



**Nilfisk  
Advance**

*setting standards*

## Technical Service Bulletin

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### ATTENTION SERVICE MANAGER / PARTS DEPARTMENT

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**Bulletin Level:** 2                      **Specific Warranty Coverage:** Parts: NA, Labor ½ Hr, Travel 3 Hr's

**Subject:** Delta-Q on-board Charger wiring change. Production and field changes to the wiring connection on the on-board battery chargers P.N. (s) 56 315124 (24V) & 56315204 (36V) used on the machine models listed below.

**Models Affected:** Convertamatics (All), Warriors (All), BA755 (All)

**Parts List Form Number(s) Affected:** 56042451, 56042463

**ECO#:** A-03195

**Problem:** Excessive gassing of battery pack due to elevated battery temperatures and premature battery failure.

**Cause:** The batteries can overheat if they are charged in a hot environment, if there is a defective cell or cells, if the wrong algorithm is set on the charger for the batteries, or if there is a low electrolyte (water) level in the batteries due to improper maintenance.

To prevent overheating of the batteries the battery charger is equipped with a battery temperature sensing and current fold back feature. However this feature was not currently being utilized on the machine models listed above.

**Corrective Action:** Manufacturing on production machines effective with serial #'s  
Convertamatic after S.N. 1932097  
Warrior after S.N. 1917194  
BA 755 – Battery charger available as optional field kit only.

The wiring of the charger to the machine has been revised to utilize the temperature sensing and current fold back feature. To utilize this feature the thermistor (white wire) attached to the negative lead on the charger must be connected directly to the black negative terminal of the battery.

On all the above listed charger part numbers and the European charger kits (P.N. 56315658 and P.N. 56315665) shipped after 8/18/06 the wiring has been revised to allow the thermistor wire to be connected to the negative battery terminal.

**\*\*Technical Service Bulletins Levels:**

Level 1: These Bulletins contain general information and are without specific warranty coverage.

Level 2: These Bulletins describe continuous quality improvements that are made to products. Specific warranty coverage may apply and if so is noted in the Bulletin.

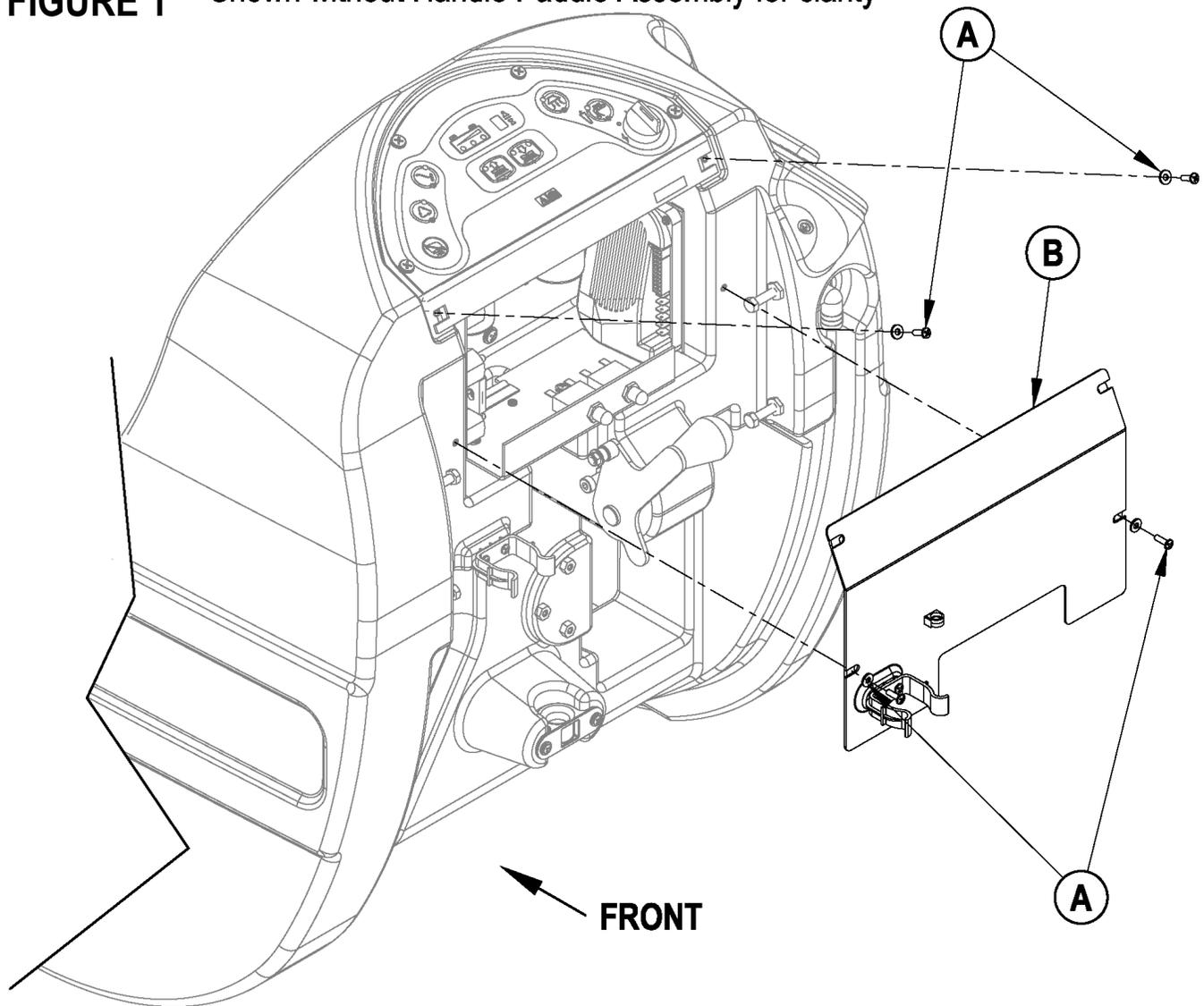
Level 3: These Bulletins describe a quality problem that has been determined to require a mandatory update to the product. Specific warranty coverage is as noted in Bulletin.

