INTRODUCTION

The APP controllers have the responsibility of ensuring Air Traffic Control (ATC) Services within a large area named terminal area (TMA).

Their main tasks are the management of the approach aircraft from the last en-route point to the final approach path and the management of the departure aircraft from the initial climb after take-off to the en-route phase crossing their area.

In IVAO, the APP controller shall handle both arrivals and departures when he is connected alone with no DEP controller. In some of large airports where a departure frequency is published, a DEP controller can open the position in order to take in charge of all departures. This will let the APP handle all the arrivals and transit aircraft.

ARRIVALS MANAGEMENT

The first task of the APP controller is the management of traffic trajectories and descent path in order to include the aircraft into the final approach sequence.

The arrival management has 2 main phase:

- The arrival management from the last en route fix to the initial approach fix (IAF)
- The approach management from the initial approach fix to the final approach path

ARRIVAL IFR TRAFFIC TRANSFER

The flight is usually transferred at least 2 minutes before entering the TMA by the adjacent controller when descending to an altitude coordinated among the controllers or corresponding to the TMA ceiling.

If there is no controller in one or several of the adjacent controlled areas, the APP controller will send a “FORCE ACT” message where the pilot is located in those areas 2 minutes before the TMA border line.

The adjacent controller can be the en-route traffic controller or an adjacent approach controller.

The clearance to follow the appropriate arrival procedure will normally be issued by ACC without prior coordination with the approach unit.
Prior coordination of clearances should be required only in the event that a variation to the standard clearance or the standardized transfer of control procedures is necessary or desirable for operational reasons.

The APP controller should be kept informed of the sequence of aircraft following the same arrival procedure.

**ARRIVAL PROCEDURE**

An arrival procedure is the route to fly by the aircraft between its last en-route point and one initial approach fix (IAF).

- For the majority of large airports, **Standard Arrival** procedures (STAR) for IFR flights are available and published on arrival charts. These STAR procedures are connecting predefined arrival fixes located on airways to one or several IAF fixes via published routes.
- For some smaller airports, the pilot can fly published omnidirectional arrival or omnidirectional arrival issued by air traffic controllers where no procedure is published.

The arrival procedures to be followed by any IFR aircraft shall be provided in the **IFR clearance or instruction** given by the controller who is in charge of the regulation of the en-route area near the entry point given by the arrival procedure.

The controller can eventually extend or shorten the routes of all aircraft under his control according to the traffic situation.

**STAR**

The Standard Terminal Arrival Route (STAR) is a published procedure between the last point of the route in the flight plan and the first point of the initial approach named IAF (Initial Approach Fix).

At aerodromes where standard instrument arrivals (STAR) have been established, arriving aircraft should normally be cleared to follow the appropriate STAR. The aircraft shall be informed of the type of approach to expect and the runway-in-use as early as possible by the APP controller.

The STAR arrival given by the controller to the aircraft should normally follow its flight plan. Sometimes, the STAR can be different due to specific airfield rules or traffic congestion. The APP controller is responsible to deliver the instruction(s) to permit the arriving aircraft to join the final approach path or one initial approach fix.

If no STAR procedure is published or the pilot asks not to follow a published one, the controller shall issue an omnidirectional arrival clearance toward one initial approach fix.

**OMNIDIRECTIONAL ARRIVAL**

The **content of an omnidirectional arrival clearance** is determined by the en-route or APP controller considering the environmental constraints, the minimum sector altitudes (MSA, MRVA or MVA), the sector radio navigation aids, the airspace structure and the traffic density.
The en-route (CTR) controller will perform coordination tasks with the APP controller in order to inform them about his decision on each omnidirectional clearance.

The APP controller should know the exact omnidirectional clearance given in order to perform his task.

Examples of simple omnidirectional arrival:

- From present position to initial approach fix (IAF)
- From a specific fix to initial approach fix (IAF)
- From present position direct to a specific beacon or intermediate fix on arrival or approach path

It is possible for the controller to ask for a more detailed procedure involving more complex manoeuvres:

- Minimum descent rate in ft/min or %
- Interception of a VOR radial or NDB track
- Fly a DME arc
- Fly a track until a given DME distance

**CONTROLLER TASK DURING ARRIVAL TRACK UNTIL THE INITIAL APPROACH FIX**

From his first contact with the pilot, the APP controller shall know if the pilot has already received a STAR (standard arrival procedure) clearance, an omnidirectional arrival procedure clearance (it depends on the coordination with the adjacent controller when present), a direct to an intermediate point or a vectoring.

