AE 2035 - Air Traffic Control and Planning

Unit – 1	**BASIC CONCEPTS**
Objectives of ATS - Parts of ATC service – Scope and Provision of ATCs – VFR & IFR operations – Classification of ATS air spaces – Varies kinds of separation – Altimeter setting procedures – Establishment, designation and identification of units providing ATS – Division of responsibility of control.	

1. Objectives of ATS

The objectives of the air traffic services shall be to:

1. Prevent collisions between aircraft
2. Prevent collisions between aircraft on the maneuvering area and obstructions on that area
3. Expedite and maintain an orderly flow of air traffic;
4. Provide advice and information useful for the safe and efficient conduct of flights
5. Notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

2. Parts of ATC service

In order to accomplish the previous objectives, the air traffic services are divided into three parts:

1. Air traffic control service,
2. Flight information service and
3. Alerting service

Air traffic control service will accomplish the objectives of preventing all collisions between aircraft and expediting and maintaining an orderly flow of air traffic

Flight information service will accomplish the objectives of providing advice and information useful for the safe and efficient conduct of flights

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Alerting service will accomplish the objectives of notifying appropriate organizations regarding aircraft in need of search and rescue.

2.1 Air traffic control service

Air traffic control service or ATS shall be provided:

- to all IFR flights in airspace classes A, B, C, D and E
- to all VFR flights in airspace classes B, C and D
- to all special VFR flights
- to all aerodrome traffic at controlled aerodromes

The air traffic control service is divided in three sub-parts as follows:

1. **Area control service**: the provision of air traffic control service for en-route controlled flights except the aircraft associated with arrival or departure routes or ground movements.
   The area control service shall be provided by area control centre or, where no area control centre is established, by the unit providing approach control service in a control area of limited extent.

2. **Approach control service**: the provision of air traffic control service for controlled flights associated with arrival or departure except the aircraft associated with ground movements.
   The approach control service shall be provided by an approach control unit when it is necessary or desirable to establish a separate unit or, by an aerodrome control tower or area control center when it is necessary to combine under the responsibility of one unit the functions of the approach control service.

3. **Aerodrome control service**: the provision of air traffic control service for aerodrome traffic located around the airfield. The Aerodrome control service shall be provided by an aerodrome control tower.

The possibility of extended control which is permitted by the regulation is subject to your national regulation authorization.

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And controlling outside your responsibility area is forbidden in IVAO except when national regulation permits it, or when it is published clearly on charts.

In order to provide air traffic control service, an air traffic control unit shall:

- Be provided with information on the intended movement of each aircraft, or variations thereof, and with current information on the actual progress of each aircraft;
- determine from the information received, the relative positions of known aircraft to each other;
- Issue clearances and information for the purpose of preventing collision between aircrafts under its control and of expediting and maintaining an orderly flow of traffic;
- Coordinate clearances as necessary with other units whenever an aircraft might otherwise conflict with traffic operated under the control of such other units or before transferring control of an aircraft to such other units

2.2 Flight information Service

1. Flight information service will accomplish the objectives of providing advice and information useful for the safe and efficient conduct of flights
2. Flight information service shall be provided to all aircraft which are likely to be affected by the information.
3. Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.
4. The provision of air traffic control service shall have precedence over the provision of flight information service whenever the provisions of air traffic control service so requires.

Flight information service provided to flights shall include the provision of information concerning:

- weather conditions reported or forecast at departure, destination and alternate aerodromes
- collision hazards, to aircraft operating in airspace classes C, D, E, F and G

- any available information of surface sea vessels in the area for flight over water areas when requested by a pilot (not simulated by IVAO except in some specific scenery)
- SIGMET and AIRMET information
- Information concerning volcanic eruptions and volcanic ash clouds (not simulated in IVAO)
- Information concerning the release into the atmosphere of toxic chemicals (not simulated in IVAO)
- Information of the serviceability of navigation aids
- Information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas
- Any other information likely to affect safety

ATIS - automatic terminal information service

The meteorological information and operational information concerning navigation aids and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

Operational flight information service broadcasts, when provided, should consist of messages containing integrated information regarding selected operational and meteorological elements appropriate to the various phases of flight. These broadcasts should be of three major types, i.e. HF, VHF and ATIS.

