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RADIOTELEPHONY COMMUNICATIONS 1

HANDBOOK

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2 RTF GENERAL OPERATING PROCEDURES

Pilots and air traffic controllers communicate by using the radiotelephony phraseology that consists of a set of standardized words and phrases approved for the radiotelephony communications by ICAO in all routine aircraft situations. The communication is made possible due to their common and work-related topics, especially because the situations they find themselves in are highly predictable. Even if misunderstandings do occur, they are rather easily dealt with since both parties engaged in the conversation know what replies to expect from each other. Problems arise in non-routine and emergency situations, when pilots and controllers have to resort to plain English because the phraseology lacks the communicative means for effective communication in unpredictable situations such as on board medical emergencies, engine problems, fuel shortage or terrorism. When both parties stick to the rules prescribed, problems in communication will rarely occur. First of all, good transmitting technique is needed.

2.1 TRANSMITTING TECHNIQUE

According to the ICAO Doc 9432 Manual of Radiotelephony the following transmitting techniques will assist in ensuring that transmitted speech is clearly and satisfactorily received:

1. Before transmitting, listen out on the frequency to be used to ensure that there will be no interference with a transmission from another station.
2. Be familiar with good microphone operating techniques.
3. Use a normal conversational tone, speak clearly and distinctly.
4. Maintain an even rate of speech not exceeding 100 words per minute. When it is known that elements of the message will be written down by recipient, speak at a slightly slower rate.
5. Maintain the speaking volume at a constant level.
6. A slight pause before and after numbers will assist in making them easier to understand.
7. Avoid using hesitation sounds such as "er".
8. Depress the transmit switch fully before speaking and do not release it until the message is completed. This will ensure that the entire message is transmitted.
9. An irritating and potentially dangerous situation in radiotelephony is a "stuck" microphone button. Operators should always ensure that the button is released after a transmission and the microphone placed in an appropriate place that will ensure that it will not inadvertently be switched on.

2.2 TRANSMISSION OF LETTERS

The phonetic words shall be used when individual letters are required to be transmitted.

Some abbreviations have become unmistakable through common usage and are transmitted without using the phonetic word for each letter e.g. ILS, QNH, QFE.

The following words are to be used when it is required to transmit individual letters.

Table 1: THE RADIOTELEPHONY SPELLING ALPHABET (ICAO, Annex 10, Chapter 5)

Letter	Word	Pronunciation	Morse code
A	Alpha	AL FAH	. _
B	Bravo	BRAH VOH	_ . . .
C	Charlie	CHAR LEE or SHAR LEE	_ . _ .
D	Delta	DELL TAH	_ . .
E	Echo	ECK OH	.
F	Foxtrot	FOKS TROT	. . _ .
G	Golf	GOLF	_ _ .
H	Hotel	HOH TELL	. . . .
I	India	IN DEE AH	. .
J	Juliet	JEW LEE ETT	. _ _ _
K	Kilo	KEY LOH	_ . _
L	Lima	LEE MAH	. _ . .
M	Mike	MIKE	_ _
N	November	NO VEM BER	_ .
O	Oscar	OSS CAR	_ _ _
P	Papa	PAH PAH	. _ _ .
Q	Quebec	KEH BECK	_ _ . _
R	Romeo	ROW ME OH	. _ .
S	Sierra	SEE AIR RAH	. . .
T	Tango	TANG GO	_
U	Uniform	YOU NEE FORM or OONEE FORM	. . _
V	Victor	VIK TAH	. . . _
W	Whiskey	WISS KEY	. _ _
X	X -ray	ECKS RAY	_ . . _
Y	Yankee	YANG KEY	_ . . _
Z	Zulu	ZOO LOO	_ _ . .

The underlined syllables are to be emphasised when being pronounced.

2.3 TRANSMISSION OF NUMBERS

All numbers except whole hundreds, whole thousands and combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit separately.

Whole hundreds and whole thousands shall be transmitted by pronouncing each digit in the number of hundreds or thousands followed by the word HUNDRED or TOUSAND as appropriate. Combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of thousand followed by the word TOUSAND and the number of hundreds followed by the word HUNDRED.

The following examples illustrate the application of this procedure:

Table 2: Pronunciation of numbers

Numeral	**Pronounced as:**
0	ZERO
1	WUN
2	TOO
3	TREE
4	FOWER
5	FIFE
6	SIX
7	SEVEN
8	AIT
9	NINER
Hundred	HUN DRED
Thousand	TOU SAND
Decimal	DAY SEE MAL
Point	POINT

Table 3: Examples of pronunciation of numbers

Number	**Pronounced as:**
10	WUN ZE-RO
75	SEV-en FIFE
100	WUN HUN-dred
583	FIFE AIT TREE
2500	TOO TOU-SAND FIFE HUN-dred
5000	FIFE TOU-SAND
11000	WUN WUN TOU-SAND
18900	WUN AIT TOU-SAND NIN-er HUN-dred
25000	TOO FIFE TOU-SAND
38143	TREE AIT WUN FOW-er TREE

Numbers containing a decimal point shall be transmitted with the decimal point in appropriate sequence being indicated by the word DECIMAL (in case of frequencies) or POINT (in all other cases).

a) indicated by the word DECIMAL

   e.g. 124,725 - one two fower decimal seven two five

b) pronounced point in all situations except for frequencies

   e.g. distance 11.5 miles - distance one one point fife miles

Table 4: Reporting Mach number

CTN123, report Mach number	
	CTN123, 0.75 (point seven fife)
CTN123, reduce to 0.72 (point seven two).	

When the frequency of an aeronautical station is an intermediate 25 kHz the full figure will comprise 6 digits:
124,725 - ONE TWO FOWER DECIMAL SEVEN TWO FIFE

Table 5: Pronunciation of numbers containing decimal point

Number	**Transmitted as:**
0,72 Mach	MACH POINT SEVEN TWO
1,2 Mach	MACH ONE POINT TWO
25,5 NM	TWO FIFE POINT FIFE MILES
120.375	ONE TWO ZERO DECIMAL THREE SEVEN FIVE
118.000	ONE ONE EIGHT DECIMAL ZERO
118.005	ONE ONE EIGHT DECIMAL ZERO ZERO FIVE
118.050	ONE ONE EIGHT DECIMAL ZERO FIVE ZERO
118.125	ONE ONE EIGHT DECIMAL ONE TWO FIVE
118.150	ONE ONE EIGHT DECIMAL ONE FIVE ZERO
118,300	ONE ONE EIGHT DECIMAL TREE

2.4 EXCEPTIONS TO NUMBERS

Excepted from these above mentioned regulations are:

1. azimuth in terms of 12 o'clock in passing traffic information in radar environment shall be transmitted as "ten", "eleven" or "twelve" o'clock (e.g. "CTN 662, traffic information, traffic is at 12 o'clock, 6 miles, passing left to right, B737, FL 350")
2. course, heading, track, radial, flight level, speed (e.g. heading 300 – "tree zero zero")
3. QNH (1000)
4. squawk (7500)
5. instruction to fly a 360° turn, (e.g. "Make a tree sixty turn to the left.")
6. instruction to make a U-turn on ground, (e.g. "Make one eighty turn".)
7. visibility over 10 (ten) km.

VERIFICATION OF NUMBERS

When necessary to verify the accurate reception of numbers, the person transmitting the message shall request the person receiving the message to read back the numbers.

2.5 TRANSMISSION OF TIME

All time references should be made in Co-ordinated universal time (UTC). This used to be called Greenwich Mean Time (GMT). This time zone is sometimes referred to as Zulu (Z). Time is always in the 24 hour clock. 2400 is midnight and 0001 begins the new day.

When transmitting time, only the minutes of the hour are normally required, each figure being pronounced separately.

However, if there is any possibility of confusion or if crossing the hour, the full four-figure group will be spoken. Correct time, expected approach time (EAT and revised EAT) and SLOT time are to be spoken in hours and minutes (in four figures). EAT and SLOT are to be read back always.

Apart from UTC (Co-ordinated universal time), estimated times of arrival may sometimes be given as local time.

Table 6: Transmission of time

Time	Statement
0920	TWO ZERO or
	ZERO NINER TWO ZERO
EAT 1015	EAT ONE ZERO ONE FIFE
CORRECT TIME 2010	CORRECT TIME TWO ZERO ONE ZERO
1300	WUN TREE ZE-RO ZE-RO
2057	TOO ZE-RO FIFE SEV-en

Pilot may check the time with the appropriate ATS unit. Time check shall be given to the nearest half minute.

Table 7: Time check

	CTN 654, REQUEST TIME CHECK
CTN 654, TIME 0611	
CTN 654, TIME 0715 AND A HALF	

2.6 CALL SIGNS

ICAO, Annex 10, Chapter 5 distinguishes two types of call signs. Call signs can be considered as names used in aviation to indentify aircraft stations and aeronautical stations which are in fact stations on the ground.

2.6.1 AERONAUTICAL STATIONS

Aeronautical stations are identified by the name of the location followed by a suffix denoting unit or the type of service provided.

Table 8: Aeronautical station call signs

Unit or service	***Call sign suffix***
Area control centre	CONTROL
Radar (in general)	RADAR
Approach control	APPROACH
Approach control radar arrivals	ARRIVAL
Approach control radar departures	DEPARTURE
Aerodrome control	TOWER
Surface movement control	GROUND
Clearance delivery	DELIVERY
Precision approach radar	PRECISION
Direction finding station	HOMER
Flight information service	INFORMATION
Apron control	APRON
Company dispatch	DISPATCH
Aeronautical station	RADIO

When satisfactory communication has been established, and provided that it will not be confusing, the name of the location or the call sign suffix may be omitted.

