

CHAPTER 4

AIR TRAFFIC SERVICES

4.1 Objectives of the air traffic services

4.1.1 The objectives of the air traffic services shall be to:

- a) prevent collisions between aircraft;
- b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;
- d) provide advice and information useful for the safe and efficient conduct of flights;
- e) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

4.2 Divisions of the air traffic services

4.2.1 The air traffic services comprise of three services identified as follows:

4.2.1.1 Air traffic control service

4.2.1.1.1 The air traffic control *service*, to accomplish following objectives:

- a) prevent collisions between aircraft;
- b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;

4.2.1.1.2 Air traffic control services have been divided in three parts as follows:

i) Area control service

The provision of air traffic control service for controlled flights, except for those parts of such flights which are under the jurisdiction of Approach Control or Aerodrome Control to accomplish following objectives:

- a) prevent collisions between aircraft;
- b) expedite and maintain an orderly flow of air traffic;

ii) Approach control service

The provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish following objectives:

- a) prevent collisions between aircraft;
- b) expedite and maintain an orderly flow of air traffic;

iii) Aerodrome control service:

The provision of air traffic control service for aerodrome traffic, except for those parts of flights which are under the jurisdiction Approach Control to accomplish objectives:

- a) prevent collisions between aircraft;
- b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;

4.2.1.2 Flight information service

4.2.1.2.1 The flight information service, to accomplish following objective:

Provide advice and information useful for the safe and efficient conduct of flights.

4.2.1.3 Alerting service

4.2.1.3.1 The alerting service to accomplish following objective

Notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

4.3 Classification of airspaces

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

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.

Class G:

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.

4.3.2 Requirements for flights within each class of airspace shall be as shown in Table-1 on next page.

4.4 Application of air traffic control service

Air traffic control service shall be provided:

- to all IFR flights in airspace Classes D and E;
- to all VFR flights in airspace Classes D;
- to all special VFR flights;
- to all aerodrome traffic at controlled aerodromes.

4.5 Provision of air traffic control service

The parts of air traffic control service described in 4.2.1.1.2 shall be provided by the various units as follows:

4.5.1 Area control service

Area control service shall be provided:

- by an area control centre (ACC); or
- 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 ACC is established

TABLE - 1 : ATS AIRSPACE CLASSES**SERVICES PROVIDED AND FLIGHT REQUIREMENTS**

Class	Type of flight	Separation provided	Services Provided	Speed limitation*	Radio communication requirement ATC	Subject to an ATC clearance
D	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kt IAS below 10000 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 10 000 f) 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 10 000 ft AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	250 kt IAS below 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 10 000 ft AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 10000 ft AMSL	No	No
G	IFR	Nil	Flight information service	250 kt IAS below 10 000 ft AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kt IAS below 10 000 ft AMSL	No	No

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

4.5.2 Approach control service

Approach control service shall be provided:

- a) by an aerodrome control tower or an ACC, 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 unit, when it is established as a separate unit.

4.5.3 Aerodrome control service

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

4.6 Operation of air traffic control service

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

- a) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;
- b) determine from the information received, the relative positions of known aircraft to each other;
- c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;
- d) coordinate clearances as necessary with other units:
 - 1) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;
 - 2) before transferring control of an aircraft to such other units.

4.6.2 Information on aircraft movements, together with a record of air traffic control clearances issued to such

4.6.3 aircraft, shall be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

4.7 Responsibility for control

4.7.1 Responsibility for control of individual flights

A controlled flight shall be under the control of only one air traffic control unit at any given time.

