# Trendsetter VLF Autoloader

## Carriage Drive Board Upgrade Procedure

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# Revision History

| Revision | Date | Author | Comments |
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| A | 1 May 2003 | Dwayne Brandt | Initial release. |
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# 1. INTRODUCTION

The carriage drive board has been redesigned for the MCU, SCU, L-conveyor, and RS-conveyor. This procedure describes how to upgrade the carriage drive board from old P/N 10-3761 to new P/N 503C01525B. As well as replacing the board itself, two cables must be replaced because two connectors on the board have been changed.

The carriage drive board in the MCU or SCU powers the stepper motor for the picker track.

The first 20 TS VLF AL devices may not have a detachable umbilical cable between the base Trendsetter and the MCU or SCU. For these sites, order upgrade kit 512-00053A as detailed below.

The carriage drive board in the L-conveyor or RS-conveyor powers the stepper motor for the conveyor y-axis (L) or x-axis (RS). The S-conveyor does not contain a carriage drive board.

# 2. PARTS

**MCU – Upgrade kit 512-00038A**

- Board assembly 10-3761 is replaced by 503C01525B
- Power cable 10-4358A is replaced by 10-4358B
- Motor cable 10-4701A or B is replaced by 10-4701C

**MCU without detachable umbilical cable – Upgrade kit 512-00053A**

**Note:** Only the first 20 TS VLF AL devices might not have the detachable umbilical cable.

- Board assembly 10-3761 is replaced by 503C01525B
- Power cable 10-4358A is replaced by 10-4358B
- Motor cable 10-4701A is replaced by 220-00237A

**SCU - Upgrade kit 512-00038A**

- Board assembly 10-3761 is replaced by 503C01525B
- Power cable 10-4358A is replaced by 10-4358B
- Motor cable 10-4465A or B is replaced by 10-4701C

**SCU without detachable umbilical cable – Upgrade kit 512-00053A**

**Note:** Only the first 20 TS VLF AL devices might not have the detachable umbilical cable.

- Board assembly 10-3761 is replaced by 503C01525B
- Power cable 10-4358A is replaced by 10-4358B

- Motor cable 10-4465A is replaced by 220-00237A

**L and RS conveyors - Use kit 512-00047A**

- Board assembly 10-3761 is replaced by 503C01525B
- Power cable 10-4358A is replaced by 10-4358B
- Motor cable 10-4716A is replaced by 10-4716B

# 3. MCU AND SCU

1. Turn off the power.
2. Disconnect the umbilical cable from the bulkhead connector. On the MCU, the connector is located at the rear. On the SCU, the connector is located at the rear of the Garage.



Figure 1: Disconnect the umbilical cable

3. On the MCU, remove the rear panel to access the power box
4. Remove the cover from the MCU or SCU power box. Locate the carriage drive board (10-3761) and the cables that connect to it.

## 3.1 Route the new cables

1. Place the new motor cable (10-4701C) alongside the old one (10-4701A/B for the MCU; 10-4465A/B for the SCU). It routes from the carriage drive board to the bulkhead connector.

   **Note:** If there is no detachable umbilical cable, install cable 220-00237A (included in upgrade kit 512-00053A) instead of 10-4701C. Go directly to Step #10 (skip steps 6-9 where the cable is attached at the bulkhead connector).

2. Loosen the four screws inside the bulkhead connector. The screws are located within the sealed area at each corner. See Figure 2.
3. Gently pull out the cables and the connector clamp. See Figure 2.



Figure 2: Loosen the bulkhead connector screws (one in each corner)

**Note:** On an MCU, you may need to remove the angled wing panel for access if there is not enough slack in the cables. To do so, remove the three screws along the rear edge with a 5mm t-handle hex key. Remove the four screws around the cable opening on the main surface of the wing panel with a 3mm t-handle hex key. See Figure 3.

