

BI-02A.03 Fit for purpose equipment selection processes - Electrical Systems

(Accountable - Engineering Manager (Site) (Unassigned))

Expectations

Equipment specifications include details on electrical systems and these reference relevant standards, regulatory requirements and other industry information.

Specify

Electrical systems specifications typically include:

- Rubber grommets or bulkhead connectors for electrical cables passing through bulkheads (honouring requirements for maintaining integrity of fire walls) insulating electrical cables against heat and locating them away from hydraulic or fuel lines
- Not using plastic or metal cable ties to secure sheathed electrical cables and wiring looms
- Requiring cables to be fire resistant and resistant oil/fuel attack
- Using circuit breakers wherever possible
- Wire tie fittings to prevent coming loose (e.g. adopting standards used in the aviation sector)
- Providing dedicated cable trays with capacity for additional cable runs to be added
- Securing batteries to prevent movement
- Venting battery compartments to minimise the generation/accumulation of hydrogen
- Protecting all circuits, except starter motors, against short circuit and over current

- Fire suppression related shunt-trip circuits (to appropriately (after a rigorous consideration of the risk scenarios) remove energy in the event of a potential fire event on the machine)
- Segregation of high energy circuits from fuel sources / combustible materials on the machine
- Low energy (Intrinsically Safe/IS) circuits used in proximity to combustible liquids on the machine

Electrical systems that derive power from diesel engine alternators or batteries should be designed to Australian

Standard AS 4242. These specifications may also include:

- automatic disconnection of power from the battery to protect all circuits except starter motors against short circuits
- purpose designed jump-starting systems
- isolating both poles of batteries on faulty equipment.

Implement

Ordering / selection of equipment is based on meeting specifications.

All equipment in use is approved and documented. The details of equipment being used are listed in asset registers.

OEM provided asset documentation is added to Plant Safety File. Maintenance planners review *introduction to site records* and add work orders for the maintenance of key systems.

Monitor

Competent person (e.g. reliability engineer, maintenance planner, asset manager, etc.) receive Intro to Site documentation (and add to site Asset register). OEM provided documentation is added to the Asset Plant Safety File.