2.6.2 CALL SIGNS – AIRCRAFT

An aircraft call sign shall be one of the following types:

a) the characters corresponding to the registration marking of the aircraft; *G-ABCD or Cessna G-ABCD*. (The name of the aircraft manufacturer or name of aircraft model may be used as a radiotelephony prefix);

b) the telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft; *Speedbird DCAB*;

c) the telephony designator of the aircraft operating agency, followed by the flight identification. *CTN 662*.

Full radiotelephony call signs shall always be used when establishing communication (initial call).
After satisfactory communication has been established, and provided that no confusion is likely to occur, aircraft call sign may be abbreviated as follows:

a) the first and at least the last two characters G-CD *or* of the aircraft registration; *Cessna G-CD*;

b) the telephony designator of the aircraft operating agency followed by at least the last two characters of the aircraft registration; *Speedbird AB*;

c) No abbreviated form; *CTN 662*.

Table 9: Aircraft call signs

TYPE	FULL CALL SIGN	ABBREVIATED CALL SIGN
TYPE A	CESSNA FABCD N 57826	CESSNA CD N26
TYPE B	VARIG PVMA	VARIG MA
TYPE C	SCANDINAVIAN 937	SCANDINAVIAN 937

An aircraft shall not change its type of call sign or alter its call sign during flight except when there is a likelihood that confusion may occur because of similar call sign. Then, an aircraft may be instructed by an air traffic control unit to change the type of its call sign temporarily:

a) instruction to change its type of call sign:
   CHANGE YOUR CALL SIGN TO (new call sign) [UNTIL FURTHER ADVISED];
b) instruction to an aircraft to revert to the call sign indicated in the flight plan:
   REVERT TO FLIGHT PLAN CALL SIGN (call sign) [AT (significant point)].

An aircraft shall use its abbreviated call sign only after it has been addressed in this manner by the aeronautical station.

Aircraft in the heavy wake turbulence category shall include the word "HEAVY" immediately after the aircraft call sign in the initial contact between such aircraft and ATS units.

2.7 CATEGORIES OF MESSAGES AND ORDER OF PRIORITY

According to ICAO, Annex 10, Chapter 5 all the communication between pilots and air traffic controllers can be categorised into 6 categories of messages depending on the priority of information being transmitted. Croatian regulations (AIC A03/08) distinguishes the 7th type, called state telegram:

1. DISTRESS CALLS, DISTRESS MESSAGES, AND DISTRESS TRAFFIC (poruka nevolje) - A condition of being threatened by serious and /or imminent danger and of requiring immediate assistance (MAYDAY – radiotelephony signal)
2. URGENCY MESSAGES, including messages preceded by the medical transports signal – (poruka hitnosti) - A condition concerning the safety of an aircraft but does not require immediate assistance (PAN,PAN or PAN, PAN MEDICAL – radiotelephony signal)

- Medical transport – “any means of transportation by land, water, or air, whether military or civilian, permanent or temporary, assigned exclusively to medical transportation and under the control of a competent authority of a Party to the conflict”

3. DIRECTION FINDING MESSAGE/COMMUNICATION RELATING TO DIRECTION FINDING (poruke radiogoniometrijskog smjera) - VDF using Q codes, radar vectors
4. FLIGHT SAFETY MESSAGES (poruke o sigurnosti leta)

   - movement and control messages

   - messages originated by an aircraft operating agency or by an aircraft, of immediate concern to an aircraft in flight;

   - meteorological advice of immediate concern to an aircraft in flight or about to depart (individually communicated or for broadcast);

   - other messages concerning aircraft in flight or about to depart.
5. METEOROLOGICAL MESSAGES (meteorološka poruka) - reports, forecasts, warnings); comprise meteorological information to or from aircraft.
6. FLIGHT REGULARITY MESSAGES (letačko operativna poruka)

   - messages regarding the operation or maintenance of facilities essential for the safety or regularity of aircraft operation;

   - messages concerning the servicing of aircraft;

   - instructions to aircraft operating agency representatives concerning changes in requirements for passengers and crew caused by unavoidable deviations from normal operating schedules.

   - messages concerning non routine landings to be made by the aircraft;

   - messages concerning aircraft parts or materials urgently required;

   - messages concerning changes in aircraft operating schedules.
7. STATE TELEGRAM – (državni telegram – in Croatia)

3 ESTABLISHMENT AND CONTINUATION OF COMMUNICATION

In radiotelephony communications it is considered that the communication has been established after the station being called has answered the call being made by the station calling. After the initial call only the aircraft call sign shall be used and the aeronautical station call sign is omitted since there can be many aircraft under jurisdiction of the same aeronautical station and communicating with it during a certain time.

3.1 INITIAL CALL

Initial call is the call usually initiated by the pilot and it consists of the pilot's message and the controller's reply. When establishing RT communications, if the pilot initiates it, s/he shall use the full call sign of aeronautical station and the full aircraft call sign. The contact is established when the called station replies using full call sign of the station calling and the station being called. Each message shall include:

1. A CALL (THE STATION CALLED AND THE STATION CALLING)
2. A CONTENT

Table 10: Initial call

ATC	**PILOT**
	ZAGREB TOWER, 9ADDC, request start up
9ADDC, ZAGREB TOWER, start up approved.	
	PULA TOWER, ------ 345
STATION CALLING PULA TOWER, SAY AGAIN YOUR CALL SIGN.	
	PULA TOWER, CTN 345
	All stations, CTN 622 request assistance for Split, relay the message (no call sign was heard).
Station calling Zagreb Tower, say again the call sign	

After the initial call, only the aircraft call sign is to be used. When a station is called, but it is not certain what the identification of the station calling is, the calling station should be requested to repeat its call sign until identification is established.

3.2 MULTIPLE CALL

Stations in the aeronautical mobile service may simultaneously call several stations. Stations called in multiple call shall acknowledge receipt of the message in the sequence used by the calling station.

3.3 GENERAL CALL

When an aeronautical station broadcasts information to all stations on the same frequency, the message should be prefaced by “all stations” and end with the word “OUT”. Aircraft (pilot) shall not attempt to acknowledge the receipt of the general call message.

Table 11: General call

ALL STATIONS, ZAGREB TOWER, ANTI-HAIL ACTIVITY SOUTH OF THE AERODROME COMPLEDTED. OUT.	

3.4 ACKNOWLEDGEMENT OF MESSAGE RECEIPT

Acknowledgement of the receipt of aircraft/aeronautical station message is made by transmission of the aircraft call sign and the word ROGER may be added.

4 STANDARD WORDS AND PHRASES

According to ICAO, Annex 10, Chapter 5 the following phrases and their meanings are to be used in standard communication between the pilots and air traffic controllers. Phrases written in *Italics* are still to be found in Croatian regulations (AIC A03/08) but have been excluded from the ICAO documents.

Table 12: Standard words and phrases

ACKNOWLEDGE	Let me know that you received and understood this message.
ADVISE (HR)	Tell us/Inform us on/of/about...
AFFIRM	Yes.
AIRBORNE (HR)	The time the flight has started after the take-off phase.
APPROVED	Permission for proposed action granted.
BREAK	I hereby indicate the separation between portions of the message. (To be used where there is no clear distinction between the text and other portions of the message.)
BREAK BREAK	I hereby indicate the separation between messages transmitted to different addressees in a very busy environment.
CANCEL	Annul the previously transmitted clearance.
CAUTION (HR)	Beware of the following conditions or situations.
CHECK	Examine a system or procedure. (No answer is normally expected.)
CLEARED	Authorized to proceed under the conditions specified.
CLIMB (HR)	Climb to maintain (to level out).
COMPLY (HR)	Act in compliance with a request or instruction.
CONFIRM	I request verification of: (clearance, instruction, action, information).
CONTACT	Establish communications with ...
CORRECT	True or accurate.
CORRECTION	An error has been made in this transmission (or message indicated). The correct version is...
CROSS (HR)	Fly/taxi across. Pass from one side to the other side of...
DEPART (HR)	Leave.
DEPARTURE (HR)	Take-off, departing.
DESCEND (HR)	Descend to maintain (to level out).
DISREGARD	Ignore.
ESTIMATE (HR)	Calculate/make approximate calculation.
EXPEDITE (HR)	Speed up, increase speed/rate.
HOLD (HR)	Keep in place or condition.
HOLD SHORT (HR)	Keep at a distance/keep away of/ stop before reaching the specified location…
HOW DO YOU READ	What is the readability of my transmission?
IMMEDIATEL(LY) (HR)	At once, without delay due immanent risk/hazard

I SAY AGAIN	I repeat for clarity or emphasis.
LEAVE (HR)	Depart, abandon, go away from.
LOOK OUT (FOR) (HR)	View over, survey inspection (watch out for immanent risk/hazard.)
MAINTAIN	Continue in accordance with the condition(s) specified or in its literal sense, e.g. Maintain VFR.
MONITOR	Listen out on (frequency).
NEGATIVE	No/Permission not granted/That is not correct/Not capable.
OUT	This exchange of transmission is ended and no response is expected. (Not normally used in VHF communications)
OVER	My transmission is ended and I expect a response from you. (Not normally used in VHF communications)
READ (HR)	Hear and understand
READ BACK	Repeat all, or the specified part of this message back to me exactly as received.
RECLEARED	A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof.
REPORT	Pass me the following information...
REQUEST	I should like to know/I wish to obtain...
REVISION (HR)	Reconsidered or corrected version/calculation of time.
ROGER	I have received all of your last transmission.
SAY AGAIN	Repeat all, or the following part of your last transmission.
SLOW DOWN (HR)	Reduce your speed
SPEAK SLOWER	Reduce your rate of speech.
SQUAWK (HR)	Set the mode/code as instructed.
STANDBY	Wait and I will call you.
UNABLE	I cannot comply with your request, instruction or clearance. (normally followed by a reason)
VERIFY (HR)	Check and confirm with originator.
WILCO	I understand your message and will comply with it.
WORDS TWICE	a) As a request: Communication is difficult. Please send every word, or group of words, twice. b) As information: Since communication is difficult, every word, or group of words, in this message will be sent twice.

