

Approach ATC Handbook

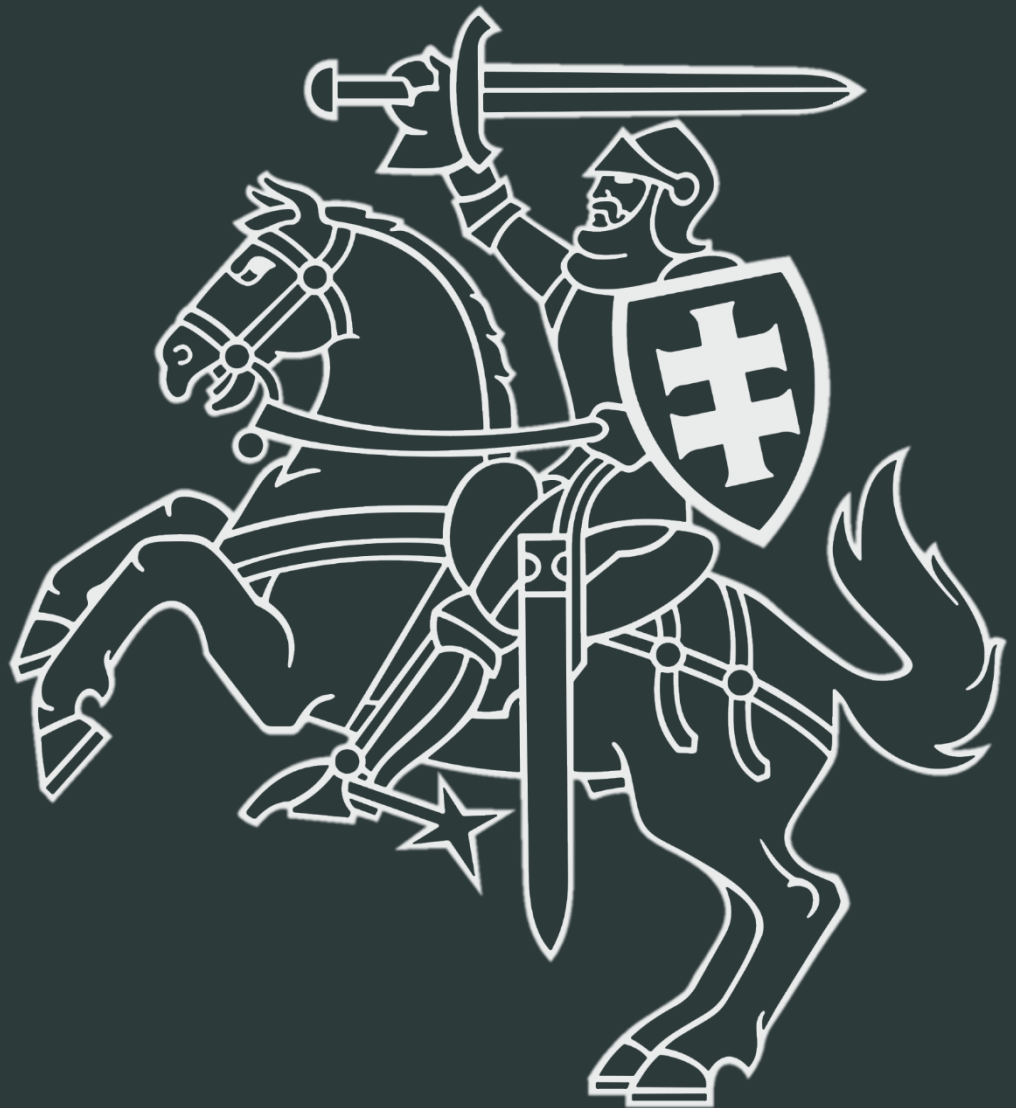


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Section A – General

This vACC Lithuania Radar Air Traffic Controller Handbook (there and later named – Handbook) is created to be used in VATSIM Lithuania airspace for Radar (APP) and Radar Tower (TWR) Air Traffic Controllers (ATC) in all vACC-controlled airports. In this Guide Radar Tower is called Radar (for simplicity) but remember your actual position callsign. This Guide is a general document that shall be used for providing air traffic control. Any additional required laws, rules and document's parts will be placed in text where it is applicable, and needed references will be added where is not applicable.

