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Technical Note 013: AXE/NPX Trouble Shooting Guide

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AXE/NPX

This troubleshooting guide provides general steps that our tech department uses to determine a problem. During testing procedures follow proper safety rules and guidelines (ie raise the rear wheels, disconnect battery power when removing or installing components)

General Troubleshooting

Issue	Solution
• Controller is not powering up (No LED)	• Check for pack voltage on Pin 1 with throttle depressed • Verify wiring to pins 1 – 4 are correct
• LED continually flashes red	Open throttle alarm • Check for a break in throttle wires or bad crimps • Replace throttle assembly
• LED blinks 3 times red	High Pedal disable alarm. • Remove foot from throttle on power up • Throttle out of range, replace throttle. • Disable HPD switch in ControllerPro
• LED blinks 6 times red	Under-voltage Alarm • Charge batteries • Load test batteries, replace any bad batteries. • Check voltage between Controller B+ and B-. Voltage should be ±5V of the pack voltage. o If voltage is low, replace solenoid. o If voltage ok, call Alltrax Technical Support
• LED blinks 7 times red	Overvoltage Alarm • Check voltage between Controller B+ and B-. Voltage should be ±5V of the pack voltage. o If voltage is high, make sure short wire from solenoid to Controller B+ is not broken or damaged.. o If voltage is ok, call Alltrax Technical Support • If controller is serial number 3500 or below, call Alltrax Technical Support. • Verify charger is not overcharging batteries (<60VDC)
• Controller powers up but cart does not move	• Max throttle and verify LED turns to an amber color. Check throttle if light doesn't change. • Monitor voltage on Controller B- and M-. At 0% throttle, the voltage should be the same as pack voltage. At 100% throttle voltage should be near zero. o If voltage starts or stops at ≈ ½ pack voltage, replace F/R switch. • Bypass F/R switch by wiring motor directly to controller to verify motor and controller.

General Troubleshooting (cont)

Issue	Solution
• Cart runs slow	• Check wiring for bad crimps or signs of insulation getting hot. Replace any suspect wires. • Verify there is voltage on pin 4 (if used) only when F/R is in reverse • Charge batteries • Verify correct wire and solenoid sizing for Controller amperage (See Tech Note 10 for more information.) • Jumper large terminals of the solenoid together o If cart works normally, replace w/ correct sized solenoid.
• Cart only operates at full speed. No speed control	• Verify controller throttle setting (see Manual for throttle blink codes) match the throttle in the vehicle. Ohm throttle as necessary. • Verify M- and B- wired correctly.
• Controller whines or "whistles". (-P models)	• Plug Brake stuck on, replace controller. • Verify F/R is wired correctly.
• Motor and/or Battery wires getting hot.	• Check for bad wire crimps and terminations. • Upgrade wire size to a large size. (see Tech Note 10 for more details)
• Controller pops and smokes when turned on	• Controller is Bad! Do not power up anymore. Replace controller. Disconnect battery power immediately. Check and replace solenoid.

EZ GO

Issue	Solution
• Cart drives fine from a stop, but jerks violently when the throttle is depressed and the cart is rolling. (1995 and Newer)	• Install/replace suppression diode on the small terminals of the solenoid.
• Cart jerks or shutters on takeoff, but once at full speed it drives smoothly. (1995 and Newer)	• Check for water in the ITS throttle box. Drill weep hole if necessary. • Bad ITS throttle, replace toroid core • Adjust the collar on the ITS slug so the microswitch activates before the slug enters the toroid.
• Controller powers up in reverse but not forward. (AXE only)	• Verify the KSI (red) and ½ Speed reverse (orange) are wired correctly. KSI = Pin 1, ½ Speed Reverse = Pin 4 on AXE controllers.

Club Car

Issue	Solution

• Controller powers up, but solenoid does not engage	• Reboot OBC (See Tech Note 11)
	• Replace the OBC
	• Remove wire from solenoid that goes to the OBC (Typically the yellow wire). Jumper from that post to B- and see if solenoid works.
	  o If solenoid works, replace OBC.
	  o If solenoid doesn't work, replace solenoid.
	• Verify the polarity of the suppression diode on solenoid coil.

• Cart works fine in forward, but flashes 3 red when in Reverse.	• Replace outside most microswitch on F/R switch.

Yamaha

Issue	Solution
• The cart gets to full power at less then half throttle then shuts down at full throttle. (G8)	• Controller has the wrong throttle programming. G8 models had 2 different throttles. Ohm throttle out to verify throttle type (0-1k or 0-5k) and reprogram controller to correct throttle.
• The cart only runs at about quarter speed with the throttle fully depressed.	• Controller has the wrong throttle programming. G9-G16 has a 0-1k throttle. Controller is configured for 0-5k throttle.

ALLTRAX Inc., Company History:
The company founder developed our core technology at the race track for high power electric vehicles. Throughout the 90's, the market demanded robust and high performance electronic controllers. In 2001 ALLTRAX was formed based on the E-race car developed technology.

Today, Power Conversion Engineering (PCE) is the research and development arm of ALLTRAX and provides the industry a powerful and robust controller to meet all your recreational, industrial, and commercial electrical vehicle needs.

For more information please go to http://www.alltraxinc.com

"The company was founded at the track"