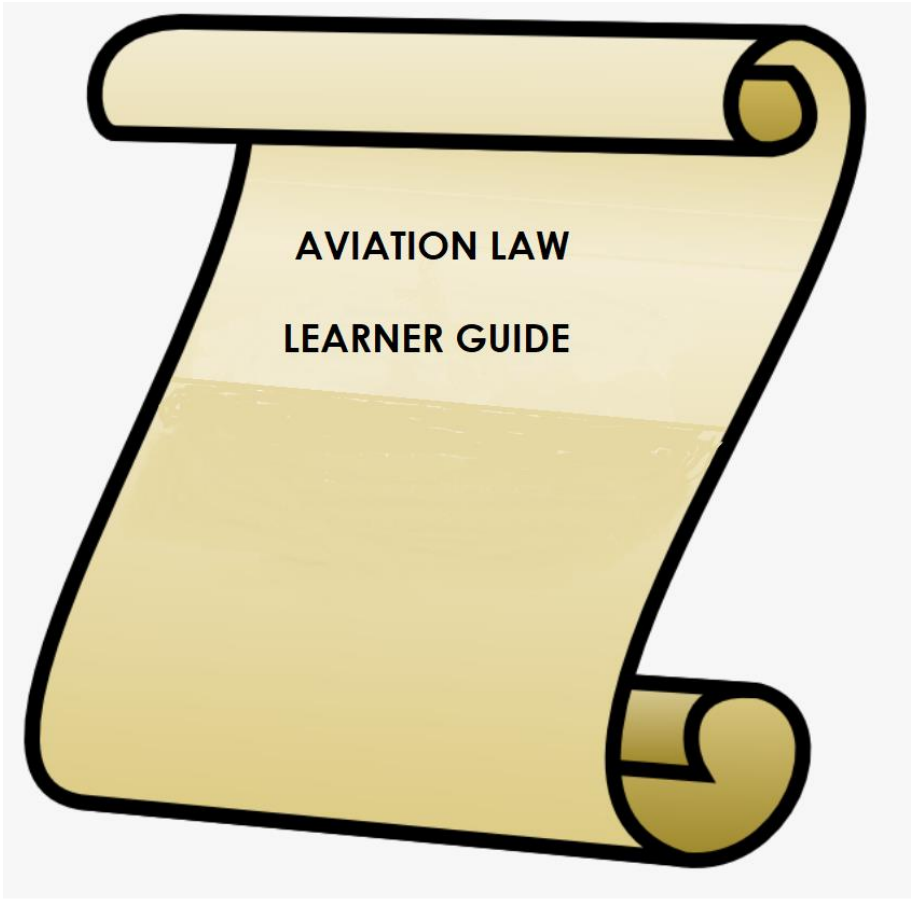

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Table of Contents

INTRODUCTION

Welcome,

To the module “Aviation Legislation” presented by the Aviation Training Academy. The purpose of this module is to provide you with knowledge of the development and hierarchy of aviation legislation and associated documentation and to enable you to apply this knowledge to your day-to-day tasks.

Specific outcomes

The specific outcomes of the module are:

- Apply knowledge of aviation legislation that governs aviation operations.
- Demonstrate knowledge of the general regulations regarding the operation of aircraft.
- Examine the rules for the operation of aircraft.

In addition to these outcomes, you will also be required to show competence in what is known as “critical cross-field outcomes” which are aimed at equipping you with knowledge, skills and attitudes that will facilitate your life-long learning.

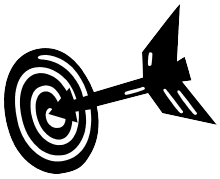
Learning Approach

The Aviation Training Academy follows an experiential learning approach to a large degree and as such you will be required to engage in a number of activities in order to access the information you need and to learn from it. The traditional approach where the facilitator provided all the information, and the student was expected to engage in rote learning and then recite the textbook has been largely abolished. However, this does not mean that there will be no written examinations, but this will not be the only means of assessment as we need to know you are able to do the task and not just recite the theory.

Workbook. The workbook that you have received contains all relevant information for all assessment activities. All the activities described in the workbook forms part of your assessment and portfolio of evidence.

Duration. The programme consists of 2 days of facilitated learning. Once again pleasenote that you will be required to participate in a number of learning activities during this time.

Icons. The icons that are used consistently throughout the learner guide are as follows:



Learning outcomes

Learning Activity

Refer to workbook

Portfolio activity

Assessment

Formative Assessment (during the learning process) will be conducted throughout the learning events by completing the activities included in the workbook.

Summative Assessment (at the end of the learning process) will be conducted by means of a written examination as well as other activities. At the end of the course an integrated exercise will be conducted where you will be required to integrate all the information of the course in a simulated environment.

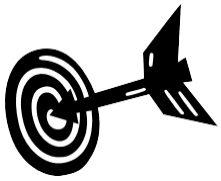
Most importantly remember to have fun!!!

Module 5

Aviation Legislation

Learning unit 1: Legislation governing civil aviation

LEARNING OUTCOMES



At the end of this learning unit the candidate will be able to:

- ✈ Apply knowledge of aviation legislation that governs aviation operations.

Introduction

In this learning unit we will discuss international air law, the South African Civil Aviation

Authority as well as Conventions and Acts that govern civil aviation in South Africa. We will also discuss the public transport categories and the employment of aircraft.

1. Aviation legislation

1.1. International Air Law

There are various international conventions and laws that has an influence on the aviation industry. The most well-known is of course the Chicago Convention of 1944. The International Civil Aviation Organisation (ICAO) is a permanent body that is charged withthe administration of the principles of the Chicago Convention and the Annexes to the Convention which stipulate the Standards and Recommended Practices for international aviation operations. Other Conventions that influence international aviation include (amongst others):

- The Tokyo/Hague/Montreal Conventions on security of aircraft operations.
- The Warsaw Convention on rules for international carriage by air (1929).
- Rome Convention on damage caused by aircraft (1952).
- Geneva Convention on Rights in aircraft (1948).
- Brussels (Eurocontrol) Convention.

1.2. Aviation legislation in South Africa

Complete the following lesson on CAT:

1.2.1. Aviation in South Africa is governed by the Aviation Act no 74 of 1962. The Aviation Act legalises the following documents:

- Air Navigation Regulations.
- Notice to Airmen.
- Aeronautical Information Circulars.
- Aeronautical Information Publication.

1.2.2. The Air Navigation Regulations are sub-divided and listed below are some of the

divisionsof the Aviation legislation of South Africa, and an overview of the contents of the section.

- CATS – Civil aviation technical standards.
- CARs – Civil aviation regulations

1.2.3. The Air Navigation Regulations 1976 contains regulations concerning:

- personnel licensing e.g., flight crew members,
- air traffic controllers,
- medical requirements for licenses or ratings,
- logbook requirements,
- operation of aircraft instruments,
- equipment to be carried on board an aircraft,
- certificates of airworthiness, lightning and marking of obstruction,
- offences; and
- Annex A contains a list of fees charged for various licenses, certificates, or ratings.

1.2.4. The Company Airport Regulations (1994) contains regulations concerning:

- the demarcation of restricted areas and control of entry into restricted areas,
- the notification of movement of aircraft and payment of charges,
- the driving of vehicles,
- acts prohibited at an airport,
- deposit of articles in cloakroom; and
- trading or business license.

1.2.5. The Rules of the Air contains regulations concerning:

- application of rules of the air,
- compliance with the rules of the air,
- responsibility of the pilot-in-command,
- pre-flight action,
- use of intoxicating liquor,
- narcotics or drugs,

- minimum heights,
- semi-circular rule,
- airspace restrictions,
- right of way,
- aircraft speeds,
- lights to be displayed by aircraft,
- taxi rules,
- VMC minima,
- VFR/IFR,
- Air Traffic Services,
- Search and Rescue,
- Overflight regulations; and
- Ground/Air emergency code (Annex B to the Digma). Aircraft

1.2.6. Accidents contains regulations concerning:

- designation of investigators,
- reporting of accidents,
- guarding of aircraft and wreckage,
- control and access to the scene of the accident, and
- authority of investigators; and offences.

1.2.7. Aerodromes contain regulation concerning:

- appointment and powers of authorised persons,
- lights which endanger the safety of aircraft,
- offences,
- aerodrome markings; and
- clearing and zoning of aerodromes.

1.2.8. Dangerous Goods contain regulations concerning:

- general applicability,
- dangerous goods permitted or forbidden for transport by air; and

- labelling and marking.

1.2.9. The Carriage by Air Act contains regulations concerning:

- ratification of Convention,
- provision for applying Act and Convention to carriage by air which is not international,
- rules of court,
- documents of carriage,
- passenger ticket,
- luggage ticket,
- air consignment note,
- liability to carrier; and
- provisions relating to combined carriage.

1.2.10. The International Air Service Act contains regulations concerning:

- classes of international air service,
- types of international air services,
- categories of aircraft,
- insurance,
- application for license,
- application for operating certificate; and
- operation manuals.

Civil Air Services Regulations

1.2.11. The Air Services Licensing Act contains regulations concerning:

- classes and types of air services and categories of aircraft,
- application for licences,
- register of licences,
- operating certificate,
- offences and penalties; and regulations.

1.2.12. The Domestic Air Services Regulations contains regulations concerning:

- classes of air services,
- types of air services,
- categories of aircraft,
- operation manual;,
- register of licences; and
- register of operating certificates.

1.2.13. The Civil Aviation Offences Act (1972) contains regulations concerning:

- offences and penalties,
- prohibition and control of carriage of persons and harmful articles in aircraft,
- prohibition and control of persons and harmful articles in restricted areas,
- prohibition and control of persons and harmful articles in air navigation facilities,
- search of persons and other things,
- powers of arrest,
- powers of peace officers,
- board of inquiry,
- regulations, and
- aircraft to which act don't apply.

1.2.14. The Civil Aviation Safety Regulations contains regulations concerning:

- Chief: Civil Aviation Safety,
- Civil Aviation Safety Committee,
- safety plan,
- confidentially, and
- offences and penalties.

1.2.15. The Airports Company Act (1993) contains regulations concerning:

- objects of Company,
- regulating committee,
- economic regulation of company,
- regulations,
- substitutions; and amendments of different acts.

1.2.16. The Airport Charges Act contains regulations regarding:

- liability to pay airport charges,
- notification of movements of aircraft and payment charges,
- landing charges,
- parking charges; and
- general rules.

1.2.17. The Air Traffic and Navigation Services Company Act (1993) contain regulations concerning:

- objects of the company,
- functions of the company,
- economic regulation of the company,
- regulation; and
- transitional provisions.

