

WELLINGTON NEW ZEALAND

PURSUANT to Section 28 of the Civil Aviation Act 1990

I, HARRY JAMES DUYNHOVEN, Minister for Transport Safety,


HEREBY MAKE the following ordinary rules.

SIGNED AT Wellington

This *Twelfth* day of *October* 2004

by **HARRY JAMES DUYNHOVEN**

Minister for Transport Safety

A handwritten signature in black ink, appearing to read 'Harry James Duynhoven', written over a large, stylized, abstract graphic element that resembles a stylized 'D' or a similar shape.

Civil Aviation Rules

Part 121, Amendment 11

Air Operations-Large Aeroplanes

Docket 2/CAR/5

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Rule objective

The objective of Amendment 11 to Part 121 is to provide additional flexibility for air operators to establish the total weights of passengers, crew members, and checked baggage carried on aeroplanes. This additional flexibility includes the use of prescribed standard weights for passengers and crew members as well as provision for the operator to establish their own standard weight for crew members, and for checked baggage under particular circumstances.

Extent of consultation

In May 1999 petition 99/PET/27-*Goods, passengers and baggage weights* was published in the Civil Aviation Rules Register Information Leaflet (CARRIL) for public comment. The petition called for an amendment to the Civil Aviation Rules because the adult standard passenger weight of 77 kg, established in 1958, that was prescribed in the rules needed to be updated to a more appropriate figure of 82 kg. A second petition 99/PET/6 also requested an amendment to the rules to allow standard weights to be used for crew members and for checked baggage to provide greater flexibility for the operator.

In December 1999 NFO Research carried out a survey of passenger weights on behalf of the CAA. The survey established the adult mean passenger weight with carry-on baggage should be 85 kg.

In August 2001 a CAA/Industry Technical Study Group (TSG) was established to develop a rule amendment proposal.

The TSG was split into two sub-groups, one concentrating on the issues relating to Parts 121 and 125 for large and medium size aeroplanes, and the second dealing with Part 135 for helicopters and small aeroplanes. These sub-groups met twice each, in September and November 2001, with matters arising from the meetings being developed through comprehensive email debate. The Part 121/125 TSG met in Wellington, and the Part 135 TSG met in Timaru and Tekapo to reduce the cost for industry participation.

A Notice of Proposed Rule Making (NPRM 02-05) was published for public comment in April 2002 and contained the proposed rule amendments to Parts 121, 125, 135 and 1. This NPRM was issued under Docket 2/CAR/5, and advertised in the daily newspapers in the five

main provincial centres on 13th April 2002 and in the Gazette on 11th April 2002. A period of 40 days was allowed for submissions on the proposed rules. Following a request from 2 parties the time for making submissions was extended by another 2 weeks. Twelve written submissions were received on the NPRM.

The Environmental Risk Management Authority was not consulted on the proposed amendments as the amendments do not contain any issues that are relevant to the Authority.

The Office of the Human Rights Commission was consulted to determine whether the proposed rules might conflict with the human rights legislation. The Commissioner noted that a discrimination issue could arise if individual passengers needed to be weighed but if all passengers on a flight needed to be weighed then there should not be an issue.

The CAA considered the submissions on the NPRM and developed a draft final rule that was forwarded to TSG members on 23 August 2002 for comment.

Copies of the draft final rule were also sent on 23 September 2002 to those individuals and organisations who responded to the NPRM for their comment.

In October 2002, the Aviation Industry Association (AIA) wrote to the CAA expressing concerns about the content of the draft final rule. The CAA met with representatives from the AIA on 29 November 2002 to discuss the AIA concerns. Agreement was reached on some technical changes including the removal of prescribed standard weights from Part 135.

In February 2003 the CAA published NPRM Supplement 02-05 that detailed the agreed changes to the rule proposal and requested comment from the wider aviation community.

Two responses were received to the NPRM Supplement, these came from NZALPA and AIA.

Further discussions with NZALPA and AIA resulted in a further simplification of the proposed rules including the removal of the

proposed matrix of standard passenger weights from rule Parts 121 and 125. NZALPA questioned the ability of operators to develop the necessary procedures to warrant the use of standard or exposition weights and CAA's ability to effectively monitor the implementation of the procedures.