When ATIS is provided:

- the information communicated shall relate to a single aerodrome
- the information communicated shall be **updated immediately when a significant change occurs**
- the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services
- individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages shall be in alphabetical order
- aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit
- the appropriate ATS unit shall, in the case of arriving aircraft, provide the aircraft with the current altimeter setting when needed

- the meteorological information shall be extracted from the local meteorological report.

2.3 Alerting service

Alerting service will accomplish the objectives of notifying appropriate organizations regarding aircraft in need of search and rescue aid

Alerting service shall be provided:

- for all aircraft provided with air traffic control service
- in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services
- to any aircraft known or believed to be the subject of unlawful interference

Uncertainty phase when

- no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier
- an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later

Except when no doubt exists as to the safety of the aircraft and its occupants

Scope and Provision of ATCs

The need for the provision of air traffic services shall be determined by consideration of the following:

a) the types of air traffic involved;
b) the density of air traffic;
c) the meteorological conditions;
d) Such other factors as may be relevant.

All air traffic services units shall be supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions.

Units providing area control service shall be supplied with:

- SIGMET and AIRMET information, special air-reports, current meteorological reports and forecasts, particular emphasis being given to the occurrence or expected occurrence of weather deterioration
- Current pressure data for setting altimeters, for locations specified by the flight information center or area control center concerned
- Units providing approach control service shall be supplied with:
- Current meteorological reports and forecasts for the airspace and the aerodromes with which they are concerned.
- Current pressure data for setting altimeters, for locations specified by the unit providing approach control service.
- Current surface wind
- Runway visual range measurement (RVR)

Units providing tower control service shall be supplied with:

- Current meteorological reports and forecasts for the airspace and the aerodromes with which they are concerned.
- Current pressure data for setting altimeters, for location concerned
- Current surface wind
- Runway visual range measurement (RVR)
- Operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome
- A controlled flight shall be under the control of **only one air traffic control unit at any given time**.

Area control service shall be provided:

a) by an area control centre; or
b) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service, when no area control centre is established.

Approach control service shall be provided:

a) by an aerodrome control tower or an area control centre, when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service and those of the aerodrome control service or the area control service; or

b) by an approach control office, when it is necessary or desirable to establish a separate unit.

Aerodrome control service shall be provided by an aerodrome control tower.

Flight information service and alerting service shall be provided as follows:

a) *Within a flight information region:* by a flight information centre, unless the responsibility for providing such services is assigned to an air traffic control unit having adequate facilities for the exercise of such responsibilities;

b) Within controlled airspace and at controlled aerodromes: by the relevant air traffic control units

4. Visual flight rules (**VFR**) are a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. Specifically, the weather must be better than basic VFR weather minima, i.e. in visual meteorological conditions (VMC), as specified in the rules of the relevant aviation authority. The pilot must be able to operate the aircraft with visual reference to the ground, and by visually avoiding obstructions and other aircraft.

If the weather is below VMC, pilots are required to use instrument flight rules, and operation of the aircraft will primarily be through referencing the instruments rather than visual reference. In a control zone, a VFR flight may obtain a clearance from air traffic control to operate as Special VFR.

Visual meteorological conditions (or **VMC**) that is, conditions in which pilots have sufficient visibility to fly the aircraft maintaining visual separation from terrain and other aircraft
Instrument meteorological conditions (IMC) is an aviation flight category that describes weather conditions that require pilots to fly primarily by reference to instruments, and therefore under Instrument Flight Rules (IFR),
The boundary criteria between IMC and VMC are known as the **VMC minima** and are defined by: visibility, cloud ceilings (for takeoffs and landings), and cloud clearances.

VFR requires a pilot to be able to see outside the cockpit, to control the aircraft's altitude, navigate, and avoid obstacles and other aircraft.[2] Governing agencies

establish specific requirements for VFR flight, including minimum visibility, and distance from clouds, to ensure that aircraft operating under VFR are visible from enough distance to ensure safety.

Under visual meteorological conditions the minimum visual range, distance from clouds, or cloud clearance requirements to be maintained above ground vary by jurisdiction, and may also vary according to the airspace in which the aircraft is operating.

