

# OPERATING INSTRUCTIONS

FOR

## SUBSTITUTION TESTER

**Model 101**



## OAK RIDGE PRODUCTS

Mfg. Division of VIDEO TELEVISION, INC.

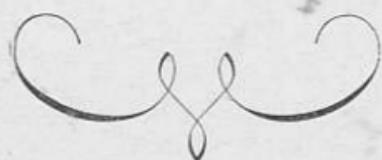
37-01 Vernon Blvd. Long Island City 1, N. Y.

# SUBSTITUTION TESTER



MODEL 101

The Model 101 Substitution Tester may be used to substitute for a wide range of resistors, capacitors, a potentiometer or a loud speaker with or without an output transformer. In addition the Model 101 can be connected to operate as a simple audio signal tracer which has many time saving functions.



**A. To use the Model 101 to substitute for resistors, capacitors or a potentiometer;**

- a. Plug the red and black test leads into the red and black jacks marked "-" and "+".
- b. Rotate the selector switch below the "-" and "+" jacks to the value of resistor, capacitor or potentiometer which you would want to substitute in a circuit. The capacitors are:

.5 mfd	400V	} Ceramic and Paper Condensers
.1 mfd	"	
.01 mfd	"	
.001 mfd	"	
.0001 mfd	"	
80 mfd 150V	} Electrolytic Condensers	
30 mfd 450V		

The resistors are:

100 ohm	2 Watt
1000 ohm	"
10000 ohm	"
100000 ohm	"

The potentiometer is:

0-2 megohm  $\frac{1}{3}$  Watt

Any of the above values are instantly available to you, through the "-" and "+" jacks, by the mere selection of the switch. Below are listed some of the many substitutions that are more commonly used in Radio, Television, Public Address, etc. servicing and in the laboratory of the Engineer, Experimentor or Hobbyist.

1. Substitution for a temporary condenser or resistor in a tone control, tuning, audio oscillator, video amplifier, sweep or sync amplifier or any of the thousand different circuits where it is more desirable to "temporarily" connect a condenser or resistor rather than solder or "tack-in" the part.
2. Substitution for open coupling condenser in the R.F., I.F., Audio, Video, Sync or Sweep circuits of a Television Receiver, Radio, etc.
3. Substitution for an Electrolytic condenser in the filter circuit of a power supply, screen by-pass or cathode by-pass condenser in a Television Receiver, Radio, Amplifier, etc.
4. Substitution for a temporary potentiometer in a circuit requiring an unknown

value resistor such as the Sync circuits of a Television Receiver, the grid bias of an amplifier tube, the AVC or AGC in a Superheterodyne, TV or Radio receiver, etc. By merely adjusting the 0-2 megohm potentiometer above the "-" and "+" jacks to the point that gives you the proper tone, sound, picture, hold control, etc., you can then measure the value of the potentiometer set at this point with any ohmmeter and know in a few seconds which value of resistor should be inserted in the circuit being tested.

**CAUTION:** Do not substitute this potentiometer in a circuit which has a current that will exceed its  $\frac{1}{3}$  Watt rating. (Plate or Screen, B+ supplies of output stages, etc).

5. Substitution for a temporary resistor in a Radio, TV Receiver, Amplifier, Experimental circuit, etc. The resistors in the Model 101 are rated at 2 Watts and may be used in almost any type of Grid, Plate, Tone Control, Screen, Bridge or Attenuator circuits.

**B. To use the Model 101 to substitute for a loudspeaker with or without an output transformer.**

- a. Plug the black test leads into the black jacks marked "SPKR" on the left side of the tester.
- b. If a connection directly to the Voice Coil of the enclosed loudspeaker is desired, push the switch marked "VC" and "TR" to the "VC" position.
- c. If a connection indirectly to the loudspeaker through an output transformer is desired push the switch to the "TR" position. The loudspeaker Voice Coil impedance is approx. 3 ohms and the primary impedance of the output transformer is approx. 5000 ohms.

**Some of the many uses for a substitution loudspeaker and transformer are listed below:**

1. In servicing a radio or TV receiver where its loudspeaker is inaccessible (mounted to the cabinet, in the customer's home while set is in the shop, etc.). The Model 101 loudspeaker can be used regardless of whether the receiver output transformer is available

or not because of its built-in transformer.

2. Testing an output circuit of an amplifier, radio, TV receiver, phonograph, etc.
3. Substituting for headphones in a thousand different circuits such as code oscillators, short wave receiver, monitors, calibration equipment, etc.
4. Emergency loudspeaker or microphone for testing an inter-office communication amplifier.
5. Serves as a convenient miniature "extra" loudspeaker on the radio or TV serviceman's bench.

