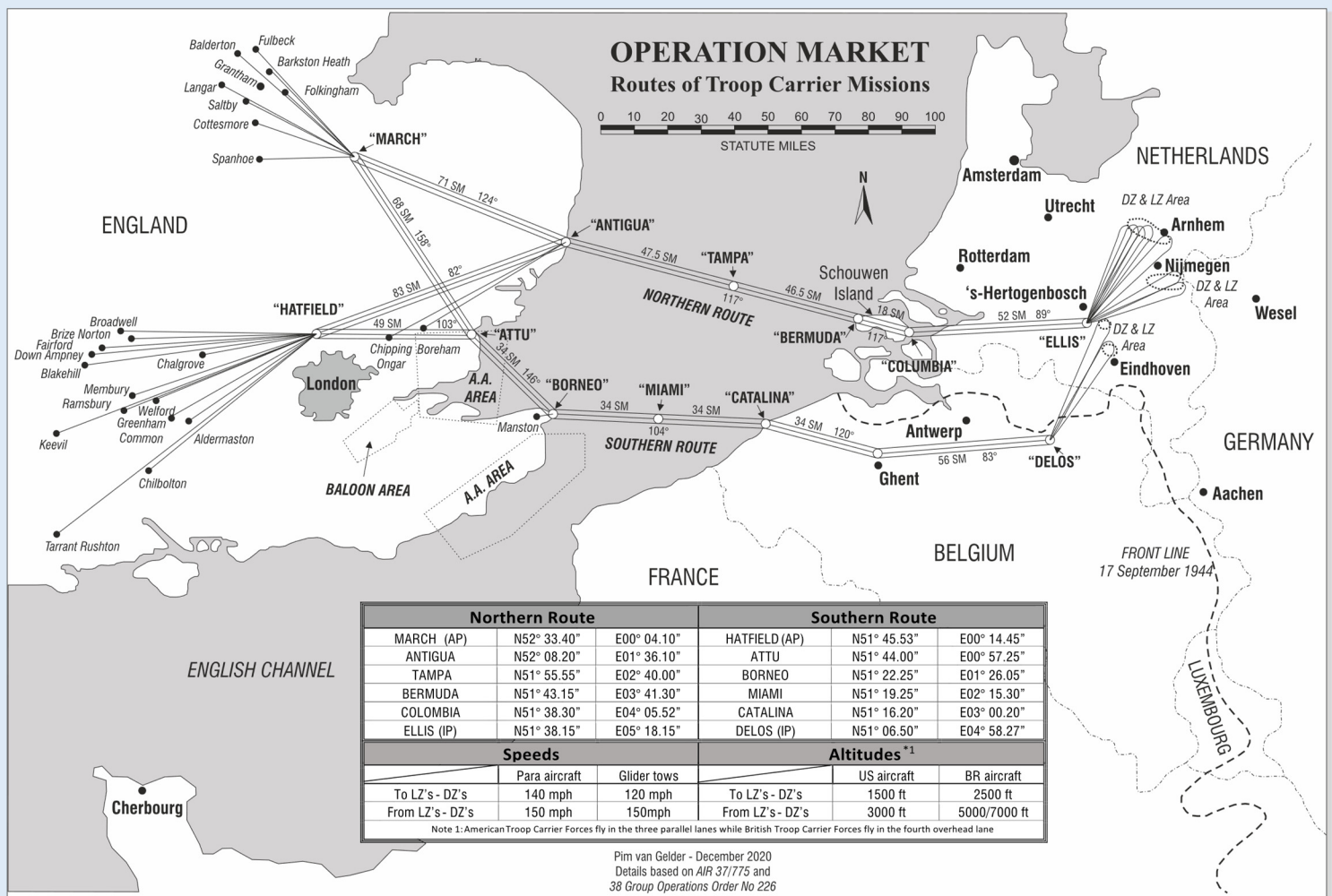


Operation Market Garden

Which time zone with which time?

Confusion around registered departure and arrival times



Pim van Gelder

27 February 2021

The issue

Publications on Operation Market Garden often mention times of specific landings, for example of parachute and/or glider landings. It is often unclear which time zone was applicable for these. For example, when it is stated that the airborne part of the operation (Market) started at 1 p.m., it is unclear whether this was according to Dutch time or, for example, according to British time. And what time zone was used by the various allied units?

All too often this clarity turns out to be lacking. It also seems that any errors or unjustified conclusions are accepted without questioning or investigation or copied from previous publications without any form of checking or verification.

An additional complicating factor is that during the war and certainly around the start of Operation Market Garden, 17 September, 1944, there was a lot going on about the time zones and the application of (added) daylight saving time.

