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General information Mod. 84/s

Protective insulation coatings for internal and external surfaces of pipes, tanks and other underground or submerged structures subject to chemical or electrochemical corrosion, have always needed inspection checks to ensure correct installation and functional efficiency.

Special equipment is required for these inspections. Holiday Detector Mod. 84/S checks insulation coatings. This model is an improvement on the 77/S which was very favourably received on the Italian and foreign markets, during its six years of production gave excellent performance. In the new model the pulse generator has remained virtually unchanged. Reliability and precision of this part have been ascertained and during many years of use under the most severe conditions.

However, it was felt necessary to improve the possibility of choice of testing voltage values, and to provide a new case in pressed ABS that is far superior in its mechanical resistance and impermeability to the cases provided with previous models.



Voltage selection

A switch with 12 prefixed positions and a linear potentiometer with a range of 2500 volts, allow the selection of the testing voltage more suitable to the type of coating with continuous regulations from 2.5 KV to 30 KV.

Voltage stabilization

The output voltage is stabilized for a battery charge from 13.8 to 10.6V. The attainment of the minimum level of stabilization will determine flashing of a red led indicating that the test is unreliable.

Battery recharging

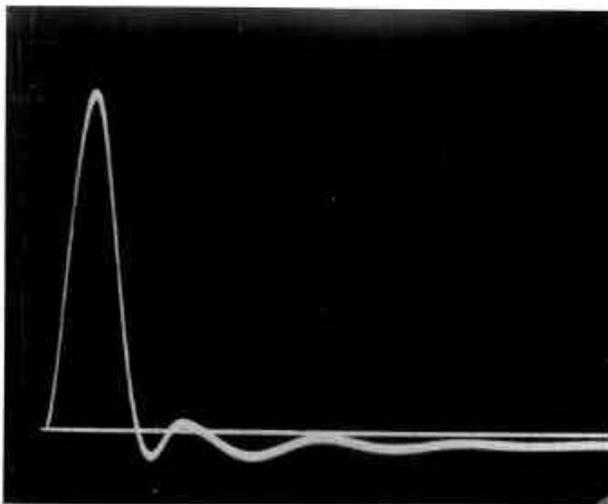
Charging the battery is carried out by directly inserting the connector of the battery charger into the H.V. coil socket. There is consequently no need to remove the accumulator from the case.

Leakage indication

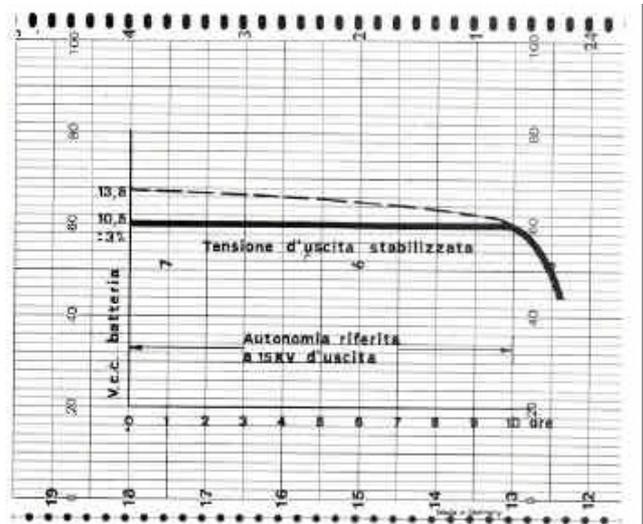
A piezoelectric buzzer gives acoustic indication of leaks. It can be heard clearly even under the most unfavourable working conditions. A linear potentiometer regulates the buzzer sensitivity avoiding all false indications of leaks due to damp coverings or high concentrations of atmospheric humidity.

Safety

Special care during the design of the unit resulted in three different safety devices: groundjack connector, main switch, discharge button. The unit will operate only after each device has been activated to ensure total protection for the operator.



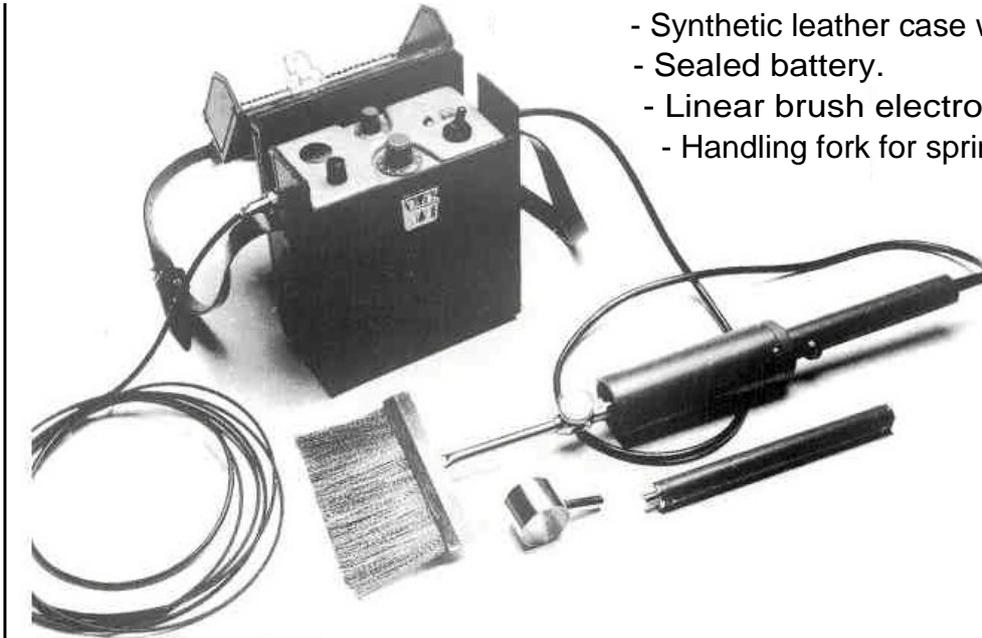
Typical pulse obtained with mod. 84/S (test result AT 2973 CESI Institute).