1.2.18. ATS Charges contains regulations regarding:

- liability to pay air traffic services charges,
- notification of flight taking places and payment charges,
- en route charges,
- approach charges; and
- general rules.

1.2.19. The Rights in Aircraft Act contains regulations concerning:

- application of convention,
- mortgage of aircraft or share not to be registered in deeds registry,
- how aircraft or share mortgaged,
- discharge of mortgage,
- priority of mortgages,
- rights of mortgage,
- transfer of mortgage,
- loss of certificate of mortgage,
- access to register; and
- regulation.

1.2.20. The Space Affairs Act contains regulations concerning:

- determination of policy,
- compliance with policy,
- object and function,
- inspectors,
- licensing,
- duties and liabilities of license,
- confidentiality,
- regulations,
- offences; and
- penalties.

1.2.21. The Mortgaging of Aircraft Regulations 1997 contains regulations concerning:

- deed of mortgage,
- discharge of mortgage,
- transfer of mortgage,
- declaration of transmission of rights in mortgage,
- certificate of mortgage,
- register of aircraft mortgage,
- powers of attorney,
- and completion of documents.

1.2.22. There is also other miscellaneous legislation such as:

- The Tourism Act,
- The Customs and Exercise Act (1964),
- The Aerial Application of Agricultural Remedies,
- Shipping and Civil Aviation Laws,
- The Rationalisation Act (1994); and
- The Transport Advisory Council Abolition Act (1996).

2. The South African Civil Aviation Authority

The South African Civil Aviation Authority (CAA) was established on 1 October 1998 following the enactment of the South African Civil Aviation Authority Act, No.40, in September of the same year. The Act provided for the establishment of a stand-alone authority charged with promoting, regulating, and enforcing civil aviation safety and security. The creation of the CAA reflected the Government's then priorities of policy development, economic restructuring, addressing social inequalities and reducing the burden on the general taxpayer by expanding the application of the "user-pays" system.

A further motivation in setting up a standalone civil aviation regulatory authority was donein line with international trends in the aviation world where more and more states implemented this option.

The Authority is governed by a Board of Directors appointed by the Minister of Transport and is representative of aviation industry, management and business expertise. Througha Performance Agreement with the Minister, the Board is accountable for the performanceof the Authority in carrying out its statutory functions and achieving objectives. The NDOTwill monitor the activities of the Authority.

The management of the CAA has been structured along three core responsibility levels. The Strategic Management level which constitutes the Executive Management, Project Management level which together with the Executive Management constitutes Senior Management and the Operational level which is organized according to technical departments. The key role for the Executive is the strategic leadership of the organization and the co-ordination of policy formulation. The Executive's function is to develop and maintain positive links with the industry and to co-ordinate the CAA's international relations with organizations such as SADC, ICAO, AFCAC, and other CAAs.

The Project Management level co-ordinates the technical activities of the key areas of oversight – Aircraft, Airports, Airspace and Personnel. Oversight of Operations is coordinated by Personnel and Aircraft respectively. Technical departments report to the areas of oversight relevant to their specific activities. This means that depending on the activity a technical department may report to a different oversight area. Within each area of oversight, the key responsibilities are to set, monitor and enforce standards, as well asto promote safety.

2.1 The Director for Civil Aviation

The Act also provides for the Minister of transport to appoint an employee of the Authority as Director for Civil Aviation. The Director for Civil Aviation shall not, in respect of the functions performed by him or her as Director, be paid any remuneration in addition to his orher remuneration as an employee of the Authority, nor shall he or she be paid any allowance in respect of subsistence and transport at a rate higher than that applicable to him or her as such an employee.

The Director shall—

- hold office on such conditions as the Minister may determine when making the appointment; and
- vacate his or her office if—
    - he or she resigns by notice in writing addressed to the Minister of transport, and
    - the Minister removes him or her from office because he or she has in the opinionof the Minister failed to comply with any condition of his or her appointment, been guilty of improper conduct or neglected his or her duties as Director or is unable to perform his or her duties as Director .

The Director may designate one or more—

- persons in the service of the Authority as inspectors or authorised officers; and
- persons who are not in the service of the Authority as inspectors or authorised persons whose qualifications, powers and duties shall be as prescribed.

For purposes of monitoring compliance with any legislation administered by the Authority,the Director or inspectors may enter into any aircraft or premises, search any suchaircraft or premises, examine any object, make copies of or take extracts from any book or document or seize anything.

For information on the Monitoring of regulatory compliance refer to handout 1.

Complete Activity 1

2.2 Roles and responsibilities of the CAA

The roles and responsibilities of the CAA revolve around the following nine areas of oversight:

a) Airport oversight involves the certification of airports and heliports and monitoring civil and electrical engineering matters in relation to infrastructure on and around airports such as, lighting, navigational aids, their repair, and maintenance.
b) Airworthiness oversight is concerned with ensuring that all aircraft that fly in our airspace are airworthy to conduct such flights (fit for flight).
c) Certification oversight deals with all certification activities in relation to aircraft products and parts. This includes the granting permission for new aviation products to be imported into the country.
d) Personnel oversight involves examining, licensing and training of aviation personnel. All relevant organizations and services are monitored to ensure that personnel and standards meet international standards.
e) Oversight of Operations is carried out in terms of monitoring information contained in the operations manuals of every operator to ensure compliance with relevant legislation.
f) Airspace oversight ensures the effective management and provision of air traffic services through the allocation of airspace by the statutory consultative body, the National Airspace Committee (NASCOM).
g) Accidents and incidents investigation, while technically not an area of oversight, is a key activity of the CAA carried out on behalf of Government. Investigations are conducted to determine the cause of aircraft accidents, and to recommend measures to prevent recurrence. Other key functions also include monitoring of trends regarding aircraft accidents and incidents, identification of potential problem areas, possible safety deficiencies and proposing safety recommendations to the CAA.
h) The Flight Inspection division does not fall under a specific area of oversight. The function of this division is to calibrate the radio navigational aids used by aircrafts to ensure accuracy and reliability. Many of these tests are performed on the ground, but to ensure that the radio signals are interpreted accurately by aircraft receivers, it is also necessary to perform airborne tests on the ground equipment.
i) The Information Services division provides aeronautical information to the industry and also meets the information needs of the organization.

The establishment of a standalone authority has resulted in the CAA widening its oversight functions and becoming more visible in the industry. Entering the corporate sphere accelerated the introduction of professionalism, accountability, and integrity in the inspectorate and indeed the whole organization. When it was still part of the Department of Transport, the CAA fell within the huge government bureaucracy. However, the setting up of a self-funding authority has resulted in the authority becoming more accessible and accountable to its stakeholders.

Since attaining our democracy, the CAA has rightfully claimed its position as a regional leader in the aviation regulatory sector in our region, the Southern African Development Community (SADC). The CAA has hosted dozens of regional meetings and conferences since 1994 and is in the driving seat of regional efforts to harmonize aviation regulations in the region and improving the level of aviation surveillance in member states.

Also, in 2003, South Africa was elected to be a member of the International Civil Aviation Organisation (ICAO) council, a move that sees the country participating at the highest forum with regards to aviation matters.

The CAA is funded by a combination of direct and indirect fees and Government funding for the investigation of aircraft accidents. The industry is charged for direct services as per regulated fees. “Indirect charges” are imposed on all scheduled departing passengers from any airport in the country per passenger. A fuel levy is also charged to general aviation per litre. (Refer to SACAA Regulations for the recent amount charged.)

The National Airspace Committee (NASCOM)

The National Airspace Committee (NASCOM) was established, in terms of Regulation 11.05.1, of the Civil Aviation Regulations 1997, to provide a forum where the Regulators and organisations which provide services in the national airspace as well as the users of such airspace can consider the construction and usage of such airspace. The Committee makes recommendations to the Director for Civil Aviation regarding proposed changes to airspace, associated services and structures, and usually meets every quarter commencing in January.

Submissions or proposals requiring a decision by the Committee for recommendation to the Director of Civil Aviation shall be made in the form of an appropriately detailed working paper. Working and Information papers shall be submitted to the NASCOM secretariat at least six weeks in advance of the meeting in which they are to be addressed. For more information on NASCOM refer to handout 2.

Complete activity 2

2.3 CATS and CARs

The CATS (Civil Aviation Technical Standards and the CARs (Civil Aviation Regulations)are issued by the Director of Civil Aviation. Any interested person may submit a proposal on the introduction, amendment or withdrawal of a regulation or technical standard to the civil aviation regulations committee. The committee shall consider the proposal and make an appropriate recommendation to the Director of Civil Aviation. The Director of Civil Aviation in turn will then submit the proposal to the Minister of Transport for approval. Once approved, the Director will give effect to the proposal will in the interests of aviation safety, issue the proposed regulation, technical standard, amendment or withdrawal. The documents are specified in the table below. In most cases for every category there would be a CAT and a CAR document.

	Description	**CAR Part**
Relating to Procedure	Procedures for making regulations, issuing technical standards, and granting exemptions.	11
	Aviation accidents and Incidents.	12
	Enforcement Procedures.	13
Aircraft	Airworthiness Requirements	21
	Aircraft Engine Emission	34
	Aircraft Noise	36
	General Maintenance Rules.	43
	Aircraft Registration and Marking.	47
Personnel Licensing	Pilot Licensing.	61
	National Pilot Licensing.	62
	Flight Engineer Licensing.	63
	Cabin Crew Licensing.	64
	Air Traffic Service Personnel Licensing.	65
	Aircraft Maintenance Engineer Licensing.	66
	Medical Requirements	67
	Glider Pilot Licensing	68

	Description	CAR Part
	Glider Balloon Pilot Licensing	69
	RPAS Personnel Licensing	71
	General Aviation and Operating Flight Rules.	91
Rules of the Air and General Operating Rules	Conveyance of Dangerous Goods.	92
	Operation of Non-Type Certificated Aircraft	94
	Commercial Operation of Non-Type Certificated Aircraft	96
	Remotely Piloted Aircraft Systems	101
	Operation of Air Parachutes.	105
Aviation Security	Air Cargo Security	108
	Aviation Security training Organisations	109
	Aviation Security Screener Certification	110
	Aviation Security	111
Certified Aircraft Operators and Other Flight Operations	Air transport operations- Carriage on Aeroplanes of more than 19 Passengers or Cargo (Large Aeroplanes).	121
	Air Transport Operations- Helicopter Operations: Passenger, Cargo, and Mail.	127
	Helicopter Aerial Work and Certain other Air Service Operations	128
	Helicopter external-load operations.	133
	Air Transport Operations- Carriage on Aeroplanes of less than 20 Passengers or Cargo (Small Aeroplanes).	135
	Air Transport Operations- Commercial Operations of Free Balloons	136
	Aerial Work Operations.	137
	Air Ambulance Operations.	138
Safety Management	Safety Management Systems	140
Organisations	Aviation Training Organizations	141
	Aircraft Maintenance Organizations.	145
	Design Organizations.	147
	Manufacturing Organizations.	148
	Aviation Recreation Organizations.	149
Air Traffic and AirTraffic Services	Airspace and Air Traffic Services.	172
Meteorological Information Services	Meteorological Information Services	174
Aeronautical Information Services	Aeronautical Information Services.	175
Aeronautical Assessment of Aviation Obstacles	Aeronautical Assessment of Aviation Obstacles	178

2.1 Public transport categories

"Public air transport service" means an air service, which, has as its main purpose thetransport of passengers, cargo, or mail. Aircraft that operate under public transport aircraft are normally categorised as follows:

- CAT A1 – any aircraft with a maximum certified mass exceeding 20 000 kilograms.
- CAT A2 - any aircraft with a maximum certified mass exceeding 5700 kilograms but not exceeding 20 000 kilograms.
- CAT A3 - any aircraft with a maximum certified mass exceeding 2700 kilograms but not exceeding 5700 kilograms.