The Time Zones

United Kingdom

The United Kingdom (UK) is in time zone *Greenwich Mean Time* (GMT), also referenced as *Universal Time Coordinated* (UTC).¹ In 1939 the UK introduced the *Defence Summer Regulations* to, with an eye on war time, save energy.² In short it meant that the time would be advanced 1 hour. This was referenced as *British Summer Time* (BST=GMT+1). During the summer period the “usual” summer time was added on top of that and then it was called *British Double Summer Time* (BDST=GMT+2). So in winter time the UK was on GMT+1 in summer time on GMT+2.³

The Netherlands and Germany

At the start of the occupation by Nazi Germany in 1940 the Netherlands were forced to use German time.⁴ Germany is in time zone “A” (*Alpha time zone*)⁵, the military definition for GMT+1. During the summer months the Germans applied summer time, so it became GMT+2. The UK and Germany used their own planning for starting and stopping summer time and these were not aligned.

The moment cities or larger areas of the Netherlands were liberated, people felt the need to no longer be linked to the German time zone and they switched to the UK time zone. As a result, there were different times in the Netherlands, depending on whether they were yet liberated or not. An overview on page 9 shows in detail what the impact was for the time in a number of cities.⁶

17 September 1944

In the early hours of 17 September 1944, the first day of Operation Market Garden, according to plan the UK ends summer time (BDST) and reversed the clock at 03.00 by one hour to winter time (BST), or from GMT+2 to GMT+1.⁷

Germany, and following that also the Netherlands, would end summer time on 2nd October 1944 and reverse the clock by one hour to CET or GMT+1.⁸

The differences between all mentioned time zones and clocks is shown in a graphical overview on page 9

Allied documents

Expecting the original documents of orders and planning for Operation Market Garden would provide clarity as to which time zone would apply at the times stated, I started investigating this.

The 21st Army Group was under Gen. Bernard Montgomery, the mastermind behind Operation Market Garden, which at the time consisted of the 2nd British Army and the 1st Canadian Army. The British provided the ground forces for Operation Garden. For Operation Market, two American and one British airborne divisions were used. The airborne troops were transported by the British 38 Group RAF and the American IX Troop Carrier Command.

In addition, the operation was supported by British-American Air Force components for security, bombing, resupply, etc.

Operation Market Garden Plan - 21 Army Group

The plan-document for 21st Army Group contains the following: ⁹

- “Zone ‘A’ time comes into force 0300 hrs 17 September 1944 (1200 hrs GMT = 1300A hours = 1400B hrs)”
- “H-hour is the time at which the first parachutists (less pathfinders) are dropped. This will probably be 171300A hours”

This would mean that on the 17th at 13.00 (GMT+1) the operation would start by dropping parachute troops and that the ground forces would start advancing at 14.00 (GMT+1). This planning was executed as defined without revisions to the timings.

Operation Market - 38 Group Operational Order

The order-document for 38 Group contains the following: ¹⁰

- “Time will be zone ‘A’ (D.S.T.)”

The additions D.S.T. stands for *Daylight Saving Time* and suggests an (extra) hour advance. This would mean that the operation would start at 13.00 (GMT+2) (not GMT+1 as defined in the plan for 21st AG).

Post-war US Air Force study

Both documents indicate a different time and this must clearly be a mistake in one of the two document. But it also means that it is impossible to conclude which of the two has the correct definition.

The department *Historical Studies* of the *US Air Force* conducted a post-war study on Operation Market Garden. This study also has a definition on which time zone would apply: ¹¹

- “H-hour, the moment when, the initial troop carrier serials, exclusive of pathfinders, would arrive over their zones, was set at 1300 hours, Zone A Time. This was one hour ahead of Greenwich Mean Time. It came into effect at 0300 on the 17th”

While this makes it likely that the Allies were using GMT+1 time zone, it requires more evidence to establish this with certainty.

Market Garden - Then and Now

In 2002 Karel Margry wrote a very detailed book (two volumes) about the operation: *Market Garden - Then and Now*¹². Many parts of the operation are described here with the corresponding times. These times are based on the Allied operational documents.¹³ For example, the books contain tables of units at which times they landed and at which drop or landing zone.

German documents

Military units keep logs of various documents and often, from these, reports are drawn up. During the WWII, German troops often recorded this in a *Kriegstagebuch* (War Diary). For example, various reports have been recorded about Operation Market Garden, in particular that of the *LVIII Armee Korps (Kriegstagebuch 88. AK)*.

Kriegstagebuch versus Market Garden - Then and Now

Since both the German *Kriegstagebücher* and Margry's *Market Garden - Then and Now* contain times of events, they can be compared to see if they differ, and if so how much. If similarities or differences are consistent, one can perhaps conclude which time zone Margry (and therefore the Allies) were using. The table below shows the event as described in the German documentation and the event as described by Margry, followed by differences in time, if any. I also added a few events as described by George Koskimaki's *Hell's Highway*.