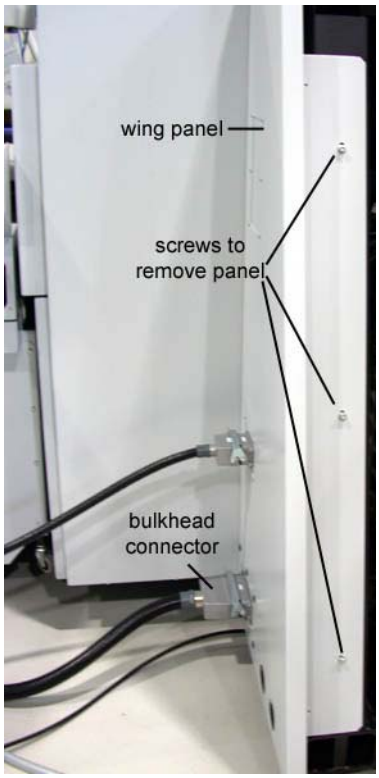



Figure 3: MCU wing panel

4. Remove the cable in position #5 and replace it with cable 10-4701C.

    - On the MCU bulkhead connector, remove cable 10-4701A (or B) from position #5 and replace it with cable 10-4701C. See Figure 4.

- On the SCU bulkhead connector, remove cable 10-4465 from position #5 and replace it with cable 10-4701C. See Figure 5.
- The old cable can be tucked back inside the bulkhead opening, or tie-wrapped out of the way. This is easier than trying to remove the cable.

**MCU**
**BULKHEAD WIRING**

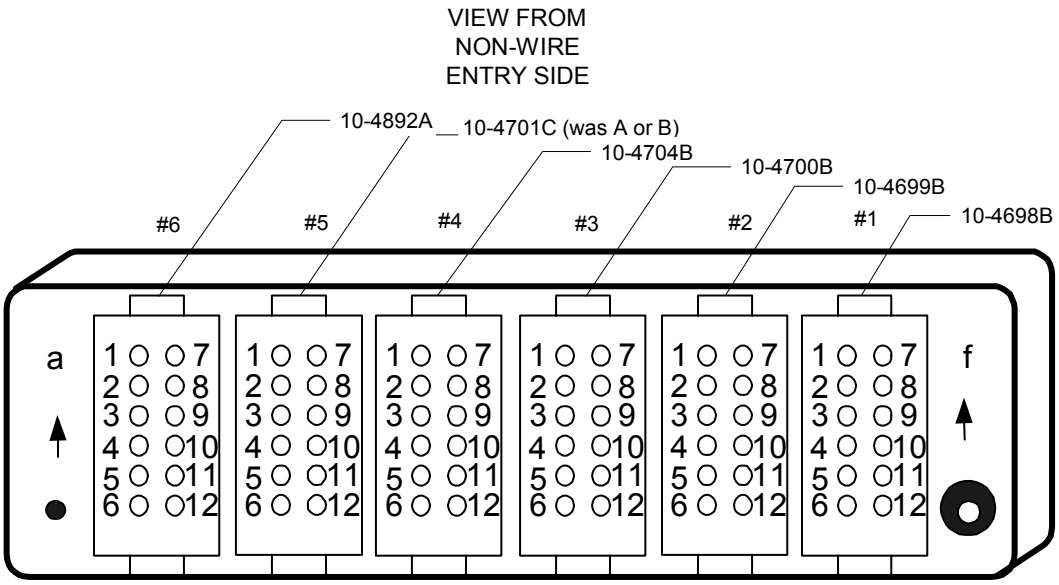



Figure 4: MCU bulkhead connector assembly (10-5038A)

