

MINISTRY OF HOME SECURITY
A. & E. DEPARTMENT
No. 96.20 1944.495

STATUTORY RULES AND ORDERS RECORDS
1944 No. 495

EMERGENCY POWERS (DEFENCE)
Factories

THE FACTORIES (TESTING OF AIRCRAFT ENGINES, CARBURETTORS AND OTHER ACCESSORIES) ORDER, 1944, DATED APRIL 25, 1944, MADE BY THE MINISTER OF LABOUR AND NATIONAL SERVICE UNDER REGULATION 60 OF THE DEFENCE (GENERAL) REGULATIONS, 1939.

Whereas it appears to the Minister of Labour and National Service (hereinafter referred to as "the Minister") that persons employed in the testing of aircraft engines, carburettors or other accessories in factories to which this Order applies are employed in the performance of services or engaged in operations which are essential for the defence of the realm or the efficient prosecution of the war or essential to the life of the community and also are employed in circumstances which in the opinion of the Minister are or are likely to be dangerous to life or limb or injurious to health;

Now, therefore, the Minister by virtue of the powers conferred on him by Regulation 60 of the Defence (General) Regulations, 1939, hereby makes the following Order:—

Part 1. Interpretation and General.

1. This Order may be cited as the Factories (Testing of Aircraft Engines, Carburettors and Other Accessories) Order, 1944, and shall come into force on the 1st August, 1944.

Short title and commencement.

2. Save as hereinafter provided, this Order shall apply to all factories within the meaning of Section 151 of the Factories Act, 1937, in which the testing of aircraft engines or of carburettors or fuel pumps for aircraft is carried on.

Application of Order.
1 Edw. 8 & 1 Geo. 6. c. 67.

3. Nothing in this Order shall be deemed to relieve the occupier of a factory or any other person of any obligation imposed by the Regulations made by the Secretary of State on the 23rd December, 1908, for the generation, transformation, distribution and use of electrical energy in factories.

Saving.

4. In this Order, unless the context otherwise requires, the following expressions have the meanings hereby assigned to them respectively, that is to say:—

Interpretation.

"Accessory" means any carburettor or fuel pump for aircraft.

"Aircraft engine" means any aircraft engine in which petroleum spirit is used.

"Chief Inspector" has the same meaning as in the Factories Act, 1937.

"Control room" means any room, compartment, gallery, corridor or other enclosure in which testing is controlled.

"Earthed" means connected to the general mass of earth in such manner as will ensure at all times an immediate discharge of electrical energy without danger.

"Engine room" means any room, compartment or other enclosure in which aircraft engines are placed for testing.

“ Fire-resisting material ” means

- (a) Properly constructed brickwork not less than four and one-half inches in thickness; or
- (b) concrete not less than three inches in thickness; or
- (c) efficiently jointed breeze slabbing not less than three inches in thickness; or
- (d) oak or teak not less than one and three-quarter inches in finished thickness; or
- (e) glass not less than one-quarter of an inch in thickness in the centre of which wire mesh is embedded; or
- (f) Structural material completely and securely covered, on all sides from which there is a risk of fire, with compressed asbestos not less than three-sixteenths of an inch in thickness, or other protective covering approved in writing by the Chief Inspector for the purposes of this definition; or
- (g) other material approved in writing by the Chief Inspector for the purposes of this definition.

“ Flameproof ” in relation to electrical apparatus means apparatus conforming with the appropriate British Standard Specification or of a type approved in writing by the Chief Inspector for the purposes of this definition.

“ Intrinsically safe ” in relation to electrical apparatus means electrical apparatus of a type approved in writing by the Chief Inspector for the purposes of this definition.

“ Petroleum-spirit ” means petroleum-spirit as defined in Section 23 of the Petroleum (Consolidation) Act, 1928, and any other inflammable liquid or mixture or substance which, when tested in the manner set forth in Part II of the Second Schedule to that Act, gives off an inflammable vapour at a temperature of less than seventy-three degrees Fahrenheit.

“ Test room ” means a control room or an engine room or any room, compartment or other enclosure in which testing is carried out.

“ Testing ” means the various operations and processes carried out to determine the performance or condition of aircraft engines or accessories or incidental to such determination, being operations or processes in which petroleum-spirit is used and carried out when such aircraft engines or accessories are not mounted in aircraft.

“ Testing equipment ” means all apparatus, appliances, pipework and other equipment used for or incidental to testing.

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Obligations
under the
Order.

5. It shall be the duty of the occupier of any factory to which this Order applies to comply with the provisions of Part II of this Order, and it shall be the duty of other persons in any such factory to comply with the provisions of Part III of the Order, so, however, that if the Chief Inspector is satisfied that, by reason of exceptional circumstances in any factory to which this Order applies, or by reason of the small extent of the testing carried on therein or for any other reason, all or any of the requirements of Part II or Part III or this Order are not necessary for the protection of persons employed in the factory, he may by certificate in writing (which he may in his discretion revoke at any time) exempt such factory or any part thereof from the operation of all or any of such requirements, subject to such conditions as he may prescribe in the certificate, and where such an exemption is granted a legible copy of the certificate, showing the conditions subject to which it has been granted, shall be kept posted up in the factory in a position where it may be conveniently read by the persons employed.