Confusion around registered departure and arrival times

Event documented in KTB 88.AK	Margry Then & Now	Delta
<p>17 september 1944 - ...landete zwischen 14.00 und 16.00 Uhr Südostwärts von Hertogenbosch die 101. Amer LL Div und im Raum Arnheim-Nimwegen die 1. Brit LL Div...</p> <p>(Kriegstagebuch des Oberkommandos der Wehrmacht (pdf p426 of 1006))</p>	<p>101st Airborne Serials overview shows that the first para drops started at 13.01 and the last glider serial landed at 13.55.</p> <p>(Then and Now vol.1 p96)</p>	<p>minimum of 1 hour delta</p>
<p>17 september 1944 - 14.00 - Anruf Oberstleutnant Schuster la/Kampfgruppe Chill, dass um 13.40 Uhr 40 Grossraumtransporter den Raum überflogen hätten Richtung Eindhoven. 1 Maschine wurde abgeschossen.</p> <p>Kriegstagebuch 88. Armee Korps (T314R1624_63289_2c.pdf p58 of 402)</p>	<p>Between 13.00 and 14.00 424 C-47 transport planes carrying paratroops and 70 C-47's towing WACO gliders arrive north of Eindhoven. These planes were flying the Southern Route for Operation Market.</p> <p>(Then and Now vol.1 p96)</p> <p>101st Airborne Division US veteran George Koskimaki, who jumped there himself, wrote in his book "Hell's Highway" on p77.</p> <p>This was the last serial carrying paratroops of the division (3rd Battalion, 502nd Parachute Infantry Regiment) who landed on DZ-B between Son and Best at 13.38.</p>	<p>pretty accurate delta of 1 hour</p>
<p>17 september 1944 - Abendmeldung - Zwischen 14.00 und 15.00 Uhr Einfluge von zahlreichen Lastensegler und Transportmaschinen (14.15 Uhr 300 Lastensegler bei Herenthals in Richtung Osten, 14.42 Uhr 200 Transportmaschinen und 100 Lastensegler in Richtung Eindhoven von Kampfgruppe Chill (85.I.D.)</p> <p>Kriegstagebuch 88. Armee Korps (T314R1624_63289_2c.pdf p72 of 402)</p>		
<p>17 september 1944 - Absprunge 14.20 Uhr im Raume Sonn-St. Oedenrode-Best. Beobachtete Starke mindestens 300 Mann.</p> <p>Kriegstagebuch 88. Armee Korps (T314R1624_63289_2c.pdf p72 of 402)</p>		
<p>17 september 1944 - 15.00 Uhr - Anruf Obltn. Höller, 85 I.D. 14.35 Uhr eine Maschine nach NO aus fliegenden Verbänden gebrannt und 20 Fallschirmjäger abgesprungen in Gegend la Colonie. Bisher etwa 200 Maschinen DB 7 Richtung Eindhoven. 20 km ostw. Rethy (Gegend la Colonie) sollen aus allen überfliegenden Verbänden Fallschirmjäger abgesprungen sein. In gleicher Richtung wie bisher 100 Lastensegler im Anflug.</p> <p>Kriegstagebuch 88. Armee Korps (elaborated version on September 1944 by Ron Moermans p51 of 91)</p>		
<p>19 september 1944 - Abendmeldung - Moergestel wurde zwischen 16.00 und 16.40 Uhr von etwa 80 lastensegler in nordesw. Richtung überflogen.</p> <p>Kriegstagebuch 88. Armee Korps (T314R1624_63289_2c.pdf p13 van 402)</p>	<p>On the 19th resupply missions for the 101st AB Div took place. Many of the 300 gliders were lost before reaching the LZ The overview by Margry shows that serials A72 - A80 arrived between 14.44 and 15.46.</p> <p>(Then and Now vol.2 p383)</p>	<p>1 hour delta</p>
<p>26 september 1944 - 18.05 Uhr - Meldung der 85.I.D., Obltn. Sprenger: Bis 17.45 Uhr 400 Transportmaschinen in Richtung Nordostw. Schijndel überflogen.</p>	<p>On this day, forward airfield Keent was supplued. Between 13.50 and 16.50 209 C-47 aircraft landed there.</p> <p>(Then and Now vol.2 p702)</p>	<p>roughly 1 hour delta</p>

Conclusion

Almost all examples clearly show that there is a one hour difference between the times set for the observations by the German troops and the times for the associated activities of the Allies as recorded in the books of Margry and Koskimaki.

And because the German troops used the German time zone, being GMT+2, the evidence shows that the Allied troops were using time zone GMT+1.

Why?

The big question remains why the Allies stated in their planning and order documents for Operation Market Garden that from 17th September 1944 03.00 Zone "A" time (GMT+1) would apply. As a result of the scheduled (in 1939) reversing of the UK time by one hour at that same time, going from British Double Summer Time (BDST = GMT+2) to British Summer Time (BST = GMT+1), the Allies were basically using UK time. In other words: the remarks on Zone "A" time had no effect, whatsoever!