The VFR pilot is required to "see and avoid" obstacles and other aircraft. Pilots flying under VFR assume responsibility for their separation from all other aircraft and are generally not assigned routes or altitudes by air traffic control (ATC). Depending on the category of airspace in which the flight is being conducted, VFR aircraft may be required to have a transponder to help Air Traffic Control identify the aircraft on radar in order that ATC can provide separation to IFR aircraft.

Meteorological conditions that meet the minimum requirements for VFR flight are termed visual meteorological conditions (VMC). If they are not met, the conditions are considered instrument meteorological conditions (IMC), and a flight may only operate under IFR. IFR operations have specific training requirements and certification required of the pilot, and increased equipment requirements for the aircraft. Additionally, an IFR flight plan must usually be filed in advance. For efficiency of operations, some ATC operations will routinely provide "pop-up" IFR clearances for aircraft operating VFR, but that are arriving at an airport that does not meet VMC requirements. For example, in the United States, California's Oakland (KOAK), Monterey (KMRY) and Santa Ana (KSNA) airports routinely grant temporary IFR clearance when a low coastal overcast forces instrument approaches, while the rest of the state is still under visual flight rules.

In most if not all countries of the world, VFR pilots also have an option for requesting Special VFR when meteorological conditions at an airport are below normal VMC minima, but above Special VFR requirements. Special VFR is only intended to enable takeoffs and landings from airports that are near to VMC conditions, and may in some States only be performed during daytime hours if a pilot does not possess an instrument rating.

VFR flight is not allowed in airspace known as *class A*, regardless of the meteorological conditions except after failure of two way radio communications. In

the United States, class A airspace begins at 18,000 feet msl, and extends to an altitude of 60,000 feet msl.

All aircraft when operated as VFR flights shall be equipped with:

1. Air Speed Indicator (all aircraft with speed limitations expressed in terms of Mach number shall be equipped with a Mach Number Indicator).
2. Pressure Altimeter
3. Magnetic Compass
4. RPM indicator for each engine
5. Outside air temperature indicator on aircraft on engine having provision for carburetor heat control in case carburetor Air Temperature Gauge is not installed.
6. Oil pressure indicator for each engine
7. Oil quantity indicator for each tank (instead of an instrument, it may be a dip stick).
8. CHT indicator for each air cooled engine having rated BHP above 250.
9. Temperature gauge for determining the temperature of the coolant for each liquid cooled engine.
10. Oil temperature gauge for each air cooled engine having rated BHP above 250.
11. Manifold pressure gauge for each engine, fitted with variable pitch propeller and/or is super charged.
12. Fuel Gauge indicating the quantity of fuel in each tank.
13. Landing gear position indicator for the aircraft fitted with retractable landing gear.
14. An accurate time piece, indicating time in hours, minutes and seconds., and
15. such other items / equipment as may be prescribed by the manufacturer / DGCA for particular installation

5. Instrument flight rules (**IFR**) is one of two sets of regulations governing all aspects of civil aviation aircraft operations; the other is visual flight rules (VFR).

"Rules and regulations established by the FAA to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to instruments in the flight deck, and navigation is accomplished by reference to electronic signals.[1] It is also a term used by pilots and controllers to indicate the type of flight plan an aircraft is flying, such as an IFR or VFR flight plan.

Instrument flight rules permit an aircraft to operate in instrument meteorological conditions (IMC) in contrast to VFR. They are also an integral part of flying in **class A** airspace. "Class A" airspace exists over and near the 48 contiguous U.S. states and Alaska from 18,000 feet above mean sea level to flight level 600 (approximately 60,000 feet in altitude depending on variables such as atmospheric pressure). Flight in "class A" airspace requires pilots and aircraft to be instrument equipped and rated and to be operating under Instrument Flight Rules (IFR). Most jet aircraft operate in "class A" airspace for the cruise portion of their flight and are therefore required to utilize IFR procedures. Procedures and training are significantly more complex as a pilot must demonstrate competency in conducting an entire cross-country flight in IMC conditions, while controlling the aircraft solely by reference to instruments.

Instrument pilots must meticulously evaluate weather, create a very detailed flight plan based around specific instrument departure, en route, and arrival procedures, and dispatch the flight.

