



AN OPERATIONAL SAFETY OVERVIEW

AN INTRODUCTION

This document seeks to provide additional clarity regarding the operational and safety aspects relating to light aircraft travel in and around the Southern regions of Africa. In turn this aims to foster a better understanding as to the procedures and various operational systems that ensure the safety of passengers when travelling aboard any Mackair aircraft.

Mack Air was established in 1994, and over the past 17 years we have prided ourselves in providing our passengers with the best service possible; characterized by reliability, efficiency, consistency and above all - safety. Over the years and through the incredible support of our clientele, we have subsequently grown to have become the largest independent air charter company in Botswana, currently operating a fleet of over 16 aircraft.



Non-Scheduled flight operations constitute 47.6 percent of all aviation movements throughout Botswana laying testament to the importance of the industry within the republic. Due to the remoteness of Northern Botswana, most camps and lodges are only accessible by air; hence the inherent need for light aircraft charter. Maun is considered to be not only the gateway to the Okavango Delta and Moremi Game Reserve, but the town's international airport is regarded as one of the busiest international airports in Africa based on aircraft movements, which totaled 38,455 during 2010. As a result of this, a new runway has been constructed and came into operation in November 2011. In addition, plans for the construction of a modern, state-of-the-art terminal building are currently underway.

OUR FLEET

In order to ensure that we retain the high levels of efficiency, safety and reliability that Mack Air proudly embraces, we have chosen a fleet of aircraft that not only encompass the values entrenched within Mack Air's framework but further enhance our reputation as one of Botswana's leading air charter companies.



The *Cessna 206* Stationair is the workhorse of the Mack Air fleet and is widely utilized throughout Northern Botswana. This aircraft possesses excellent short-field take-off and landing capabilities, making it ideally suited for the bush strips throughout the regions in which it operates. The C206 cruises at 230 km/h, with a range of 1,360 km. Mack Air's six Cessna C206's are equipped with underbelly cargo pods providing for an extra 300lbs of luggage space.

Aircraft Specs				
Take-off Speed	110 kph	١	Max Takeoff Weight	1,633 kg
Cruising Speed	230 kph	١	Max Range	1,360 km
Landing Speed	100 kph	1	Max Endurance	5 hrs 50 min (Determined by fuel load)



The *Cessna C210* centurion possesses a similar interior layout to that of the C206, it seats five passengers and with its retractable undercarriage, cruises at a comfortable 270 km/h and possesses a range of 1,485 km.

Aircraft Specs			
Take-off Speed	120 kph	Max Takeoff Weight	1,724 kg
Cruising Speed	270 kph	Max Range	1,485 km
Landing Speed	110 kph	Max Endurance	5 hrs 30 min (Determined by fuel load)



The *Airvan* is Mack Air's mid-sized aircraft; it offers a spacious cabin, excellent visibility and ample luggage space in the underbelly pod. This rugged and highly reliable aircraft has proven to be an ideal addition to the fleet as it is excellently suited for the flying conditions experienced in this part of the world. It has become so popular on shorter routes that we have recently acquired two brand new Airvans to assist with the greater demand for this type of aircraft.

Aircraft Sp	ecs					
Take-off S	peed	130	kph		Max Takeoff Weight	1,814 kg
Cruising S	peed	225 kph		Max Range	1,240km	
Landing Sp	peed	100	kph		Max Endurance	5 hrs 30 min (Determined by fuel load)
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The largest of the Mack Air fleet, the *Cessna Grand Caravan* is a 13 passenger seat aircraft and has proven to be an extremely versatile aircraft in the rugged African bush conditions. The Caravan possesses range of over 2,000 km, which in turn makes it ideal for the longer routes that we fly such as to Johannesburg, Livingstone and Windhoek. The aircraft's cabin is exceptionally spacious and air conditioned thus guaranteeing a very comfortable flight.

Take-off Speed	130 kph	130 kph 280 kph		Max Takeoff Weight		3,977 kg	
Cruising Speed	280 kph			Range	2	2,050 km	
Landing Speed	120 kph	120 kph		Max Endurance		7 hrs 20 min (Determined by fuel load	
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AIR CHARTER COMPANY REGULATION

All commercial air charter companies in Botswana are required by law to be fully licensed by the Civil Aviation Authority of Botswana. In order to qualify for an air operator's certificate each charter company has to pass a strict and exceptionally thorough safety audit, conducted by a team of Civil Aviation Inspectors on an annual basis. Un-scheduled safety audits are also carried out by the authority on each company at various intervals throughout the year. Should the authority at any time, find any safety discrepancies relating to any commercial air charter company, the said operator's air operating certificate would immediately be revoked. To ensure that such regulations are comprehensively met, Mack Air possesses a cohesive safety management system as well a set of standard operating procedures that are transparently and meticulously enforced by our company's operations manager and chief pilot.