Manual or Radiotelephony distinguishes ATC clearance from ATC instruction.

Air traffic control clearance (ODOBRENJE) is an authorization for an aircraft to proceed under conditions specified by an air traffic control unit. (*For convenience, the term "air traffic control clearance" is frequently abbreviated to "clearance" when used in appropriate contexts. The abbreviated term "clearance" may be prefixed by the words "taxi", "take-off", "departure", "en-route", "approach" or "landing" to indicate the particular portion of flight to which the air traffic control clearance relates).*

Air traffic control instruction. (UPUTA) Directives issued by air traffic control for the purpose of requiring a pilot to take a specific action.

5 READ BACK REQUIREMENTS

Important instructions issued by the ATCO need to be repeated by the pilots so that it is made certain that the pilot has heard the message correctly. The ATCO will acknowledge the correct read-back by transmitting the aircraft call sign and the phrase “CORRECT”.

The following instructions are to be read back, i.e. are to be transmitted by verbatim repetition using the same words and the same sequence and are to be concluded with the aircraft call sign.

1. **LEVEL INSTRUCTIONS**

   C: CTN 320, descend to 3000ft.

   C: CTN 320, after passing ZAG descend to FL 210.

2. **SPEED INSTRUCTIONS**

   C: CTN 663, maintain present speed.

   C: CTN 663, increase speed to 220 kt.

3. **HEADING INSTRUCTIONS**

   C: 9A DDA, turn right heading 150.

   C: CTN 663, fly present heading.

4. **SSR OPERATING INSTRUCTIONS**

   C: 9A CBE, squawk 6502.

   C: CTN 320, confirm squawk 5505.

5. **ATS ROUTE CLEARANCES**

   C: CTN 663, cleared to Zagreb via flight planned route, FL 190, CRE 2D, squawk 7065.

   C: AUA 644, Zagreb Radar, identified, cleared to PIS, descend to 9 000 ft, QNH 1010, TL 95, expect ILS approach RWY 05.

6. **ALTIMETER SETTINGS**

   C: 9A BPW, QNH 1003.

7. **VDF INFORMATION**

   C: 9ADDA, transmit for DF. P: 9ADDA, transmitting for DF 1,2,3,4,5.

   C: 9ADDA, fly QDM 045. P: Flying QDM 045, 9ADDA.

8. **FREQUENCY CHANGES**

   C: 9A DDA, contact Zagreb Tower 118,3.

   C: 9ADDA, monitor 135,8.

9. **APPROACH CLEARANCES (EAT - ESPECTED APPROACH TIME inclusive)**

   C: CTN 505, EAT 1010

10. **ATIS CODE LETTER AND DATA**

    C: 9ADDA, check information C.

11. **TAXI INSTRUCTIONS**

    C: 9AHGD taxi to holding point RWY 23, wind 220/16.

12. **TRANSITION LEVEL**

    C: CTN 663, descend to 6000 ft, QNH 1013, transition level 70

13. **POSITION UPON THE TERMINATION OF RADAR VECTORING OR RADAR SERVICE**

    C: CTN 642, radar service terminated, position 25 NM to CRE, on track 192 degrees, resume own navigation to Pula.

14. **SLOT TIME**

    C: CTN 622, slot time 0805.

15. **CONDITIONAL CLEARNACES**

    C: CTN 663, after passing KOPRY, climb to FL 290.

16. **RUNWAY DESIGNATOR AND CLEARANCES TO:**

a) **ENTER**

   C: CTN 662, cleared to enter RWY 31.

b) **LAND ON**

   C: CTN 662, cleared to land RWY 05, wind 050 degrees, 4 kn.

c) **TAKE OFF**

   C: CTN 662, cleared for take off, wind 230 degrees, 5 kn.

d) **REJECT TAKE OFF**

   C: CTN 662, stop immediately, CTN 662, stop immediately, aircraft crossing the RWY.

   C: CTN 662, hold position, cancel, I say again, cancel take off clearance, vehicle on the RWY.

e) **CROSS**

   C: CTN 662, cleared to cross RWY 05.

f) **BACKTRACK**

   C: CTN 662, cleared to backtrack RWY 09.

g) **LINE UP**

   C: CTN 662, line up RWY 05.

h) **HOLD SHORT OF AN ACTIVE RUNWAY**

   C: CTN 662, hold short of RWY 05.

(INCLUDING THE CONDITION OF A CODITIONAL CLEARANCE)

6 TEST PROCEDURES - RADIO CHECK AND READABILITY SCALE

When radio checks are made, the following readability scale is to be used to indicate the quality of the transmission:

Table 13: Readability scale

Quality	**Scale**
Unreadable	1
Readable now and then	2
Readable but with difficulty	3
Readable	4
Perfectly readable	5

Test transmissions should consist of the following items:

1. the identification of the aeronautical station being called
2. the aircraft identification
3. the words "RADIO CHECK"
4. the frequency being used

Replies to test transmissions should be as follows:

1. the identification of the station calling
2. the identification of the station replying
3. information regarding the readability of transmission

Table 14: Radio check procedure

9A DAS, Zagreb Tower, reading you five	Zagreb Tower, 9A DAS, radio check 118,3 (box 1)
9A HBD, Zagreb Tower, reading you three, with a loud background whistle.	
9A HBD, Zagreb Tower, you are unreadable	

NOTE. - The readability of a transmission should be classified by the number (Table 13), together with any other information regarding the transmission which may be useful to the station making the test.

Exercise 1: Work in pairs. Produce examples of radio check using the following prompts:

ZAGREB TOWER CTN 692 118.275	SPLIT TOWER CTN 622 124.725	DUBROVNIK TOWER MAH 492 120.005
ZAGREB TOWER DLH 392 119.005	ZAGREB TOWER CTN 125 123.250	ZAGREB TOWER THY 226 118.350
PULA TOWER BAW 407 117.255	ZAGREB TOWER SAS 257 121.010	ZAGREB TOWER JAL 658 119.500
ZAGREB TOWER OAL523 121.225	ZAGREB TOWER MYT 546 118.025	ZAGREB TOWER TSO 453 119.150

7 Q CODES

The Q code is a standardized collection of three-letter message encodings, all starting with the letter "Q", initially developed for commercial radiotelegraph communication, and later adopted by other radio services, especially amateur radio. Although Q codes were created when radio used Morse code exclusively, they continued to be employed after the introduction of voice transmissions. To avoid confusion, transmitter call signs have often been limited to restrict ones starting with "Q" or having an embedded three-letter Q sequence. The codes in the range QAA-QNZ are reserved for aeronautical use; QOA-QOZ for maritime use, and QRA-QUZ for all services.

Q codes were used extensively in aviation when much of the communication work (especially HF-long range) was done in Morse code. QNH was quicker to “key-in” than A.L.T.I.M.E.T.E.R. S.E.T.T.I.N.G S.E.A. L.E.V.E.L. P.R.E.S.S.U.R.E.

Today some Q-codes are still widely used because they are useful abbreviations. They are spoken in plain English, not phonetically.

(adapted from Wikipedia)

Table 15: Altimeter setting

Q CODE	**MEANING**
QFE	Atmospheric pressure at aerodrome elevation (or at RWY threshold)
QFU	Magnetic orientation of runway
QGH	Controlled descent through cloud
QNE	Standard pressure (1013.25 hPa) baseline pressure setting equivalent to the ISA at sea level
QNH	Altimeter sub-scale setting to obtain altitude above mean sea level (elevation when on the ground)

Table 16: Direction finding

Q CODE	**MEANING**
QDM	Magnetic direction TO a facility/ Magnetic heading (with nil wind)
QDR	Magnetic bearing (radial) FROM a facility
QTE	True bearing FROM a facility (station)
QUJ	True bearing TO a facility (station)

8 METEOROLOGICAL INFORMATION

Meteorological information in the form of reports, forecasts or warnings is made available to pilots using aeronautical mobile service either by broadcast (e.g. VOLMET) or by means of specific transmissions from ground personnel to pilots. Standard meteorological abbreviations and terms should be used and the information should be transmitted slowly and enunciated clearly in order that the recipient may record such data as are necessary. The following forms should be used:

a) WIND (number) DEGREES (number) (units)

b) WIND AT (height/altitude/flight level) (number) DEGREES (number) (units)

c) VISIBILITY (distance) [direction]

d) PRESENT WEATHER (details)

e) CLOUD (amount, [type] and height of base) (or SKY CLEAR)

f) CAVOK

g) TEMPERATURE [MINUS] (number) (and/or DEW POINT [MINUS] (number))

h) QNH (or QFE) (number) [units]

i) MODERATE (or TURBULENCE) [IN CLOUD] (area)

j) REPORT FLIGHT CONDITIONS

9A-DDA, ZADAR PRESENT WEATHER: WIND 360 DEGREES, 5 KNOTS, VISIBILITY 10 KILOMETRES, FEW AT 2500 FEET, QNH 1008	
	QNH 1008, 9A-DDA
9A-DDA, CORRECT	
CTN 662, ZAGREB: WIND 360 DEGREES, 25 KNOTS, VISIBILITY 1000 METRES, CONTINUOUS MODERATE RAIN, OVERCAST 600 FEET, QNH 1001	
	QNH 1001, WHAT IS THE TEMPERATURE, CTN 662
CTN 662, CORRECT, TEMPERATURE 7	
	CTN 662

8.1 WAKE VORTEX SEPARATION

Wake turbulence is turbulence that forms behind an aircraft as it passes through the air. This turbulence includes various components, the most important of which are wingtip vortices and jetwash. Jetwash refers simply to the rapidly moving gasses expelled from a jet engine; it is extremely turbulent, but of short duration. Wingtip vortices, on the other hand, are much more stable and can remain in the air for up to two minutes after the passage of an aircraft. Wingtip vortices make up the primary and most dangerous component of wake turbulence.

