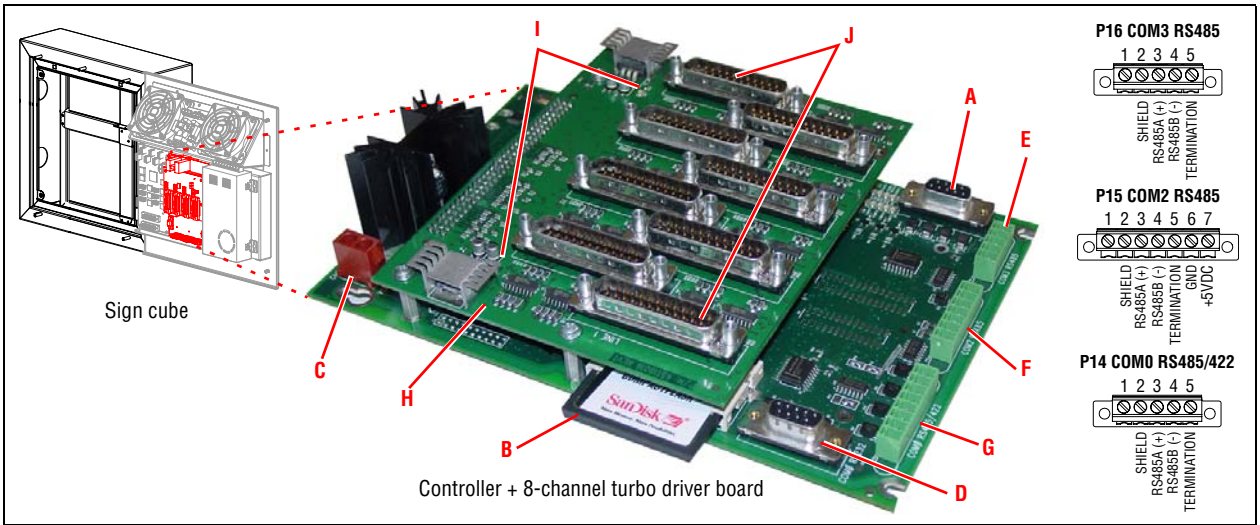
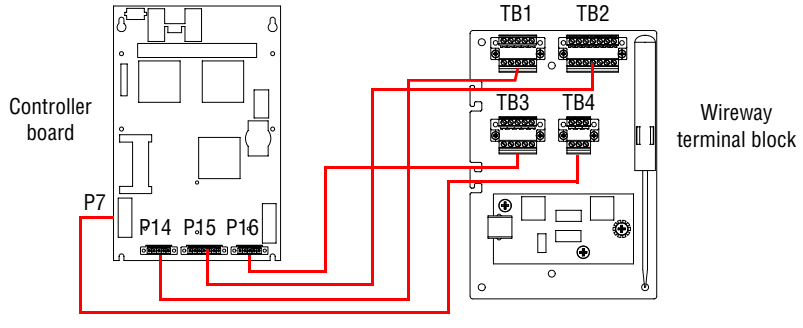
Controller + 8-Channel Turbo Driver Board (pn 1180-9023SP)

1.1 Description

The controller board translates incoming RS232 (modem, wireless, and so on) or RS485 data and relays this data to the entire sign using the turbo *adapter* boards in each cube of the sign. There is only one controller board in a sign. Depending on sign size, either a 4- or 8-channel turbo *driver* board is attached to the controller board. A 4-channel turbo board is used with a 1 to 4 row sign, and an 8-channel turbo board is used with a 5 to 8 row sign.



Item	PCB Label		Description
A	CONTROLLER BOARD	P13 COM1	RS232 input from a computer, modem, wireless transceiver, and so on.
B		P5	FLASH card. Used to upload new firmware.
C		P1	Connects to cube power supply.
D		P7 COMØ RS232	
E		P16 COM3 RS485	
F		P15 COM2 RS485	
G		P14 COMØ RS485/422	
H	TURBO DRIVER BOARD	—	8-channel turbo driver board.
I		LD1, LD2	When lit, power is supplied to the turbo driver board (LD1 = LINE1 to 4, LD2 = LINE5 to 8).
J		P1 LINE 1 . . . P8 LINE 8	LINE 1 connects to the INPUT of the turbo adapter board in the first cube of row 1, LINE 2 connects to the INPUT of the turbo adapter board in the first cube of row 2, and so on.