As a radar controller within VATSIM, you shall be familiar with the Tower control procedures to be able to provide top-down traffic control if other positions are offline and you have the capability to provide top-down service.

This Handbook uses some notation rules that are described below.

Within the Handbook the following verbs are used and shall be clarified:

- Shall – determines the mandatory item, action, or statement.
- Shall not – determines a prohibition.
- Should – determines the item, action or statement that are a good practice.
- May – determines the item, action or statement that are recommended or optional.

Within the Handbook the following nouns are used:

- Pilot – a member of VATSIM network who is performing function of flying the aircraft, this may include a pilot monitoring or any other crew member, in case of shared cockpit flight, who may perform any kind of duties related to aircraft operation.
- ATC – a member of VATSIM network with corresponding rating and approval, who provides air traffic control service at designated position and/or zone.
- Radar ATC – ATC occupying a Radar position.
- Tower ATC – ATC occupying a Tower position.

For communication example:

- Pilot's call/request/report example: **VILNIUS TOWER, ON FINAL RUNWAY 19**
- ATC's instruction/information example: **LYABC, CLEARED TO LAND**
- Text enclosed in brackets is optional: **CONTINUE [TAXIWAY] L** – you can omit saying "TAXIWAY".
- Text enclosed in parentheses represents value to be used, e.g., if traffic is at three o'clock position: **LYBFT, TRAFFIC (NUMBER) O'CLOCK** – you should say: **LYBFT, TRAFFIC THREE O'CLOCK**

English language is the primary and only language to use on VATSIM, to provide ATC services, within Lithuania airspace.

Any other markups and text styles will be used freely to point your attention for some situations or special cases.

All rules in Guide that are used to provide air traffic service (ATS) have number indexes for convenience.

In case you have any questions feel free to contact vACC Instructors in Discord.

Section B – Procedures

1. Preparing to service and general rules

In any case ATC shall make decisions according to common sense.

During preparing to provide a service as the Radar Controller ATC you shall be familiar with:

- a) Current weather situation on airfield (at least METAR-based: wind direction and speed, transition level (TL), horizontal visibility, visibility on runway, cloud layers heights, QNH).
- b) Runways in use.
- c) SIDs and STARs in use.
- d) Adjacent ATCs frequencies and their controlled areas boundaries.
- e) Current traffic situation in the air and on the ground.
- f) Controlled zone charts and limits.
- g) Established VFR procedures (e.g., TMA in/out fixes, pattern turns direction, altitudes).
- h) Visual and circling approach procedures.
- i) Go Around procedures.
- j) Any special flights and situations.

If any adjacent ATC positions are on duty, you shall coordinate Items a – j with these positions if it is applicable (for example, you shall coordinate SID using instructions from Center ATC and shall inform Tower ATC about runways in use). If needed these items shall be coordinated when you are on duty.

If there are no ATC positions capable of coordinating the listed items, you shall determine these rules by yourself using charts, standard local procedures, your opinion, and common sense.

ATC shall have the ability to communicate with any adjacent ATC using text or voice. Discord intercommunication as a means of ATC-to-ATC communication is preferred.

Radar ATC provides these air traffic services:

- Radar service (separation and sequencing).
- Flight information service.
- Emergency service.

As is stated in AIP Lithuania charts and documents, controlled zone of Radar controller is TMA (EYVI) or CTR + TMA (EYPA, EYKA, EYSA).

The Radar service, including altitude control, speed control, radar vectors, vertical speed control, clearing to follow published procedures, shall be used only for aircraft identified with mode C.

