

GUIDANCE

IN-SERVICE INSPECTION PROCEDURES

Number: **PEC 16**

Prepared by: **Pressure Equipment Committee (TC1)**

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Reference: **Guidance – Following report of an incident involving the failure of an autoclave door**

Situation

An incident took place in 2007 with a "motoclave" type rectangular steriliser/autoclave manufactured by British Sterilizer Co. in 1984 in which the door was blown open whilst under pressure. Initial investigation would indicate that the door was not fully closed when steam pressure was applied and the door "slipped" off the door clamps, releasing the door which was forced open by steam pressure distorting lower door guide brackets. No one was injured during the incident.

Door closure interlocks include:

- two electrical switches on the door to ensure door closure,
- an interlock on the cam locking system to ensure cams are in closed position, and
- an air switch operated by door closure by means of a rocker arm with adjusting bolt which prevents steam supply to chamber unless operated



Rocker arm with adjusting bolt - Note: bolt is not locked

Initial investigation indicated that the electrical interlocks were probably set to operate before the door was fully closed.

At the time of the incident, evidence would indicate that the door stopped approximately 10 mm short of full closure and the door clamps closed on to the door in this position [see marks on door clamping area]. With the door in this position the air switch interlock should have prevented steam being admitted to the steriliser chamber, however as can be seen in the photograph the adjusting bolt on the rocker was not locked and it is assumed that it was not in correct adjustment and steam was admitted to the chamber.



Door clamping area

Note: normal closed position marking, not fully closed position marking and marking due to "slipping" off clamp.

Note: Further information about manufacturer's revised requirements for door settings can be obtained from an NHS Estates Safety Notice HSE SN(97)07 issued in 1997.

Guidance

Engineer Surveyors should draw users' attention to the fact that interlocks should always be correctly adjusted and locked and that interlocks should be checked for correct operation at regular intervals.