FISCAL YEAR 1983

Appropriation: APN - Activity 5

Modification Title and No.: Replace Selected Wiring Harnesses (OSIP 38-80)

Models of Aircraft Affected: F-14A

Description/Justification:

Numerous wiring harnesses made of "POLY-X" wire have had an abnormal insulation aging, embrittlement and cracking resulting in wire-to-wire shorts, particularly during the presence of water. High PH value solutions such as aircraft soaps, when in contact with the "POLY-X" wire, have shown an accelerated insulation aging, embrittlement and cracking. Poor hot wire stamp marking procedures and bad quality solder sleeve connections in the production line have also contributed to premature insulation breakdown in Fleet aircraft. The MIL-C-81511 connector has also contributed to aircraft electrical problems. Connector environmental seal breakdown and case corrosion have caused numerous pin-to-pin shorts which result in equipment malfunctions and failures. Some of the wire and connector failures have been observed as spurious signals on control wires causing spoilers to stick in the up position, inadvertent autopilot commands and power shorts which disable the autopilot completely.

"KAPTON" wire is currently being used in production and will eliminate the problems characteristic of "POLY-X" wire. Cadmium plated connectors with a 10-fold increase in corrosion protection are available now. Extensive utilization of "KAPTON" wire and cadmium connectors throughout the airframe commenced with the FY 1979 production aircraft (aircraft no. 350 and subsequent). Retrofit of selected susceptible harnesses will be accomplished as they are identified. Currently, five wheel well harnesses in each aircraft are being replaced with improved wire and cadmium connectors under another program. This program involves the manufacture and installation of the wing spoiler flight control, nose and main landing gear, and the aft fuselage flight control harnesses by the Naval Air Re-work Facility. This is a safety change and will not result in any change in weight or require additional space.

Development Status: No development is required. These changes were phased into production during FY 1979-1979 timeframe.