Part II. Duties of Occupiers.

6. Every test room and every other room or enclosure in which testing equipment is installed or used shall be constructed of fire-resisting materials. All cable or pipe trenches or other apertures between one test room and another and between test rooms and other parts of the premises shall be sealed so far as is practicable by such materials and in such manner as is set out in Part V and Appendix D of British Standard Specification No. 1043 of 1942, except in the case of apertures provided for ventilation or other air-conveying purposes between a test room and the open air or a part of the premises other than another test room. All doors of test rooms and of other rooms in which testing equipment is installed or used shall be constructed of fire-resisting materials, and closely fitting. Construction of rooms.
7. Testing shall not be carried out in any room or other enclosure in which work other than testing is being carried out. Separation of work.
8. Where there is a tank or pipe from or through which petroleum-spirit can reach testing equipment by gravity, suitable means controlled if reasonably practicable from a position immediately outside the control room shall be provided to effect the rapid drainage of such tank or pipe, and arrangements shall be made to ensure that when the means of drainage are brought into operation the supply of petroleum-spirit to such tank or pipe shall be automatically cut off. Where the only such means as aforesaid are electrically controlled they shall be such as to be effective in the event of a failure of the electrical supply. Drainage of tanks and pipework.
9. Where leakage or escape of petroleum-spirit is liable to occur, whether in ordinary working or through accidental damage to the equipment, from or from the vents of a float chamber, metering tube, Venturi chamber, flowmeter or other part of the testing equipment, there shall be provided adequate and suitable overflow or drainage arrangements for preventing such leakage or escape or for draining away any leaking or escaping spirit as near as is reasonably practicable to the point of leakage or escape, and an easily visible indicator in such a position as to show readily when a leakage or escape is occurring. Drainage where leakage is liable to occur from testing equipment.
10. In every test room there shall be provided adequate drainage arrangements, in conjunction where necessary with pumping arrangements, for draining or pumping away from a point as near as is reasonably practicable to the point of leakage or escape any petroleum-spirit leaking or escaping from an aircraft engine or an accessory or from connections thereto. Drainage in engine rooms and where accessories are tested.
11. Every drain for petroleum-spirit shall lead to a closed tank which shall be fitted with a contents gauge and with a suitable trap to prevent the return of vapour and shall not be situated in or under any building. Where it is impracticable to comply with the last foregoing requirement, the drain may lead to a closed receptacle so fitted and situated in or under a building if it is installed within an adequately ventilated and readily accessible space. Arrangements shall be made for frequent inspection and frequent emptying of such a receptacle. Drains.
12. Exhaust ventilation, suitably arranged having regard to the part or parts of the room where leakage or escape of petroleum-spirit is liable to occur, shall be maintained by mechanical means in every test Ventilation of test rooms.

room at all times when any aircraft engine, accessory, testing equipment or vessel in the room contains petroleum-spirit or when vapour from petroleum-spirit may be present:

Provided that, in the case of an engine room, exhaust ventilation maintained by mechanical means shall not be required if there is substantial ventilation of the room by other means and if there is installed fixed fire-extinguishing equipment suitably arranged having regard to the part or parts of the room where a fire due to leakage or escape of petroleum-spirit is liable to occur.

Control valves.

13. In the case of each control room a quick-acting valve shall be provided capable of cutting off the supply of petroleum-spirit to all the testing equipment situated in the room. Arrangements shall be made so that this valve can be operated both from within and from a position immediately outside the control room, and furthermore the valve shall be interlocked with the control of any mechanical exhaust ventilation required in the room under Article 14 of this Order in such a way that petroleum-spirit cannot be supplied to the testing equipment until the ventilation is in operation, but not so as to prevent such exhaust ventilation from being maintained when the supply of petroleum-spirit is cut off.

Flame-proof electrical apparatus.

14. Electrical apparatus which is neither flameproof nor intrinsically safe shall not be installed or used in the vicinity of testing equipment used for containing or carrying petroleum-spirit, except (i) where vapour from petroleum-spirit is not liable to be present or (ii) where there is mechanical exhaust ventilation adequate to prevent an inflammable concentration of vapour from petroleum-spirit from reaching such electrical apparatus and such apparatus is placed as far as is reasonably practicable from such testing equipment.

Earthing of magnetos.

15. The metal cases of magnetos installed or used in test rooms shall be effectively earthed.

Earthing of aircraft engines.

16. The aircraft engine and any metallic stand or mounting to which it is attached for testing shall be effectively earthed.

Further requirements as to earthing, tests and protective devices.

