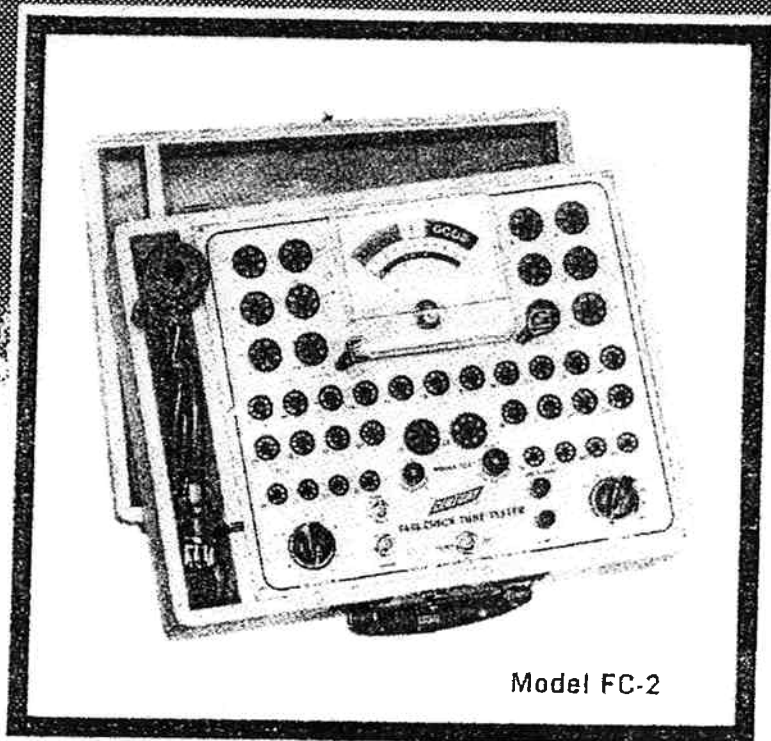


# FAST-CHECK TUBE TESTER



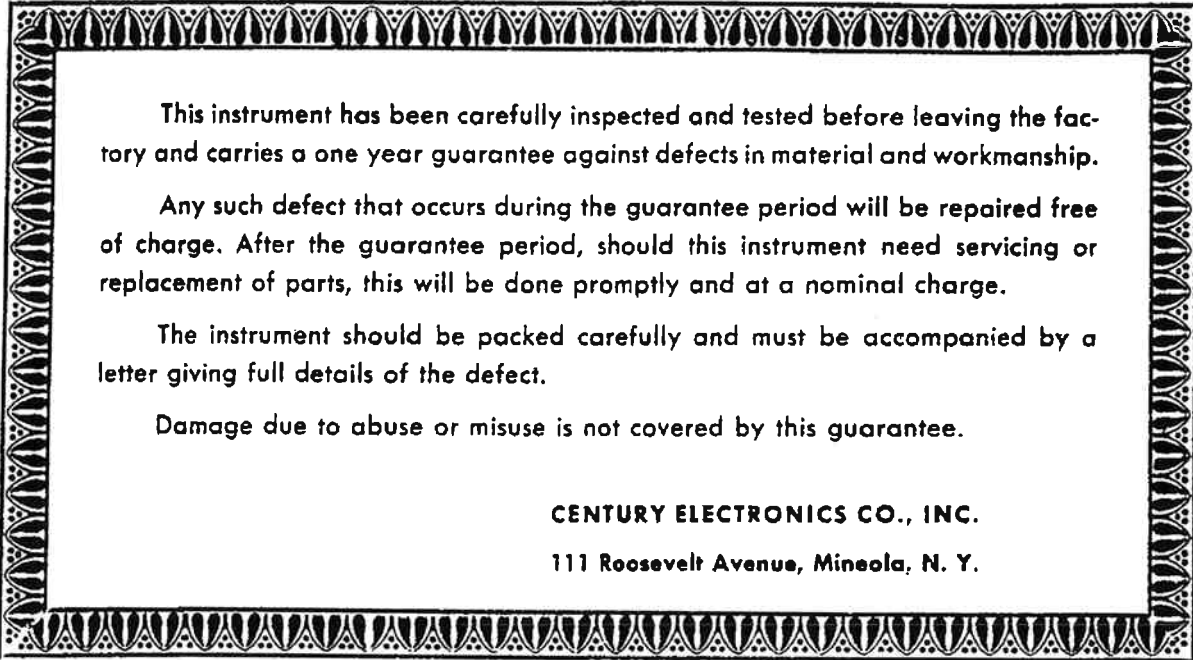
Model FC-2

## INSTRUCTION MANUAL

**Century Electronics Co., Inc.**

*manufacturers of electronic equipment*

MINEOLA, N. Y.



This instrument has been carefully inspected and tested before leaving the factory and carries a one year guarantee against defects in material and workmanship.

Any such defect that occurs during the guarantee period will be repaired free of charge. After the guarantee period, should this instrument need servicing or replacement of parts, this will be done promptly and at a nominal charge.

The instrument should be packed carefully and must be accompanied by a letter giving full details of the defect.

Damage due to abuse or misuse is not covered by this guarantee.