CREW LICENSING AND PROFICIENCY

Each prospective Mack Air pilot is required to possess a valid commercial pilot's license which, in order to obtain requires an individual to write several theoretical subjects and pass a stringent flight test, conducted by a designated Civil Aviation Authority examiner. Once employed, each pilot is required to undergo a minimum of fifty hours of operational training under the guidance and supervision of senior pilots, company training captains, as well as the chief pilot. During this period, familiarization with the company's operational standards and procedures is undertaken; this also provides an opportunity to gain a comprehensive understanding of the flying conditions common to this part of Southern Africa. Once having successfully built up the fifty operational training hours, pilots are required to undergo a final check ride with the company's chief pilot, only once this is successfully passed, is a pilot given his or her first command. After this is accomplished however, each pilot is further still, required to fly a minimum of twenty hours of routings that see the aircraft fly from a tarred runway to a tarred runway; this provides the pilot with further experience relating to the region and operational norms. Only once these twenty hours have been flown, is a pilot permitted to begin flying into remote bush airstrips. Proficiency checks are then conducted every three months; in addition to this, a flight test with a



Civil Aviation Authority designated examiner is conducted over and above company proficiency checks - every six months.

AIRCRAFT MAINTENACE



Every Mack Air aircraft undergoes mandatory inspections carried out by approved aircraft maintenance organizations (AMO). These inspections are thoroughly carried out at both fifty flight hour and at one-hundred flight hour intervals, to international standards. Annually each aircraft is also required to undergo a major Certificate of Airworthiness Inspection which incorporates a methodical flight test in which the aircraft has to, upon completion, meet certain performance outcomes. In Maun there are two AMO facilities that are fully Botswana approved as well as being internationally recognized, as such they are approved to carry out stringent and comprehensive maintenance procedures on our aircraft. All aircraft engine and propeller overhauls and replacements are carried out by specialist engineering facilities in South Africa and the United States of America

BUSH FLIGHT OPERATIONS

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Due to the remoteness of many of the camps and lodges within Botswana, many of the landing strips consist of either a grass or gravel surface. Again the condition of these runways is ensured through frequent inspections conducted by Civil Aviation Authority inspectors and Mack Air's operational management. Although every precaution is taken, there are risks involved when operating in such isolated areas. In order to reduce these risks on a number of fronts, game drive vehicles inspect the entirety of each strip prior to any arrival or departure; during this period, the lodge vehicles assess runway conditions to ensure that the runway is unequivocally safe for any aircraft movement to take place, if not, aircraft are diverted or await for the vehicles to signal that the runway is clear and safe to utilize.



LUGGAGE

Due to aircraft weight considerations, as well as the physical constraints of our aircraft's baggage carrying capacity, we are obliged to implement certain luggage restrictions that ensure that aviation safety regulations are adhered to, as well as the comfort of each and every passenger travelling in any Mack Air aircraft. As such please consider the following:

- Please ensure that each passenger's luggage (including hand luggage) does not exceed 20kg.
- Luggage dimensions should not exceed 25cm (10 inches) wide, 30cm (12 inches) high and 62 cm (24 inches) long. Anything larger and the luggage will unfortunately not fit in the aircraft's baggage compartment.
- Please ensure that all luggage is soft-sided Hard covered, rigid bags make it exceptionally difficult to load and unload in the aircraft luggage compartments.
- Should passengers have excess luggage, arrangements can be made to store the excess for the duration of their stay in Botswana.
- As each passenger's safety and comfort is our highest priority, please may you ensure that these guidelines are adhered to.
- The photographs below provide an indication as to the size of each aircraft's baggage compartment.









INSURANCE

Mack Air (Pty) Ltd. Carry's comprehensive passenger liability insurance which is provided by GIB Aviation Insurance Brokers and Flightsure Aviation Insurance Brokers.

CONCLUDING REMARKS

When assessing the number of annual aircraft movements within the Republic of Botswana, it is clear that the safety statistics are considerably more favorable than an array of alternate tourist destinations around the world; as such aviation in Botswana remains considerably safe, efficient and professional on all fronts.

The safety of every passenger and crew member is of critical importance to all commercial air charter operators across the country, as well as in neighboring states. This document essentially sought then, to provide a clearer insight into the precautions taken by Mack Air, that ensure not only the safety and well-being of our passengers, but the sustainability of tourism travel in arguably one of the most beautifully untouched parts of the globe.



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