Instrument for IFR

All aircraft when operated in accordance with the instrument flight rules or when the aircraft cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be equipped with:

1. a magnetic compass;
2. an accurate timepiece indicating the time in hours, minutes and seconds;
3. a sensitive pressure altimeter;
4. airspeed indicator ,
5. a turn and slip indicator
6. an attitude indicator (artificial horizon);
7. a heading indicator (directional gyroscope);
8. means of indicating whether the supply of power to the gyroscopic instruments is adequate;
9. a means of indicating in the flight crew compartment the outside air temperature;
10. a rate-of-climb and descent indicator; and
11. Such additional instruments or equipment as may be prescribed by the appropriate authority.

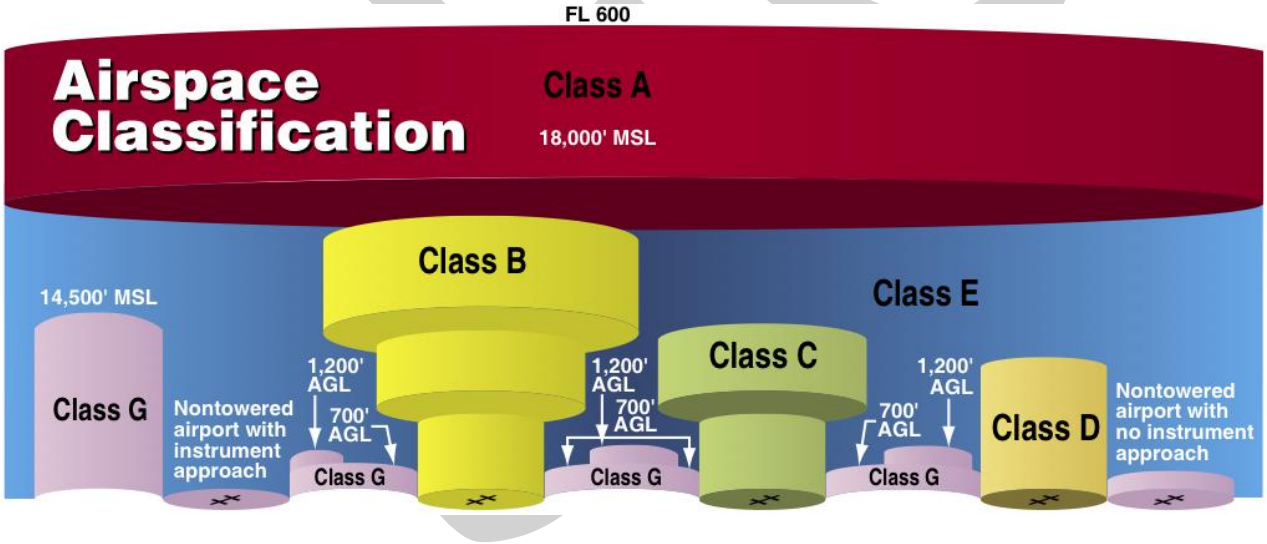
6. Classification of airspaces

ATS airspaces in India are classified and designated in accordance with following.

The two categories of airspace are: regulatory and non regulatory. Within these two categories there are four types: controlled, uncontrolled, special use, and other airspace.

Controlled airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control (ATC) service is provided in accordance with the airspace classification. Controlled airspace consists of:

- Class A
- Class B
- Class C
- Class D
- Class E



Class A:

IFR flights only are permitted; all flights are provided with air traffic control service and are separated from each other.

Class B:

IFR and VFR flights are permitted; all flights are provided with air traffic control service and are separated from each other.

Class C:

IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D:

IFR and VFR flights are permitted and all flights are provided with air traffic control service,

IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights. VFR flights receive traffic information in respect of all other flights. Airspaces in terminal areas, control areas, control zones and aerodrome traffic zones have been classified and designated as class D airspace.

Class E:

IFR and VFR flights are permitted; IFR flights are provided with air traffic control service and are separated from other IFR flights. IFR flights receive traffic information in respect of VFR flights; VFR flights receive traffic information in respect of all other flights, as far as is practical. Class E is not be used for control zones. Airspaces in designated ATS routes outside terminal areas, control areas and control zones, where air traffic control service is provided, have been classified and designated as class E airspace.