Characteristic curve of discharge and stabilization referred to an output of 15 KV.

Accessories

- Synthetic leather case with shoulder belt.
- Sealed battery.
- Linear brush electrode (150mm).
- Handling fork for spring electrodes.



Optional accessories

- Linear, semi-circular brush and circle Spring electrodes for all pipes of any dimension and diameter.
- Anodized aluminium case containing apparatus and accessories.
- Stabilized battery charger.
- Batteries for replacement.
- Special series of spring electrodes for inspection of pipes from 4" to 32". The series is contained in a special bag for easy transport.



Technical characteristics

Supply: 12 Vd.c. with rechargeable, sealed, lead battery.

Capacity: 3 Ah

Green LED lighting = operate

Green LED flashing = low battery

Red LED flashing = flat battery

Testing voltage: Unidirectional impulse type with 12 steps switch and linear potentiometer for continuous values from 1 to 30 kV.

Impulse duration: 10 ÷ 12 µs.

Repetition frequency: 20 ÷ 25 Hz

Voltage testing stabilisation: (± 3%) for battery charges from 13.8 to 10,6 V.

Leakage signal: acoustic with Piezoceramic buzzer, 60 dB at 2000 Hz with continuous sensitivity regulation and signal extension for 1 sec.

Current consumption: 0,3 A at the average output voltage of 15 kV.

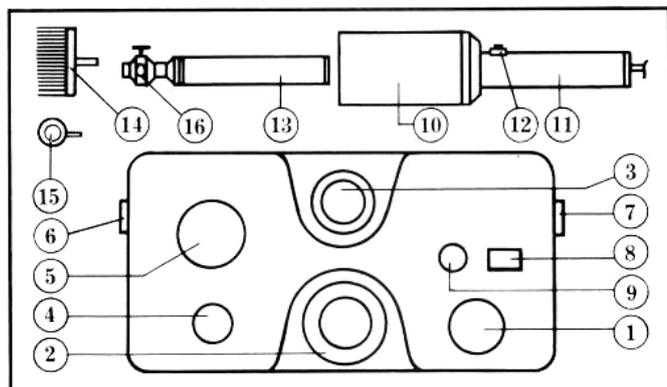
Unit weight: 3 kg. synthetic leather case and rechargeable battery included.

Unit dimensions: 22x19x10 cm.

Instruction for use

- 1 Make sure that the main switch **1** is in the "OFF" position.
- 2 Screw the electrode support **16** onto the end part of the cylindrical container of the high voltage coil **10** and connect the selected electrode blocking the knob.
- For operations with spring electrodes, connect the special handling fork **15** to the electrode support. If necessary, an extension protected with insulating material **13** may be applied to extend working area.
- 3 Connect the cable from the high voltage coil to the socket **7** and block the connector with the metal ring.
- 4 Fix the ground cable connector to the socket **6**; if the connector is incorrectly inserted, the unit will not work.
- 5 Connect the ground cable jawed terminal to the metallic structure to be inspected.
For operation comfort and to allow a wider range of action, as an alternative to the ground cable, the unit can be grounded by means of the speedometer cable (included in the unit set) which will be dragged on the soil during the operator's movements along the structure to be inspected. In this case it is essential to ensure that the structure to be inspected is properly grounded by a pile shoe or other appropriate system.
- 6 Turn the switch **1** to the "ON" position.
- 7 Take hold of the high voltage coil handle **11**, push the button **12** to start the unit working and stroke the insulation coating under inspection with the electrode.
- 8 The ways of selecting the voltage to be applied is governed by numerous different norms (German, British and American) which also relate to the different types of coating (bituminous, plastic, polyethylene, etc.).
The testing voltage is often indicated by the coating manufacturers; in cases where there are no such indications we recommend the following procedure:

- a) apply a double layer of coating at the testing point.
- b) make a small hole at this point.
- c) approach the inspection electrode to this hole and increase voltage applied by turning the switch **2** until a spark strikes between the electrode and the hole. Use the potentiometer **3** for fine voltage regulation from one position to another of the switch **2**.
- d) proceed with the inspection of the coating with this voltage.
- 9 Once the voltage to be applied is set, the acoustic signal sensitivity must be adjusted in the following way:
 - a) turn the potentiometer **4** anticlockwise (lowest sensitivity).
 - b) start the unit and approach the inspection electrode to the made hole.
 - c) turn the potentiometer **4** clockwise until the acoustic signal is heard simultaneous with an electrical spark between the electrode and the hole.
 - d) it is essential to repeat the adjustment operation each time the testing voltage is changed.
- 10 The instrument test voltage (constant load) is stabilized (3%) for a battery charge from 13,8 to 10,6.
The lighting of the green LED **9** shows the unit correct serviceability. For battery voltage between 10,85 and 10,65 V, the green LED starts flashing showing the "low battery" status (residual operating life 15/20 min.).
When the battery voltage becomes lower than 10,6 V the green LED **9** turns off and the red LED **8** starts flashing indicating that the battery status is flat and that the battery has to be recharged. Using our battery charger, a recommended accessory, it is possible to recharge the Holiday Detector without removing the battery from the unit case: just remove the high voltage coil connector and insert the battery charger plug connector in the socket **7**.
- 11 Never approach the electrode discharge toward the unit.



Switch ② position setting											
Equivalent output tension KV.											
1	2	3	4	5	6	7	8	9	10	11	12
2,5	5	7,5	10	12,5	15	17,5	20	22,5	25	27,5	30
Potentiometer ③ range											