

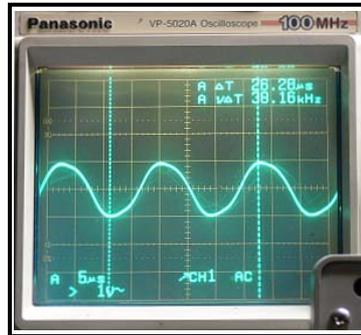
# Fluorescent Lamp Backlit LCD TV

## Inverter Output Test

The inverter converts the DC output of the main power supply to AC electricity to power the fluorescent backlights of the LCD panel. The electricity generated in the is approximately 2000Vp-p or 707Vrms. Use extreme caution when handling the power supply board.

**Imran Asharaf**

# TC-32LS1 Inverter Output Measurement

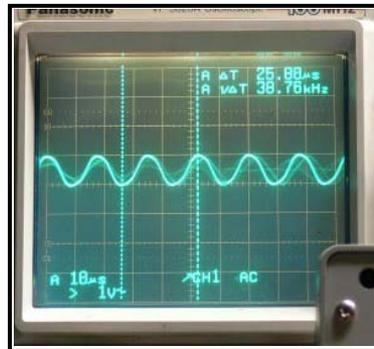
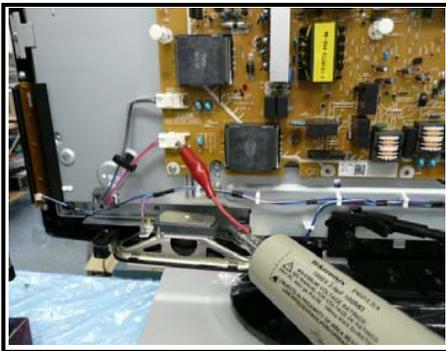


$$2000 \text{ Vpp} = 707 \text{ Vrms}$$

→ Formula:  
$$\text{Vrms} = 0.3535 \times \text{Vpp}$$

This connection of the Tektronix P6015 1000X high voltage probe produces the voltage measurement displayed above. This type of connection to the inverter's output leads results in a shutdown after approximately 8 seconds of operation. This is due to extra load added to the output, which results in an impedance mismatch. The power LED blinks one time. The unit has to be disconnected and re-connected to the AC outlet to restore operation. The waveform displayed on the scope is the peak to peak value. To calculate the RMS value, use the formula:  **$\text{Vrms} = 0.3535 \times \text{Vpp}$**

## Connection for Best Result



$$1000 \text{ Vpp} = 707 \text{ Vrms}$$

→ Formula:  
$$\text{Vrms} = 0.707 \times \text{Vp}$$

To avoid a shutdown when testing the inverter output, use the positive connection of the probe at any of the outputs while leaving the negative lead disconnected. The display of the oscilloscope will only show half of the total voltage. This will be the peak value (**not peak to peak**). To calculate the RMS value, use the formula:

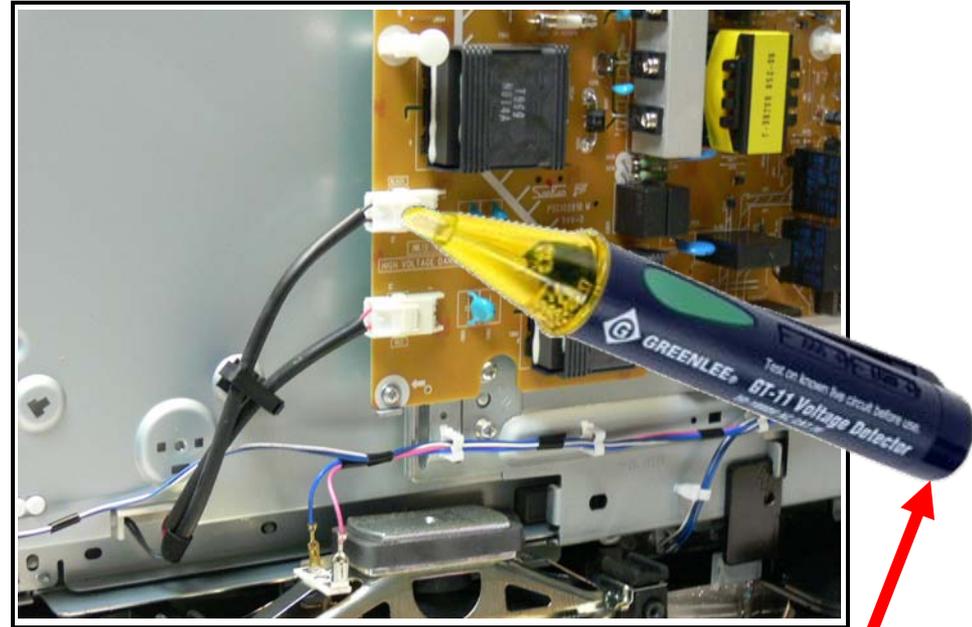
$$\text{Vrms} = .707 \times \text{Vp}$$

# Greenlee's GT-11 Voltage Detector

The Greenlee GT-11 Voltage Detector performs fast, easy non-contact voltage detection. It is intended to check for the presence of AC voltage, signaling the user with an intermittent tone and a flashing LED. It contains the following:

1. A bright LED and audible alarm to indicate the presence of voltage
2. An on-off switch to prolong battery life
3. A comfort grip to ease fatigue

It detects voltages in the range of 50 VAC to 1000 VAC.



Battery cap

## Operating Instructions

1. Turn the unit on by rotating the battery cap so that the pointer is in the ON position.
2. Test the unit on a known live circuit before each use. An AC outlet is a good source for a test.
  - If the unit does not function as expected on a known live circuit, replace the batteries.
3. Place the probe tip on or very close to the connector being tested. Tone and flashing LED indicate the presence of voltage.

# External Use of a Neon Bulb to Check the Inverter



A neon bulb connected in series with a one megohm resistor may also help determine whether a 1 blink shutdown is coming from the panel or the P board. Without power applied to the unit:

1. Disconnect the P5 and P6 connector from the P board.
2. Attach a 1 megohm resistor to either the P5 or P6 socket as shown in the picture.
3. On the other end of the resistor connect a neon bulb.
4. Apply power to the unit and press the power button.

Before shutting down, the unit should make three consecutive attempts at powering up. During each attempt, the neon bulb lights up, indicating the proper output of the connector and possibly a defective panel. If the bulb does not light up, this indicates a bad P board (inverter).

**Note:** The test may also be performed with the cables connected.