It is clear that it has led to a lot of confusion. There was inconsistency in planning and order documents and even now, more than 75 years later, it is not clear to everyone.

I can think of no reason why the Allies have chosen to do this but if anyone knows or can come up with a reason, I would love to hear it. Actually, that also applies if someone disagrees with my view. I am open to comments, remarks, additions, discussion, etc. etc.

Pim van Gelder

Drunen, 4th February 2021

Operation Overlord - 6th Juni 1944

Incidentally, similar mistakes appear to have been made in publications about, for example, Operation Overlord (the Allied landings in Normandy on 6 June 1944). On that date Germany and the occupied territories were on German summer time (or Zone "A" DST/Summertime =GMT+2). (see <https://www.timeanddate.com/time/change/germany/berlin?year=1944>)

In the planning and order documents for Operation Overlord I did not see any mentioning of time zones. The Allies were just using British time, being British Double Summer Time (BDST =GMT+2). (see <https://www.timeanddate.com/time/change/uk/london?year=1944>)

So, on 6th June 1944 both sides were in the same time zone!

Assessing Market Garden documents and publications

Now that it is clear which time zones apply, the time zones can be checked for a number of published items whether they are in accordance with the findings and, if this is not the case, why this was. My comments are in *italics* after the ❖ sign.

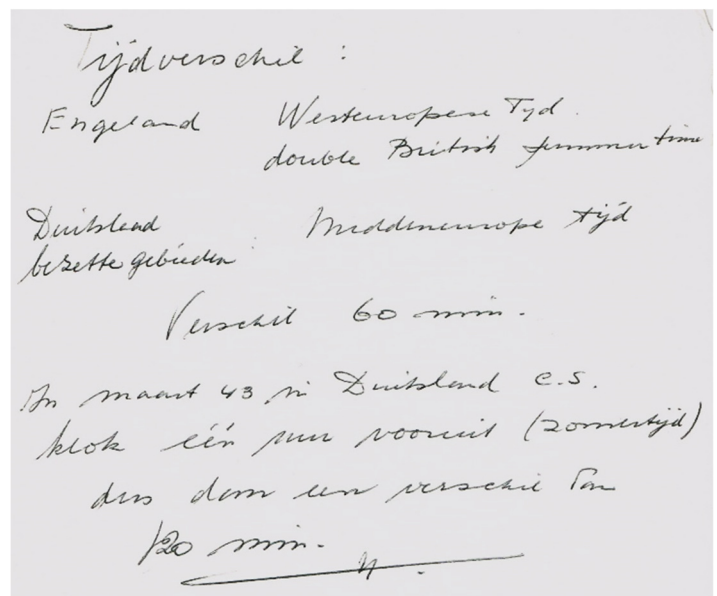
from: Margry, K., *De Bevrijding van Eindhoven*, Stichting 18 september festival, Eindhoven, 1992(1982)

1. p30: the first 101st AB sticks jumped at 13.01
❖ *So, this is Allied time, not local time*
2. p79: "...that was 13.22 (14.22 Dutch time)..." (on 18 September 1944)
❖ *Because on 18 September "Dutch time" was still at time zone GMT+2, 13.22 was indeed Allied time (GMT+1).*
3. p88: "...even the clock would be reversed by one hour, soon, aligned with Allied time..."
❖ *Correct, that would take place in Eindhoven on 20 September, 14.00.*
4. p114: On the start of the bombing of Eindhoven on 19 September 1944 "It was 19.20u, Allied time."
❖ *This would have been 20.20u local time*
5. p127: "...since the clock had been reversed one hour on 20 September, aligned with British Summer Time."
❖ *Britse Summer Time is GMT+1; so, this is correct*

Notes by Pouwel Pouwels (not dated):

Time difference:

6. United Kingdom - Western European Time
Double British Summer Time
❖ *depends on the date*
7. Germany - Central European Time
and occupied territories
❖ *This is correct with, depending on date, possible Daylight Saving Time*
8. Delta 60 min
❖ *Depends on the date as the time could also be the same*
9. In March 43 in Germany clock advanced One hour (Summer Time) so the delta becomes 120 minutes
❖ *This is a mistake. In March 1943 Germany was on GMT+1. The UK was at BST at that time, also GMT+1. So, there was no delta.*



From: 505PIR Field Order No 1.pdf (p9 of 21)

10. Sun and Moon Data...are shown in the following table time stated in double summer time prior to Sept. 17, in ordinary summer time thereafter
❖ *In contrast with other MG documents where this topic is not addressed, it is specifically mentioned here that the table contains a mix of DBST and BST (this also goes for the Field Orders for 505PIR, 504PIR and 325GIR but strangely enough not for the time table on the 508PIR Field Order. Even when all units were part of the 82nd Airborne Division US).*

From: 508PIR Field Order No 1.pdf (p7 of 17)