Each aircraft that operates in the public transport category has to meet certain requirements which are stipulated in the Aviation Legislation in South Africa. The requirements are listed under the categories of aircraft and include details such as:

a) General provisions e.g., Applicability and Exemptions.
b) Flight Crew Requirements e.g., Composition of Flight Crew.
c) Training and checking e.g. Training of Cabin Crew Members.
d) Documentation and Records e.g., Operations Manual.
e) Instruments and Equipment e.g., Navigation Equipment.
f) Operating Certificate e.g., Register of Operating Certificates.
g) Flight Operations e.g., Fuel policy.
h) Performance Operating Limitations e.g. Take-off.
i) Maintenance e.g., Aeroplane Maintenance Schedule.

2.2 Employment of aircraft

Every aircraft, for which a certificate of airworthiness is granted or rendered effective, is categorised for specific employment. An aircraft may be categorised for employment in one or more of the categories, but operation of the aircraft is restricted to the privileges and limitations attached to each of these categories namely:

a) Public Transport Operation. This includes all air operations in which the aircraft is used for the carriage of passengers, cargo, or mail for reward.
b) Public Transport of Cargo Operation. This includes all air operations in which the aircraft is used exclusively to carry cargo or mail for reward.

c) Aerial Work Operation. This includes all air operations in which an aircraft is used for commercial, industrial or any lucrative purpose not included in both public transport operations. These purposes, which may depend on the incorporation of special structural features in the aircraft or the installation of special items of equipment, may be limited by conditions prescribed in the certificate of airworthiness.

d) Industrial Aid Operation. This includes all air operations in which an aircraft is used by a company or a person to carry passengers or cargo for the purpose of expandingand growing its business. There is no charge for passengers or cargo.

e) Flying Training Operation. This includes all air operations in which an aircraft is used for the flying training of aircrew.

f) Private Operation. This includes all air operations in which the aircraft is used for the personal transportation of the owner or the carriage of persons and goods not for industrial aid operations or for reward.

g) Semi-Acrobatic Operation. This includes all air operations in which the aircraft is used for the performance of specified acrobatic maneuvers not involving inverted flight and which are permissible in accordance with the Flight Operations or Owner's Manual of the aircraft.

h) Acrobatic Operation. This includes all air operations in which an aircraft is used the performance of acrobatic maneuvers, which are permissible in accordance with the Flight Operations or Owner's Manual of the aircraft.

i) Special Operation. This includes all air operations in which an aircraft is used for any other purpose than those mentioned in the previous categories and may include experimental, research and racing operations or any other operations that may be approved by the Director for Civil Aviation. Flight of aircraft in this category may,as a precautionary measure, be limited to certain areas and to certain periods.

j) An aircraft may, on any given flight, be employed in more than one of the categories inwhich it is classified in its certificate of airworthiness, provided that:

k) In such a flight, all requirements which are common to the categories concerned, are complied with; and

l) In cases where differences occur between the requirements applicable to the categories in question, the highest standard must be met.

In the event of it being desired to use an aircraft in categories other than those stated in its airworthiness, an application for re-classification must be forwarded to the Commissioner of Civil Aviation, prior to the aircraft being so used. The existing certificateof airworthiness will then be endorsed, or a new certificate issued, if it can be shown thatall requirements in respect of the category applied for are met.

Conclusion

In this learning unit we discussed international air law, the South African Civil Aviation Authority as well as Conventions and Acts that govern civil aviation in South Africa. We also discussed the public transport categories and the employment of aircraft. In the next learning unit, we will look at regulations regarding safety, substance abuse and other offences, the application of the rules of the air, licensing and certification and general rulesfor the operation of aircraft.

Module 5

Aviation
Legislation

Learning unit 2: General aircraft operations

LEARNING OUTCOMES

At the end of this learning unit the candidate will be able to:

2: Learning unit 2 - General aircraft operations

1. Introduction

In the previous learning unit, we discussed international air law, the South African Civil Aviation Authority as well as Conventions and Acts that govern civil aviation in South Africa. We also discussed the public transport categories and the employment of aircraft. In this learning unitwe will look at regulations regarding safety, substance abuse and other offences, the application of the rules of the air, licensing and certification and general rules for the operationof aircraft.

2. General regulations

Specific rules and regulations have been included in the Aviation Legislation to provide for additional measures directed at more effective control of the safety of aircraft, designated airports and the like. For the purposes of these rules and regulations an aircraft will be deemedto be:

- In flight, at any time from the moment when all its external doors are closed following embarkation until the moment when such doors are opened for disembarkation or, if the aircraft makes a forced landing until the moment when the competent authorities of the country in which the forced landing takes place, take over the responsibility for the aircraft and for the persons and property on board.
- In service, from the beginning of the pre-flight preparation of such aircraft by ground personnel or by the crew for a specific flight until 24 hours after any landing.

2.1. Conveyance of dangerous goods

Complete the following lesson on CAT:

The regulations pertaining to the carrying of dangerous goods on aircraft are contained in **Part92** of the CARs document. For more information on this see **handout 3.**

Complete activity 3

2.2. Territorial application of rules of the air

The Aviation Act is there to consolidate the laws enabling effect to be given to certain International Aviation Conventions and making provision for the control, regulation, and encouragement of flying within the Republic of South Africa and other matters incidental thereto. The provisions of the Aviation Act shall, except where expressly excluded under the Act or by Regulation, apply to:

- All aircraft whilst in or over any part of the Republic of South Africa or the territorial watersthereof, and
- All South African aircraft and personnel where so ever they may be.

The provisions of the Aviation Act shall not apply to:

- Aircraft and airports belonging to the South African National Defence Force, or
- Civilian airports being in use exclusively by the South African National Defence Force, or
- Any person employed on or in connection with such aircraft or airports irrespective of whether such a person is so employed in a military or civil capacity.

2.3. Authority and responsibility of pilot in command of an aircraft

The pilot-in-command of an aircraft shall be directly responsible for the operation of the aircraft and shall have the final authority as to disposition of the aircraft while in command. The pilot-in-command of an aircraft shall be responsible for the operation of the aircraft in accordance with the provisions of the Aviation Regulations, except that he may depart from these Regulations in circumstances that render such departure absolutely necessary in the interestsof safety.
Where it has been necessary to depart from the provisions of the Regulations, the pilot-in-command (PIC) must report such departure and the reasons therefore to the nearest convenient air traffic service unit as soon as practicable.

Before commencing a flight, the pilot-in-command of an aircraft must familiarise himself with all available information appropriate to the intended operation. Pre-flight actions should be done for all departing flights, inclusive of all (VFR and IFR) flights, PIC shall include a careful study of available current weather reports and forecasts, taking into consideration fuel requirements and alternative course of action if the flight cannot be completed as planned (for e.g., weather avoidance and emergencies).

Pre-flight inspections

The pilot-in-command of a South African aircraft shall, before commencing any flight, be satisfied that:

- The aircraft, its instruments and equipment are in every way fit for the proposed flight.
- The aircraft is satisfactorily loaded for safety in flight, and that all cargo or baggage carriedin the aircraft is properly stowed and secured;
- The view of the pilot is not impeded in any way; and
- The aircraft has sufficient fuel, oil and coolant liquid for the proposed flight

For more information on the duties and responsibilities of a pilot during flight preparation and operations see handout 4.

Complete activity 4

Meteorological Reports

The pilot-in-command of an aircraft in which it is proposed to undertake a flight of more than 20NM from the point of departure must, prior to taking off, shall obtain all such meteorological information as is available.

Operating Facilities

The pilot-in-command of an aircraft shall:

a) Not undertake a flight with the aircraft unless it has been ascertained through the relevant NOTAM, AICs, AIPs, and AIP SUPPS that the aerodromes and navigational aids and communication facilities, which are to be used or which are available for the flight are adequate and serviceable for the manner in which the flight is to be conducted;

b) For IFR operations, ensure that all the current, pertinent navigational en-route, terminal area, approach and letdown charts are carried on board.

c) For VFR and night operations, ensure that all current, pertinent navigational en-route and terminal area charts are carried on board.

d) Prior to take-off from an aerodrome at which an ATSU is in operation, determine through the AIS available at the unit, that the unserviceability of any aerodromes, navigational aidsor communication facilities required for such flight will not prejudice the safe conduct of the flight, and

e) Notify the nearest convenient ATSU, as soon as it is practicable to do so, of any inadequate facilities encountered in the course of operations

Safety Harnesses and Belts

The pilot-in-command of an aircraft in which it is proposed to undertake acrobatic maneuvers,must ensure that safety harnesses adequately secure each passenger and crewmember. Safety harnesses or belts must be used by all crewmembers and passengers occupying the front seats of an aircraft during flight.

Safety harnesses or belts must be used by all crewmembers and passengers:

a) During take-off.
b) During the approach for a landing; and
c) Whenever turbulent conditions are being or are likely to be experienced.

Authority to act as pilot

A person may only act as pilot of a South African registered aircraft if the person holds a valid:

- Appropriate pilot licence and rating issued, renewed, or reissued by the Director; or
- Pilot licence and rating issued by an appropriate authority and validated by the Director.

The holder of a pilot licence may not exercise privileges other than those granted by the appropriate licence and rating held by him/her. The holder of a pilot licence must pay annualcurrency fees as applicable to the type of license.

