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# D-2000 AF Demagnetizer: Quick Start Guide

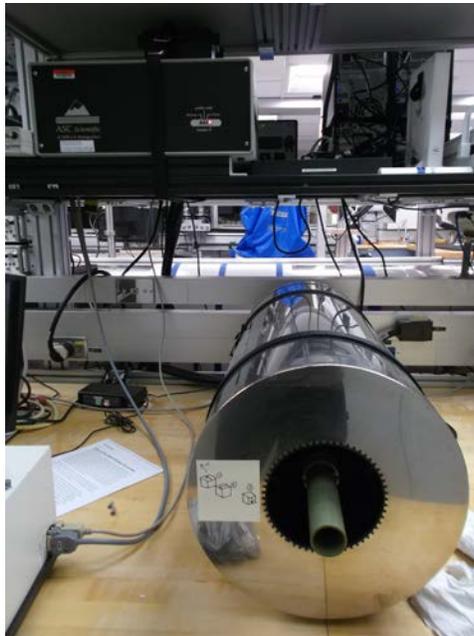
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V1.1 (8/27/2013); G. Matson, T. Bronk, D. Houpt; rev. 1/3/2014

## Introduction

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This manual is aimed to help scientists and technicians correctly use the D-2000 alternating field (AF) demagnetizer. It is very helpful tool in that it demagnetizes discrete samples in fields up to 200 mT, whereas the cryogenic magnetometer can only go as high as 80 mT. In addition, the D-2000 can impart an ARM or pARM onto discrete samples.



## Procedure

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### Turning on the instrument

1. Power on the D-2000 Power source from the back (easiest access is gained by reaching over the SRM).
2. Power on the D-2000 amplifier.
3. Slowly turn the knobs from  $-80$  dB to 0 dB simultaneously.

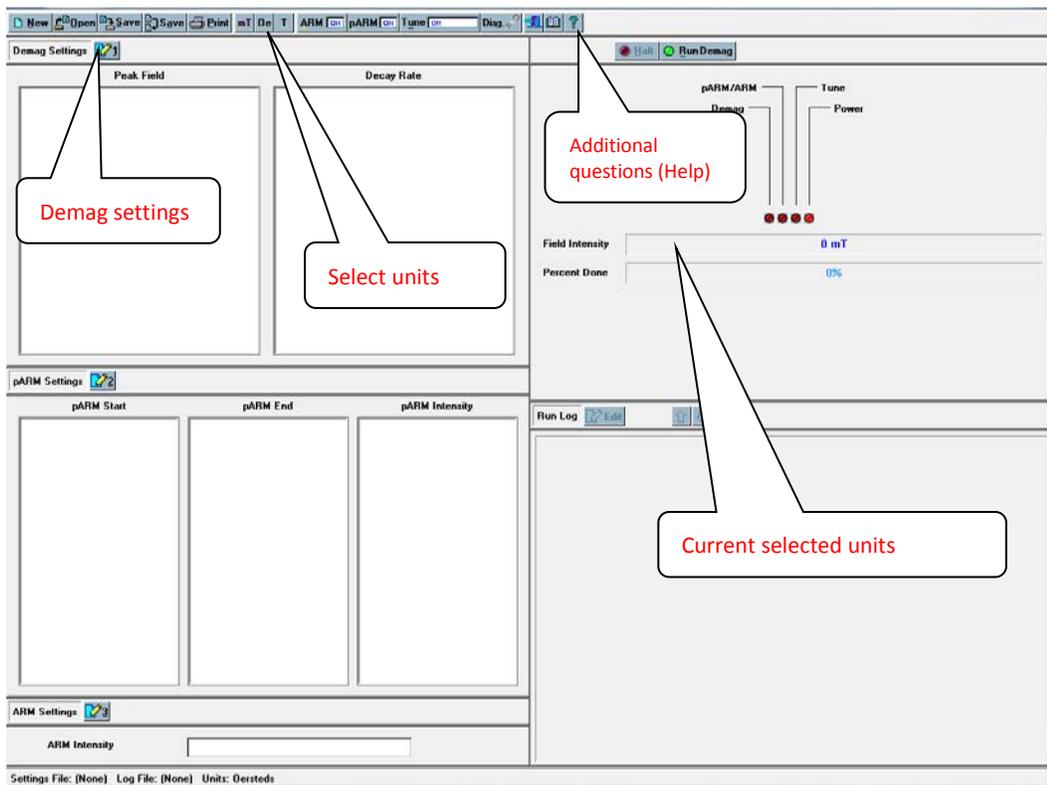
### Loading samples

1. Remove green tube from Demagnetizer.
2. Place cubes into holder, as seen in image below. Make sure they have consistent orientation. The user can repeat the process in multiple orientations if desired.
3. Push the green tube into the demagnetizer so that the white pegs fit into the notches of the inner tube.



