

General Information

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WIRELESS ORGANIZATION

on the

DUEBENDORF AERODROME

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Dübendorf, October 1946

Call signal, service hours, services

Call signal of all transmitting and receiving stations is H E Z .

The regular service hours of the Dübendorf ground station are published in "Regulations" of the Federal Air Office. Requests for service have to be addressed to "Air Traffic Control" (ATC) of the Federal Air Office, ground station Dübendorf (822 28) via:

General Information

The wireless organization on the Dübendorf aerodrome has been greatly improved in recent years.

This description gives a view of the whole organization and its regulations as put in force in summer 1945. It indicates the position and character of transmitting and receiving stations, the way to request their services, bad weather instructions, a.s.o., designed for the crew of aircraft wishing to make Dübendorf aerodrome with radio navigation.

Most points are also laid down in various supplements of the FBO (Fernmeldebetriebsordnung für die Verkehrsflugsicherung) or in the RSITA (règlement du service international des télécommunications de l'aéronautique).

The wireless organization on the Dübendorf aerodrome complies with the resolutions of the international aeronautical conferences (ILK), (conférences aéronautiques internationales, CAI) and those of the Conférence des experts radiotélégraphistes de l'aéronautique (CEERA).

Radio traffic, traffic regulation and the rules for bad weather landings are fixed in accordance with the resolutions of the FBO (RSITA).

Call signal, service hours, services

Call signal of all transmitting and receiving stations is H E Z .

The regular service hours of the Dübendorf ground station are published in the "Notices to airmen" of the Federal Air Office. Requests for extraordinary service have to be addressed to "Air Traffic Control" (ATC) of the Federal Air Office, ground station Dübendorf (HEZ, ZH) via:

- Teletype (to ZH)
- Radio (traffic service, to HEZ)
- Telephone Dübendorf 93 45 00
or 93 45 55.

The "Safety Flying Organization" at Dübendorf comprises the following services: -

- A. A i r c r a f t service
- B. T r a f f i c service and m e t e o r o l o -
g i c a l radio service
- C. T e l e t y p e service
- D. K l o t e n t r a n s m i t t i n g station,

A. A I R C R A F T S E R V I C E

(See sketch, page 2a)

(Radio communications ground - aircraft and vice versa)