4.7.2 Responsibility for control within a given block of airspace

Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

4.8 Transfer of responsibility for control

4.8.1 Place or time of transfer

The responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

4.8.1.1 Between an aerodrome control tower and a unit providing approach control service

4.8.1.1.1 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:

4.8.1.1.1.1 *Arriving aircraft:*

4.8.1.1.1.1 The responsibility of control of an arriving aircraft shall be transferred from the unit providing approach control service to the aerodrome control tower when the aircraft:

- a) is in the vicinity of the aerodrome, and:
 - 1) it is considered that approach and landing will be completed in visual reference to the ground, or
 - 2) has reached uninterrupted visual meteorological conditions, or
- b) is at a prescribed point or level, as specified in MATS 2; or
- c) has landed,

4.8.1.1.1.2 Transfer of communications to the aerodrome controller should be effected at such a point, level or time that clearance to land or alternative instructions, as well as information on essential local traffic, can be issued in a timely manner.

4.8.1.1.1.2 *Departing aircraft.*

The responsibility for the 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:
 - 1) prior to the time the aircraft leaves the vicinity of the aerodrome, or
 - 2) prior to the aircraft entering instrument meteorological conditions, or
 - 3) when the aircraft is at a prescribed point or level, as specified in MATS 2;
- b) when instrument meteorological conditions prevail at the aerodrome:
 - 1) immediately after the aircraft is airborne, or
 - 2) when the aircraft is at a prescribed point or level, as specified in MATS 2.

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

4.8.1.2.1 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 ACC;
- b) departing aircraft until such aircraft are released to the ACC.

4.8.1.2.2 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, level or time agreed for transfer of control, and shall maintain control during approach to the aerodrome.

4.8.1.3 *Between two units providing area control service*

The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the ACC having control of the aircraft or at such other point, level or time as has been agreed between the two units.

4.8.1.4 *Between control sectors/positions within the same air traffic control unit*

The responsibility for the control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same ATC unit at a point, level or time, as specified in local instructions.

4.9 Responsibilities for the provision of flight information service and alerting service

Flight information service and alerting service are provided as follows:

- a) *within a flight information region (FIR):* 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.

4.10 Time in air traffic services

4.10.1 Air traffic services units shall use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

4.10.2 Air traffic services units shall be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

4.10.3 Air traffic services unit clocks and other time recording devices shall be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC.

Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

4.10.4 The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station. (Guidelines for maintaining the time in different ATS units are contained in CNS CIRCULAR 3 of 2003)

4.10.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

4.11 Air traffic control clearances

Air traffic control clearances shall be based solely on the requirements for providing air traffic control service

4.11.1 Scope and purpose

4.11.1.1 Clearances are issued solely for expediting and separating air traffic and are based on known traffic conditions which affect safety in aircraft operation. Such traffic conditions include not only aircraft in the air and on the manoeuvring area over which control is being exercised, but also any vehicular traffic or other obstructions not permanently installed on the manoeuvring area in use.

4.11.1.2 If an air traffic control clearance is not suitable to the pilot-in-command of an aircraft, the flight crew may request and, if practicable, obtain an amended clearance.

4.11.1.3 The issuance of air traffic control clearances by air traffic control units constitutes authority for an aircraft to proceed only in so far as known air traffic is concerned. ATC clearances do not constitute authority to violate any applicable regulations for promoting the safety of flight operations or for any other purpose; neither do clearances relieve a pilot-in-command of any responsibility whatsoever in connection with a possible violation of applicable rules and regulations.

4.11.1.4 ATC units shall issue such ATC clearances as are necessary to prevent collisions and to expedite and maintain an orderly flow of air traffic.

4.11.1.5 ATC clearances must be issued early enough to ensure that they are transmitted to the aircraft in sufficient time for it to comply with them.

4.11.2 Aircraft subject to ATC for part of flight

4.11.2.1 When a flight plan specifies that the initial portion of a flight will be uncontrolled, and that the subsequent portion of the flight will be subject to ATC, the aircraft shall be advised to obtain its clearance from the ATC unit in whose area controlled flight will be commenced.

4.11.2.2 When a flight plan specifies that the first portion of a flight will be subject to ATC, and that the subsequent portion will be uncontrolled, the aircraft shall normally be cleared to the point at which the controlled flight terminates.