When an arriving aircraft on a STAR is cleared to descent to a level lower than the level(s) specified in the STAR, the aircraft shall follow the published vertical profile of a STAR, unless such restrictions are explicitly cancelled by ATC. Published minimums levels based on terrain clearance shall always be applied.

The aircraft shall be informed by the APP controller of the type of approach to expect and the runway-in-use as early as possible.

Any arriving aircraft shall be informed without delay about any instrument approach procedure change including another runway or not.

A flight crew may request an alternative procedure and, if circumstances permit, should be cleared accordingly.

If a pilot reports or it is clearly apparent to the ATC unit that the pilot is not familiar with an instrument approach procedure, the description of the procedure needs to be specified (initial approach level, procedural turn, final approach track, necessary frequency in use).

ARRIVAL SCENARIO
If the pilot has been already cleared via an arrival route by the previous controller, the controller may:

- Let aircraft continue this route. Nevertheless, the controller must issue all descent clearances during the arrival procedure since the pilot is not allowed to change his own altitude if not authorized.
- Give aircraft a direct route clearance to an IAF to shorten its route
- Give aircraft an IFR approach clearance that authorizes aircraft to continue beyond IAF
- Give aircraft a direct to a specific fix of the approach procedure to shorten its route
- Provide aircraft radar vectoring (if radar vectoring is possible) to shorten its route or for regulation
- Give aircraft a holding pattern on a fix or navigation aid for regulation purposes

If the pilot has not been cleared via an arrival route (non-controlled area), the controller may:

- Give aircraft an arrival route clearance with altitude restriction
- Give aircraft a direct route clearance to an IAF
- Give aircraft an IFR approach clearance that authorizes aircraft to continue beyond IAF
- Give aircraft a direct to a specific fix of the approach procedure to shorten its route
- Provide aircraft radar vectoring (if radar vectoring is possible) to shorten its route or for regulation purposes
- Give aircraft a holding pattern on a fix or navigation aid for regulation purpose

If the pilot has been already under radar-vectoring clearance or a direct route outside any published route by the previous controller, the controller may:

- Continue aircraft radar vectoring (if radar vectoring is possible)
- Give aircraft a direct route clearance to an IAF in order to connect to an approach procedure
- Give aircraft a holding pattern on a fix or navigation aid for regulation purposes

If the pilot is off track or lost, the controller may:

- Give aircraft a direct to an IAF, or specific fix of the approach procedure to shorten his route
- Provide aircraft radar vectoring (if radar vectoring is possible) to shorten his route or for regulation purposes
- Give aircraft a holding pattern on a fix or navigation aid for regulation purposes

SAFETY

The **APP controller is responsible of the aircraft safety** during arrival. ATC shall respect the minimum applicable altitudes in his sector where these are applicable (MRVA, MSA).

An IFR flight shall never be cleared for initial approach below the appropriate minimum altitude nor to descend below that altitude unless:

- The aircraft is conducting a visual approach or,
- Pilot reports that the aerodrome is and can be maintained in sight or,
The controller has determined that the aircraft position is compatible by the use of a lower minimum altitude specified for the use of a radar system.

**CONTROLLER TASK DURING IFR APPROACH PROCEDURE UNTIL THE FINAL APPROACH TRACK**

The **APP** controller must give the pilot the final approach clearance together with the landing runway. This information shall be issued as soon as possible **always before the IAF**, except during vectoring where the approach procedure shall be issued as soon as possible and at maximum 2 min before the final approach path.

During the approach procedure, the controller is responsible for the separation of all aircraft under his control, whether it is along a published route or not (direct or radar-vectored).