Radar Vectors may be used at any stage of flight (e.g., departure, arrival, bad weather avoidance, separation etc.). Radar ATC shall not vector aircraft closer than 2.5 nm of controlled airspace, if no frequency transfer is expected, or no prior coordination with adjacent controller made, or no published Letter of Agreement with adjacent sector established.

Radar ATC shall constantly monitor traffic situation and adjust instructions based on observed situation.

2. Radar Service – departing traffic

In providing radar service for aircraft departing one or more of the following procedures shall be applied and ensured:

- Flight of an aircraft via standard instrumental departure route (SID).
- Flight on a shortened flight path (shortcut).
- Radar vectors using surveillance systems.

In cases when standard clearances are issued to flying aircraft, pre-agreed between ATCs (for example, at duty briefing), Tower ATC may issue such clearances for departure without ongoing coordination with Radar ATC. Special clearances (for example, when aircraft are not able to follow RNAV SID) shall be coordinated.

When aircraft departs from airport, Radar ATC shall:

- Obtain information (direction, cleared altitude etc.) about aircraft departing using Euroscope or voice channel from Tower ATC when applicable.
- Issue reasonable limitations (e.g., altitude or speed restrictions) to departure clearances or other requests, considering the conditions of each individual situation, if there are operational reasons (such as separation, complex air situation etc.).
- Coordinate with Tower changes to the standard clearances (change of SID or other instructions).

When inbound traffic crosses boundaries of controlled zoned/points of transfer between zones, Radar ATC shall:

- Receive a report from the traffic about entering the area of responsibility.
- Identify the traffic on the air situation display.

**LYBFT, RADAR CONTACT
LYBFT, IDENTIFIED**

- Provide information about traffic's position, if needed.
- Issue needed clearance or limiting instruction.

LYBFT, CLIMB AND MAINTAIN ALTITUDE 4000 FEET

- Receive clearance/instruction read back from pilot.
- Inform the pilot about the air situation, if needed.
- Continuously monitor traffic trajectory.

In case Radar ATC cannot identify the aircraft calling, Radar ATC shall inform the pilot about the situation and instruct to check the squawk settings:

**LYBFT, NOT IDENTIFIED, SET SQUAWK CHARLIE
LYBFT, NOT IDENTIFIED, SET SQUAWK 6371**

If it is desirable to speed up traffic sequence, to solve potential conflict situation or on pilot request Radar ATC may give instruction to shorten flight path (shortcut). Shortcuts to points that are outside of the Radar ATC's controlled zone shall be coordinated with corresponding ATCs.

To avoid misunderstandings and increase the load of the pilot, Radar ATC should give shortcuts only to radio navigation stations and fixes which are part of the cleared SID routes or part of the flight route of this aircraft.

LYBFT, PROCEED DIRECT MURUN

In case it's necessary to direct the aircraft along a trajectory that cannot be determined by the direction to radio navigation station or fix, radar vectors shall be used.

Radar ATC shall consider that when traffic receives departure clearance with SID route, pilot activates a given route in the flight management system (FMS) and subsequent flight is performed in automatic mode.

If during a flight in an automatic mode Radar ATC gives instructions that cancels the conditions of the SID route (for example, turn to the some heading for separation), the further flight will be performed manually, and the pilot will expect ATC instructions to resume own navigation (shortcut to fix or radio navigation station) or radar vectors.

Shortcut shall be used only after aircraft passed the MSA/MRVA.

3. Radar Service – arriving traffic

3.1. General rules

In providing radar service for aircraft arriving one or more of the following procedures shall be applied and ensured:

- Flight of an aircraft via standard terminal arrival route (STAR) and instrumental approach procedures.
- Radar vectors to the final approach segment system.
- Visual approach or circling approach.
- Radar vectors when visual or circling approach is in progress or will be performed.

When inbound traffic crosses boundaries of controlled zoned/points of transfer between zones, ATC shall identify this aircraft.

LYBFT, RADAR CONTACT

LYBFT, NOT IDENTIFIED, SET SQUAWK CHARLIE

3.2. Flight of an aircraft via STAR

Considering the time required by the pilot to activate the given STAR in the on-board FMS, information of the runway-in-use and assigned STAR should be provided as early as possible (normally, this may be done by Center ATC when traffic enters the FIR).

