

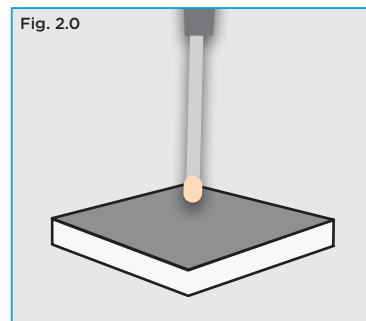
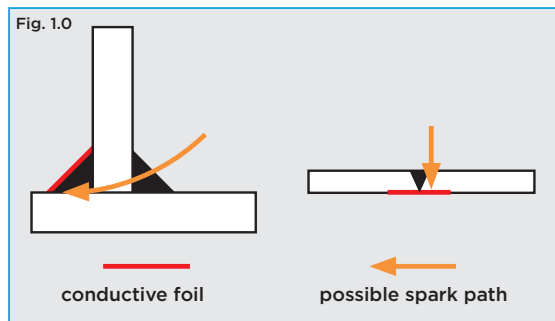
# SPARK TESTING PROCEDURE AND QUALITY CONTROL



Voltage to be used is variable according to material thickness and environmental conditions. The best way to calculate the effective voltage is to do a calibration test with a customised “test block” of material the same thickness as the distance you will be expecting the spark to have to travel should there be a hole.

## CALIBRATION AND TEST PROCESS:

1. Decide on distance spark must be expected to travel to locate any hole:
  - For a butt weld the calibration test piece will be the same thickness as the material welded
  - For a fillet weld it will vary depending on the geometry of the join. ( fig 1.0)
2. Hold spark tester approximately 13mm above surface of the calibration block (1/2 inch)
3. Adjust voltage setting increasing it until an easily visible white spark is seen jumping between the end of the probe and the test hole (fig 2.0)
4. Use this voltage setting to test the weld
5. Ensure surface to be spark tested is clean and free of any moisture
6. Ensure that either conductive foil has been placed along back of weld or that some other electrically conductive surface is behind the thermoplastic material being spark tested e.g. metal tank wall or carbon impregnated composite
7. Move the spark tester tip along the weld or surface being tested in a uniform manner at approximately 500-750mm per 10 seconds. The probe should be in contact with the surface and be moved back and forth until the entire area being tested has been covered
8. While a bluish corona around the tip of the tester is normal; a hole will be indicated by a white spark usually accompanied by an audible crack. This area must be marked for re-working and re-testing. This should be recorded as a non conformance.



### TO NOTE:

- the material being tested has to be clean and dry
- there has to be a conductive surface behind the surface or weld being tested i.e. foil tape or graphite coating or steel
- the distance / thickness being tested is limited to approximately 30mm
- the voltage setting should ideally be set using calibration blocks of the same thickness the spark may need to travel in a straight and direct line

**NB** If calibration blocks are not available – maximum voltage will not “create holes” where material is more than 1.5mm thick – even with repeat testing

### SPARK TESTING SHOULD NOT BE DONE WHERE A SPARK MAY CAUSE AN EXPLOSION OR OTHER SAFETY HAZARD

Spark testing emits electromagnetic interference (EMI) in the same way arc welders do.

It may cause interference with machinery, computers, phones, pacemakers etc.

This EMI is less than 1 meter in any direction.

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Rev. Date: 25/01/2021