**APPROACH SCENARIO**

**The pilot follows a direct route or a published procedure to the IAF.** The controller can make one of the following choices **before** reaching the IAF:

- Give the aircraft an approach clearance
- Grant a direct route to a fix along the published approach track
- Provide radar vectoring (if possible in function of local regulations and minima)
- Give the aircraft a direct route to an IAF or off-procedure point only for traffic management purpose
- Issue a holding clearance over the IAF (this is the procedure the pilot must follow when he has not received any of the preceding clearances)

**The pilot follows a direct route to a point along the published IAP.** The controller can make one of the following choices **before** reaching the point:

- Give the aircraft an approach clearance from that point when the next track leg is a straight segment towards the final approach (dead reckoning segment) or the point belongs to the final approach track
- Grant a direct route to a fix along the published procedure
- Provide radar vectoring (if possible in function of local regulations and minima)
- Give the aircraft a direct route to an IAF or off-procedure point only for traffic management purpose
- Issue a holding clearance over this point or an IAF (if a holding circuit is published or feasible at this point)

- Continue with radar vectoring until the interception of the final approach procedure track
- Give the aircraft an approach clearance normally **when the aircraft trajectory and altitude are compatible with a correct interception of the final approach procedure track** through a point not farther than 30 seconds from the descent fix (FAF, FAP)
The pilot follows a direct route to an off-procedure point. The controller can make one of the following choices before reaching the point:

- Provide radar vectoring (if possible in function of local regulations and minima)
- Issue an approach clearance from that point when the aircraft heading is compatible with a correct interception of the approach procedure track published on that point
- Grant a direct route to another off-procedure point for traffic management purpose
- Issue a holding clearance over an IAF if any of the other choices is not possible

The pilot is deviating by more than 1 NM from the last cleared route. The controller shall:

- Provide radar vectoring (if possible in function of local regulations and minima)
- Negotiate with the pilot another route clearance which he can follow
- Issue a holding clearance over an IAF if any of the other choices is not possible

Once aircraft have left the IAF, the controller should not change the landing runway announced unless in exceptional situations (emergency, separation loss, occupied runway, weather conditions).

At the commencement of final approach, the following information shall be transmitted to aircraft:

- Significant change of mean headwind component of 10KT (19km/h)
- Significant change of mean tailwind component of 2KT (4km/h)
- Significant change of mean crosswind component of 5KT (9km/h)
- Presence of wind shear and/or turbulence in the final approach area
- Change of the current visibility value or RVR value and their trend

During final approach, the following information shall be transmitted to aircraft without delay:

- Sudden occurrence of hazards (on runway, on approach path …)
- Significant variation in the current surface wind
- Significant changes in runway surface conditions (rain, ice)
- Change in the operational status or required visual or non-visual aids (not applicable in IVAO)
- Change in the RVR value or change in the visibility

The exceptional change of the announced landing runway after the IAF must be negotiated with the pilot.

In addition, the APP controller can assign altitudes and speeds different from those published in order to ensure regulation and separation but with respecting the minimum applicable altitudes in his sector where these are applicable (MRVA, MSA).
A visual approach clearance for an IFR flight may be requested by the flight crew or initiated by the controller.

The controller **shall ensure separation between an aircraft cleared to execute a visual approach and other arriving and departing aircraft.** For successive visual approach, separation shall be maintained by the controller **until the pilot of a succeeding aircraft reports having the preceding aircraft in sight.**

The aircraft **shall then be instructed to follow and maintain own separation** from the preceding aircraft and the controller will then not assure separation only between these two aircraft.

If the distance between the aircraft is less than the wake turbulence separation minimum during visual approach, the controller shall issue a caution of possible wake turbulence. The pilot-in-command of the aircraft concerned shall be responsible for ensuring that the spacing from the preceding aircraft is acceptable.

The controller shall exercise caution in a visual approach when there is reason to believe that the flight crew concerned is not familiar with the aerodrome and its surrounding terrain.

SAFETY

An IFR flight shall never be cleared for final approach below the published minimum altitude nor to descend below that altitude unless:

- The aircraft is conducting a **visual approach** or,
- The pilot reports that the aerodrome is and can be maintained in sight or,
- The controller has determined that the aircraft position is compatible by the use of a lower minimum altitude specified for the use of a radar system (MRVA, MVA).
HOLDING TASK

In the event of extended delays, aircraft should be advised of the anticipated delay as early as possible and, when practicable, **be instructed or given the option to reduce speed** in order to absorb delay.

When some delay is expected for landing and it cannot be resolved by regulation, the APP controller is responsible for clearing aircraft to one holding fix and expected approach time or onward clearance time as applicable in such clearance. Holding procedure and holding pattern entry shall be accomplished first in accordance with procedures established by the regulation and the charts.

