



ACCUMULATOR TESTER FOR ARDF RECEIVERS

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# T10

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instruction manual

## FOREWORD

T10 tester is designed for accumulator status check of ARDF receivers of COMPACT and SUPERFOX series (and other similar types as well). It is a useful tool, necessary for the proper treatment of NiCad accumulators.

## CAUTION

**! NEVER connect the tester to the 230 V mains, any AC voltage or any DC voltage higher than 16V! This will ruin the tester and possibly cause an injury or electrical shock!**

**Before measurement, check the zero position of the meter. If necessary, adjust it by the screw on the panel.**

## THEORY OF OPERATION

The voltage of the chemical power sources decreases while discharging the source. This is used for the discharge level of the accumulator or battery.

Apart from alkaline or zinc-coal batteries, the discharge characteristic of nickel-cadmium (NiCad) accumulators is very flat, it means, their voltage decreases only slowly during discharge and sinks at the end of discharge. The accumulator voltage itself is therefore unsuitable for the discharge level check.

In practice, other phenomenon is used: internal resistance of the accumulator increases while discharging. The accumulator voltage under load is lower by the voltage decrease on the internal resistance. Evaluating this decrease, we can seriously estimate the accumulator discharge level.

In order to get significant voltage decrease, we use the load current about ten times higher, than normal receiver consumption. Do not overload the accumulator by too long measuring (see below).

## MEASUREMENT

1. Connect the tester to the receiver.
2. Now read the accumulator voltage without load ( $U_o$ ).
3. Push the button and read the accumulator voltage under load ( $U_i$ ). Push only shortly, max. 2 secs (otherwise you would discharge the accumulator unnecessarily).

**NOTE: Hold the tester horizontally while measuring.**

## MEASUREMENT EVALUATION

### ■ QUICK TEST

If both voltages (without or under load) are in black field (according to the source voltage), the source is charged and OK.

### ■ DETAILED TEST

#### 1. 6F22 battery test

The new battery voltage without load should be min. 9.5 V. If the voltage under load is higher than 7V, you can use it, otherwise exchange for the new one.

#### 2. NiCad accumulator 280 mAh test - see the table:

( $U_o$  - voltage without load,  $U_i$  - voltage under load)

4,8V accumulator		7,2V accumulator		note	result
$U_o$	$U_i$	$U_o$	$U_i$		
>5,4V	>4,8V	>8,0V	>7,0V	just charged	just after charging
~4,8V	>4,2V	~7,2V	>6,4V		charged, OK
~4,5V	<4,0V	~7,0V	<6,0V		discharged, OK, CHARGE!
~4,8V	<4,0V	~7,2V	<6,0V	just charged	lifetime ends, EXCHANGE!
<4,0V	<<4,0V	<6,0V	<<6,0V		deep discharged, CHARGE!
<4,0V	<<4,0V	<6,0V	<<6,0V	just charged	bad, EXCHANGE!!

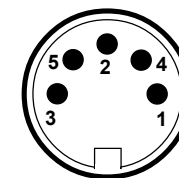
## TECHNICAL INFORMATION

### SPECIFICATIONS

voltage range		10 V DC
internal resistance		7 kohm
load current	at 9,0V	250 mA
	at 7,2V	225 mA
	at 4,8V	180 mA
Measuring error		5% max

Dimensions: 90(h)x60(w)x30(d) mm

### CONNECTOR PIN-OUT:



- 4 positive voltmeter pole  
2 negative voltmeter pole

## WARRANTY, SERVICE

Should this equipment malfunction under normal use, it will be repaired without charge for a period of one year from the date of purchase.

The customer shall not have any claim under this warranty for repair or adjustment expenses if the trouble is caused by improper, rough or careless treatment or mechanical damage, by a fire or other natural calamity or by improper repair or adjustment made by anyone other than manufacturer.

After the first year of use manufacturer offers the free of charge adjustment and check of the equipment.

Any other information, service or modifications are provided by the manufacturer.



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