Clearance to fly via STAR (STAR clearance) shall be given by Center or Radar ATC.

If radar vectors are used during the STAR, ATC shall inform pilot to expect radar vectors after corresponding point.

LYBFT, EXPECT VECTORS AFTER PASSING MURUN

STAR clearances or other instructions (such as radar vectors after some point), that are issued by the Center ATC, shall be coordinated between Center and Radar ATCs.

STAR clearance shall be issued in advance, but in all cases not later than STAR first point passing.

Assigned STAR index is provided in non-coded format (e.g., for VNO coded is Victor Bravo Oscar, non-coded is Vilnius VOR):

LYBFT, CLEARED VIA MURUN TWO ALPHA ARRIVAL

ATC shall inform arriving traffic about runway-in-use and instrumental approach system that will be used, excluding cases, when this information is provided in ATIS and pilot confirmed ATIS read back.

Instrumental approach procedure shall be assigned on ATC's own initiative.

Pilot may request different alternative instrumental approach procedures (e.g., VOR or RNAV RNP, while ILS is used) and, if airspace situation permits, ATC should clear such procedure.

Considering the time required by the pilot to activate the issued instrumental approach procedure in the on-board FMS, such information shall be provided as early as possible.

LYBFT, EXPECT ILS APPROACH RUNWAY 19

ATC should assign the most precise instrumental approach procedure (ILS) or procedure with the most minimal OCA/OCH.

ATC shall issue instrumental approach clearance and runway-in-use when aircraft is inbound Initial Approach Fix (IAF), but in all cases not later than IAF passing.

LYBFT, CLEARED ILS APPROACH RUNWAY 01

Radar ATC may ask the pilot to report once they are established on localizer, or final track, or final.

LYBFT, CLEARED ILS Z APPROACH RUNWAY 01, REPORT ESTABLISHED ON LOCALIZER

LYBFT, CLEARED VOR Z APPROACH RUNWAY 01 REPORT ON FINAL TRACK

LYBFT, CLEARED RNP APPROACH RUNWAY 01 REPORT ON FINAL

ATC may demand fix passing reports, radio navigation stations passing reports, report about start of execution Racetrack or Base Turn procedures, other information that is needed to speed up traffic.

LYBFT, REPORT COMMENCING PROCEDURE TURN

LYBFT, REPORT PASSING OBANO

LYBFT, REPORT 10 MILES FROM PABERZE DME

LYBFT, REPORT PASSING 210 RADIAL VILNIUS VOR

If it is desirable to speed up traffic sequence, to solve potential conflict situation or on pilot request Radar ATC may give instruction to shorten flight path (shortcut). Shortcuts shall be considered as part of vectoring procedure if pilot was not cleared for instrument procedure before. Radar ATC may shortcut pilot to go to final and clear them for ILS approach, or Radar ATC may shortcut pilot to go to IAF and clear them for approach. Radar ATC shall not shortcut pilot to intermediate point of approach if it can cause misunderstandings about where to fly after passing this intermediate point.

To avoid misunderstandings and increase the load of the pilot, Radar ATC should give shortcuts only to radio navigation stations and fixes which are part of the cleared STAR or instrumental approach procedure routes.

LYBFT, PROCEED DIRECT BILDI

LYBFT, PROCEED DIRECT VI312

In case it's necessary to direct the aircraft along a trajectory that cannot be determined by the direction to radio navigation station or fix, radar vectors shall be used.

Radar ATC shall issue safe flight levels (altitudes) to IFR traffic in airspaces class C and D.

When Radar ATC issues safe flight levels (altitudes) Radar ATC shall consider MRVA, or MSA, or MORA depending on which minimum altitude is used in such conditions.

ATC shall consider that when pilot receives STAR clearance and instrumental approach procedure clearance, pilot activates a given route in the flight management system (FMS) and subsequent flight is performed in automatic mode.

