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STATUTORY INSTRUMENTS

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**2021 No. 792**

**The Space Industry Regulations 2021**

**PART 8**

Safety of operator's spaceflight activities

CHAPTER 4

Other safety requirements

*SECTION 5*

*Preparations for launch, return and other operations*

**The launch vehicle**

**91.**—(1) A spaceflight operator must not use a launch vehicle in the operator's spaceflight activities unless it is fit for those activities.

- (2) A launch vehicle is fit for the operator's spaceflight activities if that vehicle—
- (a) complies with the conditions in paragraph (3), and
  - (b) complies with any conditions about that vehicle in the launch operator licence or the return operator licence.
- (3) The conditions are that the launch vehicle—
- (a) has been designed to a specification that meets the technical requirements of the vehicle,
  - (b) has been built consistently with that specification,
  - (c) has been through the verification and validation processes set out in regulation 94 which demonstrate that it—
    - (i) conforms with the technical requirements referred to in sub-paragraph (a),
    - (ii) is free from workmanship errors which could prevent the vehicle carrying out the operator's spaceflight activities safely,
    - (iii) is otherwise ready to take part in those activities, and
    - (iv) is capable of carrying out those activities safely, and
  - (d) if it has a human occupant, the systems and flight recorder referred to in regulation 109 have been installed in the vehicle.

**The launch vehicle's ground support equipment**

**92.**—(1) A spaceflight operator must not use a launch vehicle's ground support equipment unless such equipment is fit for supporting the operator's spaceflight activities.

(2) A launch vehicle's ground support equipment is fit for supporting the operator's spaceflight activities if that equipment—

- (a) complies with the conditions in paragraph (3), and
  - (b) complies with any conditions about that equipment in the launch operator licence or the return operator licence.
- (3) The conditions are that the ground support equipment—
- (a) has been designed to a specification that meets the technical requirements of the launch vehicle,
  - (b) has been built consistently with that specification, and
  - (c) has been through the verification and validation processes set out in regulation 94 which demonstrate that it—
    - (i) conforms with the condition in sub-paragraph (a),
    - (ii) is free from workmanship errors which could prevent the equipment supporting the launch vehicle and the operator’s spaceflight activities being carried out safely,
    - (iii) is otherwise ready to support the launch vehicle and those activities, and
    - (iv) is capable of supporting those activities being carried out safely.

#### **A reusable launch vehicle**

93.—(1) Before the launch of a launch vehicle which has been used in one or more flights, a spaceflight operator must, by carrying out maintenance, servicing and repair and, if necessary, renewing any part of that vehicle, ensure that—

- (a) the vehicle conforms with the technical requirements of the launch vehicle and is fit for the operator’s spaceflight activities in accordance with regulation 91, or
- (b) is returned to a condition which conforms with those requirements and which is fit for those activities.

(2) Before the launch of a launch vehicle which has been used in one or more flights, the member of the operating staff responsible for ensuring that the work in paragraph (1) is done must prepare a written report—

- (a) providing details of the work which has been done in accordance with paragraph (1), and
- (b) confirming that—
  - (i) the vehicle conforms with the technical requirements referred to in paragraph (1)(a) or has been returned to a condition which conforms with those requirements, and
  - (ii) the vehicle otherwise complies with regulation 91 and is fit for the operator’s spaceflight activities.

(3) Copies of the report referred to in paragraph (2) must be sent by the person referred to in that paragraph to the spaceflight operator and to any member of the operating staff who has duties which are relevant to the work which has been done to the launch vehicle in accordance with paragraph (1).

(4) This regulation applies to any part of a launch vehicle which is capable of being launched and has been used in one or more flights as it applies to the whole of a launch vehicle which has been used in one or more flights.

#### **Verification and validation by testing etc. of the launch vehicle and the ground support equipment**

94.—(1) For the purposes set out in paragraph (2), before a launch, a spaceflight operator must carry out verification and validation processes—

- (a) by testing, analysing, reviewing or inspecting the launch vehicle and the ground support equipment, and

- (b) by integrated testing of that vehicle and equipment.
- (2) The purposes are to ensure that—
  - (a) the launch vehicle is fit for the operator’s spaceflight activities, and
  - (b) the ground support equipment is fit for supporting that launch vehicle and the operator’s spaceflight activities.
- (3) The spaceflight operator must—
  - (a) record the results of the verification and validation referred to in paragraph (1) in writing, and
  - (b) before a launch, ensure that copies of the results of such verification and validation are received and considered by the spaceflight operator and any member of the operating staff who has duties which are relevant to the results of the verification and validation.
- (4) In this regulation—
  - “integrated testing” includes testing how the launch vehicle and its ground support equipment and any systems of that vehicle and that equipment function together;
  - “systems” includes hardware and software.

**The spaceport (or other place of launch or landing) and the range**

95.—(1) A spaceflight operator must ensure that the spaceport or other place used for the operator’s spaceflight activities is fit for those activities.

(2) A spaceflight operator must ensure that the range for the operator’s spaceflight activities is fit for those activities.

**Communication during the operator’s spaceflight activities**

96.—(1) During an operator’s spaceflight activities, the spaceflight operator must, where necessary, ensure that there is a reliable means of communication for sharing information between the mission management facility or ground control at the spaceport or other place and—

- (a) the range control service provider,
- (b) any site or other place used in connection with range control services,
- (c) the spaceport licensee,
- (d) relevant meteorological service providers,
- (e) relevant air navigation service providers, and
- (f) relevant emergency services.

(2) During an operator’s spaceflight activities, the spaceflight operator must, where necessary, provide a reliable means of communication for sharing information between the launch vehicle, carrier aircraft and any other aircraft taking part in the operator’s spaceflight activities and the mission management facility or ground control at the spaceport or other place.

**Monitoring the environmental and meteorological conditions**

97.—(1) A spaceflight operator must monitor environmental and meteorological conditions during the operator’s spaceflight activities in so far as necessary to carry out those activities safely.

(2) The spaceflight operator must make the latest environmental and meteorological information referred to in paragraph (1) available without delay to—

- (a) the accountable manager, the safety manager and, where the operator’s spaceflight activities are authorised by a launch operator licence, the launch director and any other

members of the operating staff who require such information to carry out their spaceflight duties safely, and

- (b) the range control service provider, the spaceport licensee and any other person who requires such information to support the operator's spaceflight activities being carried out safely.

**Dangerous goods**

**98.**—(1) A spaceflight operator must only load dangerous goods onto a launch vehicle or permit a vehicle to carry such goods if—

- (a) the terms of the launch operator licence or return operator licence permit the spaceflight operator to do so, and
- (b) the spaceflight operator complies with those terms.

(2) For the avoidance of doubt any reference to loading dangerous goods onto a launch vehicle or carrying them on such a vehicle includes placing, suspending or carriage of such goods beneath a launch vehicle.