**Corrective Action in the Field:** When servicing any of the above listed machine models prior to the serial numbers noted inspect the charger wiring. Follow the steps listed below to re-locate the chargers combined negative/temperature (B-) cable to the machines battery packs master negative terminal.

**⚠ WARNING!** Disconnect the battery pack before servicing machine.

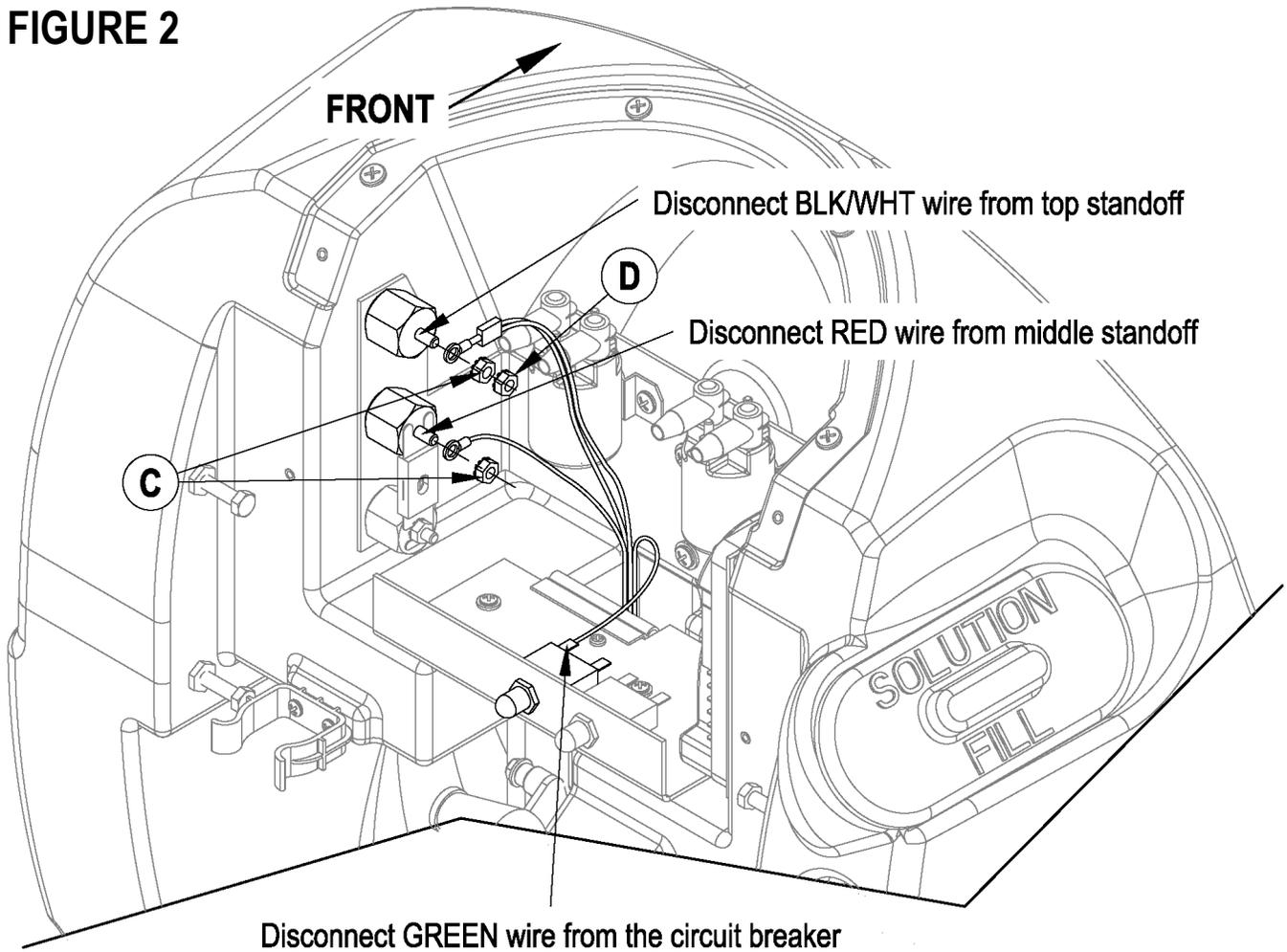
1 See Figure 1. Remove the (4) Screws & Washers (A) and remove the Panel (B) from the machine.