If during a flight in an automatic mode Radar ATC gives instructions that cancel the conditions of the STAR or instrumental approach procedure (for example, turn to the some heading for separation), the further flight will be performed manually, and the pilot will expect ATC instructions to resume own navigation (shortcut to fix or radio navigation station) or radar vectors.

In case the pilot requests shortcuts to points that are not in the STAR or instrumental approach procedure (“request direct to base”), or the pilot requests to fly via non-authorized procedure (“request approach on own navigation”), and it becomes apparent that the pilot is not aware of the procedures used, ATC should begin radar vectors procedure, or give instruction to continue flight via cleared procedures.

STARs and instrumental approach procedures are designed to allow pilot to perform own navigation during these flight segments. Often, as a result, STARs and instrumental approach procedures do not provide the shortest flight route. If STARs and instrumental approach procedures do not provide the shortest flight route, Radar ATC should use radar vectors to the final approach segment (Final).

Radar vectors using surveillance systems may be started anytime during flight via STAR or instrumental approach procedure. Radar vectors may be used before STAR, if it is coordinated with corresponding Center ATC.

ATC may inform the pilot about distance to touchdown considering expected flight path:

LYBFT, DISTANCE (or POSITION) 25 TRACK MILES FROM TOUCHDOWN

3.3. Radar vectors to the final approach segment

ATC shall give approach clearance before the pilot reports about the aircraft is on final, excluding situations, when air situation is not good to give such clearance.

When radar vectors to the final approach segment system is being used, Radar ATC should issue instructions to the pilot to report on final.

LYBFT, TURN LEFT HEADING 035, [REPORT ESTABLISHED ON THE LOCALIZER]

Radar vectors shall be terminated when the aircraft is on the last issued heading to enter the final approach trajectory.

Radar ATC shall provide separation between aircraft on the final approach segment, excluding Tower ATC area of responsibility.

Tower ATC shall have information about traffic sequence, any limitations, and restrictions, that are issued to arriving traffic (maintain own separation, speed restrictions etc.). This information may be provided using Euroscope or voice channel.

The pilot shall be informed before or at the beginning of the radar vectors about approach type and runway-in-use.

Radar ATC shall inform the pilot about the aircraft’s position at least once before aircraft is on final. Radar ATC shall use airfield or radio navigation station, from which distance is measured.

LYBFT, DISTANCE (or POSITION) 20 TRACK MILES FROM TOUCHDOWN

Radar ATC shall issue heading or heading change sequence that is calculated to bring the aircraft to final segment of ILS, LOC, NDB, VOR or RNP RNAV approach. The last issued heading shall allow the pilot to enter the final segment with an angle not greater than 45 degrees.

To reduce load on the pilot, Radar ATC should give headings that bring aircraft not closer than 2 nm from final beginning with an angle not greater than 30 degrees.

When ILS CAT II or ILS CAT III are used, Radar ATC should give headings that bring aircraft not closer than 3 nm from final beginning with an angle not greater than 20 degrees.

These instructions may be issued when radar vectors are used:

- Maintain present heading:

LYBFT, CONTINUE PRESENT HEADING

- To fly heading less than 10 degrees from present heading:

LYBFT, FLY HEADING 170

- To turn left/right to specific heading:

LYBFT, TURN LEFT HEADING 330

- To turn left/right by specific number of degrees:

LYBFT, TURN LEFT 30 DEGREES

Radar ATC shall inform pilot when a heading crossing the final approach segment (e.g., localizer) is issued.

LYBFT, TURN LEFT HEADING 330, TAKING YOU THROUGH LOCALIZER RUNWAY 01

Traffic handoff to Tower ATC should be done at such a time that the pilot can get landing clearance or other instructions on time. When aircraft is on final approach segment (even under Tower ATC), Radar ATC continues to monitor flight trajectory using surveillance systems.

3.4. Visual approach

A visual approach may be performed regardless of the time of day.

