GENERAL INFORMATION:
The NT-1431 monitor is primarily found in the Medalist Marketing “Spectrum” (a.k.a. Spectrum Genesis) coin operated dart machines. The monitor is installed in a special frame in order for it to fit in the odd shaped Spectrum dart game cabinet. The monitor has a built-in switching regulator power supply and does not need an isolation transformer. Transistor Q101 is the power supply switching transistor (N-channel Enhancement mode MOSFET type) and is a type 2SK1507 (crosses to an NTE 2989 replacement). Integrated circuit IC101 is the power supply controller and is type TDA4605-15 which crosses to an NTE 7154 replacement. Integrated circuit IC301 is the vertical output and is type LA7835 (crosses to an NTE 1855 replacement). Integrated circuit IC401 is the horizontal/vertical processor and is a type LA7851 which crosses to an NTE 7062 replacement. Integrated circuit IC901 located on the neck board is the RGB color processor and is a type LM1203N which crosses to an NTE 7081 replacement. I have been unable to locate a manual or schematic for this model, but you can use the model NT-27E manual and schematic which is very close to this model. The main board is marked with “PCB-002B” on the foil side. The neck board is marked “Li-Chin” and “NT-001A on the parts side below the tube socket.
CRT INFORMATION:
The picture tube supplied with this monitor is a Chunghwa # CPJ370BVAP1U-TC (listed in rejuvenator manuals as 370BVAP1U-TC). This tube is also known as # E2971B22-TC 47E (Y) which is listed in the rejuvenator manuals simply as E2971. The tube can be tested with B & K rejuvenator adapter # CR-23 (6.3 volt heater). I understand a substitute for this tube is # M34AFA13X01 (U).

YOKE INFORMATION:
The yoke is marked with the number TDY4101E2. The horizontal winding is the Red and Blue wires and resistance is 1.1 ohms. The vertical winding is the Yellow and Brown wires and resistance is 3.1 ohms.

FLYBACK INFORMATION:
The T402 flyback is made by Chun Peng and part # is MRCFT-213 (which is also used in Tatung
HORIZONTAL OUTPUT INFORMATION:
Transistor Q402 is the horizontal output transistor and is type 2SC4769 which crosses to an NTE 2353 replacement transistor.

PROBLEMS ENCOUNTERED AND SOLUTIONS:
Resistor R428 (330 ohms, ½ watt) will often be found burnt, but not badly burnt. It is run close to the upper limits of it's specifications and can simply be replaced with a brand new one.
Neo-Tec Model NT-1431 VGA 14” Monitor Repair Guide
Resistor R431 (10k, ¼ watt) will be found badly burnt. The reason it burns is because electrolytic capacitor C424 (located directly to the left of R431) has gone bad. Sometimes resistor R432 (12k, ½ watt) located to the left of C424 changes value so be sure to measure it’s value. If it’s resistance is ok then leave it alone. Otherwise, replace R431 and C424. Please note that C424 is originally a 10 uf @ 50 volt electrolytic capacitor, but I would strongly suggest getting a replacement with a higher voltage rating such as 100 volts or 160 volts to prevent this happening again. Also C424’s location markings on both sides of the main board are obscured by a cable clamp on the parts side and by the metal board support frame on the foil side.

If you encounter a “no vertical deflection” symptom and the vertical IC301 is ok, resistor R307 (located next to capacitor C312) has gone open circuit. It is a 33k, ¼ watt resistor. Replacing it should restore vertical deflection again.
ELECTROLYTIC CAPACITOR LISTING FOR A CAPKIT:

MAIN BOARD

C104  220 uf @ 400 volts snap mount (main filter)
C106  100 uf @ 25 volts (power supply startup)
C110  1 uf @ 50 volts (power supply)
C115  100 uf @ 160 volts
C116  100 uf @ 160 volts
C118  1000 uf @ 35 volts
C119  1000 uf @ 35 volts
C301  10 uf @ 50 volts
C304  470 uf @ 16 volts
Neo-Tec Model NT-1431 VGA 14” Monitor Repair Guide