4.11.3 Flights through intermediate stops

4.11.3.1 When an aircraft files, at the departure aerodrome, flight plans for the various stages of flight through intermediate stops, the initial clearance limit will be the first destination aerodrome and new clearances shall be issued for each subsequent portion of flight.

4.11.3.2 The flight plan for the second stage, and each subsequent stage, of a flight through intermediate stops will become active for ATS and search and rescue (SAR) purposes only when the appropriate ATS unit has received notification that the aircraft has departed from the relevant departure aerodrome, except as provided for in 4.11.3.3.

4.11.3.3 By prior arrangement between ATC units and the operators, aircraft operating on an established schedule may if the proposed route of flight is through more than one control area, be cleared through intermediate stops within other control areas

but only after coordination between the ACCs concerned.

4.11.4 Contents of clearances

4.11.4.1 Clearances shall contain positive and concise data and shall, as far as practicable, be phrased in a standard manner.

4.11.4.2 Clearances shall contain the following in the order listed:

- a) aircraft identification as shown in the flight plan;
- b) clearance limit;
- c) route of flight;
- d) level(s) of flight for the entire route or part thereof and changes of levels if required;
- e) any necessary instructions or information on other matters such as SSR transponder operation, approach or departure manoeuvres, communications and the time of expiry of the clearance.

Note.— The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been started.

4.11.5 Departing aircraft

ACCs shall forward a clearance to approach control units or aerodrome control towers with the least possible delay after receipt of request made by these units, or prior to such request if practicable.

4.11.6 En-route aircraft

4.11.6.1 An ATC unit may request an adjacent ATC unit to clear aircraft to a specified point during a specified period.

4.11.6.2 After the initial clearance has been issued to an aircraft at the point of departure, it will be the responsibility of the appropriate ATC unit to issue an amended

clearance whenever necessary and to issue traffic information, if required.

4.11.7 Description of air traffic control clearances

4.11.7.1 Clearance Limit

- a) A clearance limit shall be described by specifying the name of the appropriate significant point, or aerodrome, or controlled airspace boundary.
- b) When prior coordination has been effected with units under whose control the aircraft will subsequently come, or if there is reasonable assurance that it can be effected a reasonable time prior to their assumption of control, the clearance limit shall be the destination aerodrome or, if not practicable, an appropriate intermediate point, and coordination shall be expedited so that a clearance to the destination aerodrome may be issued as soon as possible.
- c) If an aircraft has been cleared to an intermediate point in adjacent controlled airspace, the appropriate ATC unit will then be responsible for issuing, as soon as practicable, an amended clearance to the destination aerodrome.
- d) When the destination aerodrome is outside controlled airspace, the ATC unit responsible for the last controlled airspace through which an aircraft will pass shall issue the appropriate clearance for flight to the limit of that controlled airspace.

4.11.7.2 Route of Flight

- a) The route of flight shall be detailed in each clearance when deemed necessary. The phrase "cleared via flight planned route" may be used to describe any route or portion thereof, provided the route or portion thereof is

identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases "cleared via (designation) departure" or "cleared via (designation) arrival" may be used when standard departure or arrival routes have been established and published in Aeronautical Information Publication (AIP).

- b) The phrase "cleared via flight planned route" shall not be used when granting a reclearance.
- c) Subject to airspace constraints, ATC workload and traffic density, and provided coordination can be effected in a timely manner, an aircraft should whenever possible be offered the most direct routing.

4.11.7.3 Levels

Instructions included in clearances relating to levels shall consist of:

- a) cruising level(s) or, for cruise climb, a range of levels, and, if necessary, the point to which the clearance is valid with regard to the level(s);
- b) levels at which specified significant points are to be crossed, when necessary;
- c) the place or time for starting climb or descent, when necessary;
- d) the rate of climb or descent, when necessary;
- e) detailed instructions concerning departure or approach levels, when necessary.

