CLEARANCE – INSTRUCTION – READ BACK

1. Introduction

An ATC clearance or an instruction constitutes authority for an aircraft to proceed only in so far as known air traffic is concerned and is based solely on the need to safely expedite and separate air traffic.

Traffic includes aircraft on the air, aircraft on the manoeuvring area and vehicular traffic and other obstructions not permanently installed on the manoeuvring area.

ATC = Air traffic controller.

2. Scope

Clearances are issued solely for expending and separating air traffic and are based on known traffic conditions which affect safety in aircraft operation.

Pilots are required to comply with ATC clearances and instructions and accepted by them.
ATC clearances issuance constitutes authority for an aircraft to proceed.

But ATC clearances do not constitute authority to violate any applicable regulations for promoting the safety of flight operations or for any other purpose.
ATC clearances shall never authorize a pilot-in-command to perform any violation of applicable rules and regulations, and to go outside the normal aircraft flight domain.

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

Everyone shall conduct transmissions in a normal conversational tone using standard phraseology as prescribed in relevant documents or procedures.

3. Clearances and instructions

3.1.   Definition

Air Traffic Control CLEARANCE: A clearance is an authorization that allows a pilot to do something.
Air Traffic Control INSTRUCTION: An instruction is an action to be executed without delay.

There is a difference between an ATC clearance and an ATC instruction:
- A **clearance** uses the term "**cleared**"
- An instruction will use an action verb in the imperative mood.

Examples of action verbs in the imperative mood:
Taxi, stop, follow, descend, climb, turn, reduce, expedite, maintain…

You may omit words such as "this is", "over", and other similar terms from radio transmissions provided there is no likelihood of misunderstanding.

There are other types of messages which are not clearances and instructions:
- ATC advises an expect-approach-clearance time, delay, traffic information
- ATC suggests any advice to aircraft
- ATC requests any information from an aircraft.

When the controllers use the term "expect" in communication, this is never a clearance or instruction. It's information (or advice).

With the term "expect", the pilot shall not proceed as if it were a clearance or instruction, but prepare his aircraft for this future instruction.

Example:
SAU2455, expect ILS approach runway 35.

Here, the pilot shall locate the ILS runway 35 approach chart and start his preparation for this approach. This communication shall not clear the pilot to the ILS approach runway 35. Pilot must hold at the last point of the previous clearance and not continue on the procedure given.

3.1.1. Clearance list

The clearances which allow a pilot to do something are:
- Landing clearance
- Take-off clearance
- Initial departure clearance
- Final approach clearance
- Oceanic clearance

ATC
DEHBA, cleared for take-off runway 01
DEHBA, cleared to land runway 33
DEHBA, cleared to Berlin, ATALO3N departure, FL110, Squawk 1000
DEHBA, cleared ILS approach runway 14R

3.1.2. Instruction

Here are examples of instructions to be executed without delay by the pilot after receiving it:

ATC
DEHBA, taxi holding point runway 01
DEHBA, cross runway 25
DEHBA, maintain position taxi Alpha
DEHBA, line-up runway 17
DEHBA, backtrack runway 12
DEHBA, climb 3000ft
DEHBA, descent FL210
DEHBA, turn heading 240
DEHBA, route direct BEBIX

3.2.　　Format

Clearance shall contain positive and concise data and shall be phrased in a standard manner using phraseology.

ATC shall issue clearance items, as appropriate, in the following order:
1) Prefix.
2) Aircraft identification.
3) Clearance limit.
4) SID.
5) Route.
6) Altitude.
7) Mach-number.
8) Departure, en route, approach, or holding instructions.
9) Special instructions or information.
10) Traffic information.

3.3.　　Clearance limit

A clearance limit shall be described by specifying the name of the appropriate significant point.

At least 5 minutes before an aircraft reaches its clearance limit, issue:
- A further clearance;
- An approach clearance
- A holding clearance.

If a clearance is not received, the aircraft is expected to hold in a published holding pattern or if there is no published pattern, a standard pattern on the inbound track to the clearance limit and to request further clearance or an approach clearance.

A late clearance may cause an aircraft to overshoot the holding fix.