Visual approach clearance may be issued if the following conditions are true:

- Pilot reports that the runway, runway lights, or airfield are in sight.
- Cloud base is greater or equal to initial approach altitude, MSA if applicable, or MRVA when radars vectors are used, or at the any part of instrumental approach the pilot reports that meteorological conditions are suitable for visual approach and landing.

LYBFT, CLEARED VISUAL APPROACH RUNWAY 01

Radar ATC may refuse the visual approach request due to air situation, separation needed or other sequencing purposes.

Visual approach clearance may be issued on the pilot request or on Radar ATC initiative.

If visual approach procedure was proposed by the Radar ATC, Radar ATC shall get the pilot's confirmation that pilot is ready to perform the visual approach. Then a visual approach clearance may be issued.

Radar vectors may be used to get aircraft to position, where the pilot reports that runway is in sight, or other traffic that is performing approach is in sight. After such a report, radar vectors service shall be terminated.

Before issuing the visual approach clearance, such procedure shall be coordinated with the Tower ATC.

Radar ATC shall ensure separation between aircraft that is performing visual approach and other aircraft according to separation minimums used.

When aircraft (REAR) that is performing visual approach is following other traffic (FORWARD), separation shall be provided until REAR aircraft reports visual contact with FORWARD aircraft. Then Radar ATC should give instructions to follow FORWARD traffic and maintain own separation.

Traffic handoff to Tower ATC should be done at such a time that the pilot can get traffic information, landing clearance or other instructions on time.

4. Radar Service – Common procedures

4.1. Vertical speed control

To improve safety and improve sequencing vertical speed adjustments instructions may be used. Common case is to use specific vertical speeds for two climbing/descending aircraft or to maintain separation between aircraft.

Correction of the vertical speed should be limited to the values necessary to establish and/or maintain the desired separation minimum. Radar ATC should avoid issuing instructions that involve multiple changes in the rate of climb or descend.

The pilot may report that they are unable to maintain issued vertical speed. In such case Radar ATC shall use other separation methods (radar vectors, for example) immediately.

Instructions to increase, reduce, maintain specific vertical speed, increase/reduce vertical speed related to the current vertical speed may be issued.

LYBFT, INCREASE RATE OF CLIMB

LYBFT, DECREASE RATE OF DESCEND TO ONE THOUSAND FEET PER MINUTE

LYBFT, MAINTAIN PRESENT RATE OF CLIMB

The pilot shall be informed when vertical speed restrictions are no longer applied.

LYBFT, NO VERTICAL SPEED RESTRICTIONS

4.2. Horizontal speed control

To improve safety and improve sequencing horizontal speed adjustments instructions may be used. Pilots should be informed about the planned speed control (speed control application over a long period of time can adversely affect the fuel flow).

Horizontal speed restrictions shall not be used for aircraft holding or entering holding zones.

Correction of the horizontal speed shall be limited to the values necessary to establish and/or maintain the desired separation minimum. Radar ATC should avoid issuing instructions that involve multiple speed changes, including alternating increase or decrease of speed instructions.

The pilot may report that they are unable to maintain issued horizontal speed. In such case Radar ATC shall use other separation method (radar vectors, for example) immediately.

At or over the FL 250 speed values used should be multiples of 0.01 Mach number. At levels less than FL 250 speed values used should be multiples of 10 Knots.

To establish the needed interval when aircraft (REAR) follows other aircraft (FORWARD), Radar ATC firstly should reduce speed of the REAR aircraft, or increase speed of the FORWARD aircraft and then correct other aircraft speeds.

To establish intervals for separation specific values of speed should be used.

LYBFT, INCREASE SPEED TO 220 KNOTS

LYBFT, MAINTAIN 250 KNOTS

For arriving aircraft instructions to maintain non-specific maximum speed, maintain minimum clean speed, maintain minimum speed may be used.