### **C. To use the Model 101 as a simple Audio Signal Tracer.**

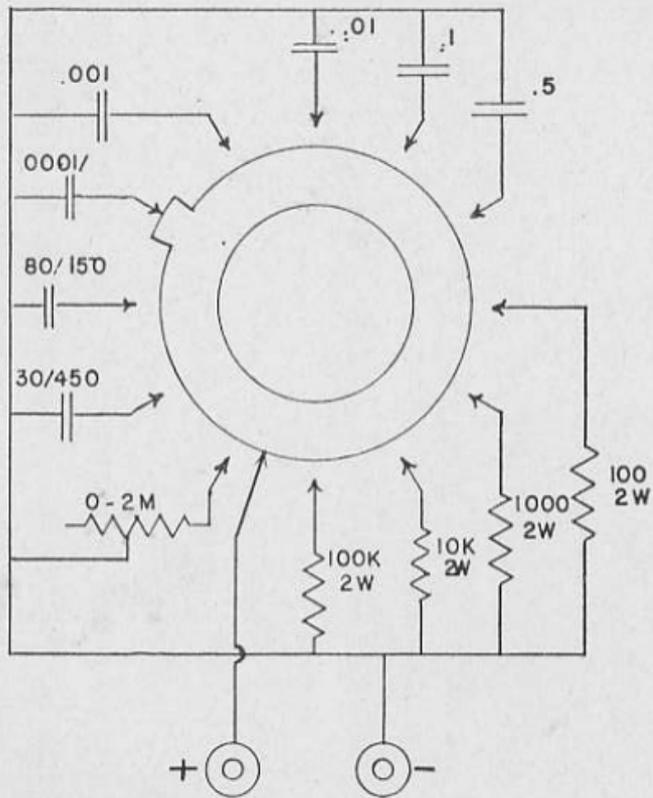
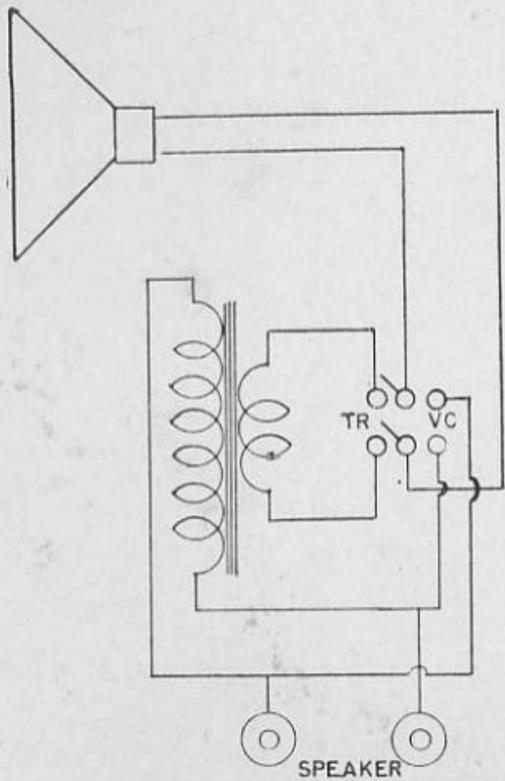
- a. Connect one of the black test leads from the jacks marked "SPKR" to one of the test leads from the jacks marked "-" and "+".
- b. Connect another lead, from the jacks marked "SPKR", to the chassis of the radio, TV receiver, etc.
- c. Connect the remaining lead, from the jacks marked "-" and "+", to the

desired point in the receiver, amplifier, etc., under test.

- d. Rotate the selector switch, under the jacks marked "--" and "+", to a proper value of coupling condenser. (Generally .01 to .5 mfd.)
- e. Push the switch marked "VC" and "TR" to the "TR" position. The Model 101 will now operate as an audio signal tracer with the loudspeaker transformer primary connected in series with one of the internal capacitors so that the test lead may be touched to any point in the receiver, including a point connected to a B+ voltage, without any damage to the receiver or the Model 101.

By probing with the lead it is possible to signal trace an audio signal from the secondary of an audio output transformer back stage by stage, part by part to the input to the first amplifier to detect a faulty spot.

SUBSTITUTION TESTER  
MODEL 101



# NOTES

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**OTHER FAMOUS MINIATURE  
PORTABLE PRECISION  
TEST EQUIPMENT**

MODEL 102 HIGH VOLTAGE METER

MODEL 103 SIGNAL GENERATOR

MODEL 104 SYNCRO-SWEEP  
GENERATOR

MODEL 105 MULTITESTER

MODEL 106 CATHODE RAY  
TUBE TESTER

MODEL 107 DYN-A-TUBE TESTER

MODEL 108 POCKET POWER SUPPLY