Class F:

IFR and VFR flights are permitted. All IFR flights receive an air traffic advisory service and all flights receive flight information service, if requested. Airspaces in designated ATS route segments outside terminal areas, control areas and control zones, where air traffic advisory service is provided, have been classified and designated as class F airspace.

Uncontrolled Airspace

Class G

Uncontrolled airspace or Class G airspace is the portion of the airspace that has not been designated as Class A, B, C, D, or E. It is therefore designated uncontrolled airspace. Class G airspace extends from the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic, pilots should remember there are visual flight rules (VFR) minimums which apply to Class G airspace.

IFR and VFR flights are permitted and receive flight information service if requested. Airspaces other than those in Class D, E and F have been classified and designated as class G airspace.

Special Use Airspace

Special use airspace or special area of operation (SAO) is the designation for airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. Certain special use airspace areas can create limitations on the mixed use of airspace. The special use airspace depicted on instrument charts includes the area name or number, effective altitude, time and weather conditions of operation, the controlling agency, and the chart panel location. On National Aeronautical Charting Group (NACG) en route charts, this information is available on one of the end panels. Special use airspace usually consists of:

- Prohibited areas
- Restricted areas
- Warning areas
- Military operation areas (MOAs)
- Alert areas
- Controlled firing areas (CFAs)

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APPENDIX 4.
ATS AIRSPACE CLASSES — SERVICES PROVIDED AND FLIGHT REQUIREMENTS

(Chapter 2, 2.6 refers)

Class	Type of flight	Separation provided	Service provided	Speed limitation*	Radio communication requirement	Subject to an ATC clearance
A	IFR only	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR; 2) VFR/VFR traffic information (and traffic avoidance advice on request)	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
D	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service and, as far as practical, traffic information about VFR flights	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No
F	IFR	IFR from IFR as far as practical	Air traffic advisory service; flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No
G	IFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 3 050 m (10 000 ft) AMSL	No	No

* When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.

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7. Varies kinds of Separations

In air traffic control, **separation** is the name for the concept of keeping an aircraft outside a minimum distance from another aircraft to reduce the risk of those aircraft colliding, as well as prevent accidents due to wake turbulence.

Air traffic controllers apply rules, known as *separation minima* to do this. Pairs of aircraft to which these rules have been successfully applied are said to be *separated*: the risk of these aircraft colliding is therefore remote. If separation is lost between two aircraft, they are said to be in a *conflict*.

When an aircraft passes behind or follows another aircraft, wake turbulence minima are applied due to the effect of the wingtip vortices of the preceding aircraft on the following aircraft. These minima vary depending on the relative size of the two aircraft. This is particularly acute on final approach with a smaller aircraft following larger aircraft.

Based on following categories

- Regulatory - Class A, B, C, D, and E airspace
- Non regulatory - military operation area (MOA), warning areas, alert areas, and controlled firing area
- The complexity or density of aircraft movements
- The nature of the operations conducted within the airspace
- The level of safety required and
- The national and public interest

Which aircraft need separating?

It is a common misconception that air traffic controllers keep all aircraft separated. Whether aircraft actually need separating depends upon the class of airspace in which the aircraft are flying, and the flight rules under which the pilot is operating the aircraft. As stated by the U.S. FAA, *The pilot has the ultimate responsibility for ensuring appropriate separations and positioning of the aircraft in the terminal area to avoid the wake turbulence created by a preceding aircraft*.

There are three sets of flight rules under which an aircraft can be flown:

- Visual Flight Rules (VFR)
- Special Visual Flight Rules (SVFR)

- Instrument Flight Rules (IFR)

Public transport flights are almost exclusively operated under IFR, as this set of rules allows flight in regions of low visibility (e.g. cloud). On the other hand a large amount of private flying in light aircraft is done under VFR since this requires a lower level of flying skill on the part of the pilot, and meteorological conditions in which a pilot can *see and avoid* other aircraft. As its name suggests, SVFR is a special infrequently-used set of rules. For the purposes of separation, controllers consider SVFR to be the same as IFR.

Airspace exists in seven classes, A to G, in decreasing order of air traffic control regulation. Classes A to E are controlled airspace and classes F and G are uncontrolled airspace. At one end of the scale in classes A and B airspace, all aircraft must be separated from each other. At the other end of the scale in class G airspace there is no requirement for any aircraft to be separated from each other. In the intermediate classes some aircraft are separated from each other depending on the flight rules under which the aircraft are operating. For example in class D airspace, IFR aircraft are separated from other IFR aircraft, but not from VFR aircraft, nor are VFR aircraft separated from each other.

