

LCD screen and screen bad judgment and overhaul simple LCD home



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Screen circuit is the logic board, has always been mistaken for many teachers are not repairable, mainly because the logic board is with the screen along with the LCD screen manufacturers to provide, manufacturers out of the technology of confidentiality, the little information, coupled with Less contact, so the composition and working principle of the logic board is very vague, it is mistaken for the logic board is not repairable, many maintenance workers to the logic circuit board failure as a screen failure, in view of this understanding Misunderstanding, through the maintenance of examples, maintenance techniques and exchange of experience for your reference, so that we have a preliminary understanding of the working principle of the logic circuit board to enhance everyone's confidence in the practice of courage to break the myth can not be repaired.



Failure caused by the failure of the screen logic board: black screen, white screen, gray screen, negative image, noise point, vertical band, the image is too bright or too dark, different LCD screen generally need to select a different LVDS program, Matching when there will be more color or image is not normal phenomenon, which is usually said that the screen parameters, screen parameters can be adjusted through the bus to restore the normal image, not within the scope of this discussion, the following refers to the cable Under normal circumstances the maintenance process and principles.

Some of the logic circuit board TV is a separate circuit board, and some are connected with the screen, a separate logic board can pick the board repair, and screen connected together in the maintenance process must be careful to avoid bumps or high temperature damage to the film Module and LCD screen.

White screen failure in the actual maintenance occupy a large proportion of the first encounter white screen failure to check the three voltage,

- 1, the screen power supply voltage is 5V or 12V,
- 2, VGH: Vgatehigh, refers to the gate level of the high potential, which is open gate voltage level. 18V --- 24v
- 3, VGL: Vgatelow gate level is low, which is closed gate level voltage, the voltage is effective in the second-order drive, in the third-order drive, this voltage is only used to generate Vgoffl; -6v ---- -7v

VGH is 5V or 12V screen supply voltage through a DC ---- DC conversion circuit output voltage generated after

18V or 24V, determined by the screen. VGL negative 7V, it is also DC --- DC converter circuit output. General screen circuit voltage of these three are normal, and finally consider the main chip; general screen DC conversion circuit, the first is to check the filter capacitor, the second is the DC --- DC circuit, IC more bad, check the above A few steps if you can not fix, it is recommended to directly replace the logic board, if it is one screen, it will only replace the screen, the gamma correction circuit failure rate is not high, it is not discussed.

Liquid crystal LCD screen appears vertical line, and the screen is connected with the film module is a professional press machine to complete the general maintenance department does not have the equipment, it can be used with hot air gun plus aluminum processing, the general vertical line is the screen drive and screen connection Cable loosening, hand pressing is good. Because the cable is made of soft plastic can not be directly heated with a hot air gun, to borrow aluminum to press the cable, and then heat the aluminum heat sink. Do not let loose by hand, temperature control at 200 degrees Celsius, too high will burn cable, air gun temperature to master or else will blow the screen scrapped, if not repaired it can only be scrapped, as well as some liquid crystal LCD screen vertical line is due to damage the screen circuit, which is not repaired.

The general fault judgment is as follows:

- 1, Huaping general inspection lvds cable, mostly at the interface connection loose or damp, there are bad chips.
- 2, when adjusting the menu garbled, is the motherboard fault, replace the main chip or memory, or directly replace the motherboard.
- 3, black screen failure, most of the backlight circuit failure, a small part of the motherboard failure.

Changhong, Konka and other models of white screen common problem is the screen logic board DC-DC circuit is bad, for DC-DC circuit to solve, do not change the plate can be repaired.

DC / DC with TPS65161 Typical Voltage:

Circuit main voltage interpretation

- VGL: GATE OFF control voltage, this screen: -5.6V
- VGH: GATE ON control voltage; this screen: 21V

VCOM: Display's reference voltage. Vcom voltage generation circuit by a total of close

Mode voltage ($VDD / 2$) 10-bit D / A converter.