**FIGURE 1** Shown without Handle Paddle Assembly for clarity



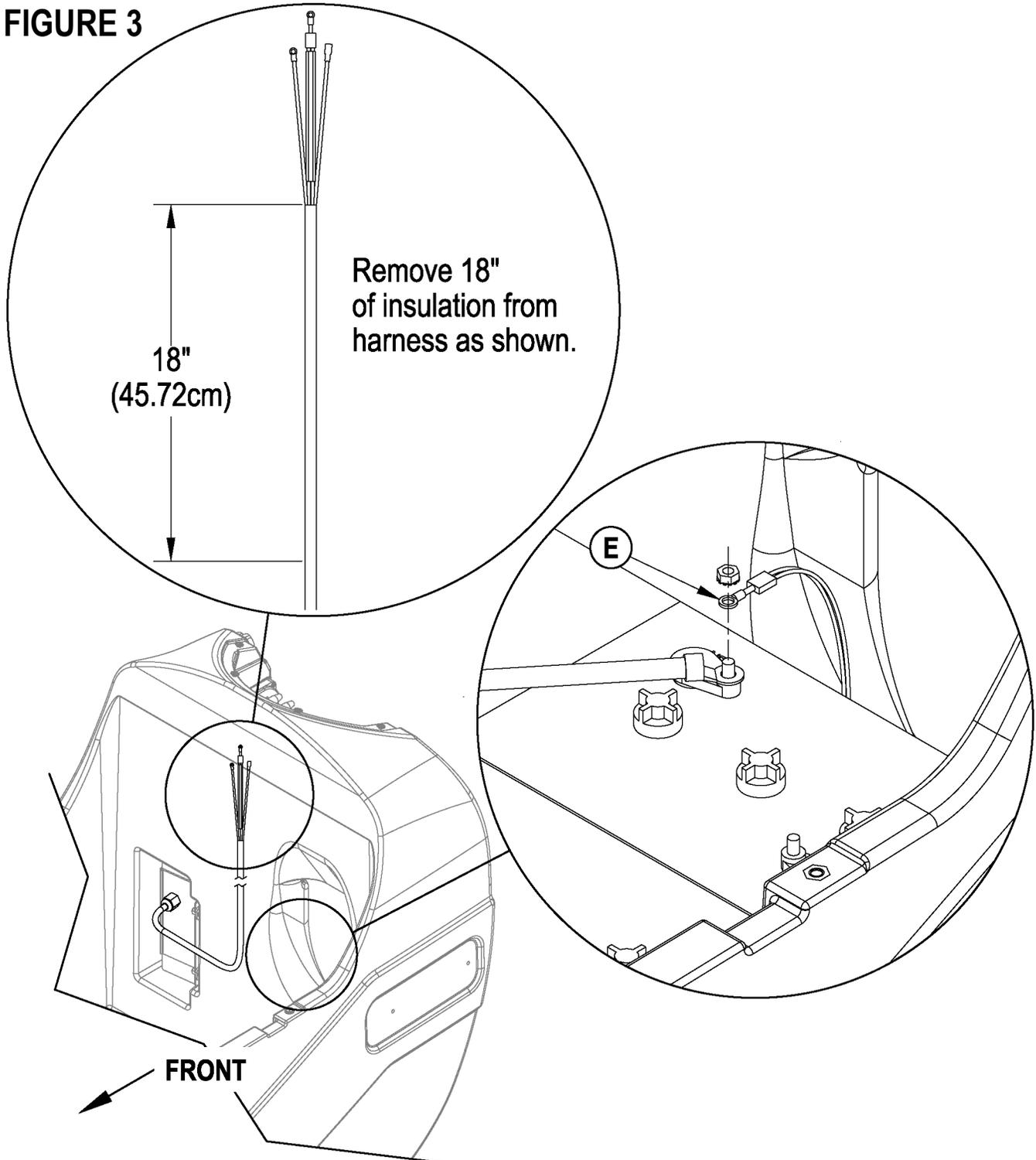
- 2 **See Figure 2.** Using a 7/16" inch wrench remove the (2) Hex Nuts (**C**) as shown. Then remove the charger harness wires red positive and the black/white negative from the control panel electrical stand offs.
- 3 Reinstall the top Hex Nut (**C**) and tighten securely. **NOTE:** You will need an additional 1/4-20 Hex Nut w/shprf washer (**D**) to assure a good grounding connection on the top stand-off.
- 4 Disconnect the green charger harness wire at the 5 Amp circuit breaker.