Wake turbulence is especially hazardous during the landing and take-off phases of flight, for three reasons. The first is that during take-off and landing, aircraft operate at low speeds and high angle of attack. This flight attitude maximizes the formation of dangerous wingtip vortices. Secondly, takeoff and landing are the times when a plane is operating closest to its stall speed and to the ground - meaning there is little margin for recovery in the event of encountering another aircraft's wake turbulence. Thirdly, these phases of flight put aircraft closest together and along the same flight path, maximizing the chance of encountering the phenomenon.

ICAO mandates separation minima based upon wake vortex categories that are, in turn, based upon the Maximum Take Off Mass (MTOM) of the aircraft.

These minima are categorized as follows:

Light - MTOM of 7,000 kilograms or less;

Medium - MTOM of greater than 7,000 kilograms, but less than 136,000 kilograms;

Heavy - MTOM of 136,000 kilograms or greater.

8.2 BRAKING ACTION

Braking action in aviation is a description of how easily an aircraft can stop after landing on a runway. Either pilots or airport management can report the braking action.

When reporting braking action, any of the following terms may be used:

Good

Medium (Medium used to be known as Fair)

Poor

Nil - bad or no braking action, not measured, (in SNOTAM NIL refers to the deposits over total runway length= clear and dry)

Table 17: Friction measurements on each third of Runway and friction measuring device (from SNOTAM)

MEASURED OR CALCULATED COEFICIENT	ESTIMATED SURFACE FRICTION	
040 and above	Good	5
0.39 to 0.36	Medium/good	4
0.35 to 0.30	Medium	3
0.29 to 0.26	Medium/poor	2

0.29 and below	Poor	1
9 - unreliable	Unreliable	9

8.3 ESSENTIAL INFORAMTION ON AERODROME CONDITIONS

Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft, which refers to the movement area or any facilities usually associated with it. For example, construction work on a taxi strip not connected to the runway-in-use would not be essential information to any aircraft except one that might be taxied in the vicinity of the construction work. If all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

1. construction or maintenance work on or immediately adjacent to the movement area
2. rough or broken surfaces on a RWY, TWY or apron whether marked or not
3. snow, slush or ice on a RWY, TWY or apron
4. water on RWY, TWY or apron
5. snow banks or drifts adjacent to RWY, TWY or apron
6. other temporary hazards including parked A/C and birds on the ground or in the air
7. failure of irregular operation of a part or all of the aerodrome lighting system
8. any other pertinent information

8.4 AMOUNT OF WATER ON THE RUNWAY

The runway conditions are very important for the aircraft landing and taking off from a certain airport. The controller shall inform the pilot of the amount of water on the runway whenever possible. The terminology used is the following:

DAMP – the surface shows a change of colour due to moisture.

WET – the surface is soaked but there is no standing water.

WATER PATCHES – patches of standing water are visible on the runway.

FLOODED – extensive standing water is visible on the runway.

8.5 SKY COVERING IN OKTAS

Sky covering refers to the amount of sky being covered by clouds. The sky is divided into eight parts or oktas and according to the number of oktas being covered by clouds, the following expressions are used:

1) FEW – Few 1/8 – 2/8
2) SCT – Scattered 3/8 – 4/8
3) BKN – Broken 5/8 – 7/8
4) OVC – Overcast 8/8

Other terms being used in connection to cloud cover are:

SKC – sky clear (0/8)

NSC – nil significant clouds

CAVOK – clouds/ceiling, visibility and weather O.K.

8.6 WEATHER INFORMATION

Weather information should include the following information given in this order:

1) RUNWAY
2) WIND
3) QNH
4) TEMPERATURE
5) DEW POINT
6) VISIBILITY
7) CLOUDS
8) PRECIPITATION
9) CORRECT TIME

	ZAGREB TOWER, CTN662, REQUEST WEATHER INFORMATION
CTN 662, ZAGREB TOWER, DEPARTURE RWY 05, WIND 040 DEGREES, 5 KNOTS, QNH 1016, TEMPERATURE 6, DEW POINT 5, VISIBILITY 6 KM, BKN AT 1500FT, OVC AT 4000FT, LIGHT RAIN, CORRECT TIME 0611	
	DEPARTURE RWY 05, QNH 1016, CTN 662
CTN 662, CORRECT	

8.7 AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS)

To alleviate RTF loading at some busy airports, ATIS messages are broadcast to pass routine arrival/departure information on a discrete RTF frequency or on an appropriate VOR. It is a recorded message being played in a continuous loop. It is coded using the phonetic alphabet and with every change in ATIS message, the code (name) of the ATIS changes. Pilots inbound to the airports are normally required on first contact with the aerodrome ATSU to acknowledge receipt of current information by quoting the code letter of the broadcast. Pilots of outbound aircraft are not normally required to acknowledge receipt of departure ATIS except when requested on the actual ATIS broadcast.

Aerodromes possessing ATIS, the hours of ATIS operation and the frequency employed are published in the AIP.

ATIS broadcast will include the following:

1. Message identification i.e. "This is Zagreb Information Alpha".
2. Time of origin of weather report
3. Weather report
4. Runway(s) in use
5. Short term AIS information such as unserviceability of NAV AIDS, runway surfaces, etc.
6. Any other routine information useful to pilots operating at the aerodrome.

The QFE and RVR/RVRs are not included.
Rapidly changing meteorological situations sometimes make it impractical to include weather reports in the broadcast. In these circumstances, ATIS messages will indicate that weather information will be passed on RTF.

Any significant change to the content of a current ATIS message will be passed to pilots by RTF until such time as a new message is broadcast.
The highest cloud base that will be reported is 10,000 feet.

An example of ATIS broadcast:
"This is Zagreb Information Alpha, 0850 hours weather. Wind 240° 12kt 10 km, intermittent slight rain, 3 octas 1000 ft, 8 octas 1800 ft, temperature +12, dew point +7, QNH 1011 hPa, landing RWY 23."

The pilot should report "Information Alpha received" on first contact with the Tower

8.8 VOICE WEATHER BROADCAST (VOLMET)

Meteorological aerodrome reports for certain aerodromes are broadcast on specified frequencies. The call sign of the VOLMET, frequency, operating hours, aerodromes contained within the group, and contents are published in the AIP.

The content of a VOLMET broadcast is as follows:

1. aerodrome identification
2. surface wind
3. visibility
4. RVR (if applicable)
5. weather
6. cloud
7. temperature
8. dew point
9. QNH
10. Trend (if applicable)

Non essential words such as "surface wind", "visibility" etc. are not spoken.
"SNOCLO" is used to indicate that aerodrome is unusable for take off/landings due to heavy snow on runway(s) or snow clearance.

All broadcasts are in English.

9 ORDER OF INSTRUCTIONS IN AERODROME CONTROL ENVIRONMENT

VFR DEPARTURES

1. INITIAL CALL + TAXI (DEPARTURE) INSTRUCTIONS
2. ATC CLEARANCE
3. TAKE OFF CLEARANCE
4. AIRBORNE AND/OR POSITION REPORT
5. FREQUENCY CHANGE

VFR ARRIVALS

1. INITIAL CALL + POSITION REPORT
2. JOINING INSTRUCTIONS
3. JOINING TRAFFIC CIRCUIT
4. LANDING CLEARANCE (LOW PASS/LOW APPROACH/ TOUCH AND GO CLR.)
5. INSTRUCTION TO VACATE THE RUNWAY (OR INSTRUCTION WHAT TO DO AFTER LOW PASS/LOW APPROACH/ TOUCH AND GO)

IFR DEPARTURES

1. INITIAL CALL + DEPARTURE INFORMATION
2. START UP CLEARANCE
3. TAXI INSTRUCTIONS
4. ATC CLEARANCE
5. TAKE OFF CLEARANCE
6. AIRBORNE
7. FREQUENCY CHANGE

IFR ARRIVALS

1. INITIAL CALL + POSITION REPORT
2. REPORT OUTER MARKER
3. LANDING CLEARANCE
4. INSTRUCTION TO VACATE THE RUNWAY

9.1 DEPARTURE INFORMATION

At the airports with no ATIS, departing aircraft will ask for departure information upon first contact with the tower air traffic controller.

