THE ASRC GRID SYSTEM

In order to assure accurate, unambiguous and efficient reporting of positions in the field, the ASRC uses a grid coordinate system similar to that employed by the U.S. Army. Since gridded maps are unavailable in large quantities to the ASRC, gridded Xerox copies of a single original map are used. An 8½X11 inch acetate overlay with a coordinate grid drawn or photographed on it is placed on the original during Xeroxing so that all the copies carry identical grids. Since the use of Xeroxed maps is the norm, this step poses little inconvenience to the person procuring maps. Using the grid system, a position report accurate to within 70 meters may be unambiguously made with only five figures, and a position report accurate to seven meters may be made using seven figures. Although the system is designed for use with maps at a scale of 1:24000 (e.g. the USGS 7½' topos), it may be used effectively with any kind of map.

A sample gridded map is attached. The hachures on the borders are spaced 500 meters apart and labeled every kilometer. The hachures on the map itself are spaced one kilometer apart. Note that the origin of the grid is always in the southwest corner of the map. The overlay is reversible to get the long axis of the sheet north-south or east-west, whichever is more appropriate. On the left margin is a box containing the name of the map, which is a letter designating which run of photocopying the map was taken from. All maps with the same letter designator are thereby assured of having the same grid. The declination is given in the box below the letter designator. When the copies are made, the overlay is best placed so that grid north and true north are identical, but this is not absolutely essential. In any event, the deviation between grid north and magnetic north (the GM angle) must be checked for each run of photocopying and noted on each sheet.

Above the name block is a conversion table from meters on the ground to millimeters on the map. This table is calculated for a map with a scale of 1:24000. Xerox machines enlarge slightly (usually less than 1%), so the table will not precisely match the Xerox map, but it will be close enough for all practical work. No attempt is made to correct for this enlargement simply because different machines enlarge different amounts, and the correction is negligible over 500 meters anyway. The purpose of the scale is to allow more precise plotting than can be done by eye, although the grid can be interpolated by eye to within 100 meters quite accurately.

A position report has three parts comprising a total of either five or seven figures. A five figure coordinate group plots a position to lie inside a 100 meter square and a seven figure group plots the position to lie inside a 10 meter square. Figure 1 illustrates an example plotted on the attached map.

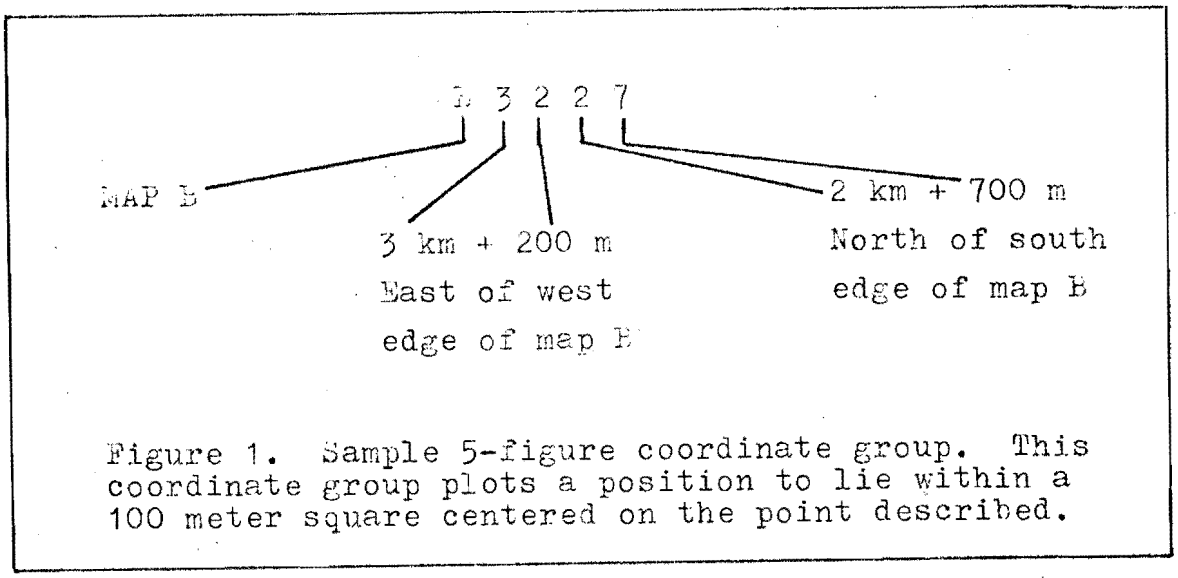

Figure 1. Sample 5-figure coordinate group. This coordinate group plots a position to lie within a 100 meter square centered on the point described.

It should be noted that any position within the 100 meter square will be described by the coordinate group

B3227. Consequently the maximum error will be 70 meters. To specify the position to within a 10 meter square (which is only 0.42X0.42 mm on the map!), the coordinates can be taken to seven figures as shown in figure 2.

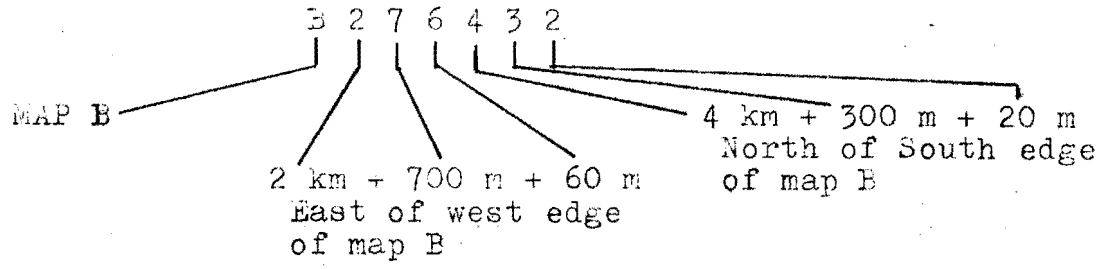

Figure 2. Sample 7-figure coordinate group. This coordinate group plots a position to lie within a 10 meter square centered on the point described.

To keep the order of the figures correct, remember the mnemonic, "Read right up." Five figure coordinates are accurate enough for almost all field work.

A typical radio position report might go like this:

TEAM CHARLIE, THIS IS BASE.
BASE, THIS IS TEAM CHARLIE. GO AHEAD.
WHAT IS YOUR LOCATION? OVER.
STAND BY. (FTL Charlie consults his map and compass).
BASE, THIS IS TEAM CHARLIE. OUR LOCATION IS, FIGURES, BRAVO, THREE, TWO, TWO, SEVEN. OVER.
ROGER. BASE, CLEAR.
TEAM CHARLIE, CLEAR.

When 7½' quads are not available, the grid may still be superimposed on any map and used to plot and report positions, but the grid squares will not be one kilometer wide.