The AIA did not accept that the mean passenger weight derived from the 1999 survey of passenger weights was the appropriate weight to specify in the rule amendments. It was agreed, in consultation with other TSG members, that the results of a new survey of passenger weights would be appropriate to incorporate into the final rule amendment for Parts 121 and 125.

In September 2003 an amended draft final rule proposal was sent to twenty two industry members, placed on the CAA website and notified in the CARRIL to inform interested parties of the final rule proposal and that the final rule proposal would be updated with the standard weight arising from the 2003 survey of passenger weights.

At the same time, following further consultation with industry on a terms of reference for a passenger survey, the CAA engaged NFO New Zealand to conduct a comprehensive survey of passenger weights for operations conducted under Parts 121, 125, and 135. The survey for the Part 121 and 125 operations was completed in November 2003 and the Part 135 survey was completed in March 2004.

The rule as amended including editorial and format changes was then referred to Parliament's Regulations Review Committee, before being signed by the Minister for Transport Safety.

Examination of submissions

Submissions may be examined by application to the Docket Clerk at the Civil Aviation Authority between 8:30 am and 4:30 pm on weekdays, except statutory holidays.

Insertion of Amendments

The amendments to the rules in this Part are reflected by the revocation of the existing rules and insertion of new rules.

Effective date of rule

Amendment 11 to Part 121 comes into force on 25 November 2004.

Availability of rules

Civil Aviation Rules are available from–

CAA web site: <http://www.caa.govt.nz/>

Freephone: 0800 GET RULES (0800 438 785)

Subpart E — Weight and Balance

Rule 121.303 is revoked and the following new rule is inserted:

121.303 Goods, passenger, and baggage weights

(a) Subject to paragraphs (b), (c), and (d), a holder of an air operator certificate must ensure that for every air operation conducted under the authority of the certificate the weights of the following items that are carried on the aeroplane are established:

- (1) the total actual weight of goods, excluding baggage:
- (2) the total weight of passengers and their carry-on baggage:
- (3) the total weight of crew members and their carry-on baggage:
- (4) the total weight of checked baggage.

(b) The total weight of passengers and their carry-on baggage must be established by using only 1 of the following:

- (1) the actual weight of every passenger and their carry-on baggage:
- (2) a standard weight for every passenger and their carry-on baggage that is established by the certificate holder and detailed in the certificate holder's exposition:
- (3) the following applicable standard weight for every passenger and their carry-on baggage:
 - (i) 15 kg for a child under 2 years of age:
 - (ii) 46 kg for a child of the age of 2 years and under the age of 13 years:
 - (iii) 86 kg for a person of or over the age of 13 years.

(c) The total weight of crew members and their carry-on baggage must be established by using only 1 of the following:

- (1) the actual weight of every crew member and their carry-on baggage:
 - (2) a standard weight for every crew member and their carry-on baggage that is established by the certificate holder and detailed in the certificate holder's exposition:
 - (3) a standard weight of 86 kg for every crew member and their carry-on baggage.
- (d) The weight of checked baggage must be established by using—
- (1) the actual weight of the baggage; or
 - (2) for international flights originating outside New Zealand where actual weights are unable to be obtained, a standard weight that is established by the certificate holder and detailed in the certificate holder's exposition.
- (e) A certificate holder who intends to establish a standard weight to be detailed in the certificate holder's exposition for use under paragraphs (b)(2), (c)(2), or (d)(2) must establish the respective standard weight in accordance with a survey programme that is acceptable to the Director.
- (f) A certificate holder who intends to use a standard weight for passengers under paragraphs (b)(2) or (b)(3), or for crew members under paragraphs (c)(2) or (c)(3) must establish procedures that are acceptable to the Director to ensure that, if the weight of a passenger or crew member with their carry-on baggage is clearly greater than the applicable standard weight being used, a weight that is more representative of the actual weight of the person and their carry-on baggage is used.

