Global Electric Motorcars, LLC

September, 2006

Dealer Service Instructions for:

Safety Recall No. 2 – Auxiliary Boards

Models

Most 1999 through 2004 MY vehicles (2-Passenger, 4-Passenger, Short Bed, Long Bed).

IMPORTANT: Some of the involved vehicles may be in dealer new vehicle inventory. Federal law requires you to complete this recall service on these vehicles before retail delivery. Dealers should also consider this requirement to apply to used vehicle inventory and should perform this recall on vehicles in for service. Please contact GEM Customer Service for assistance with respect to recall service on used vehicles in your inventory.

Subject

The 12 volt output from the auxiliary board (a DC voltage to DC voltage converter) may become inoperative and result in a loss of headlamp, tail lamp and turn signal lamp function.

Repair

Replace the auxiliary board on all affected vehicles with a new DC to DC converter. In addition, install splash/spray protection and adjust the dash seal as required.

Parts Information

Parts to complete this recall repair will be available through the regular GEM parts system.

Service Procedure

See attached Service Bulletin - "**Sure Power Converter Retrofit Installation**". A copy of this Service Bulletin will also be included in all parts kits.

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Completion Reporting and Reimbursement

Claims for vehicles that have been serviced must be submitted on the GEMconnect warranty system. Claims submitted will be used by Global Electric Motorcars to record recall service completions and provide dealer payments.

Use the following labor operation numbers and time allowances:

Labor Operation Number	Time Allowance
ELE-01-040	1.0 hours

Add the cost of the recall parts package plus applicable dealer allowance to your claim.

NOTE: See the Warranty Administration Manual for complete recall claim processing instructions.

Dealer Notification

All dealers will receive a copy of this dealer recall notification letter by mail. To view this notification on GEMconnect, select "Safety Recall No. 2" under "New Service Announcements."

Owner Notification and Service Scheduling

All involved vehicle owners known to Global Electric Motorcars are being notified of the service requirement by first class mail. They are requested to call (866) 764-0616 to find their nearest service provider and to schedule an appointment. A generic copy of the owner letter is attached.

Vehicle Lists, Global Recall System, VIP and Dealer Follow Up

All involved vehicles have been entered into the GEMconnect Global Data Base System. Dealers can call the GEM Customer Service group at (806) 764-0616 to inquire about a specific VIN.

Dealers must perform this repair on all unsold vehicles *before* retail delivery.

Recall VIN lists may contain confidential, restricted owner name and address information that was obtained from the Department of Motor Vehicles of various states. Use of this information is permitted for this recall only and is strictly prohibited from all other use.

Additional Information

If you have any questions or need assistance in completing this action, please contact (866) 764-0616.

NEV SERVICE, LLC
An Approved GEM Service Provider

Global Electric Motorcars, LLC
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Service Bulletin

Sure Power Converter Retrofit Installation

Models: All Pre-2005
Part Number: 1206-00041
Description: DC-DC Converter Recall

Bulletin Number: 06A1004
NHTSA Number: 06V222
Date: August 1, 2006

*** THIS KIT IS DESIGNED FOR THE REPLACEMENT AND UPGRADE OF THE DC CONVERTER UNIT IN ANY OLDER MODEL GEM VEHICLE EQUIPPED WITH A SPS POTTED AUXILIARY BOARD OR SPS GREEN OPEN-FACED DC-DC CONVERTER UNIT. PLEASE REVIEW ALL INSTRUCTIONS AND POSTED RECOMMENDATIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION.**

WARNING! TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE BE SURE TO TURN THE MASTER DISCONNECT SWITCH (MDS) TO THE 'OFF' POSITION BEFORE ATTEMPTING ANY SERVICE TO THE VEHICLE.

*** BULLETIN 06A3001 & 05A1012 MUST BE PERFORMED BEFORE INSTALLATION OF THIS KIT. (Included in kit)**

Parts/Tool List: Page 16
Wire Termination Chart: Page 12
Drawing/Schematic: Page 13-15
Diagrams: Page 11

INSTRUCTIONS:

1. Remove the seat bench to gain access to the Master Disconnect Switch located toward the passenger side above the batteries. Turn the MDS to the '**OFF**' position. (See Photo 1)

2. Remove the upper and lower dashes to gain access to the charger unit. (See Service Manual Part # 1010-00021, Section 7 – BODY.)

Removing the SPS DC-DC converter.