11. Sun and Moon Data...

- ❖ *In this document no remark on time zones, BDST or BST. By comparing mentioned times with those in the tables for the other regiments (see 10, 12, 13) it can be concluded that the 508 table is in BST or GMT+1. As mentioned before it is remarkable that this definition differs from the one used in the tables for the other regiments in 82nd AB (505PIR, 504PIR and 325GIR).*

From: 504PIR Intelligence annex to Field Order No 12.pdf (p9 of 18)

12. Sun and Moon Data...are shown in the following table time stated in double summer time prior to Sept. 17, in ordinary summer time thereafter
 - ❖ *In contrast with other MG documents where this topic is not addressed, it is specifically mentioned here that the table contains a mix of DBST and BST (this also goes for the Field Orders for 505PIR, 504PIR and 325GIR but strangely enough not for the time table on the 508PIR Field Order. This while all units were part of the 82nd Airborne Division US).*

From: 325GIR Field Order no 6.pdf (p11 of 13)

13. Sun and Moon Data...are shown in the following table time stated in double summer time prior to Sept. 17, in ordinary summer time thereafter
 - ❖ *In contrast with other MG documents where this topic is not addressed, it is specifically mentioned here that the table contains a mix of DBST and BST (this also goes for the Field Orders for 505PIR, 504PIR and 325GIR but strangely enough not for the time table on the 508PIR Field Order. This while all units were part of the 82nd Airborne Division US).*

From: Hell's Highway, George Koskimaki (p13; S/Sgt Edward Jurecko kept records of the timestamps)

14. Jumpmaster notes: Station time: 0920, Engine: 1005, Taxi: 1015, Take off: 1026, Coast of France (he must have meant Belgium; CATALINA): 1212, Drop time 1305.
 - ❖ *S/Sgt Jurecko was in D/501 and flew in serial A6 from Aldermaston. The times correspond exactly to the planning times, except for a few minutes.*
 - ❖ *There are local citizens who claim that the first landings started at 1300 local time. In accordance with the conclusion this must have been 1400.*

From: Hell's Highway, George Koskimaki (p35; Pierre Drenters provides an eyewitness report of his observations from his home at the edge of DZ's B and C, north of Son)

15. It was 1300 hours in the afternoon. A faint drone seemed to fill the sky. Although there had been bombing runs by low flying aircraft..... An armada of planes appeared over our area..... Then a beautiful sight.... Literally hundreds of paratroopers spilled out from the planes....
 - ❖ *Pierre Drenters states that the first paratroops jumped at 13.00. Based on the conclusions this would have been 14.00 local time.*
 - ❖ *It could well be that the author, George Koskimaki, aligned all times which were provided by his sources to the times in GMT+1 that he as a 101st AB member knew and was used to.*

From: Hell's Highway, George Koskimaki (p37; Bill van Wely, member of the local underground and living in Dodewaard)

16. It was about one o'clock on Sunday afternoon as we came home from church in Zetten, about seven kilometers from Dodewaard.... We heard a droning sound.... Hundreds of planes , big ones pulling smaller ones....
 - ❖ *Dodewaard is on the approach route to the drop and landing zones for Arnhem. The first landings there took place around 13.00 (Allied time) but based on the conclusions this would have been 14.00 local time.*
 - ❖ *It could well be that the author, George Koskimaki, aligned all times which were provided by his sources to the times in GMT+1 that he as a 101st AB member knew and was used to.*

From: *DZ Europe - the story of the 440th Troop Carrier Group* (p64)

17. The document provides a detailed description of the departure of Col. Krebs (CO 440TCG). Krebs was the first C-47 (serial no. 42-100965; "Miss Yank") in serial A21. Their target was DZ-T, north of Groesbeek. They took off from RAF Fulbeck. Krebs' plane departed at 11.04. In 22 minutes all aircraft of serials A21 and A23 took off. A23 had as target DZ-N. The fleet of resp. 42 and 48 aircraft made a final turn over the airfield and set course for their first assembly point MARCH. The total flight distance for serial A21 was 313 miles. The average flight speed was 140 mph. Apparently it all went a bit faster because at 13.29 the paras of 3rd Batt + elements HQ 508PIR were dropped.

About half an hour later, Krebs crashed as a result of a mid-air collision north of Hoeven.

(for details see: *Studiegroep Luchtoorlog* report T4069)

- ❖ *It is unclear which time zones were used in mentioned publication but it seems like these are MG planning times or Allied times (so, GMT+1).*

From: *Operation Market Garden - Then and Now*, Karel Margry (p165; The photo was taken in Groesbeek on 17 September 1944 by Jaap Beijnes)

18. The photo shows the municipal tower next to the Ned. Reformed church with in the background C-47 transport aircraft that were used for the paratroops. The clock on the tower would indicate the time of 2.30 (pm), which corresponds to the time when the last paratroop at Groesbeek took place, that of the 376th Parachute Field Artillery Battalion. Gerrie Driessen, chairman of *Heemkundekring Groesbeek*, considers it very likely that the clock indicated the correct time because it was the only public clock and was therefore considered important to the municipality.

