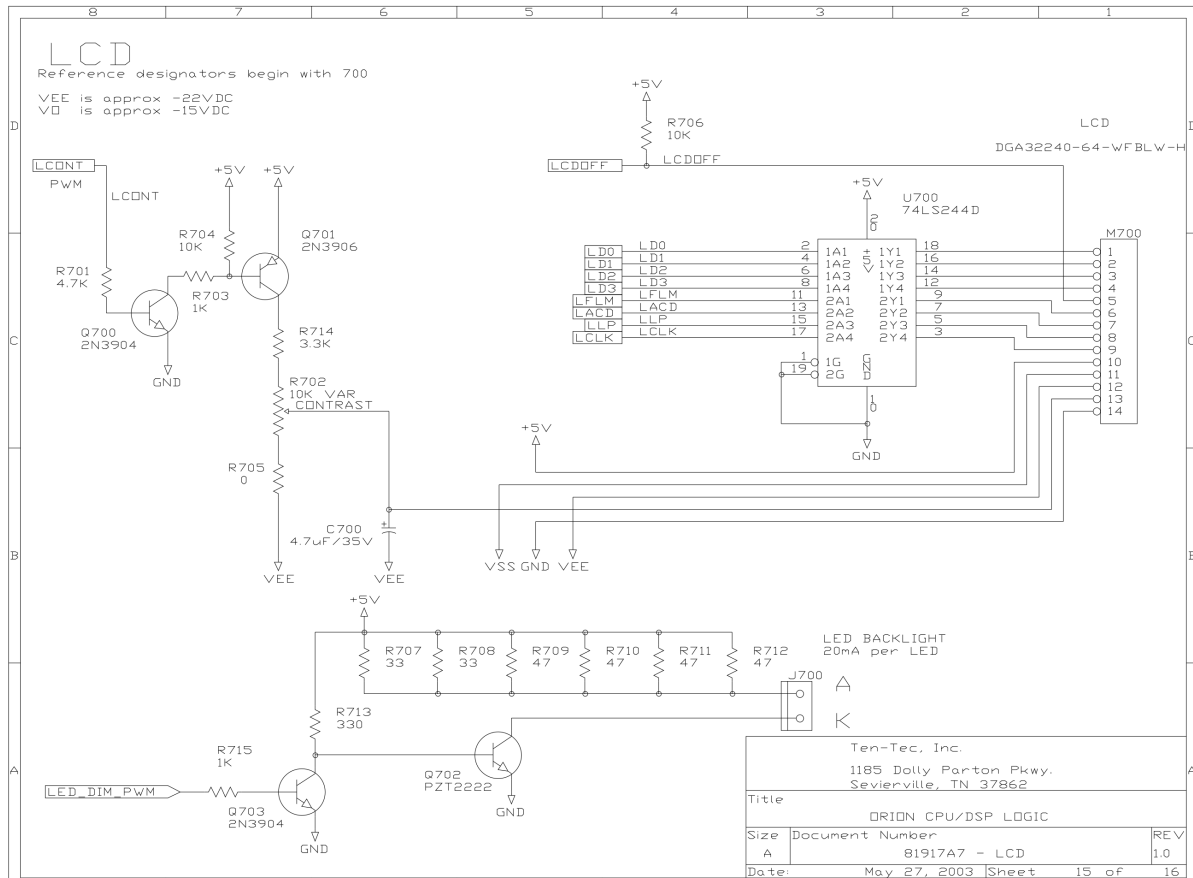


Connecting Orion 565 alternative display

Looking at schematic 81917A7 -LCD you can recognize that connector M700 often matches the connector pad on the “new heaven” LCD display.



Example new heaven display connector pad;

Pin Description and Wiring Diagram

| Pin No. | Symbol | External Connection | Function Description |
|---------|-----------------|---------------------|----------------------------------------------|
| 1-4 | DB0-DB3 | MPU | Signal data bus |
| 5 | DISP OFF | MPU | Display On/Off |
| 6 | FLM | MPU | Scan Start-up signal |
| 7 | M | - | No Connect |
| 8 | LP | MPU | Data latch pulse |
| 9 | CP | MPU | Data shift pulse |
| 10 | V _{DD} | Power Supply | Supply voltage for logic (+5.0V) |
| 11 | V _{SS} | Power Supply | Ground |
| 12 | V _{EE} | Power Supply | Negative voltage output (-25V) |
| 13 | VO | Adj. Power Supply | Supply voltage for contrast (approx. -18.6V) |
| 14 | FGND | - | No Connect |
| A | LED + | Power Supply | Backlight Anode (128mA @ 3.5V) |
| K | LED - | Power Supply | Backlight Cathode (Ground) |

Recommended LCD connector: 1.25mm pitch, 14-pos FFC connector **Mates with:** Molex p/n 0039532144

Backlight connector: JST p/n: XHP-3

Mates with: JST p/n: B 3B-XH-A

Connecting the display to the Orion

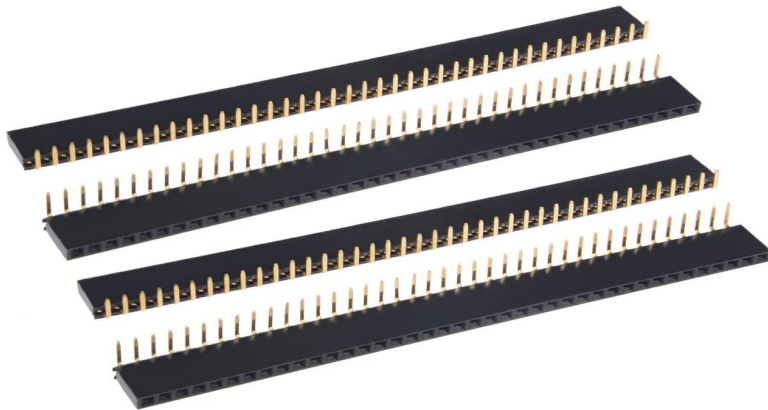
Looking at both connectors it is straightforward that the pin references are matching. Pin 1 connects to pin 1 and so on. One thing to realize is that the original Orion 565 design included a negative voltage generator to drive the LCD.

Included in the design is a PWM based control which connects to the contrast menu within the Orion 565. From the DC-DC voltage regulator board there is a cable which connects to the A7 logic board (often a white/black wire) and this is marked in the schematic as VEE.

There are two options;

1. Use the original Orion schematic and VEE provided by the Orion DC-DC regulator board.
 - 1.1. **IMPORTANT**; the onboard VEE voltage generator circuit residing on the DISPLAY should not be connected. This means you must **DISCONNECT** pin 12 on the cable between display and Orion.
2. Use the DISPLAY VEE generated voltage and do not use the Orion DC-DC regulator board.
 - 2.1. **IMPORTANT**; the cable from DC-DC board providing the original VEE voltage should be removed / disconnected from the DC-DC board and A7 board
 - 2.2. A new cable connects the DISPLAY VEE circuit to the A7 VEE connector. Please double check correct polarisation.
 - 2.3. The Orion contrast menu continues to work and the VEE voltage is provided by another source (the display circuit) which includes temperature compensation and it should be more stable.

Mechanically it is often easiest to use a flatcable from computer (like the ones used for a harddisk) and solder this to a single row female connector where the pins are at 90 degrees angle. You won't find a 14 pin and using a metal saw you can shorten the connector. Solder the wire and use an electrical shrink sleeve to isolate the pin.



Above is written with utmost attention but mistakes can be made. This is not an official ten-tec document and using this information is at your own risk. Best regards, Onno palap