4.11.7.4 Clearance of a requested change in flight plan

- a) When issuing a clearance covering a requested change in route or level, the exact nature of the change shall be included in the clearance.
- b) When traffic conditions will not permit clearance of a requested change, the word "UNABLE" shall be used. When



warranted by circumstances, an alternative route or level should be offered.

- c) When an alternative route is offered and accepted by the flight crew under the procedures described in 4.5.7.4.2, the amended clearance issued shall describe the route to the point where it joins the previously cleared route, or, if the aircraft will not re-join the previous route, to the destination.

4.11.7.5 Read-back of clearances

4.11.7.5.1 The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:

- a) ATC route clearances;
 b) clearances and instructions to enter, land on, take off on, hold short of, cross taxi and backtrack on any runway; and
 c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in automatic terminal information service (ATIS) broadcasts, transition levels.

Note.— If the level of an aircraft is reported in relation to standard pressure 1 013.2 hPa, the words “FLIGHT LEVEL” precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word “FEET”, as appropriate.

4.11.7.5.2 Other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.

4.11.7.5.3 The controller shall listen to the read back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and take immediate action to correct any discrepancies revealed by the read-back.

4.11.7.5.4 Transfer of communication shall be segregated from instructions requiring read back by the flight crew and therefore, transmitted separately.

4.11.7.5.5 Voice read-back of controller-pilot data link communications (CPDLC) messages shall not be required.

4.12 Horizontal speed control instructions

4.12.1 General

4.12.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may, subject to consideration of aircraft performance limitations, be instructed to adjust speed in a specified manner. Flight crews should be given adequate notice of planned speed control.

4.12.1.2 Speed control shall not be applied to aircraft entering or established in a holding pattern.

4.12.1.3 Speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum or spacing. Instructions involving frequent changes of speed, including alternate speed increases and decreases, should be avoided.

4.12.1.4 The flight crew shall inform the ATC unit concerned if at any time they are unable to comply with a speed instruction. In such cases, the controller shall apply an alternative method to achieve the desired spacing between the aircraft concerned.

4.12.1.5 At levels at or above FL 250, speed adjustments should be expressed in multiples of 0.01 Mach; at levels below FL 250, speed adjustments should be expressed in multiples 10 knots based on indicated airspeed (IAS).

Note 1.— Mach 0.01 equals approximately 6 kt IAS at higher flight levels.

Note 2.— When an aircraft is heavily loaded and at a high level, its ability to change speed may, in cases, be very limited.

4.12.1.6 The controller shall not apply speed control restrictions to departing aircraft.

4.12.1.7 Aircraft are required to follow following speed control restrictions:

- a) All aircraft (including arrivals and departures) operating below 10,000 feet, to fly IAS not greater than 250 knot.
- b) All arriving aircraft operating below 10,000 feet, within 15 NM radius of VOR / DME serving the aerodrome to fly IAS not greater than 220 knot.

Note: ATC may suspend speed control by using the phrase 'NO ATC SPEED RESTRICTION' in following conditions:

- a) *If traffic conditions permit;*
- b) *The aircraft is flying in Class D airspace;*
- c) *All aircraft in relevant part of airspace are in contact with ATC;*
- d) *VFR aircraft which operate on 'see and avoid' principle are separated by minimum standard separation; and*
- e) *VMC climb and descent is not involved.*

4.12.2 Methods of application

4.12.2.1 In order to establish a desired spacing between two or more successive aircraft, the controller should first either reduce the speed of the last aircraft, or increase the speed of the lead aircraft, then adjust the speed(s) of the other aircraft in order.

4.12.2.2 In order to maintain a desired spacing using speed control techniques, specific speeds need to be assigned to all the aircraft concerned.

4.12.2.3 The controller should consider the following when applying the speed control:

- a) Determine the interval required and the point at which the interval is to be accomplished.