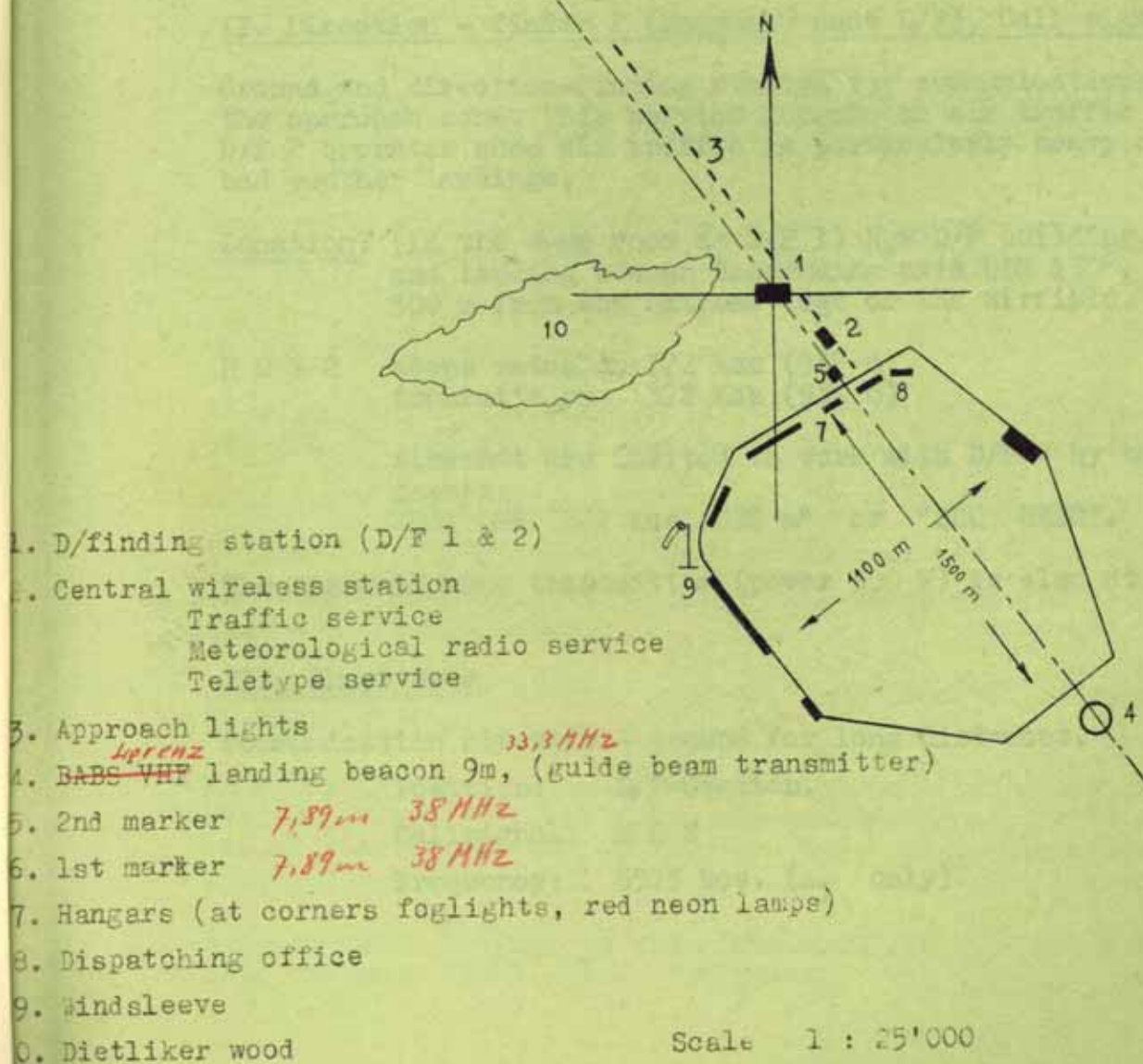
Ground Organization

- I. Direction - finder 1
- II. Direction - finder 2
- III. Short wave
- IV. Navigational radio beacon (355 Kcs, 845 m)
- V. VHF Landing beacon (Lorenz) B.A.B.S.
- VI. Approach lights
- VII. CQ - Regional weather transmissions 284 Kcs
(1056 m) and 6975 Kcs (43.01 m).

WIRELESS ORGANISATION AT HEZ

(ZUE RICH - DUEBENDORF).

7,3 kms from NW edge of airfield:
Kloten transmitting station with
Navigational (location R.R.) radio beacon
Listening sentinel for "UU".



I. Direction - finder 1 (area D/F), call signal HEZ

Ground and D/F station for communications in the Swiss area and the frontier air corridors, and for communications with other ground and D/F stations.

Location: New D/F building, on ZZ and blind landing beacon descending axis, QDM 150°, 500 m from the extreme edge of the airfield.

Geographical position (Greenwich):

8°	37'	56"	E
47°	24'	39"	N

The transmitter for the area D/F (power 1,5 KW) is at Kloten.

HEZ keeps watch on 333 Kcs (900 m)
transmits on 340 Kcs (883 m)
or 336 Kcs (893 m).

II. Direction - finder 2 (approach zone D/F), Call signal HEZ2

Ground and direction-finding station for communications in the approach zone. This service depends on air traffic needs. D/F 2 operates when air traffic is particularly heavy and for bad weather landings.

Location: (in the same room as D/F 1) New D/F building, on ZZ and landing beacon descending axis QDM 150°, 500 m from the extreme edge of the airfield.

H E Z 2 keeps watch on 322 Kcs (932 m)
transmits on 322 Kcs (932 m)

Aircraft are invited to work with D/F 2 by the groups:

"QSY QSW 322 Kcs, 932 m" or "QSO HEZ2".

The approach zone transmitter (power 300 W) is also at Kloten.

III. Short wave

Communication aircraft - ground for long distances.

Position: D/F-Station.

Callsignal: H E Z

Frequency: 6575 kcs. (A₁ only)

IV. Navigational radio beacon Zürich HEZ (location radio beacon)

On 355 Kcs (845 m), power 250 Watts. At Kloten, on ZZ and 9 m landing beacon descending axis, QDM 150° , 7,3 kms from Dübendorf aerodrome.

