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## M-73 & M-88 Compasses

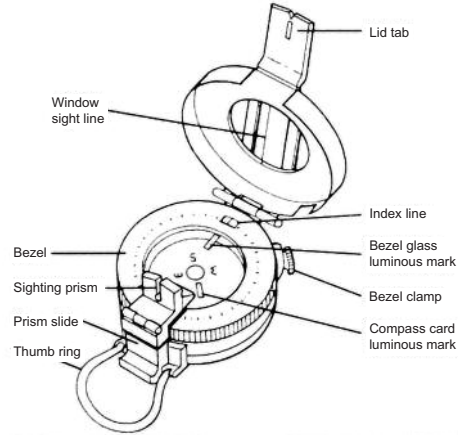


**Code: 36020, 36022**

## Operating Instructions

## M-73 & M-88 Compass

This prismatic compass is built to full military specifications. It will operate with precision accuracy to within half a degree, in temperatures from 55°C (131°F) down to -30°C (-22°F) for the M-73, and -20°C (-4°F) for the M-88. It is shock resistant, and built to withstand the roughest and toughest conditions you are likely to encounter anywhere in the world.



### Preparing the Compass for Use

When using the compass, always keep it level to avoid inaccuracies. Ensure that any ferrous metal objects, such as a watch, knife, etc., are kept well away from the compass, otherwise they too will cause errors.

- Open the lid until it stands up at right angles to the main body of the compass.
- Turn the sighting prism fully over, to the limit of its movement so that the sighting slit is on top of the prism.
- To adjust the sighting prism focus your eyesight, hold the body of the compass in one hand and look through the sighting prism at the compass card graduations. With your free thumb, push up at the base of the prism mount to raise the prism in its slide; continue raising it until you see the compass card numerals in focus through the prism (this slide is purposely stiff to prevent it moving inadvertently when the compass is in normal use).

### Correct Method of Sighting



\*GRADUATIONS IN MILS  
If your compass is graduated in mils rather than degrees, each graduation represents approximately 20 mils.

### Taking Bearings on Distant Objects

Note: this procedure gives a Magnetic bearing, which may need to be converted to a True bearing before using it for other purposes.

- The correct way to hold the compass for taking bearings is with your thumb through the large metal ring and the base of the compass resting on top of your closed fist.
- Hold the compass level, about 2 inches (50mm) from your eye. Sight through the prism, and line up the object on which you are taking the bearing with the prism slit and the sight line marked on the lid window.
- Allow the card to settle. Still looking through the prism, you will see that the sight line on the lid window appears superimpose on the graduations visible on the outer ring of the compass card. Whichever graduation mark lines up with the sight line on the lid window, that is the bearing you require. Each graduation on this outer ring represents one degree\*.

### Taking Bearings from a Map

Note: This procedure gives a True bearing, which may need to be converted to Magnetic before using it for other purposes.

- Lay your map on a level, flat surface, and use the sight line axis of the compass to help you position the map so that its grid lines lie correctly North & South.
- Draw a line on the map from your present position to the object or point that is your objective.
- Place the compass down on the map on the line you have drawn (with the sighting prism nearest to your present position). Open the lid fully so that it lies flat on the map, then align the axis of the compass in line with the line you've already drawn to your objective.
- Slacken the bezel clamp (M-73 only) to allow free movement of the bezel. Rotate the bezel until its luminous mark coincides with the luminous North pointer marked on the compass card. Re-tighten the bezel clamp to lock the bezel if you wish.
- Close to the hinge, you will see an 'index line' marked on a luminous patch under the bezel glass. The bezel glass itself is marked in graduations. Read off the bearing on the bezel glass that is now directly over this index line. This figure is the required bearing of the target object from your present position - or the direction in which you wish to travel.

### To Follow a Heading

Note: For this exercise, the bearing of the course you are going to follow must be converted to Magnetic before being applied to the compass bezel. In the case of a bearing worked out from a map, that will mean making a slight adjustment to the bezel as explained under 'Magnetic and True Bearings' (see below).

Given a direction that you wish to travel, whether it is supplied to you or one that you have calculated from a map as explained, you can see that course on the compass bezel and use the compass to guide you in the right direction.

- First set the bezel for the direction you wish to travel, either from a map as already described or in the case of a known bearing (which must be Magnetic) simply turn the bezel until the graduation on the bezel corresponding to that bearing coincides with the index line. Before proceeding, tighten the bezel clamp to lock the bezel if you wish.
- To travel in the desired direction, open the lid right back and hold the compass so that the luminous marks on the bezel and the compass card are directly over one another. The axis of the compass is then the direction in which you should proceed. You can close the compass lid if you wish; you will still be able to see the two luminous marks and keep them in line.
- From time to time, check your course more accurately by viewing through the sighting prism to confirm that you are still following the correct bearing.

### Applying Known Bearings to a Map

Note: Before carrying out the following procedure to apply bearings to a map, their values must be converted to True.

A known bearing, or a bearing that you yourself have taken by sighting an object, can be transferred onto a map using a procedure that is almost exactly the reverse of that described for taking bearings from a map.

- First, set the known bearing by turning the compass bezel until the graduation on the bezel corresponding to that bearing coincides with the index line.
- Lay the map on a level surface and orientate it correctly North and South as described under 'taking bearings from a map'.
- Open the lid of the compass fully. Keeping the two luminous marks directly over one another, place the compass down on the map with the prism end over your present position.
- The sight line axis of the compass then indicates the direction of the map which corresponds to the known bearing you began with.

### Using the Compass at Night

The compass contains Tritium light sources to enable it to be used in complete darkness without the aid of artificial light.

When travelling at night, it can be very difficult to follow a compass course accurately without a lot of practice. However, it is often possible to distinguish objects and features of the landscape at some distance, particularly against the skyline. In such circumstances, the easiest way to maintain a straight course is to pick out an object on the required bearing, and advance directly towards it. When you reach it, pick out another object, and so on.

When sighting through the prism at night, the sight line on the lid window will almost certainly not be visible. The lid should therefore be laid back almost to the horizontal, which will reveal a luminous marker on the underside of the lid tab which can be used as a sight line instead.

### Magnetic and True Readings

In most parts of the world, there are a few degrees difference between the position of the geographical North Pole and that of the Magnetic North Pole. This is known as Magnetic Variation. In all workings with a compass it must be taken into account. A True bearing must always be converted to Magnetic before setting it on your compass. Magnetic bearings taken with the compass must always be converted to True before applying them to a map.

To convert a True bearing to Magnetic, the number of degrees Variation should be subtracted if the Variation is to the East, and added if it is to the West.

If converting from Magnetic to True, then obviously these adjustments should be made in the opposite directions.