- VDD: digital power supply, VDD18 means 1.8V, others are the same.
- AVDD / VDA: analog power supply, supply GAMMA voltage to U6 / HX8915;
- M / POL: LCD drive polarity conversion signal, used to generate VCOM signal
- GVON, GVOFF: VGH timing control signal, from the 36th pin of CM1682A, 37

foot;

- PWRON, DC / DC converter IC open signal from the CM1682A 33 feet;

On the gamma correction circuit repair cases (this case is only explained gamma correction circuit repair processing, the actual work is not uncommon):

Symptoms: boot characters, snow all the basic normal, when connected to the signal, the image found in bright places with colored trim, just like LVDS line contact bad! The brighter the place the more serious. When the brightness is low, the basic can not see, the screen is AU T370XW02.

Analysis and Processing: First, open the menu, in the contrast adjustment options, the highest contrast and found the image is extremely serious striped, the basic can not see the normal image, but the contrast down, found that when the contrast is below 50 Under the circumstances, the picture is basically the same as normal, the basic can not see the fault came. This shows that the scope of the fault can be ruled out the motherboard, not the screen is not in good contact, it should be a logic board or screen damage. So pulled the LVDS line, the contact with the rubber carefully inserted several times, and then fixed from the new. Power failure still! Repeatedly shaking the screen line fault has not changed, indicating normal screen line. Then the basic failure to lock on the screen, or the logic board.

Such failure is a typical screen GAMMA control voltage anomalies, so in accordance with the identification of the logic board to find GAMMA1-GAMMA22 test points, one by one to test the voltage of these 22 test points. This voltage should normally be decreasing from GAMMA1-GAMMA. The results of the test found that the voltage from GAMMA1-GAMMA20 really normal seen from 15V to 3V or so, it touches the GAMMA21 but found that the voltage suddenly rose to 8V, which is obviously not right! According to the line to find and found that this logic board GAMMA control is done with this chip AS15-F, GAMMA21 voltage is from a pin on this chip, roughly testing the chip peripheral resistance no change in value, the capacitor is replaced without leakage after the decisive replacement Troubleshooting GAMMA Control IC AS15-F.

In the logic board has a very small circular adjustable resistance, and some directly in the protection of the hole in the shell can be easily adjusted with a screwdriver, this is the VREF adjustment circuit, turn this adjustable resistor, you can adjust the vref voltage, Corresponds to the screen color change, non-factory mode is not recommended to adjust.

Typical screen can not be repaired bad photos:

First, vertical lines: one or more vertical lines. 1. Line "indomitable", from the edge of the screen continues to the bottom edge of the screen. 2. Only a small screen in the middle. Case 1 is common, Case 2 is rare, almost all of these phenomena are bad screen. The other can be used to quickly determine the following simple method: 1. Switch the screen mode method 2. Menu Character Method 3. Dual-screen / Picture-in-Picture 4. Screen Movement



情况1



情况2



Second, horizontal lines: one or more horizontal lines. 1. Line from the left edge of the screen continues to the right edge of the screen, 2. Only a short middle of the screen, the case of a common case 2 rare, almost all such screen is bad.

Another can be used to quickly determine the following simple method: 1. Menu character method 2. Dual-screen / Picture-in-Picture 3. Screen movement method because it is a horizontal line, so the switch screen mode method has been unable to apply





Third, the shadow: 1. Shadow on the screen corner, 2. Vertical distribution of the shadow on both sides of the screen, 3. Horizontal shadow of the screen distribution, such phenomena are almost always screen bad.

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情况1



情况2



情况3

Fourth, the vertical ribbon: one or more vertical ribbons, from the screen along the continuation of the next, such phenomena are almost always on the screen. The other can be used to quickly determine the following simple method: 1. Switch the screen mode method 2. Menu Character Method 3. Dual-screen / Picture-in-Picture 4. Screen Movement





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