

**OPERATING
INSTRUCTIONS
FOR
CATHODE RAY TUBE TESTER
and Circuit Analyzer
"Cathette" Model 106
AND
POCKET POWER SUPPLY
Model 108**



OAK RIDGE PRODUCTS

Mfg. Division of VIDEO TELEVISION, INC.

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

CATHODE RAY TUBE TESTER
and Circuit Analyzer

"Cathette" Model 106



**OTHER FAMOUS MINIATURE
PORTABLE PRECISION
TEST EQUIPMENT**

- MODEL 101 SUBSTITUTION TESTER
- MODEL 102 HIGH VOLTAGE METER
- MODEL 103 SIGNAL GENERATOR
- MODEL 104 SYNCRO-SWEEP
GENERATOR
- MODEL 105 MULTITESTER
- MODEL 107 DYN-A-TUBE TESTER

OPERATING INSTRUCTIONS

MODEL 106



By proper use of this instrument it is possible for the serviceman to quickly determine whether a CRT is defective, the voltages to the CRT are at fault, or if the Ion Trap Magnet is out of adjustment. In addition to serving as a unique and accurate instrument for testing CRT and CRT circuits, the Model 106 incorporates a 10,000 ohms per volt 0-500V and 0-15KV voltmeter to allow the serviceman to trace supply voltage failures which may be determined by the Model 106.

PREPARATION

With television set turned off, remove socket from CRT and connect to plug from the Model 106. Connect Model 106 CRT socket to CRT. Turn set on. Allow 3 minutes heating.

POSITION F

Turn Model 106 to Switch position F. In this position the filament continuity is tested. If the filament of the CRT is good the meter will read on the scale marked "F".

Replace 1.5V battery if reading is below $\frac{1}{2}$ scale.

POSITION S

Rotate the receiver brightness control counter clockwise. Turn Model 106 to Switch position marked "S". In this position the Screen Grid circuit voltage is measured. At this point it is possible to determine if there is trouble in the voltage supply from the set to the CRT socket. If the meter reading is in the GOOD section on the scale marked "S", then the supply voltage is normal. If the meter reading is in the BAD (Red) section then the supply voltage is generally abnormal. Sometimes, a direct short within the CRT will cause the Screen Supply voltage to appear abnormal. This condition can be checked, positively, by using the 0-500V voltmeter on the Model 106 to measure the screen voltage from #10 lug on set CRT socket to chassis. (Disconnect receiver CRT socket to measure voltage). Turn Model 106 to VM position, connect black lead to chassis and red lead to #10 lug.

POSITION ST

Rotate the receiver brightness control counter-clockwise. Turn Model 106 to position marked "ST". In this position the CRT is tested for conductance, short or leakage between the control Grid and the Screen Grid. If the conductance is normal and there is no leakage, gas or short present, the meter reading will be GOOD on the scale marked "ST". If the reading is BAD (Red) and the S and C readings are GOOD, then the CRT is defective. If the "S" and "ST" reading are BAD then the Screen

Grid supply voltage is generally at fault. If there is a negative reading, it is usually caused by a High voltage breakdown between the H.V. anode and the electron gun, thus indicating a defective tube.

POSITION C

Rotate the receiver brightness control counter-clockwise. Turn the Model 106 to position marked "C". In this position the CRT brightness control circuit is tested. The meter reading should be GOOD on the scale marked "C". By rotating the brightness control from counter-clockwise to clock-wise a test is automatically made of the brightness control voltage. There should be a variation of at least one third of the meter reading on the scale marked "C", (approx. one half inch). If not, the brightness control circuit is at fault, not the CRT.

POSITION CT

Rotate the receiver brightness control counter-clockwise. Turn the Model 106 to position marked "CT". In this position the CRT is tested for conductance, short or leakage between the cathode and control grid. If the conductance is normal and there is no leakage, gas or short present, the meter reading will be GOOD on the scale marked "CT". If the reading is BAD (Red) then the CRT is defective. Be sure CRT is on at least 3 minutes. If the S, ST, C and CT positions all test GOOD and the CRT is still inoperative the trouble will probably be

in the H.V. Anode circuit in the set or the anode section of the CRT.