1.2 Installation

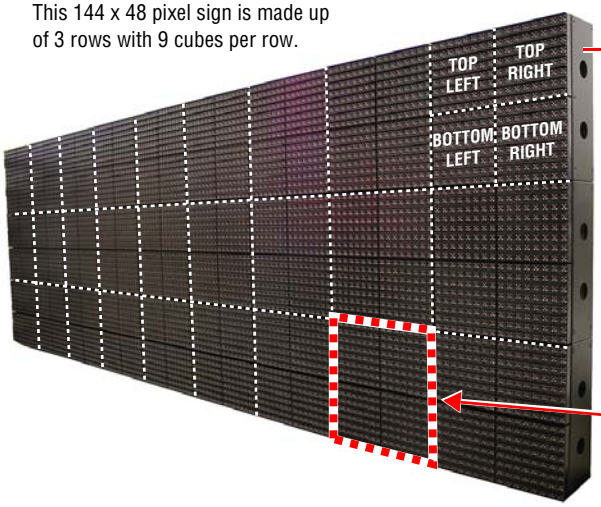
1 **Prevent electrostatic discharge (ESD) or "static" damage to the replacement part.**

- For safe handling of ESD-sensitive parts, see TechMemo #00-0005

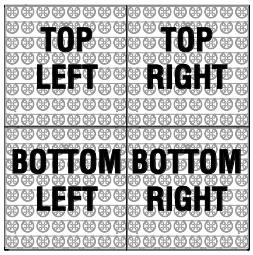
2 **Remove power from the sign.**

3 **Locate the cube that contains the existing controller board.**

This 144 x 48 pixel sign is made up of 3 rows with 9 cubes per row.



Each cube is 16 x 16 pixels and has 4 LED boards, named as shown:



FRONT VIEW

There is only one controller board in a sign. The board is located in the bottom row, in the second cube from the right (as you are facing the sign).

4 **To access the controller board, open the back of the cube:**

To open the back of a cube:

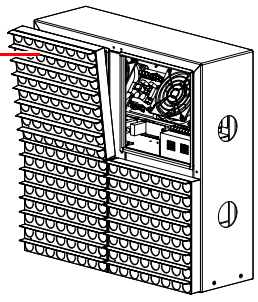
- Use a 5/32-inch hex tool to loosen each of the two door screws.

If it is not possible to open the back of the cube, remove all four LED driver boards from the front of the cube:

To remove an LED driver board:

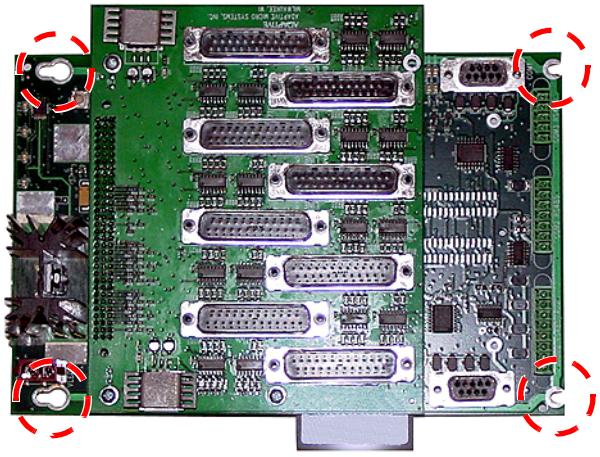
- Insert a 5/32-inch hex tool into the latch at the upper center of each board.
- Turn the hex tool counterclockwise.
- Lift the board up and then pull it back.
- Remove the data and power connectors from the back of the LED driver board.

NOTE: Each LED driver board must be put back in its *original* location. *LED driver boards are not interchangeable.*



5 Remove all connectors from the controller and turbo driver boards.

6 Loosen, but do *not* remove, the four screws (circled below) on the controller board. Push the board up and lift up to remove it.

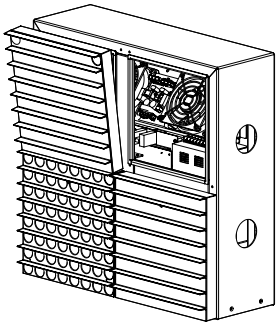


7 Place the new controller board over the four screws and pull the board down. Then tighten each screw.

8 Reattach all connectors to the new controller and turbo driver boards.

9 If you opened the back of the sign, close the door and tighten each latch.

If you removed LED driver boards, reattach each driver board:



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