	CS, CS, (IFR/VFR TO <u>DESTINATION</u>), REQUEST DEPARTURE INFORMATION
CS, CS, DEPARTURE RUNWAY, WIND, QNH, TEMPERATURE, DEW POINT, RVR, (VISIBILITY), DEPARTURE SLOT, CORRECT TIME	

Zagreb Tower

	ZAGREB TOWER, CTN 622, IFR TO SPLIT, REQUEST DEPARTURE INFORMATION
CTN 662, ZAGREB TOWER, DEPARTURE RWY 05, WIND 040 DEGREES 5 KNOTS, QNH1018, TEMPERATURE 6, DEW POINT 5, VISIBILITY 6 KM, DEPARTURE SLOT 0705, CORRECT TIME 0611.	
	DEPARTURE RWY 05, QNH 1018, SLOT 0705, CTN662
CTN662, CORRECT	

Zagreb Tower

	Zagreb Tower, 9AHGD, request departure information
9AHGD, Zagreb Tower, (good morning), departure RWY 23, wind 220º/16kt, QNH 1005, temperature 21, dew point 9, (correct) time 1015	
	RWY23, QNH 1005, 9AHGD
9AHGD, correct	

Zadar Tower

	Zadar Tower, 9AHGD, request departure information
9AHGD, Zadar Tower, departure RWY 32, wind 300º/16kt, QNH 1001, temperature 2, dew point 3, RVR 800m, time 0715	
	RWY 32, QNH 1001, 9AHGD
9AHGD, correct	

Pula Tower

	Pula Tower, 9AZVJ, request departure information
9AZVJ, Pula Tower, departure RWY 09, wind 060º/10kt, QNH 999, temp. 25/4, correct time 1645.	
	RWY09, QNH 999, 9AZVJ
9AZVJ, correct	

Exercises 2: Work in pairs. Using the given data produce the pilot/controller communication on departure information.

1. 09, 090/8, 1018, 15/4, 1010
2. 23, 280/15, 998, 24/3, 1600
3. 36, 310/10, 1010, 15/2, 0911
4. 09, 100/20, 1014, 18/3, 0926

9.2 ENGINE STARTING PROCEDURES

Engine starting procedures also known as start up clearance are procedures when a pilot asks the controller for the permission to start the engines. It is being done to save fuel in case there are delays at the aerodrome and the aircraft is not allowed to depart immediately. In case the pilot has not requested departure information before start-up, departure runway and QNH are to be given to the pilot together with the start-up clearance. If the pilot has received departure information just before start-up request, QNH does not have to be given to the pilot together with the start-up clearance unless it changed in the meantime.

1.

	9AHGD, request start up
9AHGD, unable to approve start up (reason) OR 9AHGD, negative start up (reason)	
	9AHGD, roger

2.

	9AHGD, request start up
9AHGD, expect departure at 20 start up at own discretion	
	9AHGD, roger
(9AHGD)	

3.

	9AHGD, request start up.
9AHGD, start up approved, (departure RWY 05, QNH 1012), report ready to taxi	
	Starting up, (RWY 05, QNH 1012), wilco, 9AHGD
9AHGD, correct	

4.

	9AHGD, request start up
9AHGD, your slot is 1002, start up at own discretion	
	Slot 1002, roger, 9AHGD
9AHGD, correct	

5.

	9AHGD, request start up
9AHGD, expect start up at 02, QNH 1012	
	Roger, QNH 1012, 9AHGD
9AHGD, correct	

6.

	9AHGD, request start up
9AHGD, start up at 20, QNH 1012	
	To start up at 20, QNH 1012, 9AHGD
9AHGD, correct	

Exercises 3: Work in pairs. Using the given data, produce start up clearances:

AC CALL SIGN	**QNH**	**DEP. SLOT**	**EXPECTED S/U**	**START UP TIME**
BAW 678	1008	1055		
MAH 417	1003		0654	
CTN 471	1022			1016
AZA 542	1014		1516	
AUA677	1016	2036		
ADR3S	998			
DLH2CJ	1000			2140

9.3 PUSH-BACK/POWER-BACK PROCEDURES

When an aircraft is parked nose-in to the terminal, it has to be pushed backwards by tugs or by its own power before taxiing for departure (power-back).

	BAW 234, request push back from stand 13
BAW 234, pushback approved RWY 30	
	BAW 234

	BAW 234, stand 23, request start up and push back
BAW 234, start up and push back approved runway 13	
	BAW 234, roger

	BAW 234, stand 23, request push back
BAW 234, expect 2 minutes delay, B737 taxing behind you	
	BAW 234, roger

	9A BAV, request push back
9A BAV, negative, hold position, A/C taxing behind you	
	9A BAV, roger

	9A BAV, request push back
9A BAV, pushback at own discretion runway 05	
	Roger, RWY 05, 9A BAV

Ground crew – pilot

This exchange is followed by a visual signal to the pilot to indicate that disconnection is completed and all is clear for taxiing.

	Ground-cockpit, ready for push back
Cockpit-ground, confirm brakes released	
	Brakes released
Confirm brakes set	
	Brakes set

Commencing push back	
Push back completed	
	Stop push back
	Disconnect
Disconnecting, stand by for visual at your right/left	

Towing procedures: Ground - vehicle

	Ground, tug 9, request tow Croatia Airbus 319 from maintenance hangar to stand 12
Tug 9, tow approved via Taxiway F to stand 12	
	Apron, Tug 9, request tow DLH B737 from gate 20 to gate 14
Tug 9, proceed via A, hold short of RWY 15	
	Tug 9, to proceed via A, to hold short of RWY 15
Tug 9, hold position	
	Tug 9, holding
Tug 9, stand by	

9.4 ATC CLEARANCE

ATC clearance is in fact a term often used for ATS route or en-route clearances. It is a clearance give to a pilot before departure (either during taxiing or at the holding point) which confirms the filed flight plan. The pilot should not enter the runway without having received and read back ATC clearance. ATC clearance consists of the information about destination, route, departure procedure, level and transponder code of the departing aircraft. There are slight differences between IFR and VFR ATC clearances.

9.4.1 IFR

IFR ATC clearance should consist of the following:

CS, CLEARED TO <u>destination</u> VIA FLIGHT PLANNED ROUTE, LEVEL _____, SID _____, SQUAWK _____.

IFR FLIGHT TO SPLIT

CTN662, are you ready to copy ATC clearance?	
	CTN662, ready /affirm
CTN662 cleared to Split via flight planned route, FL 130, SID MABAN 2R, squawk 7034	
	Cleared to Split via flight planned route, FL 130, SID MABAN 2R, squawk 7034, CTN662
CTN662, correct	

IFR FLIGHT TO PULA

CTN662, cleared to Pula via flight planned route, FL130, (when airborne) climb straight ahead until passing 3000ft, then turn left cleared to GOLUN, CRE, squawk 7015	
	Cleared to Pula, via flight planned route FL130, to climb straight ahead and after passing 3000ft to turn left to GOLUN, CRE next, squawk 7015, CTN662.
CTN662, correct	

9.4.2 VFR

VFR ATC clearance should consist of the following:

CS, CLEARED VFR FLIGHT TO clearance limit/point/FIR boundary, etc., WHEN AIRBORNE TURN LEFT/RIGHT, PROCEED TO (instructions), LEVEL _____, SQUAWK _____

VFR FLIGHT TO LUČKO

	9ADDA, VFR flight to Lučko, ready to copy ATC clearance
9ADDA, cleared VFR flight to Lučko, when airborne turn left, proceed to Lučko, at 1500ft, squawk 0015	
	Cleared VFR flight to Lučko, when airborne to turn left, to proceed to Lučko, at 1500ft, squawk 0015, 9ADDA
9ADDA, correct	

VFR FLIGHT TO SINJ

	9ADDA, VFR flight to Sinj, ready to copy ATC clearance
9ADDA, cleared VFR flight to Sinj, when airborne turn right, proceed to S1 point, (altitude) 3000ft, squawk 0017	
	Cleared VFR flight to Sinj, when airborne to turn right, to proceed to S1 point, 3000ft, squawk 0017, 9ADDA
9ADDA, correct	

VFR TRAINING FLIGHT

	9ADKH, for VFR zone Toplana training flight, ready to copy ATC clearance
9ADKH, cleared VFR training flight, when airborne turn left, proceed to Toplana, altitude 2500ft, squawk 0016	
	Cleared VFR training flight, when airborne to turn left, to proceed to Toplana, altitude 2500ft, squawk 0016, 9ADKH
9ADKH, correct	

VFR FLYING IN TRAFFIC CIRCUIT

	9ADKH, for aerodrome traffic circuit training flight, ready to copy ATC clearance
9ADKH, cleared left-hand traffic circuit RWY 05 training flight, when airborne turn left, join left-hand downwind RWY 05, altitude 1500 ft, squawk 0012	
	Cleared left-hand traffic circuit RWY 05 training flight, when airborne to turn left to join left-hand downwind RWY 05, altitude 1500 ft, squawk 0012, 9ADKH
9ADKH, correct	

Exercise 4: Using the information provided in flight strips produce the ATC clearances for the following aircraft:

VFR	PA18/L	0005		1500'	
		9ADPA		TGL	
	110	LDZA	LDZA		

VFR	C210/L	0015		2500'	
		9ACHD		S1	
	120		LDSS		

IFR	AT72/M	6521		FL160	
		AZA 545		MABAN2C	
	250		LIMC		

IFR	A320/M	7073		FL130	
		CTN646		TEBLI2C	
	460	1125	LDDU		

VFR	C172/L	0023		1500'	
		9ADFC		TGL	
	100	LDZA	LDZA		

VFR	C172/L	0017		3000'	
		9ADEG		E	
	100		LDOS		

VFR	C172/L	0010		3000'	
		9ADEG		N1	
	100		LDVA		

VFR	PA18/L	0015		2500'	
		9ADRB		S1	
			LDSB		

IFR	A320/M	6521		FL140	
	450	CTN510		NEDEL2C	
	450		EDDF		

IFR	AT43/M	7126		FL130	
	160	CTN623		GOLUN 2R	
	245		LDPL		

IFR	A319/M	6506		FL140	
	350	DLH450		NEDEL2C	
	460		EHAM		

IFR	A319/M	6342		FL140	
	350	MAH 485		RASIN2C	
	460		LHBP		

9.5 TAXI PROCEDURES

Taxi instructions undergo readback which means that they should be repeated exactly as received since it can greatly reduce the number of runway incursions especially at larger airports with a vast network of taxiways and runways.