- b) Implement the speed adjustment based on the following principles:
 - Priority of speed adjustment instructions is determined by relative speed and position of the aircraft involved and the spacing requirement.
 - Speed adjustments are not achieved instantaneously. Aircraft configuration, altitudes, and speed determine the time and distance required accomplishing the adjustment.
- c) Allow increased time and distance to achieve speed adjustments in the following situations:
 - Higher altitudes
 - Greater speed
 - Clean configurations
- d) Ensure that aircraft are allowed to operate in a clean configuration as long as circumstances permit.
- e) Ground speed may vary with altitude. Therefore, when assigning speeds to achieve spacing between aircraft at different altitudes, further speed adjustment may be necessary to attain the desired spacing.

Note 1.— The true airspeed (TAS) of an aircraft will decrease during descent when maintaining a constant IAS. When two descending aircraft maintain the same IAS, and the leading aircraft is at the lower level, the TAS of the leading aircraft will be lower than that of the following aircraft. The distance between the two aircraft will thus be reduced, unless a sufficient speed differential is applied. For the purpose of calculating a desired speed differential between two succeeding aircraft, 6 kt IAS per 1 000 ft height difference may be used as a general rule. At levels below FL 80 the difference between IAS and TAS is negligible for speed control purposes.

Note 2.— Time and distance required to achieve a desired spacing will increase with higher levels, higher speeds, and when the aircraft is in a clean configuration.

4.12.3 Descending and arriving aircraft

4.12.3.1 An aircraft should, when practicable, be authorized to absorb a period of notified terminal delay by cruising at a reduced speed for the latter portion of its flight.

4.12.3.2 An arriving aircraft may be instructed to maintain its "maximum speed", "minimum clean speed", "minimum speed", or a specified speed.

Note.— "Minimum clean speed" signifies the minimum speed at which an aircraft can be flown in a clean configuration, i.e. without deployment of lift-augmentation devices, speed brakes or landing gear.

4.12.3.3 Speed reductions to less than 250 knots IAS for turbojet aircraft during initial descent from cruising level should be applied only with the concurrence of the flight crew.

4.12.3.4 Instructions for an aircraft to simultaneously maintain a high rate of descent and reduce its speed should be avoided as such manoeuvres are normally not compatible. Any significant speed reduction during descent may require the aircraft to temporarily level off to reduce speed before continuing descent. The controller should specify the action which is expected first when combining speed reduction with a descent clearance as follows:

- a) Speed reduction prior to descent, e.g.
 - REDUCE SPEED TO (number) KNOTS, THEN DESCEND TO (level)
 - REDUCE SPEED BY (number) KNOTS, THEN DESCEND TO (level)
- b) Speed reduction subsequent to descent
 - DESCEND TO (level), THEN REDUCE SPEED TO (number) KNOTS
 - DESCEND TO (level), THEN REDUCE SPEED TO MACH (number)
 - DESCEND TO (level),, THEN REDUCE SPEED BY (number) KNOTS

4.12.3.5 Arriving aircraft should be permitted to operate in a clean configuration for as long as possible. Below FL 150, speed reductions for turbojet aircraft to not less than 220 knots IAS, which will normally be very close to the minimum speed of turbojet aircraft in a clean configuration, may be used.

4.12.3.6 Unless a pilot concurs in the use of lower speed, the controller should use the following minima for arriving aircraft operating below 10,000 ft:

An IAS not less than 210 knots, except when the aircraft is within 20 flying miles of the runway threshold of the airport of intended landing, an IAS not less than

Note: It may be necessary for the pilot to level off temporarily and reduce speed prior to descending below 10,000 feet.

4.12.3.7 Only minor speed reductions not exceeding plus/minus 20 knots IAS should be used for aircraft on intermediate and final approach.

4.12.3.8 Speed control should not be applied to aircraft

- a) after passing a point 4 NM from the threshold on final approach;
- b) carrying out Cat II / Cat III A ILS approach within 20 NM from touchdown.

4.12.3.9 At the time approach clearance is issued, previously issued speed adjustments shall be restated if required.

Note:- Approach clearances cancel any previously assigned speed adjustment. Pilots are expected to make their own speed adjustments to complete the approach unless the adjustments are restated

4.12.4 Termination

Aircraft shall be advised when a speed control restriction is no longer required.

