

Category 2 Standard

S2539 Maintenance of Air (Formerly E7155) Distribution System

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1 Purpose

- 1.1 This standard defines the minimum maintenance requirements for the air distribution system used on London Underground.
- 1.2 It is not normally intended to define methods of maintenance, but where the standard does so it is for particular reasons and the Asset Steward shall adhere to those methods. Workshop overhaul is not covered by this standard.

2 Scope

- 2.1 This standard applies to the air distribution system from the sub station pressure reducing valve up to and including flexible hoses feeding individual items of trackside equipment and all feeds to interlocking machines.
- 2.2 This standard does not apply to the compressor, nor to its associated pressure reducing valve, nor to pipework provided for non signalling equipment. These, and the maintenance boundary demarcation, are detailed in S1105, Power Services Contract – Performance Specification, which also specifies Compressed Air Quality and Pressure.
- 2.3 The primary user of this standard is the Asset Steward.
- 2.4 This standard supersedes E7155 A4, which is withdrawn.

3 Requirements

3.1 Safety considerations

3.1.1 System safety

- 3.1.1.1 The air distribution system is used for the operation of safety critical assets. In the event of complete or partial failure, the safe running of the railway may be affected either directly, or indirectly through the consequent use of manual procedures for the control of train movements.

3.1.2 Safety of personnel

- 3.1.2.1 All potential hazards such as, electric shock, moving trains, hazardous substances, the requirements of the Pressure Systems Safety Regulations and Contract QUENSH conditions shall be identified. Safe systems of work shall be devised and followed to guard against identified hazards for all maintenance activities. It shall be noted that under fault conditions the air pressure in the distribution may reach 10 bar.

3.1.3 Environmental safety

3.1.3.1 General

- 3.1.3.1.1 All maintenance activities including vegetation control, disposal of lubricant and wastes, utilisation of energy and materials, shall be carried out in compliance with present statutory safety and environmental legislation, Contract QUENSH conditions and codes of practice. Assets shall be assessed to identify products and wastes that can be reused, re-cycled or rendered harmless and any discharges controlled to minimise their environmental impact during the whole maintenance procedure.

3.1.3.2 Ethylene Glycol

- 3.1.3.2.1 The Asset Steward shall ensure that staff are aware that Ethylene Glycol may be present in the air distribution system. Ethylene Glycol is a pollutant and the Asset Steward shall take preventive precautions as to avoid any spillage.

3.2 Operational requirements

3.2.1 Authorisation

3.2.1.1 Competency

- 3.2.1.1.1 Maintenance staff shall be competent to work on that asset type, in the particular operating application and environment, in accordance with engineering standard S1203, Competence of Personnel Working on Signal and Signal Control Systems..
- 3.2.1.1.2 Persons undertaking independent examinations in accordance with the Pressure Systems Safety Regulations shall be specifically competent to do so.

3.2.1.2 Task authorisation and certification

- 3.2.1.2.1 Individual tasks involving a disturbance to the function of an asset must be sanctioned in advance and certified on completion through the issue of an Authority to Work Certificate in accordance with standards S1201, Signalling and Signalling Control – Approvals, E7500, Signalling and Control Systems safety critical processes, and SCS-ST-0021, Installation handbook standards.

3.2.2 Planning requirements

- 3.2.2.1 Asset Stewards shall devise a maintenance regime by which the air distribution system is to be maintained in a safe and effective operating state. The regime shall define the frequency or other criteria for maintenance and the tasks to be carried out. The regime shall additionally include a mandatory 10% examination per annum undertaken by independent persons with specialist competence.
- 3.2.2.2 The Asset Steward shall also develop a method of verification to monitor the effectiveness of the maintenance regime.
- 3.2.2.3 The effectiveness of the maintenance regime shall be verified by the Asset Steward:
- a) at regular intervals;
 - b) following significant incidents;
 - c) in advance of planned changes.
- Changes to the maintenance regime shall be managed in accordance with the requirements of 1-538, Assurance.
- 3.2.2.4 Execution of duties shall be verified by programmed audit.
- 3.2.2.5 Processes shall be established to enable maintainers to report potential deficiencies in the regime and for these to be considered.
- 3.2.2.6 The specific requirements of the Pressure Systems Safety Regulations shall be complied with as detailed in this standard.