- ❖ *For this particular serial (A23) the MG planning shows a dropping time of 13.33 (GMT+1) so again the one hour time delta is in line with the conclusions.*



Improved area of the picture with adjusted contrast and dust particles removed. The clock clearly indicates half past two.



Municipal tower of Groesbeek with C-47's in the sky overhead on 17 September 1944.

(photo by Jaap Beijnes; collection Marco Cilissen)

Overview of referenced documents and publications

- 325GIR Field Order no 6. (1944) (*325 Glider Inf. Regt., 82nd Airborne Division, USA*)
- 504PIR Intelligence annex to Field Order No 12. (1944) (*504 Parachute Inf. Regt., 82nd Airborne Division, USA*)
- 505PIR Field Order No 1. (1944) (*505 Parachute Inf. Regt., 82nd Airborne Division, USA*)
- 508PIR Field Order No 1. (1944) (*508 Parachute Inf. Regt., 82nd Airborne Division, USA*)
- Air Operations following Overlord (incl. Linnet) - AIR/37/775. (1944)
- Didden, J., & Swarts, M., *Autumn Gale*, De Zwaardvisch, Drunen (NL), 2013.
- DZ Europe: the story of the 440th Troop Carrier Group, World War Regimental Histories.(1946)
- Koskimaki, G., *Hells Highway with the Screaming Eagles*, Ramdon House Publishing group, New York (NY, USA), 2007
- Kriegstagebuch 88. Armee Korps (incl. Anlagen). (1944)
- Kriegstagebuch des Oberkommandos der Wehrmacht. (1944)
- Margry, K., *De Bevrijding van Eindhoven*, Stichting 18 september festival, Eindhoven (NL), 1992(1982).
- Margry, K., *Operation Market Garden - Then and Now* (vol. 1 & 2), Battle Of Britain Int. LTD, London (UK), 2002.
- Operation Market - 38 Grp Ops Order No 526. (1944)
- Operation Market - Operations Order No 1 - 2nd Batt South Staffs. (1944)
- Operation Market Garden Plan - 21 Army Group - AIR/37/1249. (1944)
- Warran, Dr. J.C., *Airborne Operations In World War II European Theatre* (AFD-090602-016), USAF Historical Studies, USAF Research Institute. (1956)

Overview of referenced Internet sites

- <http://mm.icann.org/pipermail/tz/2000-February/010857.html>
- <http://www.bbc.co.uk/newsbeat/article/35890353/the-time-when-the-clocks-changed-by-more-than-an-hour>
- https://nl.wikipedia.org/wiki/Amsterdamse_Tijd
- <https://www.britannica.com/topic/Daylight-Saving-Time>
- <https://www.horlogeparlante.com/history.html?city=2650405>
- https://www.staff.science.uu.nl/~gent0113/wettijd/wt_text4b.htm
- <https://www.timeanddate.com/time/change/uk/london?year=1944>
- <https://www.timeanddate.com/time/change/germany/berlin?year=1944>
- <https://www.timeanddate.com/time/zones/>

	Clocks around the start of Operation Market Garden																																																																																															
Greenwich Mean Time	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
BST (GMT+1)	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Zone A time (GMT+1)	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
BDST (GMT+2)	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Zone A DST (GMT+2)	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
United Kingdom (London) note 1	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Market Garden Planning (Zone A) note 2	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Germany (Berlijn) note 3	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Netherlands (occupied) note 4	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Netherlands (Maastricht) note 5	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Netherlands (Sas van Gent) note 5	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							
Netherlands (Eindhoven) note 5	17-Sep-44																								18-Sep-44																								19-Sep-44																								20-Sep-44																							

note 5 Once territory or (larger) cities were liberated, the clocks were adjusted to match the UK time. Some examples of cities where this applied were: Maastricht: 19 September 1944 at 03.00h; Sas van Gent: 19 September 1944 at 21.00h; Eindhoven: 20 September 1944 at 14.00h. Heerlen was one day after that (21 September 1944 at 03.00h). Sittard and Weert followed on 22 September and Helmond on 26 September but the exact times are not known. (see https://www.staff.science.uu.nl/~gent0113/wettijd/wt_text4b.htm)

13	Start of Operation Market Garden (H-hour)
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End notes

¹ <https://www.timeanddate.com/time/zones/>

² The Defence (Summer Time) Regulations, 1939, S.R.&O. 1939, No. 1379. These were made under the Emergency Powers (Defence) Act, 1939. They change the end date to be the day after the third Saturday in November.

- S.R.&O. 1940, No. 172 - An Order in Council amending the Defence (Summer Time) Regulations, 1939. It changed the start date to the day after the fourth Saturday in February (i.e. 25 Feb 1940).