Rule 121.307 is revoked and the following new rule is inserted:

121.307 Load manifest

A holder of an air operator certificate must ensure that —

- (1) a load manifest is completed before every air operation; and

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- (2) the load manifest is certified by the pilot-in-command; and
 - (3) the following details are accurately recorded on the load manifest:
 - (i) the name of the pilot-in-command, except where this is recorded by the certificate holder in another document:
 - (ii) the date of the operation:
 - (iii) the aeroplane type and registration mark:
 - (iv) the name or identification of the departure and destination aerodromes:
 - (v) the flight number or estimated time of departure:
 - (vi) the surnames and initials of every crew member and passengers, except where these details are recorded by the certificate holder in another document:
 - (vii) the total empty weight of the aeroplane, the total weight of any removable equipment, the total weight of consumables, and the total weight of crew members:
 - (viii) the total weight of passengers and their carry-on baggage, the total weight of goods, the total weight of checked baggage, and the total weight of usable fuel:
 - (ix) the take-off weight of the aeroplane:
 - (x) evidence that the centre of gravity of the aeroplane is within the limits specified in the flight manual:
 - (xi) the maximum allowable weights for the operation including zero fuel weight, take-off weight, and landing weight:
 - (xii) the total of any weight adjustments made under rule 121.303(f).

Consultation details

(This statement does not form part of the rules contained in Part 121. It provides details of the consultation undertaken in making the rule.)

Comments specific to a rule

Part 1

No comments were received on the definition amendments contained in Part 1.

Part 121

NZALPA questioned whether the true meaning of the terms ‘establish’ and ‘actual’ can be met by any other means than the use of mechanical devices such as scales, weighbridge etc.

CAA comment:- The rule wording for the certificate holder to establish the actual weights for goods, baggage, passengers and crew implies that weighing scales or some other appropriate equipment must be used to establish the actual weight. However the rule also provides for standard weights to be used for passengers, crew, and some baggage instead of actual weights.

AIA expressed a strong preference to have a very simple system for standard passenger weights and that it be based upon the FAA system where a different criteria is applied depending on the passenger seat capacity. For example, aircraft with nine passenger seats or less require all passengers and luggage to be weighed, whereas a standard passenger weight is available for aircraft with more than 9 passenger seats.

CAA comment:- The rule provision for a single standard passenger weight is similar to those found in the FAA’s rules. (The CAA’s earlier proposal for a matrix of standard passenger weights utilising an 80 % confidence factor has been withdrawn in favour of a standard passenger weight based on the mean weight established through a survey of passengers carried by Part 121 and Part 125 operators.)

The use of standard passenger weight and the rules prescribed standard passenger weight requires the effective application of operator

procedures and effective monitoring by the CAA to ensure that the desired level of safety is attained.

AIA believed there was support for an option which has a standard weight for passengers minus any luggage. Their understanding is that this weight would be closer to 80 kg. Under this option all carry on luggage would be weighed.

CAA comment:-The independent survey of passenger weights carried out by NFO New Zealand in 2003 identified the mean carry-on baggage weight for passengers to be 5.3 kg for Part 121 and 4.8 kg for Part 125.

The flexibility in the rule will allow an operator to use standard weights as suggested by the AIA. Rule 121.303 permits approved exposition weights to be used if the operator can produce evidence to support their claim that their passengers do not carry extra baggage into the aircraft, or if the operator decides to weigh all carry-on baggage.

NZALPA considered that while it would seem reasonable to align cabin crew with passenger weights, flight crew are more likely to weigh more. Flight crew remain predominantly male and do not align with the gender ratio used for passengers. They considered that the use of 85 kg is not appropriate. Instead, the weight should be in accordance with a weight matrix that establishes an 80% confidence level (i.e. by using such a matrix, the resultant crew member weights will be correct 80% of the time).

CAA comment:-It was determined during a TSG meeting that a standard figure of 85 kg for all crew was a representative figure. However, this figure has been updated to 86 kg, which aligns with the result of the 2003 passenger weight survey.

NZALPA considered that the use of the word ‘clearly’ in relation to the passengers whose weight is “clearly” greater than the standard weight being used is inappropriate as it implies something more than a suspicion or a likelihood that the passenger (including hand-baggage) may be greater than the exposition weight or the applicable standard weight. The term ‘clearly’ fails to provide a commonsense and cautious intervention point. NZALPA recommended that the word clearly be replaced with the phrase ‘likely to be’.

CAA comment:- There is general agreement between the organisations consulted during this rule development that air operators will only be able to assess passenger weights to the nearest 20 kg. For example, it is more likely an operator will be able to identify a passenger who “clearly” weighs more than 85 kg rather than is “likely to be” greater than the figure of 85 kg.

