

Safety Precautions before Installing your Speed Controller

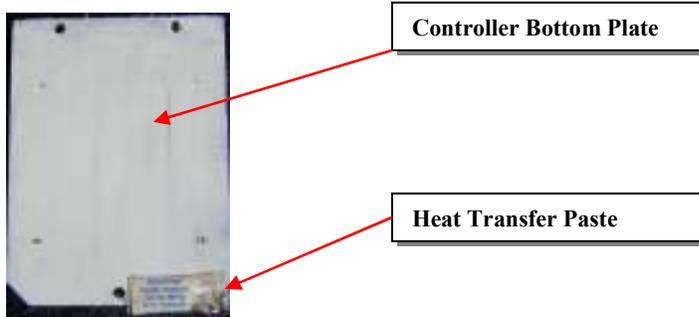
(The information provided is generic. Consult your golf car user manual for specific technical information)

In all 1204 and 1205 Speed Controllers:

Using an OHM Meter – Confirm that none of the large terminals in the front of the unit have continuity with the aluminum bottom plate of the unit. Otherwise, **DO NOT** install the unit and return it to your supplier for warranty replacement.

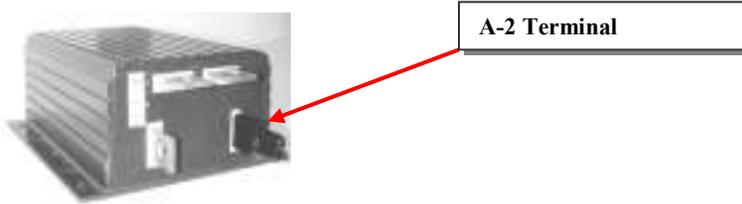
Silicone Heat Transfer Compound:

Before installing the unit, open silicone transfer compound bag (included), spread silicone heat transfer compound on the bottom plate of the speed controller and proceed to install the unit. (See picture)



A2 Terminal:

Units with A2 terminals (plug break) do not provide an “essential” function to the vehicle. Installing a unit with no A2 terminal in a vehicle originally equipped for it will not prevent the vehicle from operating (consult your factory manual for details). If you receive a controller with the A2 terminal option, and your vehicle is equipped for it, remove the plastic cover (shown in picture below) and connect the A2 (plug break) wire harness terminal. If you choose not to connect it, remove or properly insulate the A2 wire harness.



General Precautions while working on vehicle:

- 1- Set Switches:
 - a. Key switch “off”.
 - b. Forward/reverse (F&R) switch “neutral”.
 - c. If your vehicle is equipped with a RUN-TOWN / MAINTENANCE switch, place it in the “town-maintenance” position.
- 2- Jack-up the vehicle:
 - a. Some fault conditions can cause the vehicle to run out of control. ALWAYS jack-up the vehicle to get the drive wheels off the ground before attempting any work on the motor control circuitry.
- 3- Protect yourself:
 - ◆ Electric vehicle batteries can supply very high power and dangerous high-current arcs will occur if they are short-circuited. Also, charging or discharging lead-acid batteries generate combustible gases, which can build up in and around the batteries.
 - a. Always wear safety glasses and follow the battery manufacturers recommendation.
 - a. Remove watches and jewelry.
 - b. Use insulated tools.
- 4- Disconnect the batteries:
 - a. Always open the battery circuit by disconnecting the cable from the B+ terminal of the battery. Never work on the motor control circuit with the battery connected.

Preliminary Checks:

- 1- Inspect the cables and connectors:

- a. Look for any indication of corrosion or overheating. High current electrical connections must be **clean** and **tight** or they will overheat. Cables with crimped-on terminals will often corrode and overheat at the point where the terminal is crimped on to the cable. This can cause the controller blades (B+, B-, M-, A2) to get very hot and even melt the plastic faceplate on the controller itself. What appears to be an overheated controller may actually be caused by bad cables. Replace any cables with cracked or burned insulation. **Cables with soldered terminals will be far superior to cables with terminals that are only crimped.**

2- Check the motor:

- a. Follow the vehicle manufacturers maintenance procedures to verify that the motor is not seized or shorted. Attaching a new controller to a damaged motor may damage the controller and void the warranty.

Post Installation Checkout:

(This text was partially modified from its original version found on the Curtis PMC Manual)

Prior to Checkout:

- Put the drive wheels off the ground using jack-stands before beginning the checkout test.
- Don't let anyone stand in front / behind the vehicle during the checkout.
- Make sure the key switch is off and the vehicle is in neutral before beginning.
- Wear safety glasses and use well-insulated tools.

Checkout: ⇒

- a. Connect the battery. Use voltmeter to verify proper voltage and polarity on the battery terminals.
- b. Check the voltage at the controller B+ and B- bus bars. If your system has a pre-charge resistor in parallel with the main contactor, you should see approximately 90% of the full battery voltage. If your system does not have a resistor, temporarily connect one (100 to 200 ohms, 5 watts, or a 100 watt light bulb). The voltage at the controller should rise to approximately 90% of the full battery voltage.
- c. If "A" and "B" do not check out, troubleshoot the wiring connections. Do not turn on the key switch until the trouble is corrected and "A" and "B" check out.
- d. If your vehicle is equipped with a Run/Tow-Maintenance switch, return it to the "RUN" position. With the forward/reverse switch in neutral, turn on the key switch off. If the motor runs without the throttle being applied, turn the key switch and recheck the wiring. If the motor does not run without the throttle applied, proceed to next step with the checkout. Select direction and slowly apply the throttle, the motor should now respond.
- e. Look to see which in direction the wheels are turning. If the wheels are going the wrong way, turn everything off and interchange the motor field connections.
- f. If you have an HPD (high pedal disable), check it next. Turn off the key switch and direction switch. Apply the throttle, turn the key switch on, and then select a direction. **The motor should not run.** Release the throttle and re-apply it – the motor should now run. If the motor runs before you release the throttle, recheck the wiring.
- g. Take the vehicle down off the blocks and drive it in an open area. It should have smooth acceleration and good top speed.

Only for HPD controllers



Note: Unintended Activation of High-Pedal-Disable (HPD)

In controllers equipped with HPD, sudden application of full throttle may activate the HPD feature in systems where the pedal micro-switch is wired in series with the key switch input to the controller. Normal gradual application of the throttle should not cause this action.

In case of difficulty:

- 1- Check battery charge
- 2- Be sure run/tow maintenance switch (if equipped) is in "run" position.
- 3- Check fuses and power to controller and motor.
- 4- Check operation of main contactor solenoid.
- 5- Check operation of throttle.
- 6- Check switches – key switch, pedal switch and F&R switch.
- 7- Check any interlock switches, which may disable operation i.e. charger receptacle inhibit switch.

For more information visit our website www.golframa.com or call us at 561 338-8843.