DOWNLOAD PDF PICTORIAL GUIDE TO COLOR TV CIRCUIT TROUBLES

Chapter 1 : Troubleshooting TV Picture Problems | theinnatdunvilla.com

*Pictorial guide to color TV circuit troubles, [Forest H Belt] on theinnatdunvilla.com *FREE* shipping on qualifying offers. The successful acceptance of an earlier volume, How to Interpret TV Waveforms, generated clamor for a similar book addressed more specifically to color.*

Today, I will continue explaining other types of electrical diagrams as follows. In addition to showing the ratings and size of electrical equipment and circuit conductors, a properly drawn one-line diagram will also show an electrically correct distribution of power with respect to current flow from the power source to the downstream loads or panelboards. Importance of Single Line Diagrams: Single-line diagram is a simplified notation for representing a three-phase power system; Instead of representing each of three phases with a separate line or terminal, only one conductor is represented. Electrical elements such as circuit breakers, transformers, capacitors, bus bars, and conductors are shown by standardized schematic symbols. Elements on the diagram do not represent the physical size or location of the electrical equipment. On one-line power diagrams, components are usually arranged in order of decreasing voltage levels. The highest voltage component is shown at the top right of the drawing. In order to find out how power is supplied to a component, start at the component and trace the flow of power backwards through the drawing. This method will be most useful in locating the correct circuit breaker to isolate a component for maintenance You can read the single line diagram from the top to the bottom or from left to right of the diagram. The one-line diagram provides the following information: Manufacturers type designations, and ratings of devices. Ratios of current and power transformers, taps to be used in multi-ratio transformers, and connections of double-ratio transformers. Rating connections of wye and delta power transformer windings Circuit breaker ratings in volts and amperes. The interrupting rating, type, and number of trip coils on circuit breakers. Switch and fuse ratings in volts and amperes. The sizes, type, and number of incoming and outgoing cables. The voltage, phase, and frequency of incoming and outgoing circuits. The available short circuit and ground currents of the power company system, and type of ground used. Metered points and type of metering. The amount of the load on all feeders. A- Abbreviations used for Principal Meters: Abbreviations used for Principal Meters The abbreviations used for principal meters, instruments, and other devices not including relaying, which is listed in Fig. The preliminary one-Line diagram,.

Chapter 2 : Disassembling the HD65, a pictorial guide. - AVS Forum | Home Theater Discussions And Rev

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Plugs fall out of their receptacles when contacts are worn 9. Ungrounded 2-prong Receptacles What it means: Replace two-prong receptacles with properly grounded three-prong ones, if wiring allows it see. Plug Falls Out of Receptacle What it means: Worn contacts in receptacle no longer grip the prongs firmly. Loose contacts can cause arcing, which can ignite dry wood and dust. Replace the old receptacles as soon as possible. Many homeowners feel comfortable doing this themselves. Knob and Tube The earliest residential wiring system has a cloth-covered hot wire and a neutral wire, which run parallel about a foot apart. Ceramic knobs anchor the wires to the house framing; ceramic tubes are used where wires cross or penetrate framing. Cannot be grounded or spliced into a grounded circuit. Its soldered connections may melt if too much current flows through them. Rewire or disconnect any circuits covered with building insulation; it causes this wiring to overheat. Armored Cable Bx The successor to knob and tube. A flexible steel sheath covers hot and neutral wires, which are insulated with cloth-covered rubber. The sheath provides a ground, so grounded receptacles are easy to retrofit. Sheath must be anchored securely to a metal outlet box. Check condition of insulation every five years or so; it degrades over time, as shown above, or if too much current is allowed to flow through the circuit. Plastic is easily damaged. Grounded receptacles cannot be retrofitted to this wire. Where to Find It.

Chapter 3 : A Beginnerâ€™s Guide to Circuit Diagrams Â» Electrical â€‹Engineering â€‹Schools