2.4. Restrictions on flight operations

- A Restricted Area (FAR) is an airspace of defined dimensions within which the flight of any aircraft is restricted in accordance with conditions like time, weather, permission altitudes, androutes.
- A Danger Area (FAD) is an airspace of defined dimensions within which activities, dangerousto the flight of the aircraft, may exists at specified times.
- A Prohibited Area (FAP) is an airspace of defined dimensions within which the flight of any aircraft is prohibited under all circumstances.

Speed restrictions

Outside controlled airspace between 1000' AGL and FL100, the speed must be < 250 kts. Inside controlled airspace a piston aircraft must be slower than 160kts and a jet turbine must be slower than 200kts. Inside an ATA, a piston aircraft must be slower than 160kts and a jet turbine must be slower than 200kts.

Height restrictions

Except when necessary for take-off or landing, or except by individual permission from the Director, aircraft shall be flown as follows:

a) Built-up Areas. Not less than 1000' above the highest obstacle within a radius of 2000' from the aircraft;
b) Low Level. Not less than 500' above the ground or water, unless the flight can be made without hazard or nuisance to persons or property on the ground and water.
c) Open-air Assemblies of Persons. Except with the written permission of the Director and subject to any condition that may be imposed in the interests of safety, no aircraft shall circle over or do repeated overflights over an open-air assembly of persons at a height less than 3000' above the surface.
d) At Night, IMC or IFR. An aircraft shall at night, in IMC, or when operating in accordance with IFR, be flown:

- At a height of at least 1000' above the highest terrain or obstacle where the height of such terrain or obstacle does not exceed 5000' above sea level within 5nm of the aircraft in flight.
- At a height of at least 2000' above the highest terrain or obstacle located within 5nm of the aircraft in flight, where the height of such terrain or obstacle exceeds 5000' abovesea level.

The Director may reduce the minimum height in specific areas and determine specific procedures to be followed by aircraft in such areas.

2.5. Lights which endanger the safety of aircraft

The Director may instruct any person responsible for any light or pattern of lights, to extinguish or screen such lights if the lights are exhibited:

- In the vicinity of an aeronautical light or system of aeronautical lights, and there is a possibility that these lights may be mistaken for aeronautical lights and as a result is likelyto endanger the safety of aircraft; or

- In the vicinity of a licensed aerodrome or heliport, and are liable, by its glare, to endanger the safety of aircraft arriving at or departing from the aerodrome or heliport.

No rockets, missiles, or flares other than those used for aeronautical distress may be fired within controlled or advisory airspace. Except with the permission of the Director , andsubject to any conditions, which may be imposed, the firing of rockets, missiles and flares maynot take place in any other airspace:

- If it exceeds a height of more than 2000' above the surface; and
- If it is closer than 8km from the reference point of a licensed aerodrome.

2.6. Ground light signals.

Although radio communications are the most important forms of communication between air traffic control and aircraft, situations may arise when there are no radio communications. This necessitates some other form of communication. The methods used by the ATCs to pass on information to aircraft are:

- Light signals (ALDIS Lamp), and
- Pyrotechnic signals (Verey pistol)

Because objects in the area can easily obstruct light and the range of the flare is limited these signals are restricted to use within the aerodrome traffic circuit.

The ALDIS Lamp is a powerful light source, which has a trigger that can switch the light on and off. It has removable lenses allowing the ATC to change the lens colour to either a red orgreen light or by removing all lenses, a white light. This lamp is used for both aircraft and vehicles on the ground as well as aircraft in the air. The signal will remain the same, yet the meaning will naturally change depending if you are airborne or not.

Airborne aircraft

To aircraft in flight the following signals are given by means of the light directed towards theaircraft concerned:

- Steady Green: Cleared to land.
- Steady Red: Give way to other aircraft and continue to circle.
- Flashing Green: Return for landing. A steady green for clearance to land must be given at the appropriate time.
- Flashing Red: Aerodrome unsafe, do not land.

Ground traffic

To aircraft and vehicles on the ground, with the light directed towards the aircraft or vehicle concerned, the following signals are appropriate:

- Steady Green
  - Aircraft: Cleared for take-off.
  - Vehicle: Not used.
- Steady Red
  - Aircraft and vehicles: Stop.
- Flashing Green
  - Aircraft: Cleared to taxi.
  - Vehicles: Permission to cross landing area or to move onto taxiway.
- Flashing Red
  - Aircraft: Taxi clear of runway.
  - Vehicles: Clear the runway or taxiway you are on.
- Flashing White
  - Aircraft: Return to your starting point on the ground.
  - Vehicles: Go to a telephone and contact the tower.

Pyrotechnic signals may be used to control aircraft in the circuit area or on the maneuvering area as follows:

- Green Flare: Permission granted to carry out maneuver.
- Red Flare: Permission denied.
- White Flare: Return to apron.

Note that all flares should be shot across the bow of the approaching aircraft

In emergency conditions the runway or taxiway lights may be flashed which is only used for vehicles. This means the vehicle must vacate the runway and observe the tower for light signals.

2.7. Visual ground signals

After an incident has occurred, it is important that the survivors make themselves as visible as possible in order that any SAR operation would be able to find them as soon as possible. Obviously, the chances of surviving an ordeal are far greater if the survivors are found soon after the incident has occurred. Laying out signals on the ground, is one of the methods thatcan be used to attract the SAR unit's (SRU's) attention.

2.7.1. Signals used by the Survivors.

A situation could exist where the survivors have no verbal communication with the SRU. It then becomes important to use ground signals to inform the SRU of the type assistance, if any, that is required. There is an international code that is used for Ground to Air visual signals. They are as follows:

Assistance required

Proceeding in this direction

Medical assistance required.

Yes, or affirm.

Negative

2.7.2. Construction of the signals

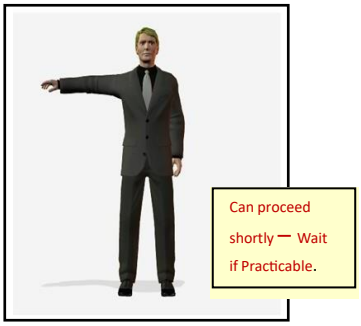
Any aircraft that is planning to undertake a cross-country flight is required to carry some formof material from which the ground to air signals can be constructed. It is recommended that at least four strips of white material measuring not less than 2.5m x 0.6m, is carried on boardthe aircraft,

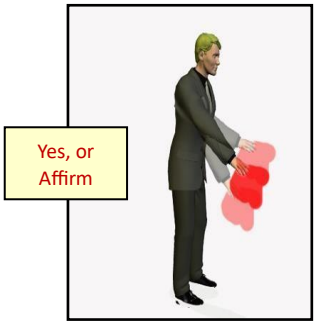
- Effort should be made to provide as big a colour contrast as possible between the material being used for the symbols and the background against which the symbols are exposed.
- Symbols should be at least 2.5m in height or larger.
- A space of 3m should separate the symbols when more than one symbol is used.

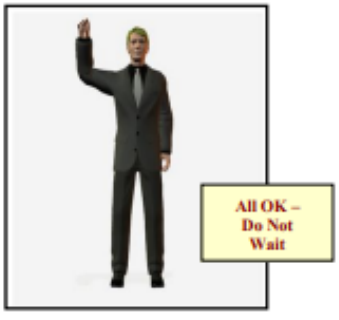
In addition to using these symbols every effort should be made to attract attention by means of radio, flares, smoke, or other available means.

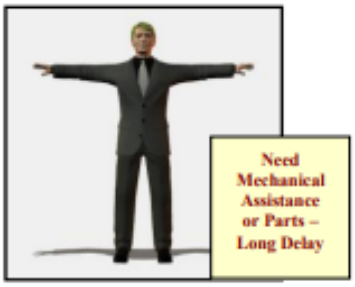
2.8. Body signals

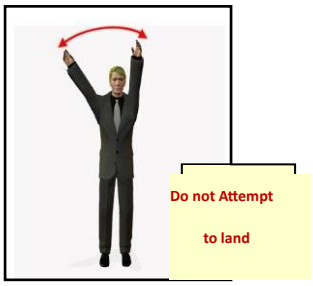
If the survivors are unable to attract the SAR aircraft with ground signals, or they do not haveaccess to ground signals, body signals may be used to transmit messages. It is important thatthe survivors must ensure that the background contrasts well with the person signaling with his/her body in order that the signals may be clearly observed by the SAR Unit.











Complete activity 5

3. Substance abuse and other offences

3.1. Substance abuse

The investigation into a number of recent fatal accidents involving aircraft has shown that the consumption of alcohol was a contributory factor in some of these accidents. It appears therefore that some flight crewmembers are still unaware of the dangers of drinking before flying. No flight crewmember shall:

- Consume any alcohol less than 8 hours prior to commencing standby for flight duty, which flight duty shall be deemed to commence at the specified reporting time, if applicable,
- Commence flight duty while the concentration of alcohol in any specimen of blood taken from any part of the body, is more than 0,02 gram per 100 millilitres, or
- Consume alcohol during flight duty or whilst on standby, or within eight hours after an accident or reportable incident involving the aircraft, unless the accident or incident was not related to their duties.

3.1.1. Passengers

The operator of commercial air transport aircraft may not permit any person to enter or be in an aircraft while under the influence of alcohol or a drug having a narcotic effect, to the extentwhere the safety of the aircraft or its occupants is, or is likely to be, endangered. The pilot-in-command of a civil aircraft may refuse to carry on board the aircraft any person who is in his opinion under the influence of intoxicating liquor, narcotics, or drunks and who is not the patientunder proper medical care.

3.1.2. Air Traffic Service Personnel

No air traffic service personnel member shall:

- Consume any liquor less than 8 hours prior to the specified reporting time for operational duty or the commencement of a shift.
- Commence an operational duty period while the concentration of alcohol in his/her blood is more than 0,02 gram per 100 millilitres.
- Consume alcohol during the operational duty period or whilst on standby for operational duty.
- Commence an operational duty period while under the influence of liquor or any drug having narcotic effect.
- Exercise the privileges of their licences and related ratings while under the influence of any psychoactive substance, which might render him or her unable to exercise these

privileges safely and properly.

- Engage in any problematic use of substances.

3.2. Conveying armaments, drugs, and animal products

No person may convey any armaments, drugs, or animal products in an aircraft, except with the written permission of the Minister or a person in the service of the State authorised theretoby the Minister and subject to any conditions that may be determined.

An aircraft, which is upon reasonable grounds believed to be engaged in conveying any armaments, drugs or animal products may be searched, the goods seized, and any person found to be on board, may be arrested. The expression “Armaments” bears the meaning assigned thereto in section 1 of the Armaments Development and Production Act, 1968 (Act No. 57 of 1968), with the exceptions as stated in section 15A(6)(b) of the Aviation Act No. 74of 1962.

