

APPENDIX II

S.H.A.E.F. OPERATION MEMORANDUM

SUPREME HEADQUARTERS ALLIED EXPEDITIONARY FORCE

OPERATION MEMORANDUM
NUMBER 9

14 March 1944.

Map Co-ordinates

1. *Object*

The object of this memorandum is to ensure a standard procedure for indicating a position on a map by means of grid co-ordinates and to ensure a proper use of the grid systems involved.

2. *Grid Systems*

The following grids will be in use for operations against or on the Continent:—

(a) *Home Fighter Grid.* The use of this grid will be restricted to Radar purposes only, subject to the following conditions and limitations:—

- (i) Radar installations in the United Kingdom and warships will use it throughout, within its area of extent, for Fighter Control, radar reporting and aircraft movement reporting.
- (ii) It will be used, as in (a) (i) above, also by ships installations performing Air Force roles (e.g., H.Q. ships and Fighter Direction ships) and Continental-based Radar installations until specifically ordered to the contrary. (See 2 (c) below.)
- (iii) It will be the responsibility of Continental-based Radar installations, when reporting Air information for ground use, to convert, when necessary, from Home Fighter Grid to the appropriate military grid.

(b) *Military Grid*

- (i) The military grid applicable to the area concerned will be used by all Forces at all times for giving references of positions on the ground.
- (ii) It will be used also, when it is so ordered (see 2 (c) below), for referencing positions of aircraft, by Continental-based Radar installations and by ship installations performing Air Force roles (e.g., H.Q. ships and Fighter Direction ships) who, when necessary, will convert and “tell” information in terms of the Home Fighter Grid.

(c) For Radar purposes, the Air Commander-in-Chief, A.E.A.F., will be the authority to declare the termination of the procedure outlined in (a) and the initiation of the procedure outlined in (b) above. Such

orders will be given when the broadcasts from Home-based installations cease to be the main source of information for the Continental-based Radar system.

- (d) Aircraft engaged on support missions will *not* employ maps bearing a grid other than the Military Grid of the area concerned.

3. Map References

- (a) Map references will be quoted on one common system, namely that known as the British (Modified) Grid Reference system.
- (b) For map grid purposes, Western Europe is divided into a number of grid zones, and the Military maps on scales of 1/250,000 and larger will have the appropriate military grid of the zone concerned printed on them. The 1/500,000 and 1/250,000 air maps will have grid "ticks" and grid intersection marks of the military grid over-printed on them so that the grid squares can be completed by hand when required. Adjacent grid zones do not overlap and, *for normal use*, one point can have only one grid reference, namely that referring to the grid zone within which the point is situated.
- (c) Under certain special conditions, when operations are taking place astride a junction between two grid zones, it may be necessary for Artillery units to extend the grid squares of one zone arbitrarily into the adjoining zone in order that the co-ordinates of gun and target may be determined in terms of the same grid zone. To facilitate such action, the map sheets concerned have printed on them round their margins grid ticks representing extensions of grid lines of the adjoining zone. These ticks can be joined up by hand so as to extend the squares of one grid zone into the adjacent zone.
- (d) In each grid zone the area, if large enough, is divided into squares of 500 kms. side, each of which is designated by a letter. Letters read from left to right starting at the top left square, and run from A to Z (omitting I) in rows of five.
- (e) Each of these large squares is sub-divided into 25 squares of 100 kms. side which are also lettered from A to Z (omitting I). Letters again read from left to right starting at the top left square.
- (f) These squares are again sub-divided, each into 100 squares of 10 kms. side. On maps of scale 1/100,000 and larger, these squares are sub-divided again into squares of 1 km. side.
- (g) The grid lines running North-South are numbered from WEST to EAST and are termed Eastings. Those running East-West are numbered from SOUTH to NORTH and are termed Northings. A *full* grid reference for any particular *square* on, say, a 1/50,000 map is given by designating in order:—

The letter indicating the 500-km. square.

The letter indicating the 100-km. square.

The Easting } grid lines which intersect at the south-west corner
The Northing } of the square in which the point is located.

Thus PS 7358 indicates 500-km. square P, 100-km. square S, Easting 73 km., Northing 58 km. The position of the point is thus fixed within a certain 1-km. square.

- (h) To fix the position of a point with greater precision (on medium and large scale maps) the 1-km. square may be subdivided (estimating tenths by eye) thus adding one additional digit to Easting and one additional digit to Northing: e.g., PS 732586.
- (i) Grid letters will be obtained from the face of the map or from marginal information on the map.
- (j) The number of letters necessary varies with the scale and circumstances.
- (k) Instructions for quoting map references will normally be found printed on the face of the map.
- (l) The normal requirements of a grid reference are as follows:—

<i>Scale</i>	<i>Reference</i>
1/500,000	Two letters, four figures.
1/250,000	Two letters, four figures.
1/100,000	One letter, four (or six) figures.
1/63,360 (one inch)	Six figures.
1/50,000	Six figures.
1/25,000	Six figures.

4. *References to Map used*

In written orders, messages, etc., where grid references are given, it is necessary to quote early in the document the actual map to which the map reference refers. This can be done in a variety of ways depending on circumstances but should indicate clearly the Map Series or G.S.G.S. number, the name or number of the map sheet and the scale of the map.

5. *Security*

The security code to be used in the transmission of Map Co-ordinates is described in Operation Memorandum Number 17.

By command of General EISENHOWER.

(Sgd.) W. B. SMITH

Lieutenant-General U.S. Army
Chief of Staff.