POSITION VM

POSITION VM — BEAM CURRENT AND ANODE TEST — REMOVE SET HV CONNECTION. Connect the high voltage red test lead, of the Model 106, from the jack marked "+500V" to the red jack on the duo-decal plug. Connect a black test lead from the "--" jack on the Model 106 to the high voltage anode terminal on the cathode ray tube. Although an ION trap magnet is not necessary for this test, if used, adjust for maximum reading on the Model 106 meter. Rotate brightness control to maximum clockwise position.

BAD Tube—Less than 100 volts on the 500 V scale.

POOR Tube—between 100 and 200 volts.

GOOD Tube—more than 200 volts.

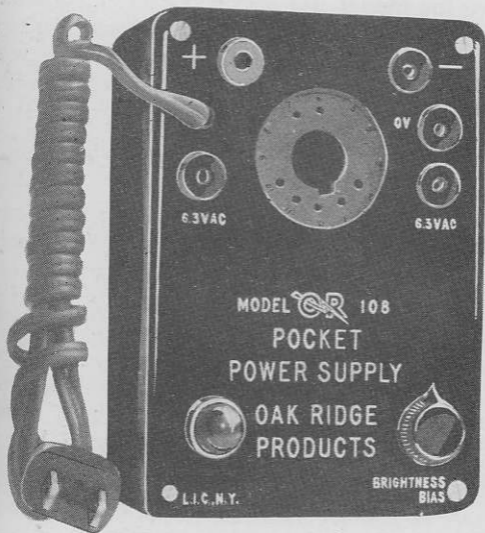
POSITION VM — ION Trap Magnet Test and adjustment.—REMOVE SET HV CONNECTION. Clamp the ION trap magnet around the neck of the cathode ray tube. Follow the above procedure for connection to the Model 106. Adjust the magnet from a maximum to a minimum reading on the Model 106 meter, with the brightness control at the maximum clockwise position. If the magnet will not vary the reading by at least a ratio of 2 to 1, then the magnet is defective. An approximate correct positioning of the magnet, will be found,

when the reading of the magnet adjustment is at a minimum.

POSITION VM — High Voltage Test with CRT in a television set with HV connected. Connect the black test lead from the “—” jack to the receiver ground or chassis. Connect the high voltage red test lead from the “+15 KV” jack to the HV Anode terminal on the cathode ray tube. Turn set on. Turn brightness control maximum clockwise. The reading should be between 7-15 KV depending upon the manufacturers rating. If the reading is about $\frac{1}{2}$ of normal, then a second reading should be taken with the Anode disconnected from the CRT. In this test the HV supply is measured with no load in order to determine if the CRT or the HV supply is defective. If the second reading is still very low then the HV supply is at fault. If the second reading is now normal then the CRT is defective due to a HV breakdown within the tube.



POCKET POWER SUPPLY



Model 108

OPERATING INSTRUCTIONS

MODEL 108



The Model 108 pocket power supply may be used as a separate filament and B+ or bias supply, or used as a television receiver substitute power supply in conjunction with Model 106 "Cathette."

Connect proper test leads. Plug line cord into 110V 60 cycle AC socket. Turn "Bias" knob clockwise until pilot light is illuminated.

A—Model 108 used as filament and B+ or bias supply.

Filament Supply—Connect test leads to jacks marked "6.3V A.C." This voltage is rated at 6.3V A.C. 1 Amp.

B+ Supply—Connect red test lead to "+ " jack and black test lead to "- " jack. This connection provides a 275V D.C. 50 MA supply.

Bias Supply—Connect red test lead to jack marked "OV" and black lead to "- " jack. This connection provides a 0—45V 0.5 MA D.C., varied by means of the "Bias" knob. This bias voltage may be used in any low current application such as AVC, AGC, etc.

Note: The above $B+$ and bias voltage and current ratings only apply when the $B+$ or bias supplies are used separately. A lower rating will be obtained if the user desires to connect $B+$ and bias supplies at the same time. When used together connect the O or ground voltage point to the jack marked "OV". Connect the $B+$ point to the "+" jack and connect the bias point to the "-" jack.

B—Model 108 used as a television receiver substitute power supply in conjunction with the Model 106 Cathette.

Positions F, S, ST, C, CT and VM.

Insert duo-decal plug from Model 106 into duo-decal socket on Model 108. Attach Model 106 duo-decal socket to base of cathode ray tube. Follow Model 106 instructions of positions F, S, ST, C, CT and VM. Use "brightness" knob on Model 108 as in a television receiver.

