

SCHEDULE 4

(Regulation 73)

IMPLEMENTING STANDARDS

The following standards are numbered to correspond numerically to the relevant provisions in the regulations:

Regulation 12**Category II: Instruments and Equipment Approval and Maintenance Requirements**

1. The instruments and equipment required by regulation 12 shall be approved as provided in this implementing standard before being used in Category II operations. Before presenting an aircraft for approval of the instruments and equipment, it must be shown that since the beginning of the 12th month before the date of submission—

- (a) the ILS localizer and glide slope equipment was bench checked according to the manufacturer's instructions and found to meet those standards specified in Radio Technical Commission for Aeronautics Paper 23-63/DO-177 dated March 14, 1963, "Standards Adjustment Criteria for Airborne Localizer and Glide slope Receivers."
- (b) the altimeters and the static pressure systems were tested and inspected; and
- (c) all other instruments and items of equipment specified in regulation 12 that are listed in the proposed maintenance programme were bench checked and found to meet the manufacturer's specifications.

2. All components of the flight control guidance system shall be approved as installed by the evaluation programme specified in paragraph 5 if they have not been approved for Category III operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model, or design of the components must be approved under this paragraph. Related systems or devices, such as the auto-throttle and computed missed approach guidance system, shall be approved in the same manner if they are to be used for Category II operations.

3. A radio altimeter must meet the following performance criteria of this paragraph for original approval and after each subsequent alteration—

- (a) it shall display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain;
- (b) it shall display wheel height above the terrain to an accuracy of ± 5 feet or 5 percent, whichever is greater, under the following conditions:
 - (i) pitch angles of zero to $\pm 5^\circ$ about the mean approach attitude;
 - (ii) roll angles of zero to 20° in either direction;
 - (iii) forward velocities from minimum approach speed up to 200 knots; and
 - (iv) sink rates from zero to 15 feet per second at altitudes from 100 to 200 feet;
- (c) over level ground, it must track the actual altitude of the aircraft without significant lag or oscillation;

- (d) with the aircraft at an altitude of 200 feet or less, any abrupt change in terrain representing no more than 10 per cent of the aircraft's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds and, in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second;
- (e) systems that contain a push to test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 500 feet; and
- (f) the system must provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes;

4. All other instruments and items of equipment required by regulation 12 shall be capable of performing as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

5. Evaluation programme.

- (a) approval by evaluation is requested as a part of the application for approval of the Category II manual;
- (b) unless otherwise authorized by the Authority, the evaluation programme for each aircraft requires the demonstrations specified in this paragraph. At least 50 ILS approaches shall be flown with at least five approaches on each of three different ILS facilities and no more than one half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 100 foot decision height and 90 per cent of the total approaches made shall be successful. A successful approach is one in which—
 - (i) at the 100 foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be ± 5 knots of programmed airspeed, but may not be less than computed threshold speed if autothrottles are used);
 - (ii) the aircraft at the 100 foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;
 - (iii) deviation from glide slope after leaving the outer marker does not exceed 50 per cent of full-scale deflection as displayed on the ILS indicator;
 - (iv) no unusual roughness or excessive attitude changes occur after leaving the middle marker; and
 - (v) in the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing;
- (c) during the evaluation programme the following records of information shall be maintained by the applicant for the aircraft with respect to each approach and made available to the Authority upon request:
 - (i) each deficiency in airborne instruments and equipment that prevented the initiation of an approach;
 - (ii) the reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued;
 - (iii) speed control at the 100 foot DH if auto throttles are used;
 - (iv) trim condition of the aircraft upon disconnecting the auto coupler with respect to

continuation to flare and landing;

- (v) position of the aircraft at the middle marker and at the decision height indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touchdown point shall be indicated on the runway diagram;
 - (vi) compatibility of flight director with the auto coupler, if applicable; and
 - (vii) quality of overall system performance;
- (d) a final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

6. Each maintenance programme for Category II instruments and equipment shall contain the following:

- (a) a list of each instrument and item of equipment specified in regulation 12 that is installed in the aircraft and approved for Category II operations, including the make and model of those specified in regulation 12;
- (b) a schedule that provides for the performance of inspections under subparagraph (e) of this paragraph within 3 months after the date of the previous inspection. The inspection shall be performed by a person authorized by the Civil Aviation [(No. 5) Airworthiness] Regulations, 2004, except that each alternate inspection may be replaced by a functional flight check. This functional flight check shall be performed by a pilot holding a Category II pilot authorization for the type aircraft checked;
- (c) a schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in regulation 12 within 12 months after the date of the previous bench check;
- (d) a schedule that provides for the performance of a test and inspection of each static pressure system within twelve months after the date of the previous test and inspection;
- (e) the procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in regulation 12 to perform as approved for Category II operations including a procedure for recording functional flight checks;
- (f) a procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment;
- (g) a procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations; and
- (h) a procedure for an entry in the maintenance records that shows the date, airport, and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

7. A bench check required by this section shall comply with the following paragraph:

- (a) except as specified in paragraph (b) of this subsection, it shall be performed by a certified repair station holding one of the following ratings as appropriate to the equipment checked:
 - (i) an instrument rating; and
 - (ii) an avionics rating;

- (b) it shall be performed by a certified air operator on aircraft identified in its approved specific operating provisions with the approved authorizations to perform maintenance and approve for return to service its own aircraft maintained under a continuous maintenance programme under an equivalent system identified in the Civil Aviation [(No. 3) Air Operator Certification and Administration] Regulations, 2004;
- (c) it shall consist of removal of an instrument or item of equipment and performance of the following:
 - (i) a visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;
 - (ii) correction of items found by that visual inspection; and
 - (iii) calibration to at least the manufacturer's specifications unless otherwise specified in the approved Category II manual for the aircraft in which the instrument or item of equipment is installed.