IFR FLIGHT – TAXI INSTRUCTIONS

	CTN662, request taxi (instructions).
CTN662, taxi via taxiway Alpha to holding point RWY 05.	
	To taxi via taxiway Alpha to holding point RWY 05, CTN662.
CTN662, correct	

VFR FLIGHT TO LUČKO – TAXI INSTRUCTIONS

	9ADDA, general aviation apron, VFR flight to Lučko, request taxi.
9ADDA, taxi to holding point RWY05 via taxiway Bravo, wind 040º/5kt, QNH 1018, correct time 0611	
	To taxi to holding point RWY 05 via taxiway Bravo, QNH 1018, 9ADDA
9ADDA, correct	

VFR FLIGHT - TAXI INSTRUCTIONS

9ACDH, taxi via TWY B, C to holding point RWY 05, wind 070º/10kt, QNH 1009	
	To taxi via TWY B, C to holding point RWY 05, QNH 1009, 9ACDH
9ACDH, correct	

VFR FLIGHT – ZAGREB, RWY 23

	9AHGD, starting up, request taxi instructions
9AHGD taxi to holding point RWY 23, wind 220º/16kt	
	To taxi to holding point RWY 23, 9AHGD
9AHGD, correct	

	9A UWX, request taxi clearance
9A UWX, taxi via TWY A to holding point RWY 23, report approaching TWY B	
	To taxi via TWY A to holding point RWY 23, wilco, 9A UWX.
9AUWX, correct.	
	9A UWX, approaching TWY B.
9A UWX, hold position.	
	Holding (position), 9A UWX.
9AUWX, correct.	

	9AUWX, approaching TWY B
9AUWX, roger, continue taxiing	
	9AUWX, roger

9A DDC, hold short of TWY B	
	Holding short of TWY B, 9A DDC
9A DDC, correct	

	9A BAV, request TWY B
9A BAV, TWY B approved, taxi via TWY B to holding point B, RWY 23	
	To taxi via TWY B to holding point RWY 23, 9A BAV
9A BAV, correct	

9A BAV, give way to Airbus 319 passing ahead of you	
	9A BAV, giving way to Airbus 319.
9A BAV, roger	
OR	
	9A BAV, traffic/Airbus 319 in sight
9A BAV, roger	

AFTER LANDING INSTRUCTIONS TO VACATE THE RUNWAY

	CTN662, request taxi instructions

CTN662, vacate the runway via taxiway Delta, taxi via taxiway Foxtrot to the apron, report runway vacated	
	Via TWY Delta and Foxtrot to the apron, wilco, CTN662
CTN662, correct	
	CTN662, runway vacated
CTN662, roger	

CTN662, expedite vacating the runway via taxiway Delta, traffic on final RWY 05, report runway vacated	
	Expediting vacating via TWY Delta, wilco, CTN 662
CTN 662 correct	

BACKTRACKING

CTN662, backtrack RWY 05, expedite vacating the runway via taxiway Charlie, traffic on final RWY 05, report runway vacated	
	To backtrack RWY 05 and to expedite vacating the runway via taxiway Charlie, wilco, CTN662
CTN662 correct	
	CTN662, runway vacated
CTN662, roger	

	CTN 123, request backtrack RWY 11
CTN 123, backtrack RWY 11 approved	
	Backtrack RWY 11 approved, CTN 123
CTN 123, correct	

	CTN 123, request backtrack RWY 11
CTN 123, backtrack RWY 11	
	To backtrack RWY 11, CTN 123
CTN 123, correct	

VARIOUS TAXI INSTRUCTIONS:

CTN 123, expedite taxi (reason) Expediting, CTN 123.

CTN 123, caution taxi slower (reason) Slowing down, CTN 123.

CTN 123, vacate runway via taxiway A Vacating runway via taxiway A, CTN 123

CTN 123, give way to Dash 80 entering the TWY C. Giving way Dash 80 entering the TWY C, CTN 123

Take/turn first/second left/right

Taxi/turn right/left at the far end.

Taxi carefully

Follow (description of other aircraft or vehicle)

Taxi with caution

Taxi into holding bay

9.6 LINE UP

Line up is an instruction given to an aircraft to enter the runway, align with the runway centreline, do all the necessary checks and wait for take-off clearance.

	9A DDC, at holding point RWY 23 ready for departure
9A DDC, line up (and wait).	
	Lining up, 9A DDC.
9A DDC, correct	

	9A DDC, approaching holding point RWY 23
(9A DDC, are you ready for immediate departure)	
	9A DDC, ready (or affirm).
9A DDC, line up and be ready for immediate departure	
	Lining up, 9A DDC
9ADDC, correct	

MULTIPLE LINE UPS ON THE SAME RUNWAY

When multiple runway/intersection departures are given, runway number is to be uttered. Line-up instructions may be issued to more than one aircraft at different points on the same runway, taking into account that the intersection take-off criteria shall be complied with and conditions of application fulfilled according to local operating instructions.

9A DDC, line up RWY 23	
	Lining up RWY 23, 9A DDC
9ADDC, correct	

9A DDC, line up and wait RWY 23, intersection C	
	Lining up RWY 23, intersection C, 9A DDC
9ADDC, correct	

9.7 CONDITIONAL LINE-UP CLEARANCE

Conditional clearance affecting the active runways may be given only when the arriving aircraft is seen both by the controller and the pilot of the departing aircraft and after the departing aircraft has correctly identified the arriving aircraft on which the conditional clearance is based.

CTN662, traffic is Airbus 319 on final RWY 05. Report traffic in sight	
	CTN662, traffic in sight.
CTN662, roger, behind Airbus 319 line up behind	
	Behind Airbus 319 to line up behind, CTN662.
CTN662, correct	
CTN662, cleared for take off RWY 05, wind 060º/5kt	
	Cleared for take off RWY 05, CTN662.
CTN662, correct	

9.8 TAKE OFF CLEARANCE

An aircraft is not allowed do take off without the take off clearance. Take off clearance can be given to the aircraft during taxiing, at the holding point or on the line up position. It should be followed by the information on wind direction and velocity. When visibility is good, the controller will also give the aircraft airborne time.

9A DDC, cleared for take off, wind 220º/14kt	
	Cleared for take off, 9A DDC
9ADDC, correct.	
9A DDC, airborne at 23	

In poor visibility (Applicable for Low Visibility operations) the controller will ask the pilot to report airborne time.

9A DDC, cleared for take off, wind 220º/14kt, report airborne	
	Cleared for take off, wilco 9A DDC
9ADDC, correct.	
	9A DDC, airborne at 23

When there is a possibility of confusion because there is more than one runway in use, the runway designator is to be uttered together with the take-off clearance.

9A DDC, runway 05, wind 020º/14kt, cleared for take off	
	RWY 05, cleared for take off, 9A DDC
9ADDC, correct.	
	9A DDC, airborne at 23

There are situations when the pilot has been given the take off clearance and has entered the runway in use but has not commenced the take off. Then, the controller is to determine the pilot's intentions:

9A DDC, cleared for take off, wind 190º/20kt	
THE AIRCRAFT IS NOT MOVING	
9A DDC, take off immediately or vacate the RWY	
	Taking off, 9A DDC
9ADDC, correct	

9A DDC, cleared for take off, wind 190º/20kt	
THE AIRCRAFT IS NOT MOVING	
9A DDC, take off immediately or vacate the RWY	
	Vacating the RWY, 9A DDC
9ADDC, correct	

CTN662, expedite departure, approaching traffic on 2 mile final RWY 05	
	Taking off, CTN662
CTN662, correct	

CTN662, take off immediately or vacate the RWY via taxiway Bravo	
	Vacating the runway via taxiway B, CTN662
CTN662, correct	

In situations when the pilot has been given the take off clearance, but is still at the holding point and is not entering the runway in use to commence the take off, the controller is to determine the pilot's intentions:

	CTN662, holding point RWY 23, ready for departure
CTN662, cleared for take off, wind 210º/12kt.	

THE AIRCRAFT IS NOT MOVING CTN662, take off immediately or hold short of RWY.	
	Holding short, CTN662.
CTN662, correct	

	CTN662, holding point RWY 23, ready for departure.
CTN662, cleared for take off, wind 210º/12kt. THE AIRCRAFT IS NOT MOVING. CTN662, take off immediately or hold short of RWY.	
	Taking off, CTN662.
CTN662, correct	

9A DDC, hold short of RWY.	
	Holding short, 9A DDC.
9A DDC, correct	

9.8.1 CANCELLATION OF TAKE-OFF CLEARANCE AT THE HOLDING POINT

The take off clearance can be cancelled on the line up position or on the runway holding point.

