Replacing the Controller Board

(PNs 1175200601SP, 11759002SP, 11759014SP, 1179210201SP)

The controller board translates incoming RS232 (modem, wireless, etc.) or RS485 data and relays this data to the entire sign using the LED driver board in each section of the sign. There is only one controller board in a sign. This controller board is used in both the AlphaEclipse RoadStar signs and the AlphaEclipse StreetSmart 35X and 17X signs.

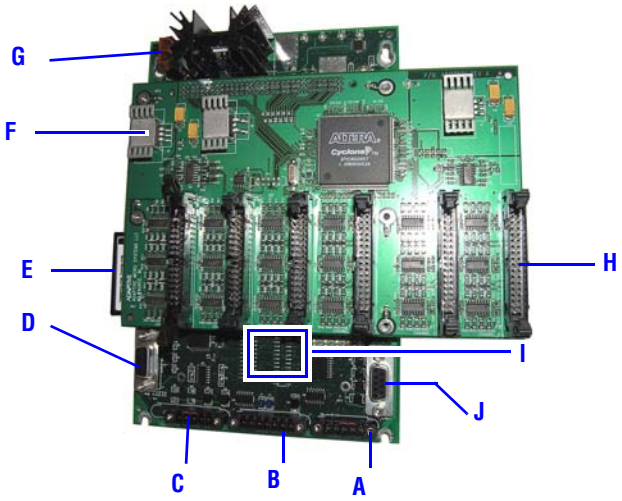

Figure 1: Controller board

Item	PCB Label	Description
A B C	P16 COM3 RS485 P15 COM2 RS485 P14 COM0 RS485/422	Used for sign-to-sign networking: **P16 COM3 RS485** 1 2 3 4 5 SHIELD RS485A (+) RS485B (-) TERMINATION **P15 COM2 RS485** 1 2 3 4 5 6 7 SHIELD RS485A (+) RS485B (-) TERMINATION GND +5VDC **P14 COM0 RS485/422** 1 2 3 4 5 SHIELD RS485A (+) RS485B (-) TERMINATION NOTE: Each of these connectors can be terminated by connecting pins 4 and 5 together.
D	P7 COM0 RS232	Used for RS232 communication with a telephone modem, wireless transceiver, or a fiber optic modem: 5 — 1 9 — 6 1 = nc 2 = RXD 3 = TXD 4 = nc 5 = GND 6 = nc 7 = RTS 8 = CTS 9 = nc
E	P5	FLASH card. Used to upload new firmware, messaging, and configuration files. 179210201SP has 512KB, all others are 256KB.
F	—	6-channel turbo interface board.
G	P1	Connects to cube power supply
H	P3 CHANNEL1...P8 CHANNEL 6	Each channel connects to the rightmost LED driver board in a sign row.
I	RJ45	RJ45 Ethernet port (not shown in picture)
J	P13 COM1	Used for RS232 diagnostics. Pinout is the same as P7 above.

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Before you begin

Identifying the sign

This controller board is used in both the AlphaEclipse RoadStar signs and the AlphaEclipse StreetSmart signs.

- AlphaEclipse RoadStar signs have large louvers (see below). If you have an AlphaEclipse RoadStar sign see “AlphaEclipse RoadStar sign installation instructions” on page 3.

Figure 2: Side view of an AlphaEclipse RoadStar sign

- The AlphaEclipse StreetSmart signs have small louvers (see below). If you have an AlphaEclipse StreetSmart sign see “AlphaEclipse StreetSmart sign installation instructions” on page 5.

Figure 3: Side view of an AlphaEclipse StreetSmart sign

Tools needed

- 5/32-inch hex tool (pn 68117076)
- Small screwdriver

Replacing the controller board in a RoadStar sign

WARNING! Hazardous voltage. Contact with high voltage may cause death or serious injury. Always disconnect power to unit prior to servicing.

Notice: Observe appropriate precautions to prevent electrostatic discharge (ESD) or "static" damage to the replacement part. For safe handling of ESD-sensitive parts, see TechMemo #00-0005.

➜ To replace the controller board

1. Disconnect all power to the sign at the power source.
2. Locate and remove the hex screws (circled below). When viewed from the front, the controller is located in the lower rightmost section of the sign

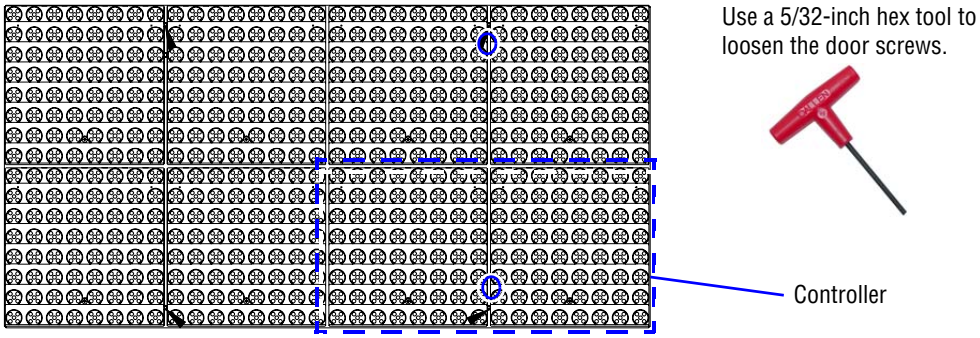

Figure 4: Locations of door locks

- using a 5/32-inch hex tool, open each door lock and then carefully pull the door back.

