DAIFUKU

Service Bulletin: **SHS-** 2011-002   Rev: **00**   Date: 12-06-10

SUBJECT: CHANGE TO AUTOMATIC RESTART OF THE BUMPER IN FIRMWARE V5.13

With the advent of version 5.13 of the CCU firmware, Webb Engineering has altered the behavior of the automatic restart of the bumper.

Previously, the bumper basically operated on a "three strikes and you're out" basis. When the bumper is tripped, the AGC waits five seconds for the bumper trip to clear, then travels at slow speed for about 15 seconds before resuming the previous speed. If another bumper trip occurs during the slow speed period, the AGC increments the number of strikes. Upon the third strike, the AGC generates an error – "AutoLoss-Bumper Trip" – and has to be manually restarted by an operator.

With the revision, if the "Disable FWD optic pretravel test" box on the Cart Configuration tab in CartTools is disabled (i.e., the box is checked), there is no limit to the number of "strikes". The AGC will wait for the bumper to become clear, and resume travel at the previous speed immediately. There is no delay time.

If the "Disable FWD optic pretravel test" box on the Cart Configuration tab is not disabled (i.e., the box is not checked), the AGC will exhibit the old behavior.

> **Note: In reversing carts, the options noted above also apply for the box "Disable REV optic pretravel test".**

Error Reporting in New Version

Any cart with v5.13 firmware and with Front or Rear Bumper Pretravel Test Disabled (boxes checked) will never again report Conditions 8, 15, or 45. These conditions are:

- "AutoLoss - Bumper Trip"
- "Bumper Retry"
- "AutoLoss -Rr Bumper Trip"

The AGC will only report a condition of "Front Bumper Trip" or "Rear Bumper Trip". These are (and always have been) logged as errors and turn the vehicle RED on the CMS screen.

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Firmware Update

All CCU boards, including spare and repair boards, provided from this point forward will carry firmware at version 5.13.

Any carts carrying boards with v5.12 or earlier can be provided with firmware updates. The firmware can be updated using a special function inside CartTools. This change does not affect v4 or earlier firmware.

Procedure to Load New Firmware
1. Connect to the vehicle using either :

     o   a serial cable to the CCU board or

     o   TCP/IP (wirelessly or wired) through the radio
2. In CartTools, select the connection method using the dropdown menu next to the "Cart Connected" checkbox.
3. Check the "Cart Connected" checkbox.
4. Select the new option in the "File" menu called "Download firmware to CCU2".
5. Browse to and select the CCU firmware file you would like to download to the vehicle.
6. CartTools will ask if you are sure you want to proceed with a firmware download to the CCU2 board.
7. In the lower left of the CartTools status bar it will show that the firmware is downloading. After a minute or two, the status will report that it is sending a reboot command, and then "Trying to connect". It will try three times and fail to connect after the reboot.
8. In order to re-establish communication with the cart, uncheck and recheck the "Cart Connected" checkbox.
9. Verify that the firmware revision is now the correct version by checking the "Cart Data" tab.