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Identifying Electronic Components How-to identify and locate information for electronics components you can recycle from discarded gadgets. Brandon gives us example pictures and descriptions for most types of electronics components to help you stock up your home electronics lab. This is a must read for new electronics hobbyist. Let Brandon know that you appreciate articles such as this by posting a comment. I hope to see many more articles like this one here at uC Hobby. Scrounging for parts is a great way for hobbyists to save some money. You can get tons of parts out of discarded or unused electronics. But how do you identify all those parts? This article will give you some ideas on where to start. The focus will be on common reusable through-hole components hobbyists will be most likely to scrounge and re-use. Obviously, this is by no means a complete list, there are way to many different electronic components to put into a quick guide, but maybe this will give you some ideas to narrow down your search on an elusive component. Resistors are one of the most used components in a circuit. Most are color coded, but some have their value in Ohms and their tolerance printed on them. To identify values, you can check out the Electronic Assistant software found in the Free Electronics Hobby Software article here on uC Hobby, or find one of the many online tools. A few of them can be found at http: A multimeter that can check resistance can also be helpful, providing the resistor is already removed from the board measuring it while still soldered in can give inaccurate results, due to connections with the rest of the circuit. Potentiometers are variable resistors. They normally have their value marked on them, normally marked with the maximum value in Ohms. They may also have a letter code on them indicating the taper which is how resistance changes in relation to how far the potentiometer is turned. Capacitors are also very commonly used. A lot have their values printed on them, some are marked with 3-digit codes, and a few are color coded. The same resources listed above for resistors can also help you identify capacitor values. Inductors, also called coils, can be a bit harder to figure out their values. If they are color coded, the resources listed for resistors can help, otherwise a good meter that can measure inductance will be needed. Crystals and Oscillators are also fairly easy to identify by sight. Most are clearly marked with their operating frequency printed on them. Relays are typically enclosed in plastic, and many have their specs printed on them. Transformers are normally pretty easy to identify by sight, and many have their specs printed on them. Batteries are also pretty easy to identify, and are well marked with their specs. Fuses can be easy to identify, and typically have their voltage and amperage rating marked on them. The datasheet is a document containing the specs on the device and many will include example circuits, links to app notes, and other valuable information. They are typically in a. A couple of free ones can be found below. Luckily, they have part numbers which can be used to help identify them. They may also have the manufacturers logo on them. Finding the manufacturer can be extremely useful as the most up-to-date information is usually available on their website. For help in finding the manufacturer based on their logo, check out the following sites.

Chapter 4 : Troubleshooting switch mode power supplies

The purpose is the same: Literally, a circuit is the path that allows electricity to flow. This guide will show you a few of the common symbols that you are sure to see in your future electrical engineering career. Outlets in other countries operate at a different voltage, which is why you need a converter when traveling. Current is the flow of electricity, or more specifically, the flow of electrons. It is measured in Amperes Amps , and can only flow when a voltage supply is connected. Materials such as gold or copper, are called conductors, as they easily allow flow of movement low resistance. Plastic, wood, and air are examples of insulators, inhibiting the movement of electrons high resistance. DC is a continuous flow of current in one direction. DC can flow not just through conductors, but semi-conductors, insulators, and even a vacuum. In AC, the flow of current periodically alternates between two directions, often forming a sine wave. The frequency of AC is measured in Hertz Hz , and is typically 60 Hz for electricity in residential and business purposes. Completing an electrical engineering degree and then getting a job in the field means you will see a lot a lot a lot of these schematics. While they can and will get very complex, these are just a few of the common graphics to get your footing on. Starting to make sense? These are the basics and may even seem obvious or intuitive to you, such as the wires and if they are connected. Whenever you determine your specific field of electrical engineering, you may see more complex diagrams and symbols. For example, of the two symbols for resistors above, the first one is used in the U. You will also learn about the various symbols used for switches, other power supplies, inductors, meters, lamps, LEDs, transistors, antennas, and much more. As mentioned earlier, these symbols and schematics will be all over the place. The sooner you familiarize yourself with the verbal and pictorial languages of engineering, the more prepared you will be in your quest for a degree.

Chapter 5 : - Pictorial guide to color TV circuit troubles, by Forest H Belt

2. Pictorial guide to colour TV circuit troubles. With a specially written chapter for the guidance of the English reader by W. Oliver. 2. Pictorial guide to colour TV circuit troubles. With a specially written chapter for the guidance of the English reader by W. Oliver. 6. Pictorial guide to color.