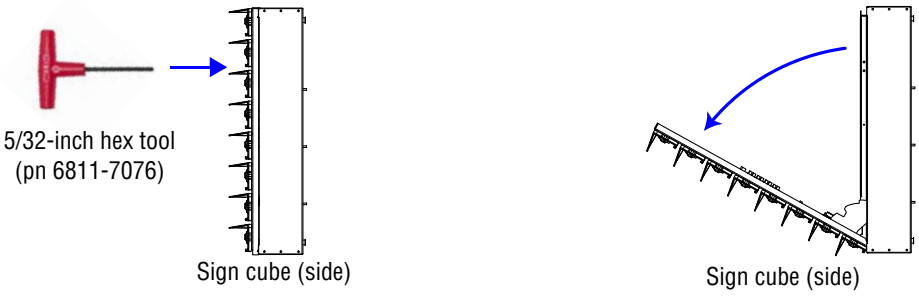

Figure 5: Opening a RoadStar door

3. Remove all cables from the controller board.
   - Remove the power cable from P1.
   - Remove any cable from P7 by loosening the screws on the connector with a small screwdriver.
   - Remove any cables attached to connectors P3 through P8.
   - Use a small screwdriver to remove each connector from P14, P15, and P16.

4. Loosen, but do not remove, the four screws (circled below) on the controller board. Then slide the board up and tilt up to remove the board.

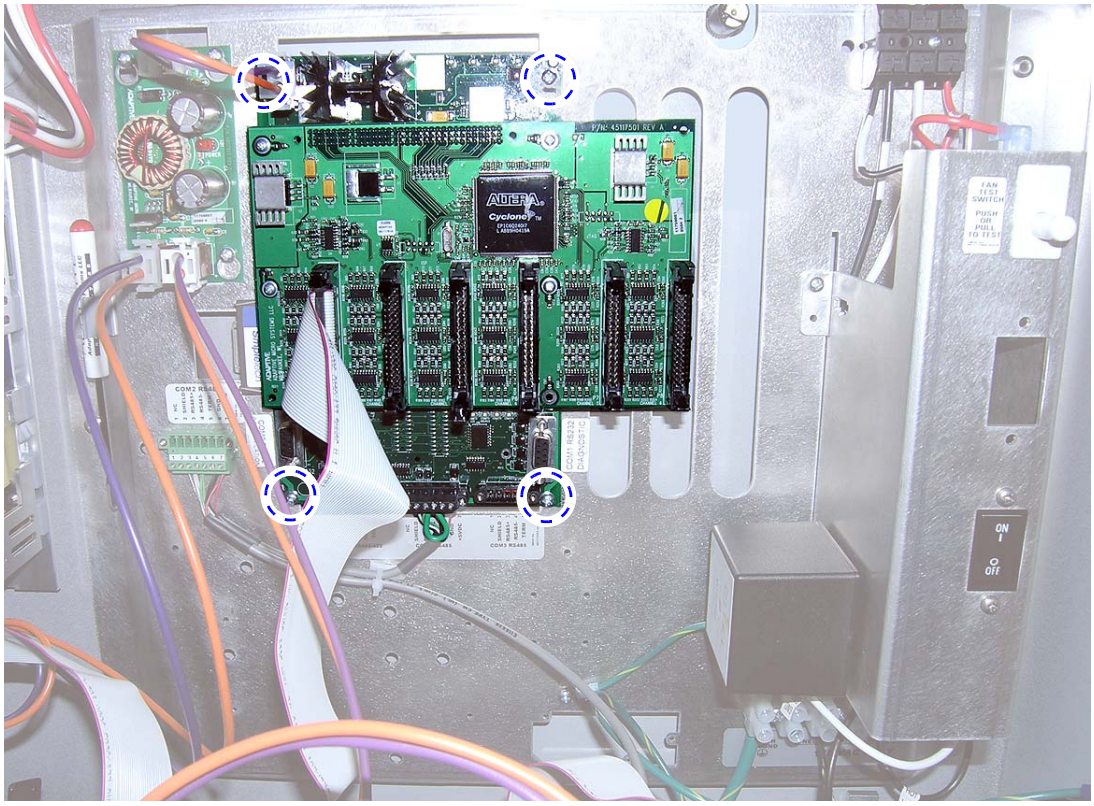

Figure 6: Screw locations on the controller board

5. Place the new controller board over the four screws and pull the board down. Then tighten each screw.
6. Reattach all connectors to the controller board.
7. Close the sign door.
8. Apply power to the sign.