Geographical position (Greenwich) :

8°	34'	47"	E
47°	27'	40"	N

Indication mark: H E Z ————— long dash of 1 min ————— H E Z

Besides the regular working hours published in the "Notices to Airmen" of the Federal Air Office, operation of the Navigational radio beacon may be requested:

1. by aircraft, applying to HEZ with the group: "QFS NAV" (but "QFS ATT" to request operation of the 9 m landing beacon).
2. by groundstations, applying to the Dübendorf ground station (HEZ, ZH) by Teletype, radio or telephone (93 45 00 or 93 45 55).

Because of the vicinity of the Dübendorf aerodrome, the navigational radio beacon can be used also as a location beacon.

V. The VHF landing beacon (9 m, Lorenz)

In direction of descending axis, QTE 325° , QDM 150° , range 25 kms. For bad weather landings only use NW beam, QDM 150° .

Height for flight over 1st marker: 250 m over ground (QFE ZH)

Height for flight over 2nd marker: at least 50 m o.g. (QFE)

1st marker modulated with 700 cs, low tone, dashes, is 3 kms from NW edge of airfield.

2nd marker modulated with 1700 cs, high tone, dots, 40 m from NW edge of airfield.

When flying over the radio tower at Kloten (transmission station of HEZ, 7,3 kms from extreme edge of airfield) the aircraft receives "üü" on 322 Kcs or 340 Kcs. (see bad weather landing at HEZ)

At corners of hangars on the right and left side of descending axis one neon light. (red, foglights).

Obstructions: Between 1st and 2nd marker: wood.

Along the edge of the aerodrome (Wangenerstr.) electric transmission line 9 m high, hangars.

Aircraft can obtain operation of the 9 m landing beacon by the D/F station HEZ with the Q-group "QFS ATT" ("QFS NAV" for the navigational radio beacon).

Ground stations by applying to HEZ or ZH via teletype, radio or telephone 93 45 00 or 93 45 55.

VI. The approach lights

To facilitate landing with poor visibility the approach lights are switched on. The length of the lightchain is 1450 m and leads from the Winterthur highway to the NW end of the airfield along the bad weather descending axis. (QDM 150° and about 20 m on the left side of the beam of the VHF landing beacon). The yellow lights of sodium vapour are mounted on masts 25 m apart.

A mast with two arms and 6 tubes indicates a distance of 1000 m, another mast with one arm and three tubes marks a distance of 500 m from the edge of the airfield. When landing in bad weather and with poor visibility this enables the pilot to know his exact distance from the airfield.

The height of masts of the approach lights decreases towards the Wangenerstr. (nw edge of airfield). At the Winterthur-highway the first mast has a height of 15.20 m. The last mast near the Wangenerstr., however, is only 5 m high.

VII. CQ - Regional weather reports

Transmissions are made at H + 20
H + 40 for western Switzerland
H + 25
H + 55 for central, eastern and
southern S.

Transmissions are made on 284 Kcs (1056 m) and simultaneously on 6975 Kcs (43.01 m)

The reports are centralised by the Dübendorf wireless station (transmitters at Kloten). These broadcasts are made in accordance with the "Meteorological Service For Air Navigation" of the Swiss Central Meteorological Office at Zürich.

Organization of Aircraft service
in extraordinary circumstances

a.) Transmitter on board aircraft breaks down

Aircraft flying to Dübendorf with defective transmitter will receive from HEZ the same communications "blind" as when flying with radio. (QAM, QFE, etc.)

Moreover, the navigational radio beacon HEZ (QFS NAV) and in bad weather conditions (esp. low clouds) the 9 m landing beacon (QFS ATT) as well, is put in operation.

In respects to other air traffic, these aircraft enjoy a certain priority.

In special cases the Beromünster broadcasting station (556 Kcs, 539.6 m) is also put in operation as a navigational radio beacon.

b) Transmitter at ground station breaks down

If the area transmitter (340 Kcs, 883 m) fails the approach zone transmitter on 322 Kcs is put in service. This, however, is only done if it is impossible to put immediately in operation a spare transmitter on the same wavelength (340 Kcs).