“Drugs” means a drug as defined in section 1 of the Drugs and Drug Trafficking Act, 1992 (Act No. 140 of 1992), which has not been acquired, bought, or possessed lawfully as contemplatedin section 4 of the said Act.

“Animal products” means a rhinoceros horn, an elephant tusk, or a part thereof, which is possessed contrary to the provisions of any other law.

3.3. Smoking

No person may smoke in a South African registered aircraft or in any foreign registered aircraftwhen in or over the Republic of South Africa, unless and except in so far as smoking is permissible in accordance with the flight manual or other equivalent document for such an aircraft. However, no person may smoke in a South African registered aircraft when such aircraft is used in a scheduled public air transport service operation and has departed from orwill be landing within the Republic of South Africa.

In an aircraft in which smoking is permitted, smoking shall nevertheless be prohibited:

a) During take-off,
b) When aircraft is on the ground, and
c) During an approach to land

In all South African registered aircraft, notices shall be displayed in a prominent place in all passenger and crew compartments, indicating to what extent, and when, smoking is permittedall prohibited.

3.4. Unlawful interference

A person may be guilty of an offence and be liable on conviction to imprisonment, if such a person, on board an aircraft in flight:

- Attempts to seize control of, or unlawfully exercises control of the aircraft, by force or threat of force or any other form of intimidation;
- Assaults any person if such assault is likely to endanger the safety of that aircraft;
- Assaults or willfully interferes with any member of the crew of that aircraft in the performance of their duties.

A person may be guilty of an offence and be liable on conviction to imprisonment, if such a person:

- Destroys an aircraft in service or willfully causes damage to such an aircraft, which renders it incapable of flight or which is likely to endanger its safety in flight.
- Places on an aircraft in service, by any means whatsoever, a device or substance, which is likely to destroy that aircraft or to cause damage to it which renders it incapable of flight or is likely to endanger its safety in flight.

A person may be guilty of an offence and be liable on conviction to imprisonment, if such a person:

- Destroys or willfully damages air navigation facilities or willfully interferes with their operation;
- Communicates information, which they know to be false, thereby endangering the safety of an aircraft;
- Places at, on or in any designated airport, heliport, or air navigation facility any device or substance, which is calculated to endanger, injure or kill any person, or to endanger, damage, destroy or render useless or unserviceable or put out of action any property, vehicle, aircraft, building, equipment or air navigation facility or part thereof;
- Willfully pollutes aviation fuel.

Any person who on board any aircraft in service commits any nuisance or any disorderly or indecent act or is in a state of intoxication or behaves in a violent or offensive manner to the annoyance of any other person on the aircraft or uses abusive, indecent, or offensive language,may be guilty of an offence and on conviction be liable to a fine or imprisonment.

3.5. Negligent and reckless flying

An aircraft shall not be operated in a negligent or reckless manner so as to endanger life or property of others.

4. ATS licences and medical certification

Complete the following lesson on CAT:

No person shall provide an air traffic service within any airspace in the Republic of South Africa, unless such a person holds a valid air traffic service licence and rating complying with the requirements of the Aviation Legislation, and appropriate to the duties being performed. The holder of an air traffic service licence shall not exercise privileges other than the privilegesgranted by the licence and the appropriate valid rating held by such a holder. The holder of alicence or rating issued by an appropriate authority, who desires to obtain a licence or rating in terms of the RSA Aviation Legislation, shall apply to the Director for Civil Aviation fora conversion of such a licence or rating. A licence or rating issued by an appropriate authoritymay be recognised by the Director , subject to the same restrictions, which apply to sucha licence or rating

4.1. Ratings

The air traffic service ratings are:

- An air traffic service assistant rating;
- An air traffic service assistant (co-ordinator) rating;
- An air traffic service assistant (clearance delivery) rating;
- An air traffic service assistant (flight information service) rating;
- An air traffic service assistant (aerodrome flight information service) rating;
- An aerodrome control rating;
- An approach control rating;
- An area control rating;
- An approach control (radar) rating;
- An area control (radar) rating;
- A Grade I air traffic service instructor (operational) rating; and
- A Grade II air traffic service instructor (operational) rating.

4.2. Certificates

The air traffic service certificates are:

- A Grade I air traffic service instructor (training organisation) certificate; and
- A Grade II air traffic service instructor (training organisation) certificate.

4.3. Requirements for Air Traffic Service License

An applicant for an air traffic service licence shall:

- Not be less than 18 years of age;
- In the case of an air traffic controller, hold a valid Class 3 Medical Certificate;
- In the case of an air traffic service assistant, hold a valid Class 3 Medical Certificate;
- Be a resident of the Republic of South Africa;
- Have successfully completed the prescribed training; and
- Have passed the prescribed theoretical knowledge examinations.

4.3.1. Period of Validity

An air traffic service licence shall be valid for an indefinite period, provided that the holder thereof shall not exercise the privileges of the licence unless:

a) In the case of an air traffic controller, he or she is the holder of a valid Class 3 Medical Certificate.
b) In the case of an air traffic service assistant, he or she is the holder of a valid Class 3 Medical Certificate.
c) He or she holds the appropriate valid rating.
d) He or she continually exercises the particular rating in the normal course of duties of employment, which may not be less than seven consecutive shifts within three shift cycles; and
e) He or she maintains competency by complying with the appropriate prescribed requirements.

4.3.2. Privileges

The holder of a valid air traffic service licence shall be entitled to:

- Provide the air traffic service at the air traffic service unit (ATSU) for which the rating held by him or her is validated, in accordance with the prescribed requirements and standards;
- Act as an air traffic service instructor (operational) if he or she is suitably rated; and
- Act as a validation examiner if he or she is designated as such and is in possession of a Grade I air traffic service instructor (operational) rating;

- Act as an air traffic service instructor (training organisation) if he or she holds the appropriate certificate;
- Act as a rating assessment examiner if he or she is designated as such and is in possession of a Grade I air traffic service instructor (training organisation) certificate.

4.4. Requirements for Aerodrome Control Rating

An applicant for the issuing of an aerodrome control rating shall:

- Not be less than 19 years of age,
- Hold a valid air traffic service licence; and
- Have successfully completed the prescribed training. Requirements for Validation of Aerodrome Control Rating

An applicant for the validation of an aerodrome control rating shall, under supervision of an airtraffic service instructor (operational), have provided aerodrome control services at the ATSUfor which the rating is sought for at least 100 hours, but not more than 200 hours, 50% of which may be provided on a simulator.

Privileges of Aerodrome Control Rating

The holder of a valid aerodrome control rating shall be entitled to:

- Provide aerodrome control services at the ATSU for which the rating is validated, in accordance with the prescribed requirements and standards, if he or she has familiarised himself or herself with all information that is pertinent or current at such ATSU; and
- Use such equipment to provide the aerodrome control services, as appropriate.

Duration of Validation or Renewal

An aerodrome control rating shall be validated or renewed for a period of 12 months calculated from the date of validation of the rating or from the date of expiry of the rating if such rating is revalidated or renewed. The rating shall expire if not revalidated within a period of 24 months, calculated from the date on which such rating was validated.

4.5. Requirements for Approach Control Rating

An applicant for the issuing of an approach control rating shall:

- Not be less than 21 years of age,
- Hold a valid air traffic service licence; and
- Have successfully completed the prescribed training.

Requirements for Validation of Approach Control Rating

An applicant for the validation of an approach control rating shall, under supervision of an airtraffic service instructor (operational), have provided approach control services at the ATSU for which the rating is sought for at least 200 hours, but not more than 400 hours, 50% of which may be provided on a simulator.

Privileges of Approach Control Rating

The holder of a valid approach control rating shall be entitled to:

- Provide approach control services at the ATSU for which the rating is validated, in accordance with the prescribed requirements and standards, if he or she has familiarised himself or herself with all information that is pertinent or current at such ATSU; and
- Use such equipment to provide the approach control services, as appropriate.Duration of Validation or Renewal

An approach control rating shall be validated or renewed for a period of 12 months calculatedfrom the date of validation of the rating or from the date of expiry of the rating if such rating isrevalidated or renewed. The rating shall expire if not revalidated within a period of 24 months,calculated from the date on which such rating was validated.

4.6. Requirements for Area Control Rating

An applicant for the issuing of an area control rating shall:

- Not be less than 21 years of age,
- Hold a valid air traffic service licence; and
- Have successfully completed the prescribed training.

Requirements for Validation of Area Control

An applicant for the validation of an area control rating shall, under supervision of an air traffic service instructor (operational), have provided area control services at the ATSU for which the rating is sought for at least 200 hours, but not more than 300 hours, 50% of which may be provided on a simulator.

Privileges of Area Control Rating

The holder of a valid area control rating shall be entitled to:

- Provide area control services at the ATSU for which the rating is validated, in accordance with the prescribed requirements and standards, if he or she has familiarised himself or herself with all information that is pertinent or current at such ATSU; and
- Use such equipment to provide the area control services, as appropriate.

Duration of Validation or Renewal

An area control rating shall be validated or renewed for a period of 12 months calculated fromthe date of validation of the rating or from the date of expiry of the rating if such rating is revalidated or renewed.

4.7. Requirements for Approach and/or Area Control (Radar) Rating

An applicant for the issuing of an approach and/or area control (radar) rating shall:

- Not be less than 21 years of age;
- Hold a valid air traffic service licence; and
- Have successfully completed the prescribed training.

Requirements for Validation of Approach and/or Area Control (Radar) Rating

In the case of an approach control radar rating, the applicant shall, under supervision of an air traffic service instructor (operational), have provided approach control radar services, in conjunction with the provision of approach control services mentioned above, at the ATSU for which the rating is sought for at least 50 hours but not more than 150 hours, 50% of which may be provided on a simulator. In the case of an area control radar rating, the applicant shall, under supervision of an air traffic service instructor (operational), have provided area control radar services, in conjunction with the provision of area control services mentioned above, at the ATSU for which the rating is sought for at least 50 hours but not more than 150hours, 50% of which may be provided on a simulator.

Privileges of Approach and/or Area Control (Radar) Rating

 Provide approach and/or area control (radar) services at the ATSU for which the rating is validated, in accordance with the prescribed requirements and standards, if he or she has familiarised himself or herself with all information that is pertinent or current at such ATSU;and
 Use such equipment to provide the area control services, as appropriate.

Duration of Validation or Renewal

An approach and/or area control (radar) rating shall be validated or renewed for a period of 12 months calculated from the date of validation of the rating or from the date of expiry of therating if such rating is revalidated or renewed.

For more information on ATS licensing see handout 5 and Handout 6.