8. ALTIMETER SETTING PROCEDURES

For flights in the vicinity of aerodromes and within terminal control areas the vertical position of aircraft shall be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

For flights en route the vertical position of aircraft shall be expressed in terms of:

- flight levels at or above the lowest usable flight level;
- Altitudes below the lowest usable flight level.

Determination of the transition level

The appropriate ATS unit shall establish the transition level to be used in the vicinity of the aerodrome(s) concerned.

The transition level shall be the lowest flight level available for use above the transition altitude established for the aerodrome(s) concerned. Where a common transition altitude has been established for two or more aerodromes which are so closely located as to require coordinated procedures, the appropriate ATS units shall establish a common transition level to be used at any given time in the vicinity of the aerodrome.

Minimum cruising level for IFR flights

Cruising levels below the established minimum flight altitudes shall not be assigned.

Provision of altimeter setting information

The flight crew shall be provided with the transition level in due time prior to reaching it during descent.

This may be accomplished by voice communications, ATIS broadcast or data link.

The transition level shall be included in approach clearances or requested by the pilot.

A QNH altimeter setting shall be included in the descent clearance when first cleared to an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft, except when it is known that the aircraft has already received the information.

Determination of the transition level

The appropriate ATS unit shall establish the transition level to be used in the vicinity of the aerodrome(s) concerned

9. Establishment and designation of the units providing air traffic services

The air traffic services shall be provided by units established and designated as follows: Flight information centers shall be established to provide flight information service and alerting service within flight information regions, unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility.

Air traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

Identification of air traffic services units and airspaces

An area control centre or flight information centre shall be identified by the name of a nearby town or city or geographic feature. An aerodrome control tower or approach control unit shall be identified by the name of the aerodrome at which it is located. A control zone, control area or flight information region shall

Division of responsibility of control

Division of Responsibility for Control between Air Traffic Control Units

Between a units providing aerodrome control service and a unit providing approach control service. Except for flights which are provided aerodrome control service only, the control of arriving and departing controlled flights shall be divided between units

providing aerodrome control service and units providing approach control service as follows:

Arriving aircraft: The responsibility for the control of an aircraft approaching to land shall be transferred from the unit providing approach control service to the unit providing aerodrome control service when the aircraft:

a) Is in the vicinity of the aerodrome, and

i) it is considered that approach and landing will be completed in visual reference to the ground,or

ii) it has reached uninterrupted visual meteorological conditions, or

b) has landed, whichever is the earlier.

Departing aircraft: The responsibility for control of a departing aircraft shall be transferred from the unit providing aerodrome control service to the unit providing approach control service:

a) *when visual meteorological conditions prevail in the vicinity of the aerodrome.*

i) prior to the time the aircraft leaves the vicinity of the aerodrome, or

ii) prior to the aircraft entering instrument meteorological conditions, whichever is the earlier;

b) *when instrument meteorological conditions prevail at the aerodrome.*

i) immediately before the aircraft enters the runway in- use for take-off, or

ii) immediately after the aircraft is airborne, if local procedures render such action preferable.

Between a unit providing approach control service and a unit providing area control service

When area control service and approach control service are not provided by the same air traffic control unit, responsibility for controlled flights shall rest with the unit providing area control service except that a unit providing approach control service shall be responsible for the control of:

a) arriving aircraft that have been released to it by the area control centre;

b) departing aircraft until such aircraft are released to the area control centre.

Under approach sequence conditions the unit providing area control service shall normally be responsible for clearing aircraft to the holding point, and for including holding instructions and expected approach time in such clearances. A unit providing approach control service shall assume control of arriving aircraft, provided such aircraft have been

released to it, upon arrival of the aircraft at the point agreed for transfer of control, and shall maintain control during approach to the aerodrome.

The control of more than one approach sequence may be effected by a unit providing approach control service, provided the division of control between the unit providing area control service and the unit providing approach control service is defined in instructions approved by the appropriate ATS authority and is basically consistent with the foregoing procedures.