**FIGURE 2**



- 5 Pull the charger harness assembly back down and through into the battery compartment.
- 6 **See Figure 3.** Use a razor knife and trim back the charger harness insulation (jacket) 18 inches and cut and remove the insulation. This will give 24 inches lead length from the terminals to the jacket.
- 7 Relocate and secure the black / white charger wire (E) to the negative battery terminal as shown.
- 8 Route the green and red wires back up behind the circuit breaker panel and reconnect them to their original locations (**See Figure 2**).
- 9 Tighten all the hex nut wire connections and tuck the extra charger harness cable along side of the battery pack and the extra length of the RED & GREEN wires into the bottom of the electrical compartment.

**FIGURE 3**



10 The final step is to check that the charging algorithm is set correctly for the battery type installed in the machine. See chart and follow the instructions to check and change the charging algorithm if needed.

**11 Check / Change Charging Algorithm:**

The charger comes pre-loaded with algorithms for batteries as detailed in Table 1. If your specific battery model is not listed, please contact Delta-Q @ 604-327-8244. Each time AC power is applied with the battery pack NOT connected, the charger enters an algorithm select/display mode for approximately 11 seconds. During this time, the current Algorithm # is indicated on the '80%' LED (Models 912-xx0x) or on the single LED (Models 912-xx1x). A single digit Algorithm # is indicated by the number of blinks separated by a pause. A two digit Algorithm # is indicated by the number of blinks for the first digit followed by a short pause, then the number of blinks for the second digit followed by a longer pause.

**To check / change the charging algorithm:**

- a) Disconnect the charger positive connector from battery pack. Apply AC power and after the LED test, the Algorithm # will display for 11 seconds.
- b) To change algorithm, touch positive connector during the 11 second display period to the battery pack's positive terminal for 3 seconds and then remove – the Algorithm # will advance after 3 seconds. Repeat until desired Algorithm # is displayed. A 30 second timeout is extended for every increment. Incrementing beyond the last Algorithm moves back to the first Algorithm. After desired Algorithm # is displayed, touch the charger connector to the battery positive until the output relay is heard to click (~10 seconds) – algorithm is now in permanent memory.
- c) Remove AC power from the charger and reconnect the charger positive connector to the battery pack. It is highly recommended to check a newly changed algorithm by repeating step 11 above.

**TABLE 1**

Nilfisk-Advance Part Number	Mfr.	Model Number	Amp Hour	DELTA-Q ALGORITHM	
				Model QUI Q 3621 & 912-3600 (36 volt) (56315204)	Model QUI Q 2425 & 912-2400 (24 volt) (56315124)
56206987	East Penn Mfg. Co.	8GGC2/T881 (Gel Cell)	180	6	6
56206117	Trojan	T-605LPT	195	1	1
	US Battery	US1800	201	4	4
56206079	Trojan	T-125LPT	235	1	1
	US Battery	US-125	235	4	4
56026200	Trojan	J-250-2992-41	250	3	3
	US Battery	US250HC	275	4	4
56391391	Trojan	J-305G	285	7	7
	US Battery	US-305	305	7	7