If the holding procedures have not been published on the considered fix or if the procedure is not known to a flight crew, the **appropriate air traffic control unit shall specify**:

- The designator of the location or aid to be used,
- The inbound track, radial or bearing,
- The direction of turn in the holding pattern
- The time of the outbound leg or the distances between which to hold.

If an aircraft is unable to comply with the published or cleared holding procedure, alternative instructions shall be issued.

For the purpose of maintaining a safe and orderly flow of traffic, an aircraft may be instructed to orbit at its present or at any other position.

NOTE: After coordination with lower ATC, ATC may clear an arriving aircraft to a visual holding location to hold until further advised by the lower ATC.

VFR FLIGHT MANAGING TASK

The APP controller shall handle VFR flights under his TMA following its airspace class:

- **Class B**: continuous and two-way radio communication is required and the airspace penetration is subject to an ATC clearance (separation is provided to VFR flights with respect to all aircraft)
- **Class C and D**: continuous and two-way radio communication is required and the airspace penetration is subject to an ATC clearance (no separation is provided to VFR flights). VFR flights are limited to 250kt IAS below 1000ft AMSL. Flight Information Service (FIS) is provided to VFR (traffic avoidance on request)
- **Class E**: radio communication is optional and the airspace penetration is not subject to an ATC clearance (separation is provided to VFR flights from IFR only in class C). VFR flights are limited to 250kt IAS below 1000ft AMSL. Flight Information Service is provided as far as practical

On IVAO, the **APP controller may provide FIS** (flight information service) in the traffic information sector attached to his platform.

The **traffic information sector** includes the airspace below and around the TMA as published on the platform charts. This class G airspace outside the TMA is a sector where radio communication is optional for VFR flights. Only FIS can be provided (no separation for VFR). Speed restrictions for VFR are the same for class C, D and E airspaces.
Inside a class G airspace, all IFR flights must obtain an ATC clearance whenever they want to penetrate a controlled airspace. The clearance shall be issued by the controller responsible for that airspace either on the ground or airborne before entering the airspace.

VFR flights are generally transferred:

- 2 minutes before entering the CTR (tower control zone)
- 2 minutes before entering an adjacent TMA
- Abeam of the VFR reporting points (VRP) previously coordinated
- Following any other procedure coordinated among controllers for safety or traffic management purposes
- Before joining the traffic circuit for a controlled aerodrome

**TRANSFERRING ON FINAL APPROACH PATH**

The approaching flights must be transferred to the TWR controller once established on the final approach axis.

The point or the time of transfer of aircraft shall be done by the controller where information on local traffic, clearance to land or other instructions can be issued to the aircraft in a timely manner.

It is generally admitted that a flight shall be transferred:

- Once the aircraft is established on the localizer axis for an ILS, LOC/DME, ILS/VPT approach
- Once the aircraft is established on the VOR radial for a VOR, VOR/DME, VOR/VPT approach
- Once the aircraft is established on the NDB track for a NDB, NDB/DME or NDB/VPT approach
- Once the pilot has the runway in sight for a circling approach (visual manoeuvring without prescribed track)

In the case of visual manoeuvring using prescribed tracks or circling procedures, the flight will be transferred once established on the localizer axis, the VOR radial or the inbound NDB track of the first IFR approach flown.

In this case the transfer shall be done well before the pilot starts the visual approach in order to help the tower with the traffic management.

**REGULATION FOR APPROACH SEQUENCE**

The approach sequence shall be established in a manner which will facilitate arrival of the maximum number of aircraft with the least average delay. In establishing the approach sequence, the need for increased longitudinal spacing between arriving aircraft due to wake turbulence shall be taken into account.
If a pilot of an aircraft in an approach sequence has indicated an intention to hold for weather improvement, or for other reasons, such action (holding) shall be approved.

### PRIORITY

Priority shall be given to (by priority):

1. An aircraft which wants to land because of factors affecting the safe operation of the aircraft (distress, emergency, or pan like engine failure, shortage of fuel ...)
2. Hospital aircraft or aircraft carrying any person requiring urgent medical attention
3. Aircraft engaged in search and rescue operation
4. Other aircraft determined by the country's regulations

Note that there are not rules saying that IFR aircraft have priority over VFR aircraft. The controller will ease IFR flight first, but without lowering his service quality toward the VFR flight.

