OPERATING INSTRUCTIONS
ASC MODEL IM10 IMPULSE MAGNETIZER

INTRODUCTION

The ASC IM10 Impulse Magnetizer is designed to produce a short duration high field pulse for the purpose of magnetizing geological samples. It is ideally suited for the study of acquisition of isothermal remanent magnetization (IRM) and anisotropy of IRM. The unit is capable of delivering accurate reproducible fields in excess of 12 KGauss.

The field is produced by discharge of energy from a capacitor bank through a coil surrounding the sample cavity. The capacitor bank is first charged to the desired voltage (corresponding to the desired field). It is then discharged through the coil very quickly using a high capacity SCR as a switch. Because very high current levels are involved, the coil and all circuitry are totally contained in a single case.

FRONT PANEL DESCRIPTION

Power - This switch turns the unit on. No warm up period is necessary.

Voltage Adjustment Knob - This knob adjusts the approximate charging voltage.

Charging Voltage Meter - This meter displays the actual voltage to which the capacitor bank is charged. For a given setting of the voltage adjustment knob, the displayed charging voltage increases asymptotically as the capacitor bank is charged.

Trigger - This switch triggers the discharge of the capacitor bank through the coil.

Trim - This switch allows the user to back off the charging voltage without triggering the circuit. It is useful if you inadvertently allow the system to charge to a voltage higher than the desired value. By holding the button down the capacitor bank can be discharged slowly as observed on the meter.

BACK PANEL DESCRIPTION

Power cord - This unit is designed for 110/120VAC, 50/60Hz power.

Fuses - Upper fuse should be replaced with a 5 AMP rated fuse.
Lower fuse should be replaced with a 1 AMP Slo-Blo fuse.

CALIBRATION

1. Calibration data is provided relating charging voltage to field level. Charging voltages corresponding to specific field levels desired by the user can be computed from this data by interpolation.

OPERATIONAL NOTE

There is a lag time between adjusting the voltage knob and charging of the capacitors to a given voltage. The set voltage is approached asymptotically over a 30 to 60 second time period. This voltage buildup can be monitored via the digital meter. The most accurate and reproducible results will be obtained if the adjusting knob is set to a point slightly above the desired voltage, such that the desired voltage is approached at a rate of about 0.5 volts/second. The trigger should then be fired at the first appearance of the desired voltage on the digital meter. Calibration data are based on triggering using this technique and this has been found to provide highly reproducible results.

Before operating the impulse magnetizer for the first time with actual samples, the operator should go through this charging triggering sequence to learn the charging characteristics of the instrument.

WARNING - YOU SHOULD NEVER TRIGGER THE UNIT REPEATEDLY WHILE THE VOLTAGE IS ASCENDING RAPIDLY AS THIS WILL CAUSE OVERHEATING OF THE CHARGING CIRCUIT AND WILL CAUSE A NON-RESETABLE THERMAL PROTECTION DEVICE TO FAIL.

OPERATING INSTRUCTIONS

1. Turn the unit on.

2. Place the sample in the holder in the desired position. Insert the holder into the sample cavity until it stops.

3. Set the voltage adjustment knob so that the ascending voltage displayed on the meter approaches the desired charging voltage slowly (approx. 0.5volt/second).

4. Push the trigger button at the very first appearance of the desired voltage.

5. If you overshoot the desired voltage, push the trim button until the displayed voltage drops below the desired voltage. Allow the charging voltage to ascend to the desired value and trigger.

6. Remove the sample.

7. At the end of each work session, turn the voltage adjustment knob fully counterclockwise and trigger the unit to discharge the capacitor bank.

SERVICE

Because of the potential dangers associated with the large capacitor bank contained in the instrument, we do not recommend that the user attempt to service it. If the instrument malfunctions, return it to the factory for service or call us for instructions.

ASC Scientific
East Coast Facility
2 Hammett Court
Jamestown, RI 02835

Tel: 401-423-3537
800-875-4272 (toll free in U.S.)

Fax: 401-423-3553

Email: craig@ascscientific.com

ASC *Scientific*

Research Tools for the Earth Sciences

2 Hammett Court
P.O. Box 636
Jamestown, RI 02835 USA
(800) 875-4272 * (401) 423-3537
Fax. (401) 423-3553
E-mail:craig@ascscientific.com

ASC SCIENTIFIC MODEL IM10 IMPULSE MAGNETIZER
CALIBRATION DATA 7-22-10 CA
Serial #129

2.00" Coil

Voltage	Field(KGauss)
10	0.305
15	0.474
20	0.641
25	0.809
50	1.65
75	2.49
100	3.34
150	5.02
200	6.70
250	8.39
300	10.05
350	11.71
375	12.50