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TO: Parts & Service Managers

DATE: April 19, 2001

SUBJ: Quick Tip for Display Troubleshooting: U201 White Star Board System™

Symptom:

The **DOT DISPLAY** is not functioning in *Game Mode*, however, game functions are **OK**. Upon *Power-Up*, the Display shows the **"Display Version of Software"** then goes **BLANK**.

Problem:

U201 Failed. **U201** is a 74HCT273 Data Latch (see the **CPU Sound Bd.** pictorial, lower right).

Solution:

Replace **U201**.

Troubleshooting Tips:

First check that all the Ribbon Cables & Connecters are secure.

Depress the *Begin Test Button* (inside the Coin Door, #3 Black Button) to enter Diagnostics *(Note: You do not need a working display to perform this test).* Though you will not see any display graphics you have just entered the Portals Service Menu; by actuating the Flipper Buttons you will be *forcing a display call.* If this is performed with a working Display, you will see that you are moving an icon across the screen. A state change at the outputs of **U201** will occur if **U201** is good. Due to the slow speed the ouputs toggle at, a *Multimeter* can be used to check the outputs of **U201** at **Pins 2, 5, 6, 9, 12, 15, 16 & 19**.

In *Normal Operation*, the **OUTPUTS** are typically in a high or low state toggling 0 volt to 5 volts as a byte of data is being latched to the ouput. This byte of data can also be referred to as a *Display Call.* This would indicate the latch is **operating correctly**.

If **U201** has failed, the **OUTPUTS** may have one or more of the following conditions:

- erratic or oscillating signal
- have no clean 0v to 5v transistions (e.g. 3.2v)
- one or more bits stuck high or low

Continued on the next page.

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Excerpt from CPU/Sound Board Theory of Operation (re: Plasma Interface):

Plasma Interface: The data path for communication to and from the Plasma Controller Board is 8 bits wide. There are separate *Input* and *Output Busses*. The *Input Bus* from the Plasma Controller to the CPU/Sound Board comes in on **CN8** [PLASMA CONTROL]-**Pins 3-10** and is fed into **U200** for input to the CPU's *Data Bus*. Data going out to the controller comes from the CPU's *Data Bus* through **U201** and onto **CN8-Pins 11-18**. Status back from the Plasma Controller comes in on **CN8-Pins 22-26** and is fed into **U202** for input to the CPU's *Data Bus*. Two control signals that go out to the Plasma Controller are **PRES** [PLASMA RESET] and **CN8-Pin 19** [**PSTB** - *Plasma Strobe*]. The Plasma Reset is software controllable through **U216/B** and also has a test point "Plasma Reset". The *Plasma Strobe Signal* to the controller is generated from **U216/A** and is *used to latch data* into the Plasma Controller.

CPU/Sound Board Schematic (Sheet 3 of 3)
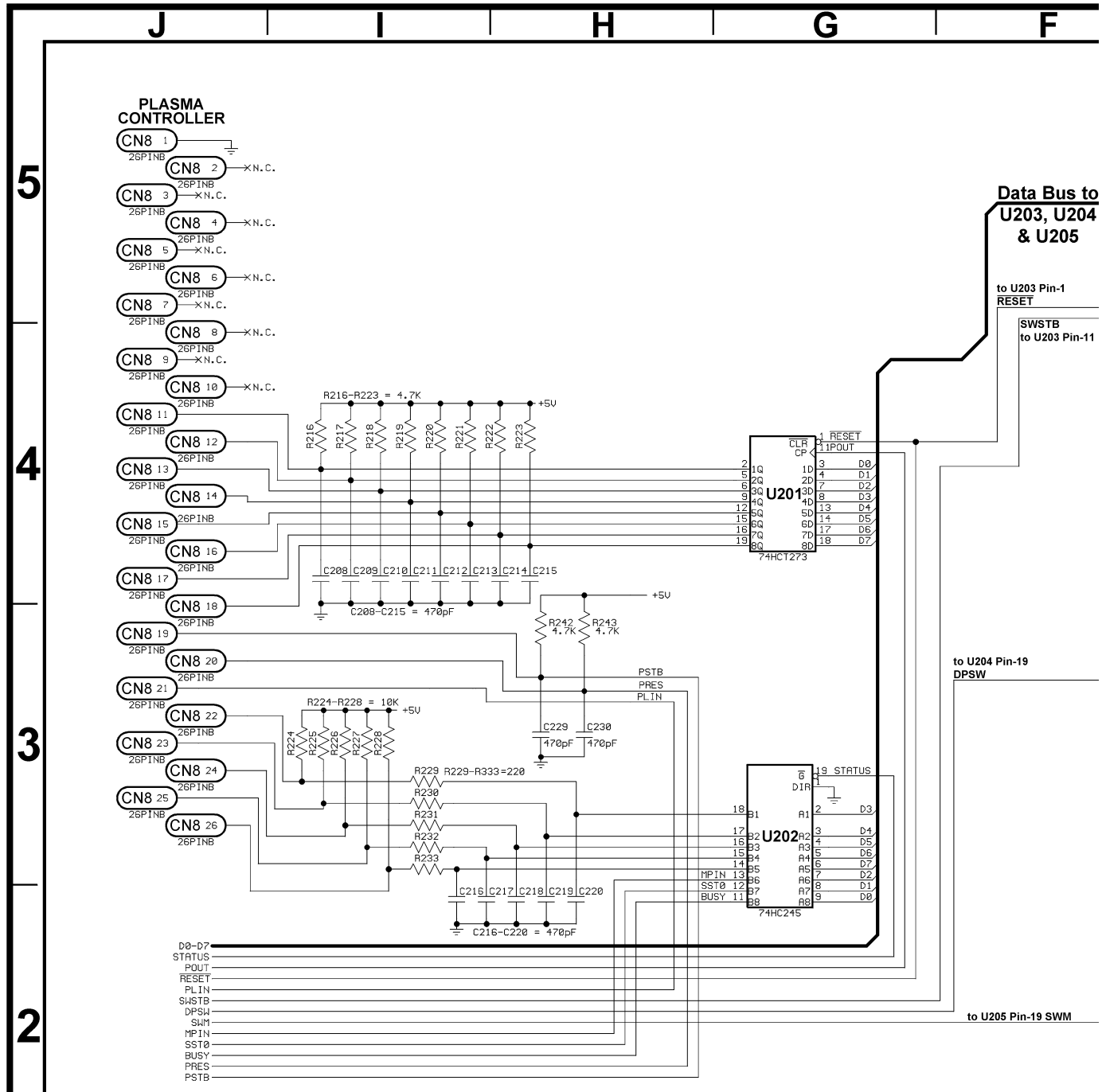
Please *phone* or *eMail* with any questions or comments at the below numbers or address.