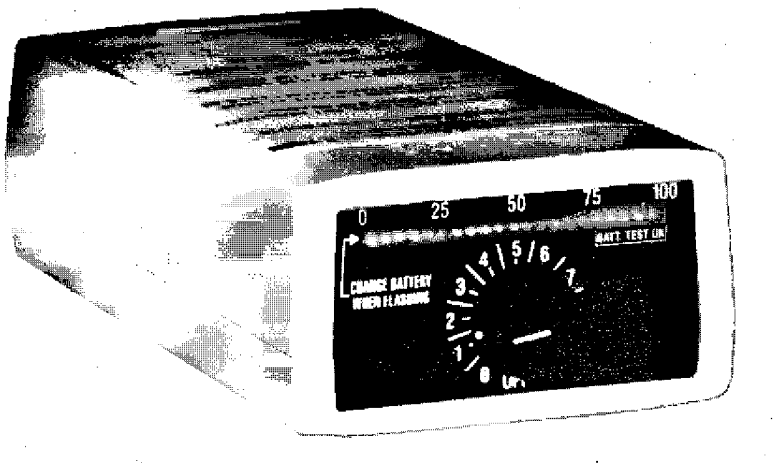
INSTRUCTION MANUAL

ON

M.O.M.
Magnetics Only Meter



INSTRUCTION MANUAL

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I. BATTERY

A. Testing

Rotate the "OFF-ON" control (ballistic impulse sensitivity) to "ON". The ballistic impulse level light bar will move to the right indicating the battery condition. If the light bar indicates at any position below the "BATT. OK" window, replace the battery.

When the computer has completed its battery test, the light bar will move back to the left leaving one LED (light emitting diode) on. This will allow the computer to do two things.

1. Tell the operator if the instrument is "ON" or "OFF".
2. Allows the computer to monitor the battery during actual operation. If the LED starts flashing, the battery is near its end life and should be replaced.

B. Replacement

The battery is located under the sliding battery compartment door. Any 9 volt transistor battery (NEDA # 1604) can be used, but Alkaline is recommended because of its longer life.

II. PRE-LOCATING THE FAULT - PROCEDURES & OPERATION

A. TRACE THE CABLE ROUTE

Before the fault locate can begin, the route of the cable must be located and marked.
While tracing the route of the cable, watch for signs of construction or digging near the route. This could be an indication of where the cable fault is located.

B. FINDING THE GENERAL AREA OF THE FAULT

a. Ballistic Impulse - How It Works

The ballistic impulse level light bar allows the operator to "see" the output pulse from the thumper as it travels down the cable route. The light bar provides a "reference signal" each time the thumper pulse occurs. It also provides the rate at which the thumper is pulsing the cable.

The ballistic impulse circuitry in the Magnetic Only Meter (M.O.M.) is independent from any type of acoustic instrument so headphones and microphones are not needed for a ballistics only search.

b. Setting The Ballistic Impulse Level

1. At full gain, the ballistic light bar can see the thumper pulse at a considerable distance from the route of the cable. When pre-locating a fault, the lowest sensitivity that will provide a very small light bar level should always be used.
2. Move 10 to 20 feet away from the thumper and 5 to 10 feet off to one side of the cable path. Adjust the "Ballistic Impulse Sensitivity" control for a light bar level between 20% and 50% when the thumper output is recorded.

   Walk the cable route keeping the same approximate distance from the cable path as used in setting the ballistic sensitivity control for the 20% to 50% light bar reading.

   THIS SAME METHOD OF PRE-LOCATION CAN BE MADE FROM INSIDE A PICK UP AND DRIVING THE ROUTE OF THE CABLE. SET THE ELECTRONICS ON THE FRONT SEAT OR HOLD IT OUT OF THE WINDOW. SET THE SENSITIVITY FOR THE SAME 20% TO 50% LIGHT BAR READING WHEN THE THUMPER PRODUCES A THUMP PULSE.

   The above adjustment can be made 20 to 30 feet off to one side of the cable path providing this same distance of 20 to 30 feet is maintained during the search for magnetic wave fall off.

NEVER SET UP A MAGNETIC ADJUSTMENT OR SEARCH DIRECTLY OVER THE CABLE PATH. THIS CAN ONLY BE ACCOMPLISHED IF THE OPERATOR IS OFF TO ONE SIDE OF THE CABLE PATH.