**SCU**
**BULKHEAD WIRING**

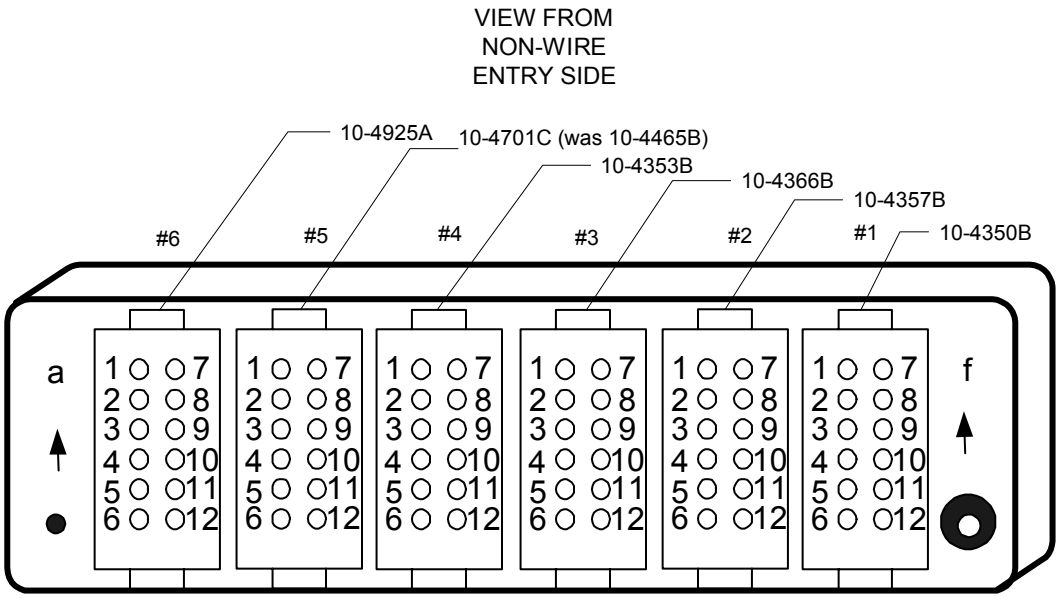



Figure 5: SCU bulkhead connector assembly (10-5040A)

5. Replace the bulkhead connector assembly and refasten it with the 4 screws.
6. In the power box, remove the old motor cable (10-4701A/B or 10-4465A/B) from the cable-clamp grounding point and replace it with the new cable (10-4701C).
7. Neatly tie-wrap the old motor cable out of the way and label it to indicate that it is no longer in use.
8. Disconnect the old power cable (10-4358A) from connector J27 on the Genine board.
9. Connect the new power cable (10-4358B) to connector J27 on the Genine board.
10. Tie-wrap the old power cable neatly out of the way and label it to indicate that it is no longer in use.

**Note:** The DC-DC power supply is no longer needed but can be left in the power box to save the effort of removing it and as a back-up in case the old carriage board is needed in the future.

## 3.2 Replace the carriage drive board

1. Disconnect the three cables from the old carriage drive board (10-3761).
2. Remove the old board by removing the four nuts and washers with a 7mm nut driver.
3. Install the new carriage drive board (503C01525B) using the four nuts and four washers.
4. Connect both new cables (motor and power) and the original ribbon cable to the new carriage drive board.