4.8. Medical certification

An applicant must comply with the following medical requirements in order to qualify for the issue, re-issue or renewal of an air traffic control rating or licence:

The medical requirements for aerodrome control are as follows:

- Physical Requirement No. 4,
- Visual Requirement No. 1,
- Colour Perception Requirement No. 1,
- Hearing Requirement No. 1.

The medical requirements for area and approach control are as follows:

- Physical Requirement No. 4,
- Visual Requirement No. 3,
- Colour Perception Requirement No. 1,
- Hearing Requirement No. 1.

The prescribed medical examinations are to be carried out once every twelve months. The medical examination must take place within the period of 30 days immediately preceding the controller's birthday.

General Medical Requirements

The prescribed requirements cannot include sufficient detailed specifications to cover all individual conditions, and, of necessity, leave many decisions relating to the assessment of medical fitness to the discretion of the medical examiner. The assessment of medical fitness shall, therefore, be made as the result of a complete medical examination conducted throughout in accordance with high standards of medicine and having due regard to the requirements of the licence or rating for which the candidate is applying and the conditions inwhich the duties will have to be carried out.

Physical Requirement No. 4

The medical examination and assessment shall be based on the following requirements of mental and physical fitness:

a) The candidate shall be free from any congenital or acquired disability causing such degree of functional incapacity as is considered likely to interfere with the efficient performance of his duties while exercising the privileges of his licence or of his employment.

b) The candidate shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, or presumptive evidence of latent epilepsy.
c) He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe, efficient performance of his duties.
d) Cases of insanity and cases in which syphilis, past or present, has affected the central nervous system, shall be assessed as permanently unfit

Injuries to the Head

Persons with simple concussion or a simple fracture of the skull without associated intracranial injury shall be considered temporarily unfit until the medical examiner is satisfied the effects of the concussion or fracture will not interfere with the safe performance of duties. Persons who have a head injury in which there is brain tissue damage or persistent meningitis will be declared permanently unfit. Persons who as a result of a head injury had an operation in which there was a loss of bony substance involving the two tables of the cranial vault would be declared permanently unfit. Persons whose condition has been repaired by plates ensuringthe present and future integrity of the central nervous system may be assessed as fit. A period of one year shall expire before the licence is renewed.

General Surgical Examination

The candidate shall neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is likely to interfere withthe safe performance of his duties. He shall be required to be free from hernia. In cases in which the medical examiner is satisfied that a well-fitted truss will be worn the candidate maybe assessed fit.

Locomotor System

A person with any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. On issue, re-issue, or renewal of a licence a person with functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with safe performance of duties may be assessed as fit.

Digestive Tract

A person with any sequelae of disease or surgical intervention on any part of the digestive tract and its adnexae, liable to cause sudden incapacity, in particular any obstruction due to stricture or compression, shall be assessed as unfit.

Urinary System

A person with any sequelae of disease or surgical procedures on the kidneys and the urinary tract liable to cause sudden incapacity, in particular any obstruction due to stricture or compression shall be assessed as unfit. Persons with compensated nephrectomy without hypertension or uraemia may be assessed as fit.

General Medical Examination

The candidate shall not suffer from any disease or disability, which renders him liable suddenly to become unable to perform his duties safely. The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with the safe performance of duties. Electrocardiography shall form part of the heart examination for the first issue of licence and shall be included in re-examinations in all doubtful cases.

The systolic and diastolic blood pressures shall be within normal limits, with due regard to age. There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of variscosities does not necessarily entail unfitness.

There shall be no acute disability of the lungs, nor any active disease of the structure of the lungs, mediastinum or pleura. Radiography shall form part of the medical examination in all doubtful clinical cases. In the case of an examination for the first issue of a licence, radiography shall form part of the chest examination and shall be included in re-examinationsof candidates at least once every five years up to the age of 40, and thereafter at least once every two years.

Persons with active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Persons with quiescent or healed lesions, which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit. Persons with disabling disease, with important impairment of function of the gastro-intestinal tract and its adnexae, shall be assessed as unfit. Persons with proven cases of diabetes mellitus shall be assessed as unfit; persons with doubtful cases shall be assessed as unfit until the condition is proven non-diabetic.

Persons with significant localised and generalised enlargement of the lymphatic glands and diseases of the blood shall be assessed as unfit. Persons presenting any signs of organic disease of the kidneys shall be assessed as unfit; those with a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be pathological.

Persons with affections of the urinary passages and of the genital organs shall be assessed as unfit; those with a transient condition may be assessed as temporarily unfit.

A candidate at the first examination who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

Eye Examination

The functions of the eye and its adnexae shall be normal. There shall be no active pathological condition, acute or chronic, of either eye or its adnexae, which is likely to interfere with its proper function to an extent that would jeopardise the safe performance of duties.

Ear Examination

There shall be:

- No active pathological process, acute or chronic, of the internal ear or middle ear cleft;
- No permanent disturbances of the vestibular apparatus. Persons with transient conditionsmay be assessed as temporarily unfit.

Nose, Throat and Mouth Examination

There shall be no serious malformation or serious, acute, or chronic affection of the buccal cavity or upper respiratory tract. Persons with defects of speech and who stutter shall be assessed as unfit.

Visual Requirement No. 1

The candidate shall be required to have:

a) Normal fields of vision; and
b) A visual accuracy of at least 20/30 (6/9, 0,7) in each eye separately with or without correcting glasses. (If this visual acuity is obtained only by use of correcting glasses, the vision without glasses in either or both eyes must be no less than 20/60 (6/8, 0,3) or, for a licence holder where refraction is the limiting factor, 20/100 (6/30, 0,2) on renewal of a licence, provided that correcting glasses are worn when exercising the privileges of the licence.)

c) The candidate shall be required to have not more than +2,25 diopters of hypermetropia, in the case of a candidate for the initial issue of a licence.
d) Any degree of heterophoria found in the test must be noted in the candidate's medical record, the candidate being required to be within the prescribed limits, with or without correcting glasses.
e) The candidate shall be required to have an accommodation permitting reading the Jaeger Chart 3 or its equivalent at a distance of 30 cm, with each eye separately, allowing the use of correcting glasses for this test if it is the usual habit of the candidate to wear them.

Visual Requirement No. 3

The candidate shall be required to have:

a) Normal fields of vision; and
b) A visual accuracy of at least 20/40 (6/12, 0,5) in each eye separately with or without correcting glasses. (If this visual acuity is obtained only by use of correcting glasses, the vision without glasses in either or both eyes must be no less than 20/200 (6/60, 0,1), then the candidate may be assessed as fit provided that correcting glasses are worn when exercising the privileges of the licence).
c) Any degree of heterophoria found in the test must be noted in the candidate's medical record, the candidate being required to be within the prescribed limits, with or without correcting glasses.
d) The candidate shall be required to have an accommodation permitting reading the Jaeger Chart 3 or its equivalent at a distance of 30 cm, with each eye separately, allowing the use of correcting glasses for this test if it is the usual habit of the candidate to wear them.

Colour perception requirements

In order to comply with the Colour Perception Requirement No 1, the candidate shall be required to demonstrate his ability to perceive readily those colours whose perception is necessary for the safe performance of his duties.

Hearing requirements

The candidate shall be required to be free from any hearing defect, which would interfere with the efficient performance of his duties in exercising the privileges of his licence.

In order to comply with the Hearing Requirement No 1., the candidate shall be required not to have a hearing loss, in a quiet room, in either ear separately, of more than 25 db at any one of the three frequencies, 500, 1 000 and 2 000 Hz and not more than 40 db at 3 000 Hz.

If the hearing loss is greater than the limits indicated, a candidate who has already acquired and demonstrated ability, skill, and experience, may nevertheless be declared fit, provided that he has a hearing performance, in ground noise that will represent the masking properties of flight deck noise upon speech and beacon signals.

Period of Validity

Class 3 medical certificates

In the case of Class 3 certificate,

a) 48 months calculated from the last day of the calendar month in which the medical certificate is issued where the holder is less than 40 years of age,

b) 24 months, in the case where the holder of a Class 2 or Class 3 medical certificate has passed his or her 40th birthday, and

c) 12 months, when the holder of a Class 2 or Class 3 medical certificate has passed his or her 50th birthday.

The holder of a medical certificate shall, at least 15 days immediately preceding the date on which such medical certificate expires, apply for the extension of such medical certificate.

5. Rules for the operation of aircraft

5.1. Flight documents to be carried on aircraft.

There are certain documents that need to be carried on board aircraft at all times. For more information see handout 6.

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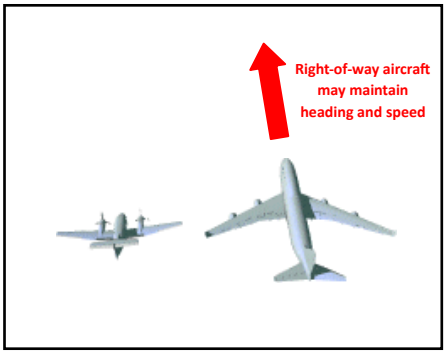
5.2. Right of way

The precedence regulations are tools to assist all members of the aviation fraternity operatingon an aerodrome and in the air to avoid accidents and incidents.

The precedence regulations are the aviation version of road traffic rules and must be strictly adhered to.

The aircraft that has the right-of-way shall maintain itsheading and speed.
An aircraft that is obliged by the following rules to keep out of the way of another shall avoid passing over, underor in front of the other, unless it passes well clear and takes into account the effect of aircraft wake turbulence.



Aircraft Converging

When two aircraft are converging at approximately the same level, the aircraft that has the other on its right shall give way, except as follows:

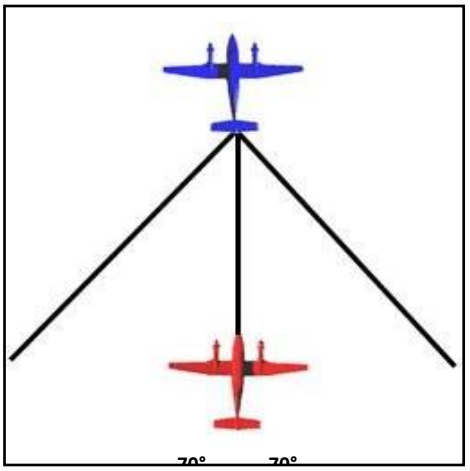
a) Power-driven heavier-than-air aircraft shall give way to airships, gliders and balloons.
b) Airships shall give way to gliders and balloons,
c) Gliders shall give way to balloons, and
d) Power-driven aircraft shall give way to aircraft, which are seen to be towing otheraircraft or objects.

Approaching head-on

When two aircraft are approaching head-on or approximately so and there is danger of collision, each shall alter its heading to the right.