Aircraft which fail to obtain an answer from HEZ on 340 Kcs after several calls may tune their receivers for a few moments on 322 Kcs (932 m) and listen there for an answer.

If the approach zone transmitter fails the area transmitter may - if necessary - be put in service on 322 Kcs (932 m).

B. T R A F F I C S E R V I C E a n d M E T E O R O L O G I C A L
R A D I O S E R V I C E

Connections exist with Swiss and foreign airfields and are intended for messages relating to traffic and meteorological

Traffic service

Radio connections between ground stations only. (Airfield wireless stations). Almost all connections on short waves. Continuous watch on 5656 Kcs (53.04 m).

Meteorological radio service

CQ (to all) at scheduled times according to table of regional weather reports. These reports are picked up by aircraft and by other ground stations.

For the Swiss aerodromes (connected by teletypes) the traffic service and meteorological radio service are centralised at Dübendorf (Central wireless station).

Location: Receiving section at Dübendorf (wireless station),
250 m SE of D/F station.

Geographical position (Greenwich):

8°	38'	06"	E
47°	24'	34"	N

All transmitters at Kloten 9 m Lorenz landing beacon all

Broadcasts in telegraphy at:

H + 10
H + 40 relating to western Switzerland.

H + 25
H + 55 Relating to central, southern and eastern Switzerland.

Transmissions are effected simultaneously on medium and short waves: 284 Kcs (1056 m) and 6975 Kcs (43.01 m).

The contents of these transmissions are published by the Swiss Central Meteorological Office at Zürich in "Meteorological service for air navigation".

C. TELETYPE SERVICE

Connections exist with Swiss and foreign airfields and are intended for messages relating to traffic and meteorological services.

For the Swiss aerodromes the teletype service is centralised at Dübendorf and is located in the wireless station (Central wireless station).

Connections:

Zürich-Dübendorf- Genève-Cointrin,
Zürich-Dübendorf- Basel-Blotzheim,
Zürich-Dübendorf- Meteorologische Zentralanstalt Zürich,
Zürich-Dübendorf- Osservatorio meteorologico ticinese
Locarno-Monti,
Zürich-Dübendorf- Office National météorologique Paris,
Zürich-Dübendorf- Ministère de l'air Paris (EP)
France, Belgique,
Zürich-Dübendorf- Swissair Zürich, Basel, Genève, } Fernwahl-
Zürich-Dübendorf- St.Gallen-Altenrhein, } anschlüsse
Zürich-Dübendorf- Bern-Belpmoos.

D. KLOTEN TRANSMITTING STATION

With the exception of the 9 m Lorenz landing beacon all transmitters of the ground and D/F station are situated at Kloten (Kloten transmission station).

Between Dübendorf and Kloten there are cable connections and the transmitters are operated at Dübendorf.

Geographical position (Greenwich):

8°	34'	47"	E
47°	27'	40"	N

This is 7,3 kms from Dübendorf aerodrome. The radio tower at Kloten has a height of 125 m and lies on the blind landing descending axis, QDM 150°.

At Kloten, listening sentinel for "üü" signal.

BAD WEATHER LANDING AT HEZ

(ZÜRICH - DÜBENDORF.) (sketch)

VHF landing beacon (9 m) and ZZ procedure

For both procedures the same descending axis is used.

Flight over the aerodrome at 700 m over ground (about 1150 m over SL, airfield 440 m over SL).

After QFG, steer QDR ca 335° .

Make turn at least 500 m over ground and return on blind landing descending axis.

Signal "üü"

At the Kloten radio tower (125 m high), which lies exactly on the blind landing descending axis, QDM 150° , there is a listening sentinel in continuous telephonic connection with D/F station HEZ.

At the same moment as an aircraft, steering 150° (QDM HEZ) flies over the radio tower, the sentinel informs the D/F station. (This observation for "üü" by the sentinel at Kloten is made acoustically).

The D/F station HEZ immediately transmits the received signal "üü" on 340 or 322 Kcs.

Until the signal "üü" fly at 400 m over ground, immediately afterwards descend to 250 m and remain steady until flying over the 1st marker (low tone) or until receiving "M NW" (Motor noise north west).

After the 1st marker, or after "M NW", descend to 100 m over ground.