When the destination aerodrome is outside controlled airspace, the ATC unit responsible for the last controlled airspace shall issue the appropriate clearance for the flight to the limit of that controlled airspace.

3.4.   Horizontal speed control instruction

In order to facilitate a safe an orderly flow of traffic, aircraft may be instructed to adjust speed in a specified manner.

Speed control shall not be applied to aircraft entering or establishing in a holding pattern
Speed adjustment should be limited to those necessary to establish and/or maintain a desired separation minimum or spacing.

Instruction involving frequent change of speed should be avoided.

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.

At levels at or above FL250 (7600m), speed adjustments should be expressed in multiples of 0.01 Mach.
At levels below FL250 (7600m), speed adjustments should be expressed in multiples of 10kt (20km/h) based on the indicated airspeed.

NOTE: Mach 0.01 equals approximately 6kt or 11km/h IAS at higher flight levels.

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

An arriving aircraft may be instructed to maintain its maximum speed, its minimum clean speed, its 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 (without deployment of lift augmentation devices speed brakes or landing gear.

Arriving aircraft should be permitted to operate in a clean configuration for as long as possible.
Below 15000ft, FL150 or 4550m, speed reductions for a turboject aircraft shall not be less than 220Kt or 410 km/h IAS.

Only minor speed adjustments not exceeding ±20kt or±40km/h IAS should be used for aircraft on intermediate and final approach.

Speed control should not be applied to aircraft after passing a point 4NM or 7km from the threshold on final approach.

NOTE: The flight crew has a requirement to fly a stabilized approach typically by 3NM or 5km from the threshold

3.5. Vertical speed control instruction

In order to facilitate a safe an orderly flow of traffic, aircraft may be instructed to adjust rate of climb or rate of descent in a specified manner.

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.

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

The flight crew shall inform the ATC unit concerned if at any time they are unable to comply with a specific rate of climb or rate of descent. In such cases, the controller shall apply an alternative method to achieve the desired spacing between the aircraft concerned.

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

3.6. Route of flight

You may use the phrase "via flight planned route" provided:
- the previously filed route has not been changed
- the aircraft will be radar-monitored until past the first compulsory reporting point.

You may instruct an aircraft to follow a specified track or heading for a specified time, to a location, or to an altitude, provided the instruction does not prevent the aircraft from clearing all obstructions and terrain in accordance with the specified minimum.

Example:
PROCEED VIA/REMAIN ON (specified radial or course) UNTIL (time or location).
CLIMB/DESCEND TO (altitude) ON (specified radial or course).

You should inform a high-performance aircraft if you anticipate that it may be required to hold en route or during descent.

An ATC unit can issue, with the holding clearance, an expected approach clearance time, expected further clearance time, or the time to depart the fix, and revise it as necessary:

Example:
EXPECT APPROACH CLEARANCE AT (time); EXPECT FURTHER CLEARANCE AT (time); DEPART (fix) AT (time).

3.7. Approach clearance

An ATC unit shall specify in an approach clearance the published name of the approach as it appears in the AIP, and the route to be flown if adherence to a particular procedure is required.

Use the prefix "RNAV" in radio communications concerning RNAV(GPS) approaches.

3.8. Aircraft subject to ATC for part of flight

In IVAO, any aircraft can be subject to ATC for part of flight. This is common situation.

When an aircraft is uncontrolled in the airspace currently flown, and the aircraft will enter in airspace subject to ATC, the aircraft shall be advised to obtain its clearance from the ATC unit in whose area controlled flight will be commenced.

When an aircraft is subject to ATC in the airspace currently flown, and the aircraft will enter in an uncontrolled airspace, the aircraft shall normally be cleared to the point at which the controlled flight terminates.

4. Rules

1.1. Rules to know as a controller

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

ATC units shall issue clearances and instructions that ensure an aircraft will remain within controlled airspace unless the aircraft requests otherwise.

ATC units shall issue clearances and instructions with the least possible delay.

ATC units shall identify and correct any error made during the transmission of a clearance or instruction. ATC units shall cancel and restate the clearance in full if there is any possibility of misunderstanding (readback).

You may issue a clearance amending a previous clearance:

Example:
CDN92, CLEARED TO THE WINNIPEG AIRPORT VIA PRINCETON, J504 LUMSDEN, REMAINDER OF ROUTE UNCHANGED;

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

4.1.   Rules to know as a pilot

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.