Troubleshooting switch mode power supplies Introduction Switch mode power supplies SMPS are now standard for the majority of our home appliances. Old fashioned linear power supplies based on mains frequency transformers are disappearing, mainly because of their cost, their large size and weight. Switch mode power supplies are everywhere; here are some pictures of their guts. The big high power components and small heat sinks are typical of SMPS. These devices are incredibly reliable, but being very often left powered all the time even when their load is switched off , they still are the weak link. Components are fed with high voltage, they get warm, they age quickly because of the full time operation and when there is a surge, the SMPS is the first stage concerned. Many problems with our home appliances are due to SMPS faults. So, I summarized in this page the basic ideas and the tricks that I use the most. Here, I suppose you have a perfectly designed circuit that used to work perfectly and suddenly failed. On the secondary side, the voltage is rectified and filtered. Switching transistors are driven by a control circuit that senses the output voltage and input current and regulates accordingly. This control circuit is very often on the primary side and often powered by an extra winding on the transformer. A sample of the output voltage is fed back via an opto-coupler. In some cases the control circuit is located on the secondary side and drives the transistor s via a small additional transformer. All configurations have some additional circuit to allow the controller to start at power-up. Structure of a SMPS. There is always a very clear separation between the high and low voltage sides primary and secondary sides. You can observe it on the bottom copper side of the PCB as a larger spacing in the tracks. Some times the solder mask varnish is removed in this area or there are holes and slots to increase insulations. On the pictures in this page, this separation is often marked with a dashed red line. This SMPS uses classic-style through hole components. The high voltage side is on the left of the dashed red line. Here, the controller uses SMD technology and is mounted on the bottom side. The large SMD diode is the low voltage rectifier. The high voltage side is above the dashed red line. The primary and secondary side are fully DC isolated by the transformer. Very often, if the ground of the output is not connected to the mains ground, a small high voltage capacitor connects these two grounds at high frequency. The light blue capacitor in this picture is the high voltage capacitor connecting the low voltage ground with the mains ground. Of course, there is DC insulation. A large storage capacitor is charged at high voltage and can be dangerous even when the mains supply is disconnected. Not all SMPS include bleeding resistors or they could be broken so the capacitors could stay charged for a long time. Always make sure all capacitor are completely discharged before touching the circuit. Keep also in mind that heat sinks very often are not grounded and they can very well be at mains voltage. Beware of taking measures with an oscilloscope: This SMPS has no bleeder resistor on the high voltage filter capacitor. The high voltage side is on the right of the dashed red line. Visual inspection I usually start with a visual inspection to get an idea. Many faulty electrolytic capacitors, when not exploded, can easily be spotted because they "inflate" and their top or bottom side becomes dome-shaped see below. Burned resistor can also be spotted by their black colour and bad smell. A look to the ferrite transformer is very important: Some components are warm and as time goes by they tend to get a little brownish the same is true for the board near them: Start by looking at the SMPS mains line fuse this one is good. Start by looking at the mains fuse: A blown fuse usually means many faulty semiconductors; a healthy one is probably just a single component. Also look at how the fuse looks like: Unfortunately some fuses are filled with sand and you cannot see what happened. No output, good fuse SMPS can fail in many different ways, the most common being no output power at all. In this case, I start by checking the input fuse. If the fuse is good but there is no output, probably all the semiconductors are good and it could be easy to fix. Keep in mind that usually semiconductors blow up shorted and resistors and often capacitors blow up open. A good candidate is the inrush current limiter an NTC. Than I check for high power rating resistors, particularly on the