C. QUICK SEARCH WITH BALLISTIC IMPULSE ONLY

With the correct setting on the Ballistic Impulse Level Light Bar, the general vicinity of the fault may be located without the use of a microphone.

When a thump pulse arrives at the fault, the voltage will arc to the neutral. Most of the current at the fault will try to go back to the thumper neutral connection, but not all of it. A small portion of the current will be lost into the soil around the fault and a small portion will travel to the far end of the cable because it can see a ground rod connection. Most of the current is between the cable fault and the thumper neutral connection, so a very large magnetic wave is present between the cable fault and the thumper. A small magnetic wave will be between the cable fault and the ground rod at the far end of the cable. AS A RESULT, THE OPERATOR SHOULD SEE A REDUCTION OR A COMPLETE LOSS IN BALLISTIC IMPULSE LEVEL WHEN THE FAULT HAS BEEN PASSED.

Isolating the neutral at the far end of the cable on a jacketed primary will remove that current path and the magnetic fall off will be much more abrupt at the fault. It will help the pre-locate on a direct buried primary, but not as much as on a jacketed primary because the neutral is still in contact with the soil even though the ground rod has been removed at the far end.

A direct buried primary (single phase) in a duct would act like a jacketed primary and magnetic signal loss should be very abrupt at the fault with the far end ground rod removed. Keep in mind that neutrals are touching each other on a three phase so the removal of the neutral under test will not remove the neutral ground from the other cables touching the test cable over its entire length.

3. When an abrupt signal loss has been found as the pre-located spot, mark that spot and move past this spot another 30 to 40 feet. If the ballistic impulse signal does not come back, the fault should be very close to the spot marked. A microphone placed at the marked spot is probably close enough to hear the "thump".

IF THE BALLISTIC IMPULSE RETURNS AT SOME SHORT DISTANCE PASTTHE PRE·LOCATED SPOT, THE SPOT MARKED MAY NOT BE THE CABLE FAULT. A GROUND ROD AT A CABLE JUNCTION POINT, A CATHODIC ANODE, OR ANY KIND OF TIE POINT CAN BREAK UP THE MAGNETIC WAVE IN THAT AREA. AN OPEN NEUTRAL CAN ALSO BREAK UP THE MAGNETIC WAVE IN THE AREA OF THE OPEN. KEEP MOVING DOWN THE CABLE ROUTE. WHENTHE REAL FAULT HAS BEEN PASSED, THE BALLISTIC IMPULSE WILL NOT COME BACK TO ITS ORIGINAL LEVEL.

a. Locating In A Network. Or On A “Y” Splice

With all of the conductors on one feed isolated, the thumper pulse can only travel in the conductor between the thumper and the fault. As a result, the large magnetic wave (ballistic impulse) can only be in the cable between the thumper and the fault.

Walk or drive the cable route. If the magnetic wave is lost when a vault has been passed, go back to the vault and travel that portion of the cable where the magnetic wave is present. Keep in mind that magnetic waves are broken up around ground rods and tie points so move past a vault 30 to 40 feet before the determination is made that magnetic wave is not on this leg or portion of the cable.

III. SERVICE AND WARRANTY INFORMATION

A. WARRANTY

All of A-Tronics-Europe products are warranted against defective materials and workmanship.

The Magnetics Only Meter (M.O.M.) is covered by a one-year warranty.

A-Tronics-Europe will repair or replace all products which prove defective during the warranty period. All repairs will be performed at our manufacturing plant or at one of our field service centers. A-Tronics-Europe retains sole and exclusive right to determine where repairs are to be made and to determine if defects are covered by warranty or are the result of misuse and/or abuse of the instrument and, thus, not subject to warranty repair or replacement.

ANY ATTEMPTS BY UNAUTHORIZED PERSONNEL TO REPAIR ANY A-TRONICS-EUROPE. INSTRUMENT WILL AUTOMATICALLY VOID THE WARRANTY COVERING THAT INSTRUMENT.

B. SERVICE

If you have trouble with this or any other instrument, or require assistance for any reason, contact the nearest A-Tronics-Europe sales outlet. You may also call or write directly to A-Tronics-Europe to explain your problem, or the type of assistance you need.

All instruments shipped to the factory must be sent prepaid. No collect or C.O.D. shipments will be accepted.