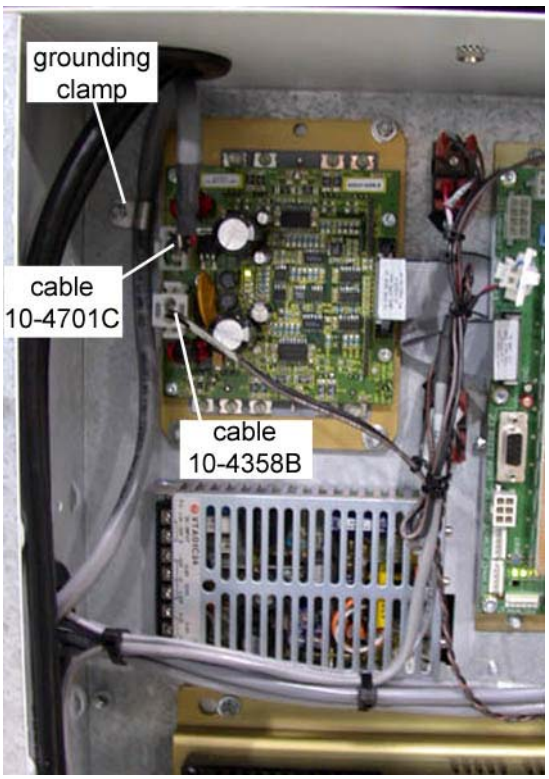



Figure 6: New carriage drive board installed in MCU

5. On the MCU, reconnect the umbilical cable to the bulkhead connector.

## 3.3 Verify operation

1. Restore power. Wait for the power up sequence to complete.
2. Observe the lights on the carriage drive board to verify that it is operating properly. Only one green light should be lit once the power-on sequence has completed and the machine is in normal operating condition with all safety loops closed. The three red fault lights will be off.
3. Use diagnostic commands to verify that the picker track is operating properly.
4. Load or unload a plate to confirm normal device operation.
5. Replace the power box cover.

# 4. CONVEYORS

1. Turn off the power.
2. Remove the front panel to access the electronics. Locate the carriage drive board (10-3761) and the cables that connect to it.

## 4.1 Route the new cables

1. Route the new motor cable 10-4716B alongside the old one. The old cable should be tie-wrapped out of the way and labeled to indicate it is no longer required.
2. Disconnect the old power cable (10-4358A) from connector J27 on the Genine board.
3. Connect the new power cable (10-4358B) to connector J27 on the Genine board.
4. Tie-wrap the old power cable neatly out of the way and label it to indicate that it is no longer in use.

   **Note:** The DC-DC power supply is no longer needed but can be left in the power box to save the effort of removing it and as a back-up in case the old carriage board is needed in the future.

## 4.2 Replace the carriage drive board

1. Disconnect the three cables from the old carriage drive board (10-3761).
2. Remove the old board by removing the four nuts and washers with a 7mm nut driver.
3. Install the new carriage drive board (503C01525B) using the four nuts and four washers.

4. Connect both new cables (motor and power) and the original ribbon cable to the new carriage drive board.

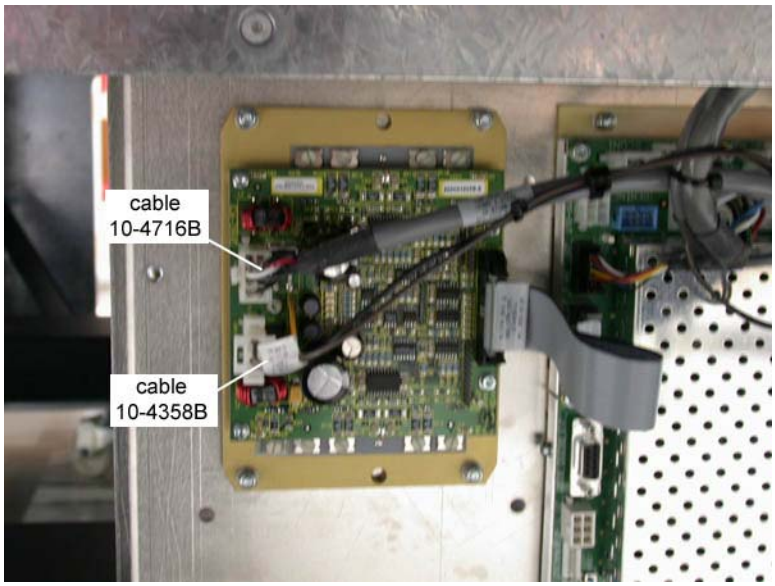



Figure 7: New carriage drive board installed in L-conveyor

## 4.3 Verify operation

1. Restore power. Wait for the power up sequence to complete.
2. Observe the lights on the carriage drive board to verify it is operating properly. Only one green light should be lit once the power-on sequence has completed and the machine is in normal operating condition with all safety loops closed. The three red fault lights will be off.
3. Use diagnostic commands to verify that the conveyor is operating properly.
4. Load or unload a plate to confirm normal device operation.
5. Replace the front panel.