C305  100 uf @ 25 volts
C306  470 uf @ 35 volts
C307  100 uf @ 35 volts
C308  100 uf @ 35 volts
C309  1 uf @ 35 volts dipped tantalum (does not usually go bad)
C312  2200 uf @ 35 volts
C313  1 uf @ 35 volts dipped tantalum (does not usually go bad)
C314  47 uf @ 25 volts
* C315  2.2 uf @ 50 volts (high failure, suggest using high temperature 105 degree replacement)
* C316  22 uf @ 25 volts Bi-Polar (high failure)
C402  470 uf @ 16 volts
C403  3.3 uf @ 50 volts
C405  4.7 uf @ 50 volts
C407  1 uf @ 50 volts
C410  1 uf @ 50 volts
C422  10 uf @ 50 volts (hidden in corner by fly back cage, suggest high temperature replacement)
C424  10 uf @ 50 volts (suggest upgrade to 100 or 160 volts) Polarity not marked on foil side
* C425  100 uf @ 160 volts (high failure, suggest high temperature 105 degree replacement)
C501  470 uf @ 16 volts
* C504  1000 uf @ 25 volts (high failure, suggest high temperature 105 degree replacement)

NECK BOARD (capacitor polarity is only marked on component side of board)

C901  4.7 uf @ 50 volts
C903  4.7 uf @ 50 volts
C904  4.7 uf @ 50 volts
C905  4.7 uf @ 50 volts
C906  100 uf @ 25 volts
C915  100 uf @ 25 volts
C917  100 uf @ 25 volts
* C920  10 uf @ 250 volts (high failure, suggest high temperature 105 degree replacement)
* C921  4.7 uf @ 250 volts (high failure, suggest high temperature 105 degree replacement)
C924  10 uf @ 250 volts (check for poor soldering from the factory)

MAIN BOARD ADJUSTMENTS:

All pots are horizontal mount style with 6mm knob.

R112  B+ Adjustment (5k)
R314  Vertical Linearity (10k)
R403  Horiz Freq sub-control (3k) in series with Horiz Hold pot on remote adjust board

7
R418  X-Ray protection shutdown (5k)
R499  Horiz Position sub-control (10k) in series with Horiz Position pot on remote adjust board

**NECK BOARD ADJUSTMENTS:**

All pots are vertical mount style with center terminal facing rear and with a 6mm knob on front.

R936  Blue Cutoff (500 ohm)
R937  Green Cutoff (500 ohm)
R938  Red Cutoff (500 ohm)
R950  Red Drive (2k)
R951  Green Drive (2k)
R952  Blue Drive (2k)
REMOTE BOARD INFORMATION AND ADJUSTMENTS:

Board is long and skinny in shape and is marked “SMD1 94V0” on front below connector P302. On the foil side it is marked “PCB-003” next to connector P501.
Neo-Tec Model NT-1431 VGA 14” Monitor Repair Guide
These parts are NOT installed on the board: P501, R531, R532, R533, R503 (Blue Gain), R502 (Green Gain), and R501 (Red Gain).
Installed parts:
R325  Jumper Wire
J    Jumper Wire
R318  2.2k, ¼ watt
R323  68 ohm, ¼ watt
R530  3.3k, ¼ watt
R531  680 ohm, ¼ watt
P302  JST Male header, 10 position, # BPB-XH1 2.5M/10P
P401  JST Male header, 5 position, # PBP-XH0 2.5M/5P
P901  JST Male header, 3 position, # PBP-XH0 2.5M/3p

**ADJUSTMENT POTS:**

All are horizontal mount style with 9mm knobs.
Neo-Tec Model NT-1431 VGA 14” Monitor Repair Guide

R324  Vertical Size (50k)
R322  Pincushion (500 ohm)
R319  Vertical Position (10k)
R320  Vertical Hold (200k)
R529  Brightness (5k)
R990  Contrast (10k)
R402  Horizontal Position (1k)
R401  Horizontal Hold (5k)

**MONITOR PICTURE WHEN WORKING:**

![Monitor Picture]

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13
Neo-Tec Model NT-1431 VGA 14” Monitor Repair Guide

Manufacturer contact info:

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