- S.R.&O. 1940, No. 1883 - Another Order amending the Defence (Summer Time) Regulations, 1939. This continues summer time throughout the year after it starts in 1940.

- S.R.&O. 1941, No. 476 - Another Order amending the Defence (Summer Time) Regulations, 1939. This introduces double summer time, starting at 01:00 GMT on the day after the first Saturday in May and ending at 01:00 GMT on the day after the second Saturday in August, offset another hour from normal summer time, which continues throughout the rest of the year.

- S.R.&O. 1942, No. 506 - Another Order amending the Defence (Summer Time) Regulations, 1939. This changes the start date of Double Summer Time to the day after the first Saturday in April, bringing it forward from May.

- **S.R.&O. 1944, No. 932 - Another Order amending the Defence (Summer Time) Regulations, 1939. This changed the end date of Double Summer Time to the day after the third Saturday in September (i.e. 17 September 1944).**

- S.R.&O. 1945, No. 312 - Another Order amending the Defence (Summer Time) Regulations, 1939. This changes the start and end dates of Double Summer Time to the day after the first Sunday in April and the day after the second Saturday in July (i.e. Mon 2 April to Sun 15 July). I have this quote from Hansard (the official record of the United Kingdom Parliament), Oral Answers, 1 March 1945, cols 1559--60, explaining the unusual start on a Monday:

Major Sir Goronwy Owen asked the Secretary of State for the Home Department if he is now able to state the Government's proposals regarding double summer time. [two other similar questions omitted] Mr. H.

Morrison: The Government, in reviewing the matter, have considered, [...] the conclusion has been reached that the adoption of double summer time from the beginning of April is essential to the maintenance of the war effort. [...] As 1st April is Easter Sunday, when very early services are held in many churches, it is proposed that double summer time shall start not in the night preceding Easter Sunday, but in the night of Sunday-Monday so that it will operate from Monday, 2nd April.'

- S.R.&O. 1945, No. 1208 - An Order under the Emergency Powers (Defence) Acts, 1939 and 1940 revoking a long list of things, including the Defence (Summer Time) Regulations, 1939. This meant that Summer Time reverted to being set by the 1922 and 1925 Acts. It was made on 28 September, early enough to end Summer Time on the date defined by the 1925 Act: 7 October.

(<http://mm.icann.org/pipermail/tz/2000-February/010857.html>)

³ Here is an overview of GMT, BST and BDST for London: (<https://www.horlogeparlante.com/history.html?city=2643743>)

🕒 History of daylight savings time for : London (United Kingdom)

Year : 1939

Transition to daylight saving time on Sunday 16 April 1939 - 02 h 00 (GMT + 1 h) [BST](#)

Back to standard time on Sunday 19 November 1939 - 02 h 00 (GMT) [GMT](#)

Year : 1940

Transition to daylight saving time on Sunday 25 February 1940 - 02 h 00 (GMT + 1 h) [BST](#)

Year : 1941

Transition to daylight saving time on Sunday 4 May 1941 - 01 h 00 (GMT + 2 h) [BDST](#)

Transition to daylight saving time on Sunday 10 August 1941 - 01 h 00 (GMT + 1 h) [BST](#)

Year : 1942

Transition to daylight saving time on Sunday 5 April 1942 - 01 h 00 (GMT + 2 h) [BDST](#)

Transition to daylight saving time on Sunday 9 August 1942 - 01 h 00 (GMT + 1 h) [BST](#)

Year : 1943

Transition to daylight saving time on Sunday 4 April 1943 - 01 h 00 (GMT + 2 h) [BDST](#)

Transition to daylight saving time on Sunday 15 August 1943 - 01 h 00 (GMT + 1 h) [BST](#)

Year : 1944

Transition to daylight saving time on Sunday 2 April 1944 - 01 h 00 (GMT + 2 h) [BDST](#)

Transition to daylight saving time on Sunday 17 September 1944 - 01 h 00 (GMT + 1 h) [BST](#)

Year : 1945

Transition to daylight saving time on Monday 2 April 1945 - 01 h 00 (GMT + 2 h) [BDST](#)

Transition to daylight saving time on Sunday 15 July 1945 - 01 h 00 (GMT + 1 h) [BST](#)

Back to standard time on Sunday 7 October 1945 - 02 h 00 (GMT) [GMT](#)

⁴ In the early days of the occupation of the Netherlands in the Second World War, on 16th May 1940, the German forces introduced the German time (=Center European Time, GMT+1) to replace the *Amsterdamse Tijd* (Amsterdam time, GMT+20min), a change of 40 minutes. In addition to that, on the same day summertime came into force meaning that all clocks had to put forward by 1 hour and 40 minutes (GMT +2).