### SUCCEEDING AIRCRAFT

Succeeding aircraft shall be cleared for approach:

- when the preceding aircraft has reported that it is able to complete its approach without encountering Instrument Meteorological Conditions (IMC), or
- when the preceding aircraft is in communication with the aerodrome tower controller and a reasonable assurance exists that a normal landing can be accomplished
- when timed approaches (procedural control) are used, the preceding aircraft has passed the defined point inbound (regulation reference point), and a reasonable assurance exists that a normal landing can be accomplished
- when the use of radar surveillance system confirms that the required longitudinal spacing between succeeding aircraft has been established

### SEQUENCING AND SPACING OF INSTRUMENT APPROACHES (PROCEDURAL CONTROL)

Following procedures should be utilized as necessary for timed approach procedure (procedural control) to expedite the approaches of a number of arriving aircraft:

- A suitable point on the approach path which shall be capable of being accurately determined by the pilot, shall be specified to serve as a check point (regulation reference point) in timing successive approaches
- Aircraft shall be given a time at which to pass the specified point inbound (EAT – Expected Approach Time) in order to achieve the desired interval between successive landings

The time at which aircraft should pass the specified point outbound shall be determined by the APP controller and notified sufficiently in advance to permit the pilot to arrange the flight path accordingly.

Each aircraft in the approach sequence shall be cleared to pass the specified point inbound at the notified time only after the preceding aircraft has reported passing the point inbound.
The time interval between successive aircraft shall take into account the following parameters:

- The relative speed of aircraft
- The distance from the specified point to the runway-in-use
- The need to apply wake turbulence separations
- The runway occupancy times
- The meteorological conditions (LVP)
- The go around procedure track

Coordination task shall be made to ensure that the aerodrome control tower is kept informed of the sequence in which aircraft will be established on final for landing.

**SEPARATION MINIMA DURING APPROACH**

**SEPARATION DEFINITION AND CONCERNED TRAFFIC**

Two aircraft controlled under traffic separation conditions are considered clear of conflict if they are separated horizontally or vertically by a distance in accordance with the separation minima (whether they are handled or not by the same ATC).

As established by ICAO regulation, traffic separation must be provided:

- for all flights in class A and B airspaces
- for IFR and SVFR from each other and from VFR in class C airspace
- for all IFR and SVFR from other IFR/SVFR in class D and E airspaces

Flights under VFR conditions in class C, D, E and F airspaces are not separated from IFR traffic and are required to ensure their separation by the "see and avoid" rule.

**RADAR SEPARATION MINIMA FOR IFR**

The minimal **vertical** separation within the terminal control area is:

- 1000ft over the whole approach procedure

The minimal **horizontal** separation within the terminal control area is:

- 5NM
- 3NM when reduced approach separation is applicable to the TMA area.
- 2.5NM when reduced approach separation is applicable on final approach track for this airfield

A minimum horizontal radar separation of 3NM (or even 2.5NM on the final approach axis) may be kept over the whole approach or departure procedure according to national or division rules. Consult the available documentation about minimum radar separation in order to have more information.
A separation higher than the general minimum is mandatory for some aircraft depending on their wake turbulence category. The separation minima applicable for a controller using radar (IvAc) are:

<table>
<thead>
<tr>
<th>Succeeding Aircraft</th>
<th>behind</th>
<th>preceding aircraft</th>
<th>Separation minima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy</td>
<td>behind</td>
<td>Heavy</td>
<td>4 NM</td>
</tr>
<tr>
<td>Medium</td>
<td>behind</td>
<td>Heavy</td>
<td>5 NM</td>
</tr>
<tr>
<td>Light</td>
<td>behind</td>
<td>Heavy</td>
<td>6 NM</td>
</tr>
<tr>
<td>Light</td>
<td>behind</td>
<td>Medium</td>
<td>5 NM</td>
</tr>
<tr>
<td>Heavy</td>
<td>behind</td>
<td>A380</td>
<td>6 NM</td>
</tr>
<tr>
<td>Medium</td>
<td>behind</td>
<td>A380</td>
<td>7 NM</td>
</tr>
<tr>
<td>Light</td>
<td>behind</td>
<td>A380</td>
<td>8 NM</td>
</tr>
</tbody>
</table>