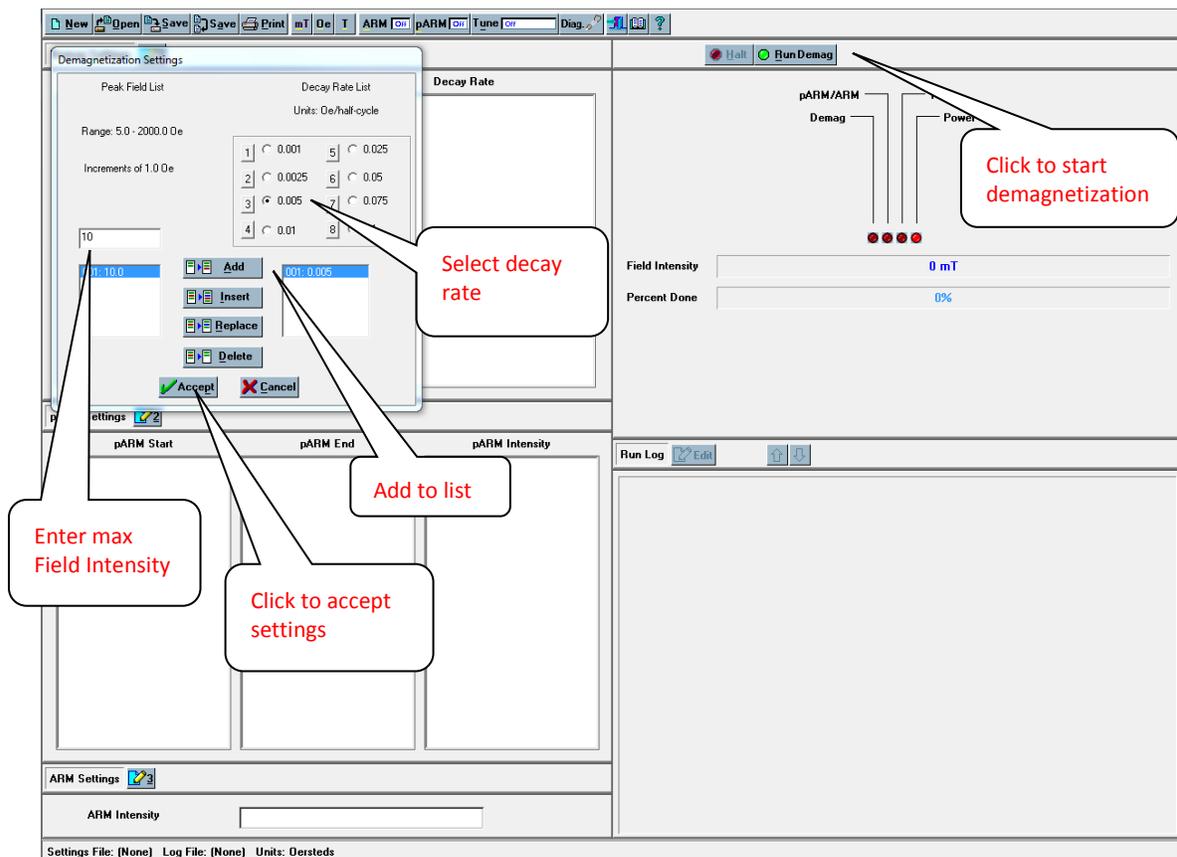
## Starting the Application

1. Double click the **D-2000** icon on the desktop of the Dtech computer to launch the application.
2. On the top tool bar, select the preferred unit (mT, Oe, or T). This unit will display on the top loading bar denoted **Field Intensity**.
3. Make sure both ARM and pARM are **off**; if not, click the button on the toolbar to toggle to off.
4. Click the number **1** button next to the **Demag Settings** option.