Aircraft Overtaking

An aircraft that is being overtaken has the right-of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering its heading to the right. No subsequent change in the relative positions of the two aircraft shall absolve the overtaking aircraft from its obligation to keep out of the way until it is entirely past and clear.



Where a right-hand circuit is being followed at an aerodrome, the overtaking aircraft shall alter its heading to the left.

An overtaking aircraft is an aircraft that approaches another from the rear on a line forming an angle of less than 70° with the plane of symmetry of the latter, i.e., in such a position with reference to the other aircraft that at night it should be unable to see either of the aircraft's left (port) or right (starboard) navigation lights.

An aircraft that is being overtaken has the right-of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of way of the other aircraft by altering its heading to the right, and no subsequent change in the relative position of the two aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear.

5.3. Taxi rules for aircraft.

Landing

An aircraft in flight or operating on the ground or water, shall give way to other aircraft landingor on final approach to land.

When two or more heavier-than-air aircraft are approaching an aerodrome for the purpose of landing, aircraft at the higher level shall give way to aircraft at the lower level, (the latter shallnot take advantage of this rule to cut in front of another, which is on final approach to land, orto overtake that aircraft).

An aircraft that is aware that another is compelled to land shall give way to that landing aircraft. Nevertheless, power-driven heavier-than-air aircraft shall give way to gliders.

Taking off

An aircraft about to take-off shall not attempt to do so until there is no apparent risk of collision with other aircraft.

Aircraft in Flight or on the Ground

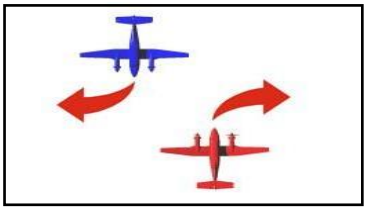
An aircraft taxiing on the maneuvering area of an aerodrome shall give way to aircraft taking off or about to take off. A vehicle, which is towing an aircraft, shall be given free way by other vehicles and by aircraft, which are not landing or taking-off. Nothing in these regulations shall relieve the pilot-in-command of an aircraft or the person in charge of a vehicle from the responsibility for taking such action as will best aid to avert collision. An aircraft shall be givenfree way by a vehicle, which is not towing an aircraft.

An aircraft or vehicle, which is obliged by the provisions of this regulation to give free way to another shall, if necessary, in the circumstances in order to do so, reduce its speed or stop. A vehicle moving along a runway or taxiway shall as far as practicable keep to the right side of the runway or taxiway. When an aircraft is being towed, the person in charge of the towing vehicle shall be responsible for compliance with the provisions of these regulations.

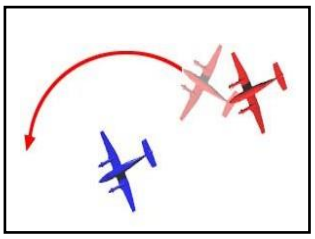
Collision avoidance procedures

If danger of collision exists between an aircraft or vehicle and another aircraft or vehicle, such following procedures as may be appropriate in the circumstances shall be applied:

1) When the two are approaching head-on or nearly head-on, each shall turn to the right.



2) When one is overtaking the other, the one which is overtaking shall keep out of the way of the other by turning to the right and no subsequent change in the relative positions of the two shall absolve the one which is overtaking from this obligation until it is finally past and clear of the other.



3) When two aircraft are converging, the one which has the other on its right shall give way to the other and shall avoid crossing ahead of the other unless well clear of it.

5.4. Operation on or in the vicinity of an aerodrome

An aerodrome is described as a defined area on land or water (including buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

An aircraft operated on or in the vicinity of an aerodrome shall, whether or not within an aerodrome traffic zone:

1) observe other aerodrome traffic for the purpose of avoiding collision,
2) conform with or avoid the pattern of traffic formed by other aircraft in operation,
3) make all turns to the left, when approaching for a landing and after take-off in the traffic pattern, unless otherwise instructed, and
4) land and take off into the wind unless safety, the runway configuration, or air traffic considerations determine that a different direction is preferable.

The pilot in command shall first land at and finally depart from specific aerodromes, which have been designated by the Department of Home Affairs and Finance for the purpose of passport control and customs clearance before entering or leaving the Republic. These airports are referred to as Airports of Entry in the Airport Directory and listed under each country. Airports of Entry in South Africa are:

- Cape Town International (FACT).
- O.R. Tambo International (FAOR).
- BraamFischer International (Bloemfontein) (FABL).
- Lanseria International (FALA).
- Chief Dawid Stuurman International Airport (FAPE) used to be Port Elizabeth International.
- King Shaka International (Durban) (FALE).
- Polokwane International (FAPP).
- Kruger Mpumalanga International (FAKN).
- Upington International (FAUP).
- Pilanesberg International (FAPN).

Other designated airports in South Africa are also listed in the Airport Directory. For more information on operations in the vicinity of an aerodrome see handout 7.

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Operating from areas other than designated airports

The pilot in command shall report arrival at the airport to the nearest police officer and ensure that no goods are unloaded, and no passengers will leave the aerodrome without permission of the police officer. Departure from such airport shall only be made with the written permission of the police officer. No pilot in command of an aircraft shall use an aerodrome as a destination or alternate aerodrome unless the operating minima for such an aerodrome, established by the appropriate authority of the state in which the aerodrome is situated, can be complied with.

5.5. Other operations

A pilot-in-command of an aircraft in flight shall not permit objects to be picked up except with the prior authority of the Director . The important words in this statement are “in flight”.Without permission an aircraft may not hook or catch anything that may be on the ground or in the air

Dropping objects, spraying, or dusting

Except in an emergency or unless granted special permission by the Director no articleshall be dropped from an aircraft in flight other than:

- Fine sand or clean water used as ballast.
- Chemical substances for the purpose of spraying or dusting.

Gliders use fine sand or clean water as ballast in their wings. The ballast has to be jettisoned before landing to avoid overstressing the glider on the landing. Farmers make use of crop sprayers to spray insecticides etc. on their crops.

Towing

A pilot-in-command of an aircraft in flight shall not permit anything to be towed by the aircraft except in accordance with requirements prescribed by the Director.

The towing of banners and even gliders must be done following the requirements laid down by the Director.

Parasailing, hang-gliding, radio-controlled aircraft

Except with the written permission of the Director and then subject to such conditions as he may impose, parasailing, hang-gliding and the operation of kites and model- / radio-controlled aircraft shall not:

- take place higher than 150’ above the surface.
- take place closer than 5NM from the aerodrome reference point.
- commence or be carried out above a public road.
- Using launching winches for gliders.

On every winch used for the launching of gliders, a means shall be provided for the severing of the launching cable. Such means shall be subject to the approval of the Director andshall be so positioned that it can be easily and readily operated by the winch operator. It is important that the glider can be cut loose from the winch if it should malfunction or not stop when required. It is also a safety precaution if the glider is unable to release the cable.

Aircraft operations on water by day and night

In areas in which the International Regulations for Preventing Collisions at Sea are in force, aircraft operated on the water shall comply with such regulations. Aircraft in flight near the surface of the water shall, in so far as possible, keep clear of all vessels and avoid impeding their navigation.

- Lights to be displayed by aircraft on water,
  - Underway. Steady lights as laid down in the regulations and in addition, a steady white light in the front must be visible forward throughout a dihedral angle of 220 degrees bisected by a vertical plane through the longitudinal axis of the aeroplane from a distance of 3 nautical miles.
- When towing another aircraft or vessel an additional steady white light with the same characteristics as the white light mentioned above must be visible in a vertical line at least 2m above or below the light. When being towed only the steady lights of the aircraft must be visible. When not under command, two steady red lights, placed where they can bestbe seen, one vertically over the other and not less than 1m apart must be visible from a horizontal distance of 2nm. When not making way, no red or green lights must be visible.
- When at Anchor. If the aircraft length is less than 50m a steady white light must be visible all around the horizon for at least 2nm. If the aircraft length is greater than 50mthen both a forward steady white light and a rear steady white light must be visible allaround the horizon for at least 2nm. If the wingspan is greater than 50m then a steadywhite light must be placed on each wing tip to indicate the maximum span and they must be visible (as far as practical) all around the horizon for at least 1nm. The lightsprescribed “when at anchor” plus two steady red lights in a vertical line at least 1m apart, must be visible all around the horizon.

Following line features

An aircraft flying at or below 1500’ above the surface and following a power line, a road, a railway line, a canal, a coastline, or any other line feature within one nautical mile of such a line feature shall fly to the right of such a line, road, railway line, canal, coastline or other line feature except when it is instructed to do otherwise by an air traffic control unit.

Fuel jettison procedures

Due to the complexity of the problem with regards to fuel jettison, the Director does not prescribe procedures with regards to fuel jettison. The judgement is left to the pilot-in-command as to whether fuel should be jettisoned, burnt off or whether they will land the aircraft overweight.

One can imagine that an aircraft like a Boeing 747 carries an enormous amount of fuel, and it is not possible to just jettison fuel very quickly. It can be anything from 25mins to 1 hour depending on the amount of fuel on board. The Air Force squadrons have procedures, which they follow if and when it is required to jettison fuel. 28 Squadron's procedures are to jettison fuel (if required) above 5000'AGL in areas that are not heavily populated.

Common logic says that fuel will be jettisoned with discretion and consideration to the environment if the situationallows.

Fuel and oil reserves

The pilot-in-command of an aircraft shall not commence a flight unless he/she is satisfied that the aircraft carries at least the planned amount of fuel and oil to complete the flight safely, taking into account operating and meteorological conditions and the expected delays. The pilot-in-command shall ensure that the usable fuel remaining in-flight, is not less than the fuel required to proceed to an aerodrome or, in the case of a helicopter, a suitable landing place, where a safe landing can be made. Fuel and oil reserves must allow for the following:

- Fly as per route from the aerodrome of departure to the destination aerodrome.
- At the destination aerodrome
    - Carry out an approach and attempted landing, if this is not possible.
    - Carry out a missed approach, and
    - Route for the alternate aerodrome.
- At the Alternate (C)
    - Hold at that aerodrome for a specified time (Depending on the type of aircraft, type of flight and environment conditions), and then carry out an approach and a landing.