ATC clearance does not constitute authorisation to violate the applicable regulations for promoting the safety of flight operation or for any other purpose.

When a flight will be partially uncontrolled, aircraft shall be advised to obtain its clearance from the ATC unit in whose area controlled the flight will be commenced.

What can I do if, as a pilot-in-command, I do not receive any further clearance?

If a clearance is not received, the aircraft is expected to hold in a published holding pattern or if there is no published pattern, a standard pattern on the inbound track to the clearance limit and to request further clearance or an approach clearance.

What can I do if, as a pilot-in-command, I cannot contact the air traffic controller?

If communication cannot be established with ATC, the aircraft is then expected to proceed in accordance with communication failure rules and procedures.

IVAO Specific rule: If a pilot cannot make contact with ATC by voice, he **shall immediately try** to establish communication by text on its frequency or using a private message if the pilot thinks the frequency is wrong or is corrupted.

4.2.   Rule linked with TCAS resolution advisory (TA/RA)

An aircraft can deviate from an ATC clearance or instruction when an ACAS/TCAS or a GPWS/TAWS resolution advisory manoeuvre occurs.
Aircraft crew that manoeuvre as a result of an ACAS/ TCAS or GPWS/TAWS RA and which may affect an ATC clearance will notify controllers when beginning the manoeuvre or as soon as workload permits.

When the ACAS/TCAS or GPWS/TAWS RA has been resolved, the aircraft crew must advise ATC they are returning to their previously assigned clearance or subsequent amended clearance.

Become aware that an aircraft has deviated from an ATC clearance or instruction as a result of an ACAS/TCAS or GPWS/TAWS resolution advisory manoeuvre.

Do not assume that other aircraft in the vicinity of an aircraft that is responding to an RA instruction are aware of its intended manoeuvres unless you are advised by them that they are also responding to an ACAS/ TCAS or GPWS/TAWS RA.

Continue to provide control instruction, safety alerts, and traffic advisories as appropriate to such aircraft.

An ATC unit shall re-assume the responsibility for separation after an aircraft has responded to an ACAS/TCAS or GPWS/ TAWS RA when the aircraft informs you that:

- the manoeuvre is complete
- it has returned to its assigned altitude
- it is following an alternate clearance

If an aircraft manoeuvers outside the limits of its clearance, the controller is not responsible for separation between it and other aircraft, protected airspace for other aircraft, terrain or obstructions.

When the ACAS/TCAS or GPWS/TAWS RA has been resolved the aircraft must advise ATC they are returning to normal situation.

4.3.   Read back requirements

The flight crew shall read back to the air traffic controller safety-related parts of ATC clearance and instructions which are transmitted by voice (and by text for IVAO).
Read-back requirements have been introduced in the interest of flight safety.

The following shall <u>always</u> be read back:
- ATC route clearances
- clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway
- runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions
- transition level

ATC advice, suggestions and requests shall not be read back.
Unless requested by an ATC unit, voice read back of a data link communication message is not required.

Strict adherence to read-back procedures ensures not only that the clearance has been received correctly, but also that the clearance was transmitted as intended.

The stringency of the read-back requirement is directly related to the possible seriousness of a misunderstanding in the transmission and receipt of ATC clearances and instructions.

ATC shall <u>listen to the read back</u> to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew.
ATC shall <u>identify and correct any error</u> made during read back of a clearance or instruction.

<u>Examples of read back:</u>

Pilot ✈	ATC ☗
	☗◀ DEHBA, taxi holding point runway 01
✈◀ taxi holding point runway 01, DEHBA	

Pilot ✈	ATC ☗
	☗◀ DEHBA, squawk 4525
✈◀ 4525, DEHBA	

If an aircraft read-back of a clearance or instruction is incorrect, the controller shall transmit the word "NEGATIVE I SAY AGAIN" followed by the correct version:

Pilot ✈	ATC 🎙
	🎙◀ DEHBA, QNH 1003
✈◀ QNH **1002**, DEHBA	
	🎙◀ DEHBA, **Negative** I say again, QNH 1003
✈◀ QNH 1003, DEHBA	