Note: The Kloten radio tower stands about 4,3 kms from the 1st marker and 7,3 kms from the airfield.

Curtailed VHF landing beacon or ZZ procedure.

The listening sentinel at Kloten (signal "üü") greatly facilitates the execution of the curtailed VHF landing beacon or ZZ procedure.

The "entrance" of the blind landing descending axis may be reached directly with QDR bearings from Basle/FOW, that is without coming first QFG HEZ, but by flying with QDR's FOW 98° to QDM HEZ 150° (the entrance of the blind landing descending axis).

Even when coming from Stuttgart/DDT, if direction and force of winds are known, it is possible to execute this curtailed procedure and to land at Dübendorf directly. (See also: Regulation of bad weather flights between Zürich - Dübendorf and Basle - Blotzheim).

Descent through the clouds

This procedure can only be carried out on condition that:-

- a.) the surrounding hills, especially the Zürichberg, are not wrapped in low clouds, or if these hills are free of fog.
- b.) the other air navigation permits the incontestable observation (motor noise) of the flight over the airfield (QFG).
- c.) it is impossible to confuse the expected aircraft with another one (e.g. motor noise of another plane audible over the airfield at the moment of the supposed arrival of the expected aircraft).

Taking into consideration the proximity of the Lägern, Jura, prealps, etc., such a mistake could have very serious consequences if the expected plane - supposed to be over the airfield and receiving the order to descend through the clouds - is actually still farther away, perhaps just over these hills.

First flight over the airfield at 700 m over ground (QFG).

Descent through the clouds in any direction.

As a safety measure, the following procedure is especially recommended:

After having received QFG,
steer 150° , and (magnetic course)
descend through the clouds in this direction
(that is towards the Greifensee).

If the "descent through the clouds procedure" cannot be executed, it is best to descend on the blind landing descending axis and to fly over the radio tower at Kloten (listening sentinel for "üü"). Over the Kloten transmission station there is less air navigation and the "M" (motor noise) can be transmitted with certainty.

Warning signal on Dübendorf airfield when a bad weather landing is taking place

Trilateral Yellow pyramid on the mast of the windsleeve

When the base of clouds is very low, the visibility poor, and during a bad weather landing there exists any danger of collision between the aircraft descending through the cloud and other aircraft flying below the clouds, or if a bad weather landing is endangered by any other air navigation, a special warning signal is hoisted on the mast of the windsleeve. (Trilateral yellow pyramid.)

This means that every aircraft flying in the vicinity of the airfield has to land immediately and by doing so has to cross the blind landing descending axis as low as possible.

Aircraft on the ground may only start with a special permit. Any motornoise has to be avoided.

The hoisting and taking down of the warning signal are ordered by the Air Traffic Control Official. (information is given to the civil guard of the military airfield by the D/F station).

REGULATION OF BAD WEATHER FLIGHTS BETWEEN ZÜRICH-DÜBENDORF HEZ AND BASLE-BLOTZHEIM FOW (see sketch)

If between Zürich-Dübendorf and Basle-Blotzheim aircraft have to fly completely or partially blind, they must follow the air routes given below in order to avoid collision.

1. Zürich-Dübendorf to Basle-Blotzheim

Direct route, QDR HEZ 290°.

Highest elevations near this air route:

Lägern 863 m (SL)
Geissfluh 966 m (SL) (northwest of Aarau).

2. Basle-Blotzheim to Zürich-Dübendorf

Air route: Basle - Kaiserstuhl (Zweidlen) - Blind landing descending axis, QDM 150° - Kloten radio tower ("üü") - Dübendorf.

Highest elevation near this air route:

Lägern 863 m (SL)

Steer QDR FOW 98° until reaching the "entrance" of the blind landing descending axis, QDM HEZ 150°. During this procedure ask FOW for control QDR's and HEZ for control QDM's.

After having passed Bülach descend to 400 m over ground (QFE HEZ). Remain steady until the signal "üü" is received. Then proceed as when executing a normal bad weather landing.

ZUERICH - DUEBENDORF H.E.Z.

Profile of bad weather landing axis and its surroundings.

Scale 1 : 100'000

Height 10 x enlarged

B. A. B. S. : 9m

C3A

