Aerospace Engines: Case Study

Harwin were approached by the a world leader in aero engine technology to assist in providing connector solutions for a Telemetry System used in jet engine test equipment. The existing methods of making the connections relied heavily on operator skill levels and were direct, hard wired connections. The driving forces were to reduce the overall cost of the test set up, reduce the time taken and to simplify the overall design.

The Harwin solution drew upon proven socket technology to offer a high reliability connector that could meet the most stringent of tests.

High Reliability Solution

Given its intended use within a jet engine, the connector solution offered by Harwin had to be very durable and extremely reliable. If the connector failed during use, the test would have to be repeated at a typical cost of about £500,000.

Design Concept

The first stage after the initial meeting was to provide a design concept based on the standard 0.8mm Harwin socket contact (the mating pin is actually a Ø1.0mm but the 0.8mm clip provides greater contact forces). Samples of standard 0.8mm sockets were provided to the customer for use in a Spin Test. The results of the test indicated that the clip maintained electrical contact whilst being subjected to about 30,000g; more than sufficient for use in the telemetry set up.

All through the design process, the customer was an integral part of the team within Harwin, from product design to tooling and test requirements. Once first off parts were received from Harwin Production Engineering, they were closely inspected for dimensional accuracy, with a full Initial Samples Inspection Report provided for the customer to sign off for approval.

Customer Satisfaction

In summary, Harwin has provided a custom connector to a prestigious customer using technology from existing, proven products. The contacts used in this connector, not only passed the Spin Test, but also have a long history of use in many different environments giving high levels of confidence that they were suitable for the task at hand.