4.13 VERTICAL SPEED CONTROL INSTRUCTIONS

4.13.1 General

4.13.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may be instructed to adjust rate of climb or rate of descent. Vertical speed control may be applied between two climbing aircraft or two descending aircraft in order to establish or maintain a specific vertical separation minimum.

4.13.1.2 Vertical speed control shall not be applied between aircraft entering or established in a holding pattern.

4.13.1.3 Vertical speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum. Instructions involving frequent changes of climb/descent rates should be avoided.

4.13.1.4 The flight crew shall inform the ATC unit concerned if unable, at any time, to comply with a specified rate of climb or descent. In such cases, the controller shall apply an alternative method to achieve an appropriate separation minimum between aircraft, without delay.

4.13.1.5 Aircraft shall be advised when a rate of climb/descent restriction is no longer required.

4.13.2 Methods of application

4.13.2.1 An aircraft may be instructed to expedite climb or descent as appropriate to or through a specified level, or may be instructed to reduce its rate of climb or rate of descent.

4.13.2.2 Climbing aircraft may be instructed to maintain a specified rate of climb, a rate of climb equal to or greater than a specified value or a rate of climb equal to or less than a specified value.

4.13.2.3 Descending aircraft may be instructed to maintain a specified rate of descent, a rate of descent equal to or greater than a specified value or a rate of descent equal to or less than a specified value.

4.13.2.4 In applying vertical speed control, the controller should ascertain to which level(s) climbing aircraft can sustain a specified rate of climb or, in the case of descending aircraft, the specified rate of descent which can be sustained, and shall ensure that alternative methods of maintaining separation can be applied in a timely manner, if required.

Note 1.— Controllers need to be aware of aircraft performance characteristics and limitations in relation to a simultaneous application of horizontal and vertical speed limitations.

Note 2.— Controllers should keep in mind the rate of climb / descent restrictions specified in 'DGCA Operations Circular No. 4 of 2002 dated 6th Nov 2002' while applying the vertical speed control. As per this circular, to reduce false TCAS RA, crew must reduce the aircraft rate of climb or descent as applicable to 1500 feet per minute or less when the airplane is 2000 feet to level off altitude.

4.14 CHANGE FROM IFR TO VFR FLIGHT

4.14.1 Change from instrument flight rules (IFR) flight to visual flight rules (VFR) flight is only acceptable when a message initiated by the pilot-in-command containing the specific expression "CANCELLING MY IFR FLIGHT", together with the changes, if any, to be made to the current flight plan, is received by an air traffic services unit. No invitation to change from IFR flight to VFR flight is to be made either directly or by inference.

4.14.2 No reply, other than the acknowledgment "IFR FLIGHT CANCELLED AT ... (time)", should normally be made by an air traffic services unit.

4.14.3 When an ATS unit is in possession of information that instrument meteorological conditions are likely to be encountered along the route of flight, a pilot changing from IFR flight to VFR flight should, if practicable, be so advised in following manner:

INSTRUMENT METEOROLOGICAL CONDITIONS REPORTED (or forecast) IN THE VICINITY OF (location)".

4.14.4 An ATC unit receiving notification of an aircraft's intention to change from IFR to VFR flight shall, as soon as practicable thereafter, so inform all other ATS units to whom the IFR flight plan was addressed, except those units through whose regions or areas the flight has already passed.

4.15 ALTIMETER SETTING PROCEDURES

4.15.1 Expression of vertical position of aircraft

4.15.1.1 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.

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

- a) flight levels at or above the lowest usable flight level;
- b) altitudes below the lowest usable flight level.

4.15.2 Determination of the transition level

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

4.15.2.2 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.

4.15.3 Minimum cruising level for IFR flights

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

4.15.4 Provision of altimeter setting information

4.15.4.1 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.

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

4.15.4.3 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.