primary side: I measure their resistance one by one, in circuit. The first resistors to check are the one in series with the power transistors, usually less than one Ohm. Sometimes the regulator is powered by a high value high wattage resistor in series with a Zener diode: Than I check the capacitors see below. No output, blown fuse On the other hand, if the fuse is open, than something went really wrong in the circuit. Typical problems are blown up power transistors or rectifier diodes, especially on the primary side. Just use the diode function of a multi-meter and check the junctions: Than, I also check for faulty resistors as above and faulty capacitors see below. If the power transistor or one of them is dead, chances are that many other components are dead too. Often SMPS include protection components such as additional resistor or Zener diodes to reduce damages in case of failure, but not always. Before going to far in replacing, make sure you check all the parts. For example, check if the controller IC still works. Powering it off-line with a small external DC power supply and checking for pulses on the transistor base or gate is a good idea. When replacing semiconductors I first try to source the exact same part. Of course the new semiconductor must show at least the same voltage, current and power characteristics, or be even better. For diodes also check the switching time: For transistor, check the gain and the cut-off frequency: For MOSFETs check the gate capacitance that should not exceed the one of the old component and the gate threshold voltage that has to be similar to the old device. Here, probably all power semiconductors are good, so the first thing to check are the capacitors see below. Than, there may be something wrong with the feedback circuit: When gradually increasing the DC voltage, you should see the feedback circuit working when you cross a threshold near the nominal output voltage. Since, while doing this test there are no dangerous voltages involved, you can easily use an oscilloscope to diagnose the feedback circuit. You may also have to supply the controller IC on primary side with the same low voltage source to see what happens on the other side of the optocoupler. In cheap designs, where thermal dissipation is a bit too close to the limit, and a choice of components a bit too cost-oriented, electrolytic capacitors are real time-bombs that will eventually fail sometimes by literally exploding The liquid electrolyte inside these components tends to evaporate and dry out completely altering the characteristics. The two blue electrolytic capacitors in this picture are the low voltage filter capacitors. These ones are in good shape. The big brown electrolytic capacitor in this picture is the high voltage filter capacitor. This one is in good shape. When electrolytic capacitors explode, they throw out corrosive and bad smelling projections. The exploded components are easy to spot, but before going any further, one should check the status of the rest of the circuit: Fortunately, only very few electrolytic capacitors explode, the majority of them just fail silently. Look at all the capacitors, their shape and their neighbourhood. No need to measure: But some electrolytic capacitors can be bad and still look decent. The only way of finding the faulty ones is by measuring them. The bad news is that you need an ESR meter or an RLC bridge ; the good news is that it works most of the times in the circuit without removing the capacitors unless you have several in parallel. For replacement, use only new capacitors. Choose a good brand and keep in mind that good capacitors are expensive, but fixing a SMPS is hard enough and completely justifies the extra cost. Electrolytic capacitors exist in two flavours: I always choose the higher temperature because they last longer. The light bulb trick After replacing all the faulty parts, there is still a reasonable risk of blowing them again, especially if the fuse was initially blown. Wearing safety glasses is also a very good idea. If you still have a short circuit the bulb will glow bright and steady: Watch a movie showing this trick on a healthy SMPS: The bulb is initially off; the flash is due to the inrush current when switching the SMPS on charging of the high voltage filter capacitor , than the brightness goes down showing little current. Of course, if you load the output the bulb will glow brighter.

Chapter 6 : Power supply repair-troubleshooting, testing, problems and failure

This is due to the TV picture settings, which are optimized for a showroom environment. Fix this by changing the picture mode to natural in the picture menu. For more precision, try manually setting the color, contrast and brightness options in the picture menu.

Share on Facebook Most televisions manufactured today have high-definition systems with the most advanced cutting-edge technologies. These TVs provide high-quality picture and entertainment. However, sometimes even your new HDTV might run into problems. Knowing a little about TV picture problems and their causes can help you troubleshoot the solution. TV picture problems Digital Mosquitoes Clouds of digital mosquitoes sometimes surround fast-moving objects on the screen. This common picture defect might occur due to the digital signal compression. In this case, the problem is with the broadcaster rather than your TV. Digital mosquitoes will probably reduce greatly as compression technologies improve. Adding an outboard digital noise processor could solve this problem. This is due to the TV picture settings, which are optimized for a showroom environment. Fix this by changing the picture mode to natural in the picture menu. For more precision, try manually setting the color, contrast and brightness options in the picture menu. Video of the Day White Outlines White outlines around objects and people generally appear either if the TV sharpness is set to very high, or if your television set uses some edge-enhancement processing technology. Go to the picture menu and adjust the sharpness till the white outline disappears. If edge-enhancement is enabled, try to disable it using the service menu. Picture Breaks into Pixels Your picture may break into pixels due to the digital video signal dropping. The signal dropping may occur because of either problems in the cable or weak signals. If the problem is weak signals, use an amplifier to strengthen the signal. A cable technician can help you install an inline amplifier or a pre-amplifier. This will boost your signal strength and fix the pixel problem. Most manufacturers nowadays have rectified the situation. If you run into this problem, changing your television could be the only solution. At times the video might become choppy. When this happens, check whether the signal is strong enough. If the signal is strong the problem is with the cable operator. If the signal strength is weak, try boosting the signal strength with the help of an amplifier.

Chapter 7 : CRT TV Color Patches Problem Solved | Electronics Repair And Technology News

The use of a simple light-pen system with a colour-television image analyser. Pictorial Guide to Color TV Circuit Troubles / F. Belt. Read more. Article.

Chapter 8 : Samsung LCD Repair - SMPS Troubleshooting

A friend of mine called me concerning his CRT TV problem. The complaint was about not getting proper color on the TV screen. I went to his place and checked the TV and I found it was color patches problem.

Chapter 9 : Electrical Single Line Diagram - Part Two ~ Electrical Knowhow

I tried to order from them 2 months ago, and my order went from 'in stock' to out of stock over the course of the day after I ordered. They had 3, supposedly when I ordered, but by the next morning they told me they were all out, and I needed to wait about 3 weeks for shipment.