LYBFT, MAINTAIN MAXIMUM APPROACH SPEED

LYBFT, REDUCE TO MINIMUM CLEAN SPEED

LYBFT, REDUCE TO MINIMUM APPROACH SPEED

Reducing speed below 250 knots for jet-powered aircraft during initial descent from cruising level should be applied only with concurrence of the pilot.

Radar ATC should avoid simultaneously issue instruction to maintain high vertical speed and reduced horizontal speed because such maneuvers are normally not compatible.

Arriving aircraft usually does not extend flaps and gears as long as it possible while aircraft is in descend or in the initial approach phase. Extended flaps and/or gears lead aircraft to consume more fuel, than under clean profile conditions. Arriving aircraft should be permitted to operate in a clean configuration for as long as possible. Below FL 150 speed restrictions for jet-powered aircraft to not less than 220 knots IAS, which is normally be very close to the minimum speed of jet-powered aircraft in a clean configuration, may be used.

For arriving aircraft in the approach phases Radar ATC should use speed corrections not exceedingly plus/minus 20 knots.

Horizontal speed control should not be applied to aircraft after passing a point 4 nm from the threshold of final approach.

Radar ATC should not use speed restrictions for aircraft performing ILS CAT II or ILS CAT III approaches that are within 20 miles from touchdown.

The pilot shall be informed when horizontal speed restrictions are no longer applied.

LYBFT, NO SPEED RESTRICTIONS

4.3. Special cases

If aircraft went around (due to missed approach), Radar ATC shall:

- Identify this aircraft using surveillance radar.
- Issue instruction to climb altitude/level not below MSA/MRVA (depends on which option is applicable).
- Confirm missed approach procedure or start vectoring aircraft to approach.

While the aircraft is on the cruise level, and some delay for arriving aircraft is needed (for sequencing, for example) Radar ATC may issue instruction to reduce speed.

While the aircraft is in the arrival or the approach phases, Radar ATC may issue instructions to proceed to Holding as published.

PROCEED TO INSOL, DESCEND FL120, HOLD AS PUBLISHED, EXPECT APPROACH CLEARANCE AT 1055

If other than published holding procedure is needed, Radar ATC may issue instruction to hold at specific point. In such case Radar ATC shall specify:

- Holding point (radio navigation station, fix) or radial and distance from VOR/DME.
- Altitude or flight level.
- Inbound track.
- Direction of turns (left- or right-hand).
- Leg time or distance, if needed.

In both cases ATC must specify the time when the next clearance will be given.

PROCEED TO BILDI, DESCEND FL120, HOLD INBOUND TRACK 170 DEGREES, LEFT HAND PATTERN, OUTBOUND TIME 3 MINUTES, EXPECT FURTHER CLEARANCE AT 1052

The arriving aircraft pilot may request a circling approach. In this case:

- If the pilot requested to perform circling approach, Radar ATC shall coordinate such action with the Tower.
- Landing clearance shall be given only after completing the instrumental approach procedure.

LYBFT, CLEARED ILS APPROACH RUNWAY 19 FOLLOWED BY CIRCLING TO RUNWAY 01

Radar ATC may specify point at which aircraft will establish some flight level:

LYBFT, DESCEND TO ALTITUDE 3000 FEET TO BE LEVELED ON VI312

When Radar ATC issues instruction to descend below Transition Level, QNH shall be specified. Transition Level shall be specified if pilot did not confirm receiving ATIS information:

LYBFT, DESCEND TO ALTITUDE 4000 FEET, [TRANSITION LEVEL 65], QNH 1001

Radar ATC shall specify the purpose of radar vectoring, excluding the case, when the single heading is issued to turn aircraft to final followed by approach clearance:

LYBFT, VECTORING FOR ILS APPROACH RUNWAY 01

LYBFT, TURN RIGHT HEADING 350 FOR SEPARATION

LYBFT, TURN RIGHT HEADING 350, CLEARED ILS APPROACH RUNWAY 34

Radar ATC should not control out or vertical and horizontal limits of controlled zone. Radar ATC shall not demand the pilot to contact them outside of the controlled zone (by using contact-me or other methods like private chat). When upper position (EYVL_CTR or EYVL_E_CTR) is online, traffic hand-off flight level shall be coordinated.