Photo 1

3. Locate the old style converter unit, (Printed Wire Board) along the aluminum Electronic Control Module (ECM) mounting plate on the passenger side of the vehicle. (See Photo 2) (See numbered arrows)
    a. **(1) Motor Controller Unit**
    b. **(2) Charger Unit:**
        - **Schott/SPS**
        - **Zivan**
        - **Delta-Q**
    c. **(3) Converter Unit:**
        - **SPS Printed Wire Board**

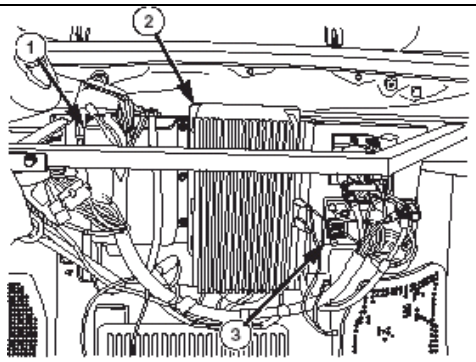


Photo 2

4. Disconnect the wire connectors and individual wires from the green printed wire board.

5. Remove the old style converter unit, four (4) screws. (See Photo 3)

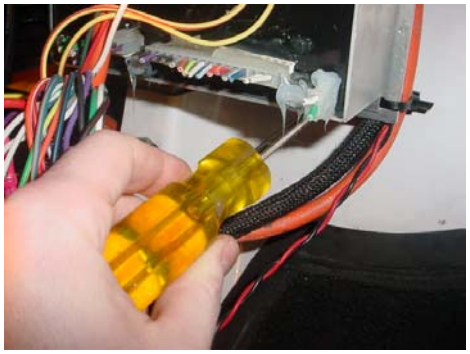


Photo 3

<u>Mounting the Sure Power DC-DC converter.</u>

6. Prepare to install the new converter unit and mounting plate provided in kit.
    - **It may be necessary to relocate the Fuse Stand-off to the next hole above it if not already done. (See Photo 4) Picture indicates top hole used, already relocated. The fuse becomes horizontal.**
    - **If there are any obstructions in the way or attached to the ECM plate, remove them at this time. (See Photo 5)**

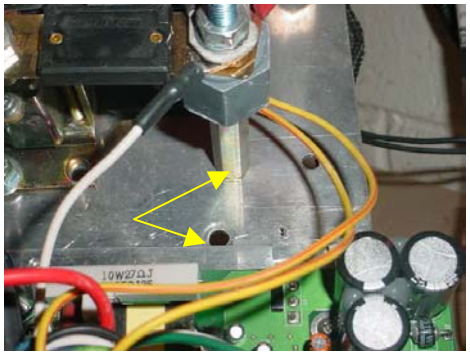


Photo 4

7. Mount the Sure Power converter unit to the mounting plate horizontally so the gray housing is facing to the passenger side. (The unit over hangs the plate when secured.)

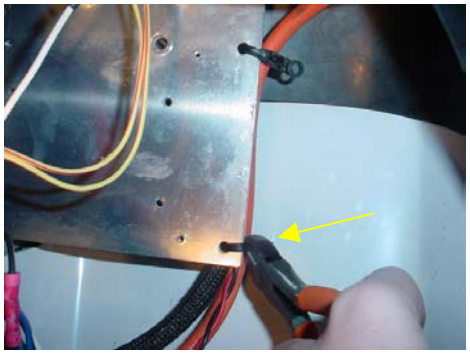


Photo 5

- **Use the ¼" bolts & nuts (arrows) provided and secure the converter to the bottom mounting holes of the mounting plate. (See Photo 6)**

8. Mount assembly to the ECM plate. The mounting plate should appear flush to the ECM on the passenger side and flush to the bottom of the Main Contactor. Secure the assembly to the ECM plate using the four (4) provided 1½" self-drilling screws, (arrows). (See Photo 7)

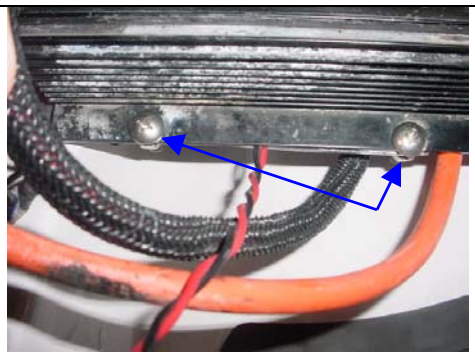
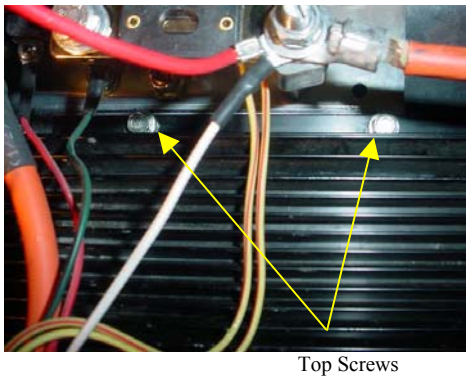


Photo 6

Begin harness installation.

9. Connect the assembled harnesses together to the existing ECM harness on the vehicle. Connect each harness receptacle to its mate, (2