If the controller provides procedural approach control only without considering that IvAc software is a radar system where the radar vectoring is possible, the controller shall apply wake turbulence timed base separation presented below. (Consult available document about wake turbulence separation)

<table>
<thead>
<tr>
<th>Succeeding Aircraft</th>
<th>behind</th>
<th>preceding aircraft</th>
<th>Separation minima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>behind</td>
<td>Heavy</td>
<td>2 minutes</td>
</tr>
<tr>
<td>Light</td>
<td>behind</td>
<td>Heavy</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Light</td>
<td>behind</td>
<td>Medium</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Medium</td>
<td>behind</td>
<td>A380</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Medium</td>
<td>behind</td>
<td>A380</td>
<td>4 minutes</td>
</tr>
</tbody>
</table>

**LOSS OF SEPARATION**

A conflict is an event in which two or more aircraft experience a loss of minimum separation. However, the separation minima are set for risk mitigation and therefore it is essential to a controller’s job to prevent this situation from occurring.
The controller shall not issue any clearance implying a separation reduction below separation minima. A clearance presenting a potential risk of separation loss is considered as an ATC fault.

Example of clearance presenting a potential risk of separation loss:

![Diagram of example clearance](image-url)

The controller is responsible for the separation between all aircraft under his control with all other aircraft, whether they are under his control or not.

**USE OF RADAR**

During increased traffic at the airport, radar vectoring becomes the standard procedure in most of the large airports to arrange aircraft in sequence to ensure air traffic flow management for the most efficient use of airspace (in replacement of procedural control).

**CONDITION OF RADAR VECTORING USE**

In some airfield procedures, radar vectoring is a mandatory procedure to guide aircraft on the final approach track. Radar vectoring procedure shall be used by air traffic controller only for identified aircraft on radar system.

In smaller airports or airports in mountainous areas, the APP controller might provide only procedural control (published procedures).

Radar vectoring is mainly used by the ATC as a tool in order to ensure and enhance:
- The air traffic flow management in arrival and/or approach phase of instrument approach procedure.
- The aircraft arrangement in sequence in arrival and/or approach phase of instrument approach procedure.
- The horizontal and vertical separation between all departing and/or approaching aircraft

Typical regulation distance between vectored aircraft depends on the runway capabilities, the navigation equipment used during the approach procedure, the weather and/or the airport configuration.

Example of optimal approach sequence using radar vectoring:
Note: consult Radar vectoring procedure and method documentation in order to have more information and the Approach sequence methodology documentation for more information.

OTHER GOALS OF RADAR VECTORING

Radar vectoring can be used by the ATC as a complementary tool in order to enhance:

- The optimisation of departing aircraft climb inside or outside an arrival flow
- The en-route traffic regulation in complex situations when classical management is failing
- The assistance to pilots in emergency or pan
- The assistance to lost pilots or deviating pilots from their cleared track
- Other cases where the situation needs it like specific pilot request, pilot off-track...

SAFETY DURING RADAR VECTORING

When providing radar vectoring, the APP controller shall at all times:

- ensure safety for each aircraft with respect to aircraft performance and minimum separation between all aircraft at all times (whether they are totally or partially under his control)
- Not give any altitude clearance below minimum safety altitudes i.e. MRVA for Minimum Radar Vectoring Altitude or MSA minimum sector altitude where they are applicable to prevent any potential terrain collision
- Prevent any potential terrain collision

SIDE EFFECT OF RADAR VECTORING

The procedures based on vectoring onto the IFR final approach path in high workload leads to traffic dispersion at low altitude and stepped descent (level-offs), resulting in fuel inefficiencies and noise pollution for local communities.

The new sequencing techniques like the point merge system (see below) aim primarily at improving the final part, in particular securing the ILS interception and reducing noise nuisances even under high traffic conditions, as well as optimising descents, reducing workload and communications.

In some cases, this may also lead to ILS interception in non-standard conditions and even to separation minima infringements in case of parallel approaches.
SEE ALSO

- Approach sequence methodology, Radar vectoring procedure and method, Final approach track interception

REFERENCE

- None

AUTHOR

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