

ORIENT A MAP USING A LENSATIC COMPASS

071-329-1011

CONDITIONS

Given a field table, a standard 1:50,000 scale military map, a protractor, a pencil, paper, and a compass in daylight.

STANDARDS

Orient the map to the ground using a compass so that the north-seeking arrow of the compass is within 3 degrees (20 mils) of the angle shown in the grid-magnetic (G-M) angle of the declination diagram shown on the map.

TRAINING AND EVALUATION

Training Information Outline

1. With the map level, place the compass parallel to a north-south grid line with the cover side of the compass pointing towards the top of the map. This will place the black index line on the dial of the compass parallel to grid north. Since the needle on the compass points to magnetic north, we have a declination diagram on the face of the compass formed by the index line and the compass needle.

2. Rotate map and compass until the directions of the declination diagram formed by the black index line and the compass needle match the directions shown on the declination diagram printed on

the margin of the map. The map is then oriented.

3. If the magnetic north arrow on the map is to the left of the grid north, the compass reading will equal the G-M angle (given the declination diagram). If the magnetic north is to the right of the grid north, the compass reading will equal 360 degrees (6400 mils) minus the G-M angle.

4. Remember to point the compass north arrow in the same direction as the magnetic north arrow (2 above), and the compass reading (equal to the G-M angle or the 360 degrees (6400 mils) minus G-M angle) will be quite apparent.

NOTE: If the G-M angle is less than 3 degrees (50 mils), do not line up the north arrow.

5. Some maps have a built-in protractor consisting of a pivot point "P" on the south neat line of the map and several degrees of arc along the north neat line of the map. The G-M line is obtained by connecting pivot point "P" with the appropriate value of the G-M angle (taken from the declination diagram) on the arc. The map may then be oriented by placing the compass parallel to this line and rotating the map and compass until the needle point is aligned

with the continuous line formed by the index line and the sighting wire. The map is then oriented.

6. An alternate method is to draw a magnetic north line on the map from any N-S and E-W grid line intersection using the protractor. Align the straight-edge of the compass along this magnetic north line and rotate the map and compass together until the north arrow falls beneath the fixed black index line on the compass.

Evaluation Preparation

Setup: Select an area that is free of magnetic interference (powerlines, vehicles). Provide a field table, 1:50,000 scale military map, a protractor, a pencil, paper, and compass.

Brief soldier: Tell the soldier that he is to orient the map to the ground using the compass. Tell him he must use the G-M angle shown by the declination diagram if it exceeds 3 degrees (50 mils).

Evaluation Guide

Performance Measures

1. Determines whether G-M angle exceeds 3 degrees (50 mils).
2. Aligns the side of the compass with one of the north-south grid lines.
3. Has the cover of the compass toward the top of the map.

Results

P	F
P	F
P	F

4. Orients the map. P F
5. Corrects the orientation of the map when the G-M angle exceeds 3 degrees (50 mils) using one of the following: P F
 - a. G-M angle is formed by the compass's black index line and the compass needle.
 - b. Uses the pivot point "P" on the south neat line and the degrees of arc along the north neat line and places the compass along this line.
 - c. Draws a magnetic north line from any N-S and E-W grid line intersection using a protractor and places the compass along this line.

NOTE: Step 5 will only be required when G-M angle exceeds 3 degrees or 50 mils. Step 5b will only be tested if the map has the built-in protractor.

Feedback

Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

REFERENCES