UNDERSTANDING ARP 0108, PART 2 - Ex Repairs

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OVERVIEW

- DIFFERENCES PARTS 1, 2
- ARP 0108 AND REPAIRS
- ACCEPTABLE REPAIR METHODOLOGY
- PRACTICAL APPLICATION – EXPERIENCE WITH A SPECIFIC MARK SCHEME
  - Equipment design
  - Which version of the design standard(s) to use for repair
  - Repair practice
  - Quality management
DIFFERENCES PARTS 1, 2

- Phasing out of old certs, Group I (Ed. 1) vs Group II (Ed. 1.1)
- Company reqs vs Ntnl reqs
ARP 0108 AND REPAIRS

4.4 ….. All new, re-designed or repaired apparatus for use in hazardous locations in mines shall have an IA certificate number displayed on such apparatus before being entered into service.

Annex C (Mines and Surface)

C.1 In South Africa, all EPA used in underground mines (Group I) and on surface (Group II) shall be covered by an IA certificate.

C.5 Repairs and overhauls shall be carried out in such a way that they will not invalidate the IA certificate. Repairs and overhauls carried out by a party other than the certificate holder, where the repairer or overhauler is not in possession of the certification documents, shall be carried out in such a manner that the product meets the requirements of the applicable national standards to which the product was originally certified, or any more recent edition.
10.1(2) The employer must take reasonably practicable measures to prevent persons from being injured in any hazardous location as a result of fire, explosion or the ignition of gas, dust, mist or vapour. Such measures must ensure that –

(e) any repair, overhaul or modification to any explosion protected apparatus used in any hazardous location does not alter its design characteristics and is carried out in accordance with SANS 10086-3 2005. The installation, inspection and maintenance of equipment used in explosive atmospheres Part 3: Repair and overhaul of apparatus used in explosive atmospheres;
EMR 8(1) of OHS Act (2009):

No person may use electrical machinery in locations where there is danger of fire or explosion owing to the presence, occurrence or development of explosive or flammable articles, or where explosive articles are manufactured, handled or stored, unless such electrical machinery, with regard to its construction relating to the classification of the hazardous locations in which it is to be used, meets the requirements of a safety standard incorporated for this purpose in these regulations under Section 36 of the Act.

NOTE – Section 36 refers to design standards.
ACCEPTABLE REPAIR METHOD

- SANS 60079-19 Ed. 2:

Assuming that repairs and overhauls are carried out using good engineering practices then:

a) if manufacturers' specified parts or parts as specified in the certification documentation are used in a repair or overhaul, the apparatus is presumed to be in conformity with the certificate.

b) if repairs or modifications are carried out on the apparatus specifically as detailed in the certification documents, the apparatus should still conform with the certificate.

c) In circumstances where the certification documents are not available then the repair or overhaul shall be carried out on the apparatus in accordance with this standard and other relevant standard(s).
EQUIPMENT DESIGN

- Original Equipment Manufacturers (OEMs)
- The design drawings OR repair spec (certified ?)
- Non-OEM repairs
- The two main requirements are (a) that the equipment to be repaired must be a certified flameproof product and (b) that minimum safety requirements of the relevant design standard(s) listed above must be met.
- Proof of type testing required
- Typical example of minimum safety requirements – max. gap on Ex d equipment.
- Previous modifications must be identified. Typically, repair specification (database).
WHICH VERSION OF THE DESIGN STANDARD(S) TO USE FOR REPAIR

- Equipment will normally be repaired to the latest standard for which the repairer has accreditation, unless any corresponding upgrades are too costly.
REPAIR PRACTICE

- SANS 10086-3
- “Good Engineering Practice”
DISCUSSION

THANK YOU