8. After the completion of one maintenance cycle of 12 months, a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

Regulation 38

Emergency Exit Equipment

1. The assisting means for a floor level emergency exit shall meet the requirements under which the aeroplane was type certified.
2. The location of each passenger emergency exit shall be—
 - (a) recognizable from a distance equal to the width of the cabin; and
 - (b) indicated by a sign visible to occupants approaching along the main passenger aisle.
3. There shall be an emergency exit locating sign—
 - (a) above the aisle near each over-the-wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;
 - (b) next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and
 - (c) on each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible, the sign may be placed at another appropriate location.
4. Each passenger emergency exit marking and each locating sign shall be manufactured to meet the interior emergency exit marking requirements under which the aeroplane was type certified, unless the Authority cites different requirements for compliance with this paragraph.

Note: No sign may continue to be used if its luminescence or brightness decreases to below 250 microlamberts.

5. Sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency light system is independent of the power supply to the main lighting system.

6. The emergency lighting system shall provide enough general lighting in the passenger cabin so that the average illumination, when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 footcandles.
7. Each emergency light shall—
- (a) be operable manually both from the flight crew station and from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;
 - (b) have a means to prevent inadvertent operation of the manual controls;
 - (c) when armed or turned on at either station, remain lighted or become lighted upon interruption of the aeroplane's normal electric power; and
 - (d) provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing.
8. Have a cockpit control device that has an “on”, “off”, and “armed” position.
9. The location of each passenger emergency exit operating handle and instructions for opening the exit shall be shown in accordance with the requirements under which the aeroplane was type certified, unless the Authority cites different requirements for compliance with this paragraph.
10. No operating handle or operating handle cover may continue to be used if its luminescence or brightness decreases to below 100 microlamberts.
11. Access to emergency exits shall be provided as follows for each passenger carrying aeroplane:
- (a) each passageway between individual passenger areas, or leading to a Type I or Type II emergency exit, shall be unobstructed and at least 20 inches wide;
 - (b) there shall be enough space next to each Type I or Type II emergency exit to allow a crew member to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (a) of this section;
 - (c) there shall be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits shall not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition, the access shall meet the emergency exit access requirements under which the aeroplane was type certified, unless the Authority cites different requirements for compliance with this paragraph;
 - (d) if it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger cabin, the passageway shall not be obstructed. However, curtains may be used if they allow free entry through the passageway;
 - (e) no door may be installed in any partition between passenger compartments; and
 - (f) if it is necessary to pass through a doorway separating the passenger cabin from other areas to reach any required emergency exit from any passenger seat, the door shall have a means to latch it in open position, and the door shall be latched open during each takeoff and landing.

The latching means shall be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, prescribed in the airworthiness standards for type certification in the transport category as cited by the Authority.

12. Each passenger emergency exit and the means of opening that exit from the outside shall be marked on the outside of the aeroplane with a 2-inch coloured band outlining the exit on the side of the fuselage.

13. Each passenger emergency exit marking, including the band, shall be readily distinguishable from the surrounding fuselage area by contrast in colour and shall comply with the following:

- (a) if the reflectance of the darker colour is 15 per cent or less, the reflectance of the lighter colour shall be at least 45 per cent;
- (b) if the reflectance of the darker colour is greater than 15 percent, at least a 30 per cent difference between its reflectance and the reflectance of the lighter colour shall be provided; and

Note: *“Reflectance” is the ratio of the luminous flux reflected by a body to the luminous flux it receives.*

- (c) exits that are not in the side of the fuselage shall have external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background colour, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect shall be provided on the other side.

14. Each passenger-carrying aeroplane shall be equipped with exterior lighting that meets the requirements under which that aeroplane was type certified, unless the Authority cites different requirement for compliance with this paragraph.

15. Each passenger-carrying aeroplane shall be equipped with a slip-resistant escape route that meets the requirements under which that aeroplane was type certified, unless the Authority cites different requirements for compliance with this paragraph.

16. Each floor level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches, each passenger ventral exit and each tail cone exit, shall meet the requirements of this section for floor level emergency exits.

Note 1. *The Authority may grant a deviation from this paragraph if he finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.*

Note 2. *Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits shall meet all of the applicable provisions of this subsection and shall be readily accessible.*

17. On each large passenger-carrying turbojet powered aeroplane each ventral exit and tail cone exit shall be—

- (a) designed and constructed so that it cannot be opened during flight; and
- (b) marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.