In situations when the pilot has been given the take-off clearance but has not yet started the take-off roll and there is some obstacle on the runway, the controller will attempt to stop the pilot/aircraft from taking off:

CTN 662, hold position, cancel take off, I say again, cancel take off clearance, vehicle on the runway	
	Holding position, CTN 662
CTN 662 correct.	

9.8.2 REJECTING THE TAKE OFF CLEARANCE DURING THE TAKE OFF RUN

In situations when the pilot has been given the take-off clearance and has started the take-off roll and there is some obstacle on the runway, the controller will attempt to stop the pilot/aircraft from taking off:

CTN 662, stop immediately, CTN 662, stop immediately.	
	Stopping, CTN662
CTN 662, correct.	

9.9 REPORTING AIRBORNE

In case the visibility is good the controller will provide the pilot with the airborne time. If the visibility is low, the controller will ask the pilot to report airborne time.

9A DDC, report airborne.	
	9A DDC, wilco
	9A DDC, airborne at 25
9A DDC, roger, contact Zagreb Radar at 118,5	
	118,5, 9A DDC
9A DDC, correct, bye	

9A DDC, cleared for take off, wind 220º/13kt,

report airborne	
	Cleared for take off, wilco, 9A DDC
9A DDC, correct	
	9A DDC, airborne at 27.
9A DDC, roger.	
9A DDC, report leaving the control zone	
	9A DDC, wilco
	9A DDC, leaving the control zone.
9A DDC, roger, contact Zagreb Radar on 118,5	
	118,5, 9A DDC

9.10 GO AROUND

A go-around is an aborted landing of an aircraft which is on final approach. If for some reason the pilot decides not to land, s/he can simply fly back up to circuit height, and complete another circuit — in other words, go around again. The term go-around is still used even for modern airliners, though they may not use traditional circuit patterns for landing. The manoeuvre is also known as a Balked Landing. The go-around procedure may be initiated either by the air traffic control or by the pilot in command of the aircraft. The controller may instruct the pilot to go around if there is an aircraft, vehicle or object on the runway or some other unsafe condition. In both controlled and uncontrolled fields, the pilot in command may decide to go around at any time, for example if the aircraft is not lined up or configured properly for a safe landing; an aircraft, vehicle or other object has not cleared the runway; no landing clearance was received (in a controlled field); the landing gear is not properly extended; a dangerous meteorological condition is experienced on final approach (e.g., poor visibility, excessive cross-winds, etc.); excessive energy (too high or too fast); or some other unsafe condition is detected. IFR flights refer to "executing the missed approach" rather than a (VFR) go around (adapted from Wikipedia).

VFR flight – go around initiated by the controller

9ADDB, go around, I say again, go around (not below 1000 ft), traffic on the RWY, report downwind	
	Going around, wilco, 9ADDB
9ADDB, correct, report downwind	
	9ADDB, wilco

IFR flight - go around initiated by the controller

CTN 622, go around and follow missed approach procedure	
	Going around to follow missed approach procedure, CTN 622.
CTN 622, correct, contact Zagreb Radar 118,275	
	118,275, CTN622
CTN 622, correct	

The pilot himself saw something on the runway or due to some other reason has decided to go around:

	9ABBC, going around
9ABBC, roger, report right-hand downwind RWY 14.	
	9ABBC, wilco

9.11 LOW APPROACH

Low approach is an approach along or parallel to a runway descending to a specified minimum level. It is some sort of a training flight when aircraft are flying along or parallel to a runway with its gear retracted intentionally.

	9A DDA, request low approach RWY 09 for training
9A DDA, cleared low approach RWY 09, wind 120º/6kt, not below 1000 feet, QNH 1009	
	Cleared low approach RWY 09, not below 1000 feet, QNH 1009, 9A DDA
9A DDA, correct, after low approach proceed to E point, climb to 3000 ft, squawk 1001	
	After low approach to proceed to E point, to climb to 3000 ft, squawk 1001, 9A DDA
9A DDA, correct	
	9ADDA, low approach completed.
9A DDA, roger, report passing 2000ft	
	9ADDA, wilco.

9.12 LOW PASS

In case of unsafe gear indication (left or right landing gear), the pilot may request to fly past the control tower or some other observation point for the purpose of visual inspection from the ground. Low pass is to be executed not below a certain level depending on the altitude of the observation point. Reasons given may be unsafe indication of the left or right landing gear.

	CTN 423, request low pass due unsafe indication of the nose wheel
CTN 423, cleared for low pass RWY 23, wind 220º/12kt not below 500 feet, QNH 1010.	
	Cleared for low pass not below 500 ft, QNH 1010, CTN 423.
CTN 423, correct, after low pass turn right, join right-hand downwind RWY 23.	
	After low pass to turn right, to join right-hand downwind RWY 23, CTN 423.

CTN 423, correct

When passing the tower the controller can provide the pilot with the following information:

CTN 423, landing gear appears up
CTN 423, nose gear appears down
CTN 423, nose gear appears jammed
CTN 423, landing gear doesn't appear up
CTN 423, landing gear doesn't appear down

9.13 TOUCH AND GO

When a pilot wishes to land and take off again immediately for training purposes, thus reducing the time spent on the ground s/he will ask for touch-and-go.

		9ADKH, on final RWY 05, for touch-and-go (training)
9ADKH, cleared for touch-and-go RWY 05, wind 060º/5kt		
		Cleared for touch-and-go RWY 05, 9ADKH
9ADKH, correct, after touch-and-go turn right, join right-hand traffic circuit RWY 05, report downwind.		
		After touch-and-go to turn right to join right-hand traffic circuit RWY 05, wilco, 9ADKH
9ADKH, after touch-and-go turn right, join right-hand downwind RWY 05	OR	
		After touch-and-go to turn right, to join right-hand downwind RWY 05, 9ADKH.
9ADKH, correct		

9.14 FULL STOP LANDING

After a number of touch-and-gos the pilot may ask for a full stop landing or in case the traffic situation does not permit another execution of touch-and-go, the controller shall issue the instruction for the full stop landing.

		9ADDA, request another touch-and-go for training.
9ADDA, unable to approve touch-and-go, make full stop landing, cleared to land, wind 050º/4kt	OR	
9ADDA, negative (due (to) traffic), make full stop landing, cleared to land, wind 050º/4kt.		
		Cleared to land for full stop, 9ADDA.
9ADDA, correct		

9.15 FLYING IN THE TRAFFIC CIRCUIT/PATTERN/ZONE

Controlled airspace is an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Airway is a control area or portion thereof established in the form of a corridor equipped with radio navigational aids. (5 NM wide from the central line to each side)

Control zone (CTR) is a controlled airspace extending upwards from the surface of the earth to a specified upper limit.

Terminal control area (TMA) is a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

At uncontrolled airports and in CTR Croatian is spoken to VFR flights, and in all other situation English is spoken, i.e. English phraseology.

ENTERING THE CONTROL ZONE – VFR

	Zagreb tower, 9ADDA, S point , 2 000 ft, request joining instructions for landing.
9ADDA, Zagreb TWR, roger, join left-hand pattern for RWY 23, wind 200º/12kt, QNH 997, report downwind.	
	To join left-hand pattern for RWY 23, QNH 997, wilco, 9ADDA.
9ADDA, correct	
	9ADDA, left-hand downwind (for) RWY 23
9ADDA, roger, you're number 1.	

9ADDA, join left-hand downwind RWY 23, wind 190º/14kt, QNH 1013.	
	To join left-hand downwind, RWY 23, QNH 1010, 9ADDA
	9ADDA, downwind RWY 23
9ADDA, roger, report turning to base	
	9ADDA, wilco. 9ADDA, turning base
9ADDA, roger, report turning final	
	9ADDA, wilco 9ADDA, turning final

Exercise 5: Produce initial calls and joining instruction for the following aircraft:

VFR TRAFFIC CIRCUIT

VFR	PA18/L	0005		LDZL 1500' 1 TGL AT LDZA 3000' S1	
		9ADPA			
	110	LDZL	LDSS		

VFR	C210/L	0009		2500' S1	
		9ADEG			
	120		LDSS		

VFR	C172/L	0006		2500' N1	
		9ADHV			
	100	LDZA	LDVA		

VFR	C172/L	0001		1500 TGL	
		9ADDA			
		LDZA	LDZA		

VFR	C150/L			2000' W	
		9ADAB			
		LDRG			

VFR	C210/L	0005		3000' E	
		9AREG			
			LDOS		

VFR		0015		2500' N	
		9ACDH		L/A	
		LDVA	LDVA		

Exercise 6: Produce complete exchange of messages (initial call, departure information, ATC clearance, take off clearance or joining instructions for the following IFR FLIGHTS

IFR	F70/M	6543		FL140	
	280	AUA 333		MACEL2C	
	380		LOWW		

IFR	A320/M	7073		FL130	
		SWR 646		PODET2C	
	460		LSZH		

IFR	A320/M	6535		FL140	
	450	BAW 450		PODET2C	
	450		EGLL		

IFR	AT43/M	7076		FL130	
	160	CTN 369		RUDIK2C	
	245		LDSP		

IFR	A319/M			ETO/PIS	
		AFR 698		1512	
	460	LFPG			

IFR	A319/M			ETO/PIS 1530	
		AZA123			
	465	LIRF			

IFR	AT72/M	6521		FL160 MABAN2C	
		AZA 545			
	250		LIMC		

9.16 DELAYING ACTIONS

For the purpose of maintaining the safe and orderly flow of traffic in the traffic circuit, the controller shall sometimes use delaying actions to separate traffic. The pilot can be asked to orbit at a certain position, to make one orbit or one 360 or to extend downwind.

