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AIC

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The following circular is hereby promulgated for information, guidance and necessary action

Margaret T. Munyagi
Director General

COMPLIANCE WITH AIRCRAFT GROSS WEIGHT AND BALANCE LIMITATION

1. Gross Weight

(a) Maximum allowable gross weight is established for an aircraft as an operating limitation both for safety and performance considerations. The gross weight is important because it is a basis for determining the take-off distance. If gross weight increases, the take-off speed must be greater to produce the greater lift required for take-off.

(b) Operations with the proper gross weight limits are outlined in each flight manual, which is part of the Certificate of Airworthiness. Gross weight and center of gravity (CG) limits should be considered during pre-flight preparation. Weight in excess of the maximum certificated gross weight may be a contributing factor to an accident, especially when coupled with other factors, which adversely affect the ability of an aircraft to take-off and climb safely.

(c) For each flight, pilots should use the Aircraft Flight Manual to calculate the maximum take-off weight taking into account the elevation of the airport, the length and condition of the runway, the obstacles to be cleared and the ambient temperature.

(d) Operators shall ensure that placards are in place in all aircraft baggage compartments, indicating the relevant weight limitations.

2. Balance:

(a) Pilot must not only determine the take-off weight of the aircraft but must also ensure that the load is arranged to fall within the allowable CG limits of the aircraft. Each aircraft flight manual provides instructions on the proper method of determining if the aircraft loading meets the balance requirements.

(b) An aircraft, which exceeds the forward CG, limits places heavy loads on the nose-wheel and in conventional landing gear aircraft this may, during braking, cause an uncontrollable condition. Furthermore, performance may be significantly decreased and the stall speed may be much higher.

(c) An aircraft loaded in a manner that the CG exceeds the aircraft limit will have decreased static and dynamic longitudinal stability. This condition can produce sudden and violent stall characteristics and can seriously affect recovery from the stall. The aircraft will also be much more susceptible to over stress by any control movements or when encountering rough air.

3. Loading:

(a) The Civil Aviation (Operation of Aircraft) Regulations, 2006, regulation 98 specifies the requirements of the commercial air transport operators in relation to the loading criteria.

(b) The operators Operations Manual provides further guidance to the company pilots on loading of aircraft.

(c) The Airport environment in Tanzania is not uniform in terms of equipment. Some airstrips are in remote areas (Game areas and National Parks) where common amenity of terminal facilities, e.g. a weighing scale is not available. Passengers being picked up from these airstrips often have with them heavy and sometimes dangerous cargo e.g. camping equipment, gas burners, hunting guns, etc.

(d) Pilots in command of aircraft shall be extra vigilant when uplifting passengers and cargo from such airstrips to ascertain that the load carried by the aircraft is of such weight and nature and is so distributed and secured, that it may safely be carried on the intended flight.

(e) It is worth noting that for the purpose of calculating the total weight of the aircraft, the respective total weights of the passengers and crew entered on the load sheet shall be computed from the actual weight of each person who shall be separately weighed, except when the aircraft is of total seating capacity of fifteen or more persons, when the weight may be calculated according to specified weight as per Regulation 98 of the Civil Aviation (Operation of aircraft) Regulations, 2006.

(f) Aircraft Operators shall provide a portable weighing scale for the aircraft able to weigh individual persons and cargo for use by Pilots in command proceeding to airstrips where such facility is not available to enable them undertake the regulatory requirements and ascertain that the load limits of the aircraft are not exceeded. Such weighing scales shall be calibrated annually.

(g) Pilots in command are finally responsible as per Regulation 98 of the Civil Aviation (Operation of aircraft) Regulations, 2006 for ascertaining that the load carried by the aircraft is of such weight, and is so distributed and secured, that it may safely be carried on the intended flight.

(h) The load sheets be completed and signed by the Pilot in command as a pre-flight action. A copy shall be left with a responsible person on the ground.

This AIC is issued for information guidance and appropriate action towards accident prevention. It should be read in conjunction with AIC *46/2000 (Pink 24).*

Cancel AIC 15/2003 (Pink 37).