The stipulated Fuel and Oil reserves are as follows:

PUBLIC TRANSPORT		**INDUSTRIAL /TRAINING/PRIVATE**	
Propeller	A-B-C + 45 min	IFR/Night	A-B-C +20min
Turbojet	A-B-C +30min	VFR/Day	A-B +45min
Helicopters		Helicopters	
IFR/Night	A-B-C +30min +5%	IFR/Night	A-B-C +20min
VFR/Day over land	A-B +20min	VFR/Day over land	A-B +20min
VFR/Day over water	A-B-C (or land) +30min	VFR/Day over water	A-B-C (or land) +30min

Landing on roads

No pilot shall use a public road as a place of landing or take-off except:

- In an emergency involving the safety of the aircraft or its occupants;
- To save human lives; or
- When involved in civil defence or law-enforcement operations

Provided that at all times reasonable care is taken for the safety of others with due regard to the prevailing circumstances.

Acrobatic flights

No aircraft shall be flown acrobatically so as to endanger other air traffic.

Except when special permission is obtained from the Director of civil aviation, an aircraftshall not be flown acrobatically:

- Unless the manoeuvre can be concluded, and the aircraft brought on an even keel at aheight of not less than 2000’ above the ground or water.
- Within 5nm distance of a licensed aerodrome, unless at a height not less than 4000’ aboveground,
- In the vicinity of air traffic service routes; or
- Over any populous area or public gathering

Parachute descents.

The Director may also impose specific conditions to specific areas where parachute descents are made. Except in an emergency or with special permission no person shall makea parachute descent from an aircraft unless:

- The descent is started and finished within the specified area.
- The descent is done within the regulations imposed on that specific parachute area.
- The parachutist is a member of a legal organisation, which has been approved by the Director.
- The organisations procedures must be adhered to.

Proximity and formation flights

No pilot shall operate an aircraft -

- in such proximity to other aircraft so as to create a collision hazard,
- in formation flight, except by arrangement with the pilot-in-command of each aircraft in the formation; or
- in information flight while carrying passengers for commercial purposes.

5.6. Flights by night

'Night' means the period from 15 minutes after sunset to 15 minutes before sunrise. The official sunrise and sunset times for each area can be found in the publication "Times of Sunrise, Sunset and Local Apparent Noon of the South African Astronomical Observatory." Naturally any flight, which takes place during these times, is considered a night flight.

Except in the case of an emergency no aircraft shall take-off or land by night unless the place of take-off or landing is equipped for night flying. It is the pilot-in-command's responsibility to ensure that the airfield being used has the necessary night flying facilities.

Any pilot that intends to fly at night must meet certain requirements before such a flight may take place.

Aircraft	**Helicopters**
Must supply a logbook or certificate, which is signed by an instructor who has the necessary qualifications to test for the necessary rating, stating that the following requirements have been met:	
10 hours instrument flying	
5 take-offs by night and 5 landings by night - solo	Not less than 15 circuits (including thetake-offs and landings) by night - solo
Above must be within 30 days of applying for the rating.	
A Cross country flight by night of not less than 100nm with a radius of at least 50nmfrom the base along any sector of the flight.	
A practical instrument flight test report in which it is certified that the candidate has satisfactorily proved that he has the ability to execute maneuvers including climb, various rates of turns, compass, and timed turns, straight and level, unusual attitudes with the aid of instruments only.	
All of the above MUST be done in the category of aircraft for which the rating isapplied.	

The above is for the initial application for a Night Rating.

Instruments required for night flying

- Within 10nm of the Airfield
  - Navigation lights as prescribed.
  - Adequate electrical illumination supplied by the aircrafts power supply for theinstruments and equipment needed for night flying.
  - Compass.
  - Radios.
  - Attitude Indicator.
  - Heading Indicator.
  - Turn-and-slip indicator or a second (AH) powered by a source separate from the mainAH
- Beyond 10nm from the Airfield

The same as above and including the following:

- Electric torch for each crew station.
- Landing Lights.
- Lights in all passenger compartments.
- Aeronautical Charts covering the whole route.

Lights to be displayed by Aircraft

All aircraft, either in flight or operating on the maneuvering area of an aerodrome, shall display lights as prescribed in the Aviation Legislation. The Director for Civil Aviation or the airtraffic control can instruct otherwise provided that such an aircraft does not display any otherlights that are likely to be mistaken for the prescribed lights.

The following navigation lights are to be displayed:

- An unobstructed red light on the left wing-tip, projected above and below the horizontal plane through an angle from dead ahead to 110° to left.
- An unobstructed green light on the right wing-tip projected above and below the horizontal plane through an angle from dead ahead to 110° to right.
- An unobstructed white light on the tail, projected above and below horizontal planerearward through an angle of 140° equally distributed on the left and right sides.

The lights described above may either be displayed as steady lights or flashing lights.
When the lights are displayed as flashing lights, either one or both of the following additional lights may be displayed:

- A flashing red rear light alternating with the white rear light.
- A flashing white light visible in all directions alternating with any of the above lights.

When the lights are displayed as steady lights, an additional flashing red light may be displayed. It must be visible in all directions as far as practicable. The minimum intensities of the lights to be displayed are as follows:

Light	Intensity in Candles
Port Red Light	5
Starboard Green light	5
Rear Light	3

There are no specific medical requirements for the pilot for night flights. The medical requirements are the same as those for the highest medical rating/license requirements heldby the pilot.

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5.7. Noise abatement procedures

Aeroplane noise during take-off and landing creates an ever-increasing annoyance to inhabitants of areas adjacent to aerodromes. Continuous efforts are made to devise procedures in order to reduce aeroplane noise without jeopardising safe operations. In orderto reduce or to restrict aeroplane noise to a minimum, the following procedures are proposed:

a) All aeroplanes must as far as possible, use the full length of the runways for take-off to ensure that sufficient altitude is gained in order to cross built-up areas with the minimum noise.
b) No jet aeroplanes are to use RWY or TWY intersections for take-off between 2000-0400z.
c) Turnouts immediately after take-off must as far as possible be avoided and runway heading must be maintained to a reasonable altitude.
d) Where possible aeroplanes must climb at the best angle of climb after take-off and this must be maintained until all built-up areas are over flown, or the desired altitude has been reached or attained.
e) Testing and run-ups of aeroplane engines must, as far as possible, be avoided during theperiod 1800 and 0400Z.
f) After landing, minimum reverse thrust must, as far as possible, be utilised for the purposeof braking.

The following noise abatement take-off procedures are recommended as operationally acceptable and effective in minimising noise:

(These aeroplane operating procedures for the take-off climb have been developed so as to ensure that the necessary safety of flight operations is maintained whilst minimising exposureto noise on the ground). Procedure A results in noise relief during the latter parts of the procedure whilst Procedure B provides relief during that part of the procedure close to the airport.

Procedure A

- Take-off to 1500' above aerodrome elevation:
  - Take-off power.
  - Take-off flap.
  - Climb at V2 + 10-20kts (or as limited by body angle).
- At 1500'
  - Reduce thrust to not less than climb power/thrust
- At 1500' to 3000'
  - Climb at V2 + 10-20kts.
- At 3000'
  - Accelerate smoothly to en-route climb speed with flap retraction on schedule

Procedure B

- Take-off to 1000' above aerodrome elevation
  - Take-off power/thrust.
  - Take-off flap.
  - Climb at V2 +10-20kts.
- At 1000'
  - Maintaining a positive rate of climb, accelerate to zero flap minimum safe manoeuvring speed retracting flap on schedule
- Thereafter reduce thrust consistent with the following:
  - For high by-pass ratio engines reduce to normal climb power/thrust.
  - For low by-pass ratio engines, reduce power/thrust to below normal climb thrust but not less than the necessary to maintain the final take-off engine-out climb gradient and;

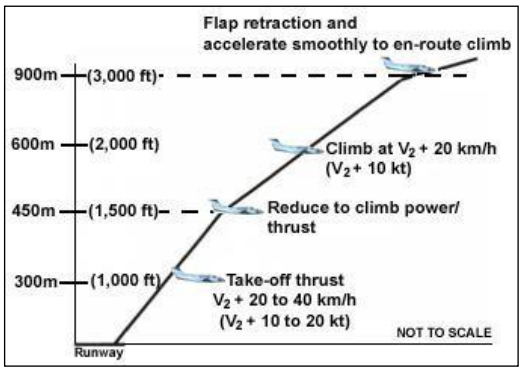
- For aeroplanes with slow flap retracting reduce power/thrust at an intermediate flapsetting; thereafter.

 From 1000’ to 3000’

- Continue to climb at not greater than VZF +10kts

 At 3000’

- Accelerate smoothly to en-route climb speed.



Compliance with published noise abatement approach procedures should not be required in adverse operating conditions such as:

 If the runway is not clear and dry (i.e., adversely affected by snow, slush, ice or water ormud, rubber, oil or other substances;

 In conditions when the ceiling is below 500’ above aerodrome elevation or when thehorizontal visibility is less than 1.9km.

 When the tail-wind component including gusts exceeds 5kts.

 When windshear has been reported or forecast or when adverse conditions e.g., thunderstorms are reported.

 When the cross-wind component including gusts exceed 15kts.

5.8. Helicopter operations

A helicopter shall not land or take-off from any area unless that area is specifically suited for helicopter operations and would not cause undue hazard to persons or property on the surface. A helicopter may not carry external loads unless the external load can be jettisoned in a case of an emergency without undue hazards to people or property on the ground. A helicopter may not land on a building or place that is within 100m of a structure, which is underjurisdiction of a local authority, unless permission has been obtained from the Director .Exceptions to the rule are:

- If the landing area is specifically zoned for helicopter operations.
- To help save a human life.
- If it is involved in a civil defence exercise.
- If it is a flight necessary for the exercising of any power in terms of any law.For more information on helicopter operations see handout 8.

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5.9. Grounding of aircraft

Authorised persons are empowered to prohibit flight and they may instruct ATC's to withhold a clearance. A list of authorised persons should appear in Station Standing Instructions. If a controller is instructed to withhold take-off clearance, he should take reasonable steps to establish the authenticity and powers of the person giving the instruction. In addition, a controller shall withhold clearance to take-off when it is known that an aircraft has been detained.

If a controller has not been instructed to withhold clearance but he has reason to believe thata planned flight is liable to endanger life or involve a breach of legislation, he is to:-

- Warn the pilot of the hazardous condition or apparent infringement and obtain an acknowledgement of the message.
- In the case of an infringement of legislation, warn the pilot that if he does take-off the factswill be reported to SACAA.
- If the pilot still requests take-off clearance after acknowledging the warning he should beadvised, when traffic permits, that there are not traffic reasons to restrict take-off.
- Record the warning and any comment made by the pilot in the ATC occurrence log.

Whenever an aircraft has been detained ATNS Head Office must be informed immediately bythe most expeditious means.

Conclusion

In this learning unit we looked at regulations regarding safety, substance abuse and other offences, the application of the rules of the air, licensing and certification and general rules forthe operation of aircraft.