Replacing the controller board in a StreetSmart sign

WARNING! Hazardous voltage. Contact with high voltage may cause death or serious injury. Always disconnect power to unit prior to servicing.

Notice: Observe appropriate precautions to prevent electrostatic discharge (ESD) or "static" damage to the replacement part. For safe handling of ESD-sensitive parts, see TechMemo #00-0005.

➜ To replace the controller board

1. Disconnect all power to the sign at the power source.

   WARNING! All power switches must be in the off position to remove power from the sign. On a two or more line sign, lines one, three, and five have power switches that must be turned off prior to servicing.

2. To access the controller board, open the 8x8 (or 8x7) *right* side sign door of the control cube. When viewed from the front, the control cube is located in the lower rightmost corner of the sign.
   - Locate the two door locks (circled) on the right side sign door of the control cube:

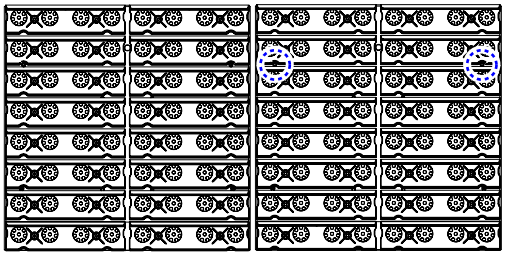

Figure 7: Locations of door locks

   - using a 5/32-inch hex tool, open each door lock and then carefully pull the door back.

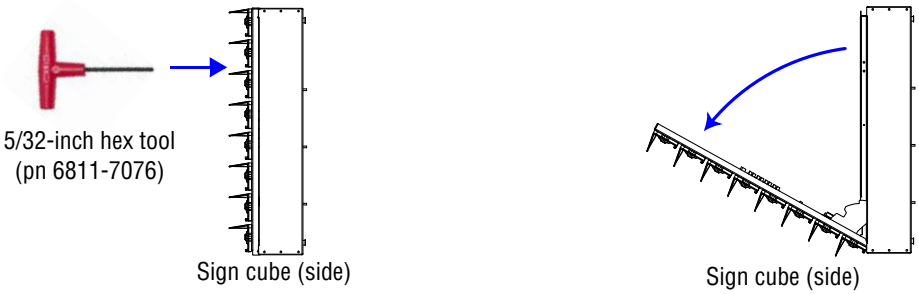

Figure 8: Opening a RoadStar door

3. Remove all cables from the controller board.
   - Remove the power cable from P1.

- Remove any cable from P7 by loosening the screws on the connector with a small screwdriver.
- Remove any cables attached to connectors P3 through P8.
- Use a small screwdriver to remove each connector from P14, P15, and P16.

4. Loosen, but do not remove, the four screws (circled below) on the controller board. Then slide the board up and tilt up to remove the board.

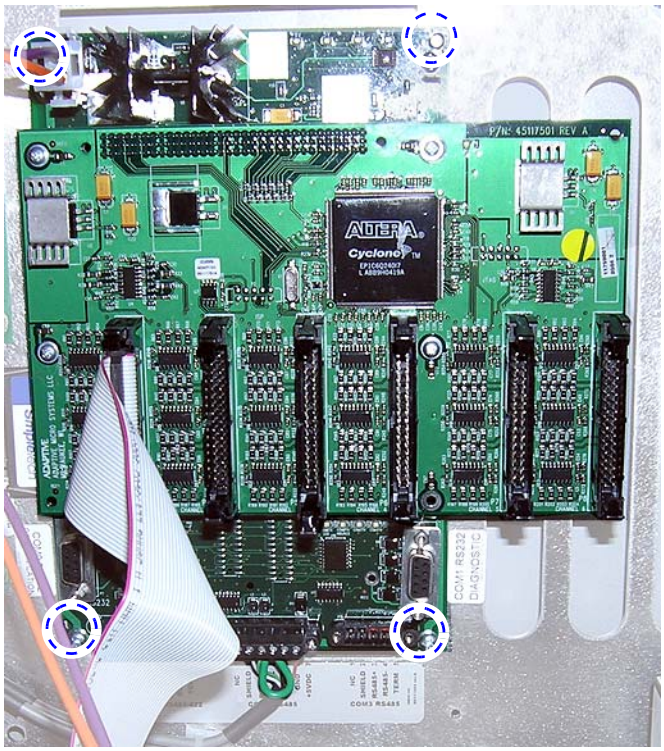

Figure 9: Screw locations on the controller board

5. Place the new controller board over the four screws and pull the board down. Then tighten each screw.
6. Reattach all connectors to the controller board.
7. Close the sign door.
8. Apply power to the sign.