17.—(1) Where any metal testing equipment used for containing or carrying petroleum-spirit is installed in such proximity to metal sheathing of an electrical conductor as to give rise to danger from any difference of electrical potential arising between such equipment and such sheathing, the equipment and sheathing shall be effectively bonded together and earthed in such a manner and at such intervals as to prevent such danger.

(2) Tests by a competent person shall be made not less frequently than once in every three months to ascertain that the insulation resistance of any electrical circuit installed in test rooms, or in any place in dangerous proximity to testing equipment used for containing or carrying petroleum-spirit, and the conductivity to earth of any metal sheathing of any such electrical circuit, are adequate to prevent danger, and the results of such tests shall be recorded and kept available for inspection.

(3) There shall be provided for each main circuit and sub-circuit installed in test rooms or in any place in dangerous proximity to testing equipment used for containing or carrying petroleum-spirit earth-leakage protective devices which on the occurrence of an earth fault will disconnect the whole installation in such room or place or at least the defective circuit:

Provided that this requirement shall not apply where the maximum possible earth fault leakage current from the circuit is greater than that required to operate the circuit overload protective devices.

18. All portable electrical inspection lamps used in test rooms or in any place where vapour from petroleum-spirit is liable to be present shall be flameproof or intrinsically safe. Portable lamps.

19. No petroleum-spirit shall be used in test rooms for any purpose except testing and the cleaning of accessories or of testing equipment used for containing or carrying petroleum-spirit. Use of petroleum-spirit for purposes other than testing, etc.

20. No person shall be allowed to smoke in any room, department or place even in the open air where the testing of aircraft engines or accessories is done. Notices shall be kept prominently affixed, particularly in and immediately outside each test room, clearly stating that smoking is prohibited in such rooms, departments or places. Smoking.

21. No naked flame shall be allowed in any room, department or place even in the open air where testing of aircraft engines or accessories is done: Naked flames.

Provided that electric arc or other welding or any other process involving the use of naked flame may be carried out if all testing equipment used for containing or carrying petroleum-spirit and situated in such room, department or place has been so far as possible emptied by drainage and if adequate ventilation is maintained whilst such process is being carried out.

Provided further that the exhaust flame from a running engine shall not be deemed to be a naked flame for the purposes of this Article.

22. There shall be adequate means of escape in case of fire from every position in which a person is employed in a test room or in any room or other enclosure containing testing equipment used for containing or carrying petroleum-spirit, and such means of escape shall be kept free from obstruction at all times. Escape from fire.

23.—(1) There shall be available for every test room adequate fire extinguishing equipment, fixed or portable, capable of discharging carbon dioxide gas, foam, or other suitable substance. Fire extinguishing equipment.

(2) Where there is fixed fire extinguishing equipment in a test room, means for operating it shall be arranged both within and outside the test room; and where such equipment is provided with arrangements for its automatic operation means shall also be provided for putting such arrangements out of operation and substituting hand control, such means to be so designed as to prevent the equipment from being under both methods of control simultaneously; and an automatic indicator shall be installed near the entrance to the room to show whether the equipment is under automatic or under hand control. The equipment shall be under hand control at all times when persons are employed within the room.

(3) The means of operating fixed equipment shall be so arranged that when operated the mechanical ventilation system of the test room is put out of action, and so far as is practicable any ventilating apertures are closed.

(4) Not more than 50 per cent. of the total discharge capacity of the portable fire extinguishing equipment for a test room shall be installed within the room; the remainder shall be kept available for immediate use at a position as near as possible to but outside the room.

(5) Effective provision shall be made for giving warning to an appropriate fire control centre in the factory of an outbreak of fire in any room, department or place in which the testing of aircraft engines or accessories is carried out.

Abstract
to be
posted.

24. An Abstract of these Regulations in such form as may be approved by the Minister shall be kept posted up in legible characters in each control room and engine room in a position where it can be easily read by all persons employed in the room.

Part III. Duties of other persons.

Prohibition
of smoking,
etc.

25. No person shall smoke in any room, department or place even in the open air where the testing of aircraft engines or accessories is done, and no person shall strike a light or spark in or introduce a naked flame into any such room, department or place except in the circumstances in which this is provided for in Article 21 of this Order.

Use of
petroleum-
spirit for
purposes
other than
testing, etc.

26. No person shall use petroleum-spirit in test rooms for any purpose except testing or the cleaning of accessories or of testing equipment used for containing or carrying petroleum spirit.

Interfer-
ence with
appliances.

27. No person shall wilfully interfere with or misuse any means, appliance or other thing provided in pursuance of this Order for securing the safety of persons in the factory.

Reporting
defects.

28. Every person engaged in testing shall without delay report to the occupier of the factory or other responsible person any defect which he may find in any of the appliances provided for the purposes of his work in pursuance of this Order.

Signed by Order of the Minister of Labour and National Service
this 25th day of April, 1944.

T. W. Phillips,

Secretary of the Ministry of
Labour and National Service.

LONDON

PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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1944

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