Outside the controlled zone ATC may clear arrival, descend, climb, or issue any other instructions only by pilot request. In this case Radar ATC shall be responsible for separating this aircraft from other aircraft, even if it is not under the control of that Radar ATC.

In airports Continuous Descent Approach procedures may be used. FL/Altitude restrictions at waypoints of RNAV 1 STAR do not constitute authorization to descend to the FL/Altitude specified. Radar ATC shall issue explicit clearance:

To fly STAR as published by using Continuous Descent Approach (a “descend via” clearance is an instruction to the pilot to descend in a manner that complies with the published lateral flight path, FL/Altitudes, and speeds):

LYBFT, DESCEND VIA NEDAM 2A ARRIVAL

- to fly STAR when FL/Altitude assignments are issued by ATC:

LYBFT, CLEARED VIA NEDAM 2A ARRIVAL, DESCEND TO FL 100

4.4. Heavy (overwhelming) traffic situations

To improve sequencing between arriving traffic, specific speed restrictions may be used:

- On the downwind leg – 220 knots.
- On the base leg – 200 knots.
- On the final – 160-180 knots.

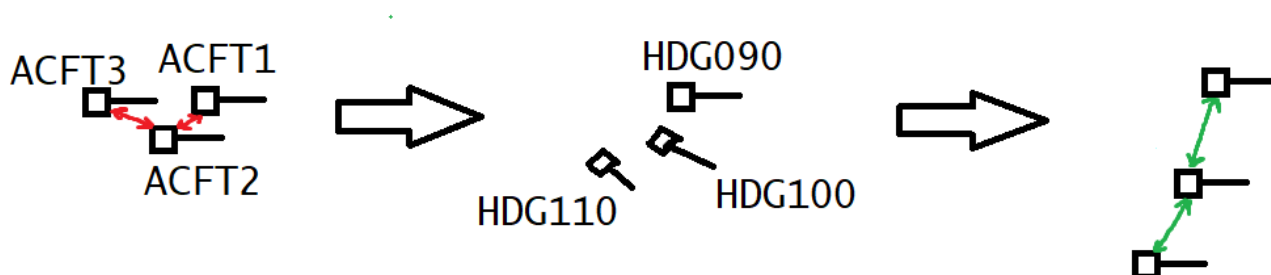
This principle is mostly used for approach/departure operations. For transit or near top-of-descend positioned traffic speed control in Mach numbers may be a more viable solution.

To speed up and improve sequencing on final, these instructions may be used:

LYBFT, CLEARED ILS APPROACH, MAINTAIN SPEED 160 KNOTS UNTIL 4 MILES FROM TOUCHDOWN

LYBFT, CLEARED ILS APPROACH, MAINTAIN SPEED 180 KNOTS UNTIL 6 MILES FROM TOUCHDOWN

When there is no horizontal separation between 2 or more aircraft, but they must descend somehow, Radar ATC may use a procedure called “fan division” or “fanning”. Issue the first aircraft some heading, for second aircraft – give heading + 10 degrees. For third aircraft – heading + 20 and so on. Then give instructions to descend once needed side separation acquired. After that give instructions to fly the same heading for all aircraft.



Example how it works. Red arrows mean no separation. Green arrows – separation is correct.

There is a traffic separation principle called "ASH" meaning Altitude-Speed-Heading. First, separate traffic by giving altitudes, second use speed control and as a last resort use vectors. Although radar vectors are the most effective and the quickest way to handle traffic, vectoring a lot of aircraft simultaneously will lead to worse problems. Note, that airspace and procedures were designed to handle specific capacity of airport.

As one of ways to handle big traffic numbers, Radar ATC may use Holding Patterns. Pilots normally plan at least 30 minutes for holding procedures, but not all of pilots over VATSIM plan fuel in that way. Radar ATC may use all available altitudes at the same holding pattern.