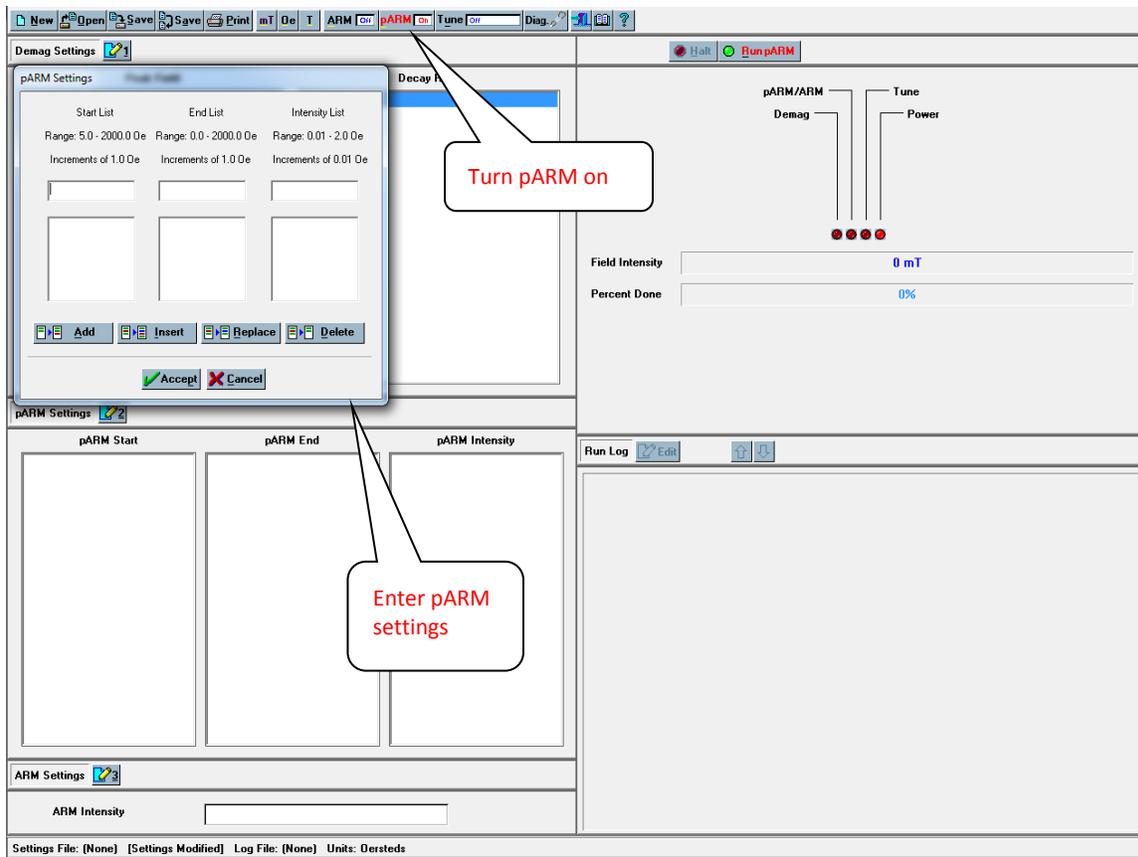
## Demagnetizing Samples

1. In the field below **Peak Field List**, enter the intensity of field to demagnetize with (i.e., for a 10 mT field, enter **10**).
2. Select the decay rate under **Decay Rate List**. **Note:** An error may appear when a decay rate that is too low is paired with a field intensity that is too high. If this occurs, increase the decay rate for the desired intensity and redo the demag step.
3. Click the **Add** button, and once the step has appeared below, click the **Accept** button at the bottom of the box. It is possible to delete an entry or add others to the list.
4. Click **Run Demag**. Once the **Percent done** loading bar has reached 100% and the **Field Intensity** bar states **Run Completed**, the samples can be removed.



## Running pARM on Samples

1. Click the number **2** next to **pARM Settings**.
2. Choose the desired settings for the particular pARM.
3. Toggle the **pARM off** button on the top toolbar so that it displays **pARM on**.
4. Click **Run pARM**.



**Note:** Either pARM or ARM may be on at one time – not both.

### Running ARM on Samples

1. Click the number **3** next to **ARM Settings**.
2. Choose the desired settings for the particular ARM.
3. Toggle the **ARM off** button on the top toolbar so that it displays **ARM on**.
4. Click **Run ARM**.

### Miscellaneous notes

- The question mark **?** button at the top right of the tool bar can answer most questions regarding this program.
- D-2000 A.F. Demagnetizer Specifications (ascientific.com):

AF Peak Field:	0.2 T (2000 Gauss)
Minimum AF field step:	0.0001 T (1.0 Gauss)
ARM Peak Field:	0.0015 T (1.5 Gauss)
pARM Peak Field:	0.0015 T (1.5 Gauss)
AF Decay Rate:	Eight discrete rates available
Minimum pARM Step:	0.0001 T (1.0 Gauss)
Sampling Handling	Static - Holds 4 (D-2000) or 3 (D-2000T) 1-inch cylinder or cube samples D-2000T Tumbler - Holds one 1-inch dia or 2 cm cube Tumbler is removable, allowing Static or Tumbler operation
Computer Interface:	Mobile Pentium-based computer
Operating System:	Microsoft Windows