AIA commented that as the Rules are deemed regulations they are most concerned as to whether or not a methodology can be applied prior to a Rule becoming law. The AIA would not wish their members to go to the expense of conducting a survey without first knowing that the survey is in fact lawful.

CAA comment:- Advisory Circular AC 119-4 describes one methodology that may be used to establish an exposition passenger weight through survey. The AC provides information that the CAA considers to be an acceptable means of compliance. The function of the AC is to provide additional information to assist the operator in meeting the requirements of the rule.

Exposition weights established in accordance with AC 119-4 will be considered by the CAA both prior to and after this rule comes into force.

NZALPA commented that the pilot-in-command needs both weight and balance information prior to preparing for commencement of the flight. The load manifest requires certification by the pilot-in-command and ought to contain information in relation to the centre of gravity.

CAA comment:-Rule 121.307(x) requires evidence that the centre of gravity is within the specified limits. It is agreed this evidence needs to be made available to the pilot-in-command prior to flight, therefore the words “except where this is recorded by the certificate holder in another document” that were contained in the NPRM have been removed from this rule.

General comments

NZALPA commented that any system which is used as an alternative to scales or weighing apparatus must be able to achieve a level of accuracy that is similar to the accuracy achieved by weighing the passengers and baggage. NZALPA considered that neither the ‘standard’ nor the ‘exposition’ weights used alone or in combination with intervention

procedures have been demonstrated to achieve this. They consider that it has not been demonstrated that it is possible or practical to assess passenger weights.

CAA comment:- The use of standard passenger weights is common practise both in New Zealand and in many overseas States. The CAA is satisfied operators currently use procedures that can be developed to adequately meet the requirements of this rule. The rule has been written without being overly prescriptive in order to allow operators the ability to create procedures that best meet the needs of their operations.

NZALPA commented that a 50% confidence level for exposition passenger weights is totally inadequate.

CAA comment:-The use of a 50% confidence level occurs when the mean weight established through statistical survey is applied as an exposition weight. Established international practice allows the use of a mean weight where that weight has been established by a recognised survey method.

AIA commented that they were firmly of the view that the Civil Aviation Act 1990 Section 33 requires a cost benefit analysis to be undertaken [for] every rule change.

CAA comment:-The provisions of the Civil Aviation Act 1990 do not require the Minister to conduct a cost benefit analysis for the purpose of rule making. Although the promotion of aviation safety at reasonable cost are functions of both the Minister and the Authority under sections, 14 and 72B of the Act respectively, Part 3 of the Act regarding the Minister's power and procedures for making rules does not mention cost other than the requirement in section 33(2) that the Minister must have regard to and give such weight as may be considered appropriate to the cost of implementing a rule proposal. This does not imply that a cost benefit is required for every rulemaking action.

This rule does not change the long standing requirement for operators to establish the weight of their passenger loads prior to flight. Operators who have previously been using realistic passenger weights will not notice any change in compliance costs.

One commenter stated that the NPRM had a number of references to overloading and the corresponding consequences, and that this ignored the fact that the take-off weight is dependent on other factors such as empty weight and fuel load. There are safety margins associated with these and the tolerance on payload should not be considered in isolation.

CAA comment:- It is reasonable for a safety regulator to expect an operator to establish the weights of all elements of the total aircraft weight as accurately as possible. The need for accurate passenger load weights is not diminished because of other heavier elements of the total aircraft weight. However the CAA agreed that with all the other variables contributing to the total weight of the aircraft the matrix proposal for the prescribed standard weight for passengers could be deleted.

One commenter noted that the CAA survey in 1999 [CM Research survey] was carried out at the three main airports and therefore considers that it is not a representative survey of provincial and tourist routes.

CAA comment:-To resolve the ongoing disagreement about the merits or otherwise of the 1999 passenger weight survey the CAA sponsored a comprehensive survey of passenger weights for the 3 air operator categories – Part 121, Part 125, and Part 135. This survey conducted mainly in October 2003 showed that there are only minor variations between passenger mean weights for the Part 121 and 125 operating groups. The survey plan included provincial as well as main centre airports, and included tourist operators. The results of that survey have been included in this rule amendment.