After Nazi Germany capitulated in 1945 the clock was not reversed to *Amsterdamse Tijd* and the Netherlands kept using Central European Time instead (GMT+1) ([https://nl.wikipedia.org/wiki/Amsterdamse Tijd](https://nl.wikipedia.org/wiki/Amsterdamse_Tijd))

⁵ <https://www.timeanddate.com/time/zones/>

⁶ During the chaotic days around the liberation of the southern part of the Netherlands by Allied troops in September 1944, the clock was set back one hour by means of local proclamations from Allied administrators or the local mayor. This gave the liberated areas the same time as in London, where daylight saving time ('British Summer Time' = GMT + 1) was continuously used since the start of the war, to which an extra hour was added in the summer months ('British Double Summer Time' = GMT + 2). The latter was terminated in the early morning of September 17 in 1944.

Except for a few places (see below), no exact data on day and time are known, but this will always have happened as soon as the local German-minded government was replaced by an allied government. The data for the places below are taken from Diegenbach (1946), who does not, however, provide any sources for this.

- Maastricht: 19 September 1944 at 03.00.
- Sas van Gent: 19 September 1944 at 21.00.
- Eindhoven: 20 September 1944 at 14.00.
- Heerlen: 21 September 1944 at 03.00.
- Sittard, Weert: 22 September 1944 (exact time unknown).
- Helmond: 26 September 1944 (exact time unknown).

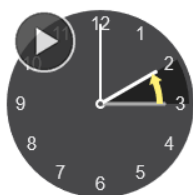
The occupied part of the Netherlands returned to Central European Time on 2nd October 1944 so from there onward the time was aligned with the liberated part. Both Germany and the UK switched to summer time on 2nd April 1945 so both parts of the Netherlands advanced their clocks simultaneous with the distinction that in the occupied territories it was called Central European Summer Time and in the liberated territories it was called British Double Summer Time.

Even though the UK reversed their clocks by one hour in the early morning of 15 July, the Netherlands, by then completely liberated, did likewise no earlier than 16 September. According to Diegenbach (1946) Zaltbommel reversed the clock on 5th May 1945 at 8 o'clock but that was probably short-lived.

More than a year after the liberation, on 30th August 1946, it was legally stipulated that in connection with the prevailing "extraordinary circumstances", the Netherlands would stay in the Central European Time imposed by the former occupier until further notice (*Staatsblad* 1946/G223). Although Germany would still apply a summer time regulation until 1949, it was suspended in the Netherlands for an indefinite period.

https://www.staff.science.uu.nl/~gent0113/wettijd/wt_text4b.htm

⁷ On 17 September 1944 at 03.00, the UK ends summer time and returns from BDST (GMT+2) to BST (GMT+1)



17 Sep
Back 1 hour

17 Sep 1944 - Daylight Saving Time Decreased

Double DST ended – Clocks were turned back from double DST (2 hours ahead of standard time) to DST (1 hour ahead of standard time).

When local daylight time was about to reach

Sunday, 17 September 1944, 03:00:00 clocks were turned **backward** 1 hour to

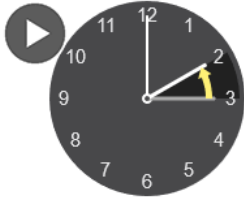
Sunday, 17 September 1944, 02:00:00 local daylight time instead.

Sunrise and sunset were about 1 hour earlier on 17 Sep 1944 than the day before. There was **more light in the morning**.

Also called **Spring Forward**, **Summer Time**, and **Daylight Savings Time**.

(<https://www.timeanddate.com/time/change/uk/london?year=1944>)

⁸ Germany ends summer time on 2nd October 1944 and returns to GMT+1



2 Oct

Back 1 hour

2 Oct 1944 - Daylight Saving Time Ended

When local daylight time was about to reach

Monday, 2 October 1944, **03:00:00** clocks were turned **backward** 1 hour to

Monday, 2 October 1944, **02:00:00** local standard time instead.

Sunrise and sunset were about 1 hour earlier on 2 Oct 1944 than the day before. There was [more light in the morning](#).

Also called [Fall Back](#) and [Winter Time](#).

(<https://www.timeanddate.com/time/change/germany/berlin?year=1944>)

⁹ *Operation Market Garden Plan - 21 Army Group - AIR/37/1249. (1944)* (pdf p18 of 101)

¹⁰ *Operation Market - 38 Grp Ops Order No 526. (1944)* (pdf p7 of 32)

¹¹ Warran, Dr. J.C., *Airborne Operations In World War II European Theatre (AFD-090602-016)*, USAF Historical Studies, USAF Research Institute (1956) (pdf p99 of 249)

¹² Margry, K., *Operation Market Garden - Then and Now (Vol 1 & 2)*, Battle Of Britain Int. LTD, London (UK), 2002.

¹³ For the time definitions in his book, Karel Margry in particular used *Historical Study #98* by Dr. J.C. Warren (*Airborne Operations In World War II European Theatre (AFD-090602-016)*)