Regulation 46

Oxygen Storage and Dispensing Apparatus

1. The supplemental oxygen supply requirements for non-pressurized aircraft are as follows:

- (a) each member of the flight crew on flight deck duty shall be supplied with supplemental oxygen in accordance with Table 1. If all occupants of flight deck seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew on flight deck duty for the purpose of oxygen supply; and

- (b) cabin crew and passengers shall be supplied with oxygen in accordance with Table 1. Cabin crew carried in addition to the minimum number of cabin crew required, and additional crew, shall be considered as passengers for the purpose of oxygen supply.

Table 1—Supplemental Oxygen for Non-Pressurized Aeroplanes

SUPPLY FOR:	DURATION AND PRESSURE ALTITUDE
1. All occupants of flight deck seats on flight deck duty	Entire flight time at pressure altitudes above 10,000 feet
2. All required cabin crew members	Entire flight time at pressure altitudes above 13,000 feet and for any period exceeding 30 minutes at pressure altitudes above 10,000 feet but not exceeding 13,000 feet
3. 100% of passengers	Entire flight time at pressure altitudes above 13,000 feet
4. 10% of passengers	Entire flight time after 30 minutes at pressure altitudes greater than 10,000 feet but not exceeding 13,000 feet

2. The supplemental oxygen supply requirements for pressurized aircraft are as follows:

- (a) the amount of supplemental oxygen required shall be determined on the basis of cabin pressure altitude, flight duration and the assumption that a cabin pressurization failure will occur at the altitude or point of flight that is most critical from the standpoint of oxygen need, and that, after the failure, the aeroplane will descend in accordance with emergency procedures specified in the Aeroplane Flight Manual to a safe altitude for the route to be flown that will allow continued safe flight and landing;
- (b) following a cabin pressurization failure, the cabin pressure altitude shall be considered the same as the aeroplane altitude, unless it is demonstrated to the Authority that no probable failure of the cabin or pressurization system will result in a cabin pressure altitude equal to the aeroplane altitude. Under these circumstances, this lower cabin pressure altitude may be used as a basis for determination of oxygen supply;
- (c) each member of the flight crew on flight deck duty shall be supplied with supplemental oxygen in accordance with Table 2. If all occupants of flight deck seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew on flight deck duty for the purpose of oxygen supply. Flight deck seat occupants, not supplied by the flight crew source, are to be considered as passengers for the purpose of oxygen supply; and
- (d) cabin crew, additional crew, and passengers:
- (i) cabin crew and passengers shall be supplied with supplemental oxygen in accordance with Table 2. Cabin crew carried in addition to the minimum number of cabin crew required, and additional crew, shall be considered as passengers for the purpose of oxygen supply; and
- (ii) the oxygen supply requirements, as specified in Table 2, for aeroplanes not certified to fly at altitudes above 25,000 feet, may be reduced to the entire flight time between 10,000 feet and 14,000 feet cabin pressure altitudes for all required cabin crew and for at least 10% of the passengers if, at all points along the route to be flown, the aeroplane is able to descend safely within 4 minutes to a cabin pressure altitude of 14,000 feet.

Table 2—Requirements for Supplemental Oxygen-Pressurized Aeroplane During and Following Emergency Descent (Note 1)

SUPPLY FOR:	DURATION AND CABIN PRESSURE ALTITUDE
1. All occupants of seats on flight deck duty flight	Entire flight time when the cabin pressure altitude exceeds 13,000 feet and entire time when the cabin pressure altitude exceeds 10,000 feet but does not exceed 13,000 feet after the first thirty minutes at those altitudes but in no case less than (a) thirty minutes for aeroplanes certified to fly at altitudes not exceeding 25,000 feet (Note 2); and (b) two hours for aeroplanes certified to fly at altitudes more than 25,000 feet (Note 3).
2. All required cabin crew members	Entire flight time when cabin pressure altitude exceeds 13,000 feet but not less than 30 minutes and entire flight time when cabin pressure altitude is greater than 10,000 feet but does not exceed 13,000 feet after the first thirty minute at these altitudes (Note 2).
3. 100% of passengers	10 minutes or the entire flight time when the cabin pressure altitude exceeds 15,000 feet whichever is the greater (Note 4).
4. 30% of passengers	Entire flight time when the cabin pressure altitude exceeds 14,000 feet but does not exceed 15,000 feet.
5. 10% of passengers	Entire flight time when the cabin pressure altitude exceeds 10,000 feet but does not exceed 14,000 feet after the first 30 minutes at these altitudes.

Note 1: *The supply provided shall take account of the cabin pressure altitude and descent profile for the routes concerned.*

Note 2: *The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 10,000 feet in 10 minutes and followed by 20 minutes at 10,000 feet.*

Note 3: *The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 10,000 feet in 10 minutes and followed by 110 minutes at 10,000 feet. The oxygen required to meet the Crew Protective Breathing Equipment provisions of this Part may be included in determining the supply required.*

Note 4: *The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 15,000 feet.*

- **END** -