MAKING 360/ AN ORBIT

When making an orbit the aircraft will lose 2 minutes. The controller needs to specify whether the orbit should be made to the left or to the right and which will depend on the position in the traffic circuit. It is preferable to make orbits away from the runway in use. Upon the completion, the pilot shall inform the controller that the orbit has been completed.

9ADDA, make a three sixty right, (report three sixty completed).	
	One three sixty right, (wilco), 9ADDA.
9ADDA, correct.	
	9ADDA, orbit completed.
9ADDA, roger, continue approach, report final.	
	9ADDA, roger, wilco.

ORBITING

The controller can ask the pilot to orbit at a certain position, which means that the aircraft will be orbiting (doing orbits, each lasting 2 minutes) until the controller asks it to stop.

9ADDA, orbit right at position left-hand downwind RWY 05.	
	To orbit right at L-H downwind RWY 05, 9ADDA.
9ADDA, stop orbiting, continue approach, report final RWY 05.	
	Stopping, to continue approach, wilco, 9ADDA.
9ADDA correct.	

9ADDA, orbit left at present position.	
	To orbit left at present position, 9ADDA.
9ADDA, correct.	

9ADDA, you are number 3 for landing, orbit over S point.	
	Number 3 for landing, to orbit over S point., 9ADDA.
9ADDA, correct.	

9ADDA, hold over S until 25.	
	To hold over S until 25, 9ADDA.
9ADDA, correct.	

EXTENDING DOWNWING

The pilot can be asked to extend downwind which means that the downwind section of the traffic circuit will be prolonged and the aircraft will turn base later than usual, thus making the final leg of the traffic circuit longer as well. The controller shall ask the pilot to turn base when the adequate separation has been established.

9ADDA extend left-hand downwind RWY 05,	
(call you back for turning to base/final)	
	Extending left-hand downwind RWY 05, (roger), 9ADDA
9ADDA, correct (expect onward instructions	
shortly)	

9.17 AERODROME CONTROL - TRAFFIC INFORMATION

Traffic information shall be passed in order to arrange sequencing, to avoid unnecessary delay and to manage safety issues evaluating time most efficiently. It shall consist of the call sign of the aircraft being addressed, and information on the traffic consisting of the aircraft type, its position and level (when known).

Traffic information on VFR traffic:

9ADML, traffic is Piper 28 from Lučko to N point at 2000 ft. (Report traffic in sight)
9A DKL, traffic is C150 just departing (from) RWY 05, proceeding to N point, climbing to 2000 ft (Report traffic in sight)
9A DKL, traffic is Cessna 172 just airborne and joining left-hand traffic circuit RWY 05
CTN 662, traffic is C 150 on left-hand downwind RWY 05 at 2000 ft

The pilot can provide the following answers to acknowledge the receipt of the traffic information:

	9ADDA, looking out. 9ADDA, traffic in sight. 9ADDA, negative contact.

Here is a combination of joining instructions and traffic information to traffic No. 2 regarding traffic No. 1:

	Zagreb TOWER, 9ADKH departed from Lučko, maintaining 1500 ft, for low approach at Zagreb (request joining instructions).
9ADKH, Zagreb Tower, RWY in use 05, wind 060/5kt, QNH 1018, join left-hand traffic circuit RWY 05, at 1500 ft, report downwind.	
	RWY 05, QNH 1018, to join left-hand traffic circuit RWY 05, at 1500 ft, wilco, 9ADKH.
9ADKH, correct.	
	9ADKH left-hand downwind RWY 05, 1500ft.
9ADKH, traffic/number one is A320 just passing OM RWY 05, report traffic in sight.	
	9ADKH, traffic in sight.
9ADKH, roger, number two, follow A320, report on final, caution wake turbulence.	
	Number two, wilco, roger, 9ADKH.
9ADKH, correct.	
	9ADKH, on final RWY 05.
9ADKH, cleared low approach RWY 05, wind 065º/7kt, not below 1000 ft, QNH 1018	
	Cleared low approach RWY 05, not below 1000 ft, QNH 1018, 9ADKH
9ADKH, correct, after low approach, turn left proceed to Lučko, climb to 1500ft, report over N point	
	Roger, after low approach to turn left to proceed to Lučko, to climb to1500 ft, wilco, 9ADKH
9ADKH correct	

9.18 JOINING INSTRUCTIONS, FINAL APPROACH AND LANDING

ARRIVING IFR TRAFFIC

	Zagreb Tower, CTN 662, ILS established RWY 05.
CTN 662, Zagreb Tower, (roger) cleared to land RWY05, wind 060/7kt.	
	Cleared to land RWY05, CTN662.
CTN662, correct.	

ON 4NM FINAL

	CTN 423, (on) final.
CTN 423, roger, do you have RWY in sight?	
	CTN 423, affirm.
CTN 423, cleared to land RWY 23, wind 190º/17k.t	
	Cleared to land RWY 23, CTN 423.
CTN 423, correct	

ARRIVING VFR TRAFFIC

	Zagreb Tower, 9ADDA, 7NM NE of the field at 1500ft, for landing.
9ADDA, Zagreb Tower, cleared for straight in approach RWY 23, wind 220º/5, QNH 1009	
	Cleared for straight in approach RWY 23, QNH 1009, 9ADDA

In case the RWY is occupied and/or landing clearance will not be issued during the first contact, the pilot on an instrument approach shall be instructed as follows:

	Zagreb Tower, CTN 662, ILS established RWY 05
CTN 662, Zagreb Tower, (roger), continue approach, report passing OM	
	Continuing approach, wilco, CTN662
	CTN662 passing OM
CTN662 cleared to land, wind 060º/7kt	
	Cleared to land, CTN662
CTN662 correct	

	Zagreb Tower, CTN 662, ILS established
CTN 662, Zagreb Tower, continue approach, report passing OM	
	Continuing approach, wilco, CTN662
	CTN662, passing OM
CTN662, continue approach, expect landing clearance shortly, (landed) aircraft still on the RWY	
	Continuing approach, roger, CTN662
CTN662 cleared to land, wind 060/7kt	
	Cleared to land, CTN662
CTN662 correct	

In case the RWY is occupied and landing clearance cannot be issued, the pilot on a visual approach shall be instructed as follows:

	Zagreb Tower, CTN 662, on final RWY05
CTN 662, Zagreb Tower, continue approach, expect landing clearance shortly, RWY occupied by landing aircraft	
	Continuing approach, roger, CTN662
CTN662, cleared to land, wind 060/7kt	
	Cleared to land, CTN662
CTN662, correct	

VFR FLIGHT

	Zagreb Tower, 9ADKH departed from Lučko to Zagreb, maintaining 1500 ft, for landing (request joining instructions).
9ADKH, Zagreb Tower, RWY in use 05, wind 060º/5kt, QNH 1018, join left-hand traffic circuit RWY 05, report downwind, at 1500ft	
	RWY 05, QNH 1018, to join left-hand downwind RWY 05, wilco, 1500ft, 9ADKH
9ADKH, correct	

When there is no other traffic or there is sufficient time before another approaching traffic:

	Zagreb Tower, 9ADKH departed from Lučko to

	Zagreb, maintaining 1500ft, for landing.
9ADKH, Zagreb Tower, join left-hand base RWY 05, wind 060º/5kt, QNH 1018.	
	To join left-hand base RWY 05, QNH 1018, 9ADKH.
9ADKH correct.	
	9ADKH on left-hand base RWY05
9ADKH roger, cleared to land RWY05, wind 060º/5kt	
	Cleared to land, 9ADKH
9ADKH correct	

Instructions to arriving traffic NDB Approach RWY 23 (Initial/intermediate fix /holding ZAG VOR)

	Zagreb Tower, CTN 662, 7 miles ZAG DME/inbound SK
CTN 662, Zagreb Tower, continue approach, report SK inbound/final RWY 23.	
	CTN662 wilco
	CTN662 passing SK
CTN662 cleared to land RWY 23 wind 200º/10kt	
	Cleared to land RWY 23, CTN662
CTN662 correct	

Instructions to arriving traffic for LZ Approach RWY 23 (Initial/intermediate fix /holding ZAG VOR)

	Zagreb Tower, CTN 662, inbound SK.
CTN 662, Zagreb Tower, roger, report SK.	
	CTN662 wilco
	CTN662, passing SK.
CTN662, roger continue approach, expect landing clearance shortly, runway still occupied	
	Continuing approach, roger, CTN662
CTN662, cleared to land RWY 23, wind 195/11 kt	
	Cleared to land RWY 23, CTN662
CTN662 correct	

Instructions for visual departure

	CTN 662 request visual departure

CTN 662, cleared to …, when airborne turn left/right, climb to 3000 ft visually, then proceed to …, climb to 6000ft.	
	Cleared to …, when airborne turn left/right, climb to 3000 ft visually, then proceed to …, climb to 6000ft, CTN 662
CTN 662, correct	

SOURCES:

1. ICAO Annex 2
2. ICAO Annex 10, volume II, Chapter 5
3. ICAO Doc 4444
4. ICAO Doc 9432 RTF Manual of Radiotelephony
5. AIC A03/08