**CENTURY ELECTRONICS CO., INC.**

**111 Roosevelt Avenue, Mineola, N. Y.**

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**CENTURY ELECTRONICS CO., INC.  
MINEOLA, N. Y.**

## INTRODUCTION

Here is the instrument that is completely changing the picture in tube testing. With the FAST-CHECK you can forget about hit and miss substitution methods of tube testing ... do away with complicated and time-consuming multiple switch and roll charts. Just two settings enable you to make a complete tube test in seconds ... giving you an immediate reading of quality, shorts, gas content and life expectancy of over 700 tube types including picture tubes, the newest series-string TV tubes, 0Z4's, gas regulators, tuning eye indicators, special purpose HI-FI tubes and even foreign tubes.

With the FAST-CHECK you will welcome the opportunity to check tubes, for the test time is reduced to less than 10 seconds. To test any tube, you simply set only two controls, insert the tube in the proper socket and press the test button. That's all there is to it!

You'll find you actually spend less time on each call and make more money, and equally important, your swiftness and sureness in testing tubes will impress your customers with your ability. Their confidence in you will result in more recommendations and increase your good will tremendously.

The FAST-CHECK will enable you to locate those hard-to-detect weak tubes, reducing the possibility of non-profitable call-backs. You can also increase your earnings and sell more tubes by showing your customer the actual condition and life expectancy of the tube on the large three color meter.

A very important question most likely in your mind is "Will the FAST-CHECK become obsolete as new tube types come out?" The answer to this is "No"! The circuitry of the FAST-CHECK has been engineered to provide for all the possible combinations of pin connections of future tube types. In addition, new tube listings will be furnished at no charge as soon as new tube types are introduced. This will keep your FAST-CHECK right up-to-the minute at all times.

## HOW IT WORKS

### TUBE QUALITY

Tube quality is measured by the Dynamic Cathode Emission principle in which the rectified cathode current resulting from an A. C. input is measured. Tube quality may also be expressed by measurement of the Mutual Conductance, Plate Conductance or Amplification Factor.

Mutual Conductance (also known as trans-conductance or G-m) has limited usefulness in that it is valuable only for high gain amplifiers used in circuits where maximum gain is required. Thus, a measurement of Mutual Conductance has very little value for tubes used as sync. clippers, detectors, rectifiers, mixers, cathode followers, gas tubes, etc. The same is true for measurement of either Plate Conductance or Amplification Factor.

However, with the Dynamic Cathode Emission Principle employed in FAST-CHECK, *all* tubes can be checked regardless of tube type. In this way, we have been able to cover well over 700 type tubes on the Tube Chart with an accurate and complete check for the quality of every tube listed.

The FAST-CHECK is designed with special switching to handle the testing of multiple-section tubes. Each section is *tested separately* in tubes like 6SN7, 12AU7, etc. which contain two separate sections. Thus, if one section is "BAD" and the other section is "GOOD", the FC-2 will show such a tube to be "BAD".

Where two sections have a common emitter (such as in the 5U4) two tests are made. This is indicated on the tube chart in the following manner:

5U4)  
5U4)

### TUBE LEAKAGE AND GAS CONTENT

No tube test is complete without a check for inter-element leakage or gas content. The FAST-CHECK is extremely sensitive to leakage between Cathode-Heater (which is the most common type of inter-element leakage) . . . also Cathode-Grid leakage (which includes gas content). Thus, tubes which fail in service or perform in a sub-standard manner because of

leakage or shorts between elements or due to a gassy condition, will be found by the FAST-CHECK.

There are two indicators employed which allows for two sensitivities. In this way, leakage resistance all the way up to 5 megohms is picked up. One advantage of separating the indicators is to allow the experienced technician to judge whether the leakage is severe enough to warrant tube replacement.

## **TUBE LIFE EXPECTANCY**

Tubes have a life expectancy which can be estimated by the rate of increasing emission from the Cathode, or by the ability of the Cathode to maintain a constant emission at normal level.

The first property is the familiar "warm-up" time. In general, if a tube takes an excessively long time to reach full output, its life expectancy is short.

The second property, which is always a sign of short life expectancy in a tube, is when the emission falls off after reaching normal output. This can be easily seen by holding down the "QUALITY" button. The meter needle should *not* "fade" back to a lower value after it reaches full output.

## **NEW TUBE TYPES**

The tube types (well over 700) covered by the Tube Chart will be augmented periodically by new type listings which Century will issue at no cost to all FAST-CHECK owners. The circuitry of the FC-2 has been engineered to accommodate future tube types. As they are introduced, you will be informed of the proper settings to add to your Tube Chart.

## **PICTURE TUBES**

The Picture Tube Adapter is designed for use with the FAST-CHECK only. With its use, you can check all picture tubes (including the new short-neck 110 degree types) for Cathode emission, shorts, gas and life expectancy. Weak picture tubes can also be rejuvenated and Cathode emission restored.

## **LINE VOLTAGE COMPENSATION**

The FAST-CHECK incorporates compensation for line voltage variations from 100 Volts to 130 Volts.

## **SAFETY**

The FAST-CHECK is entirely free of shock hazard because the panel is isolated from the line. In addition, possible damage to either tubes or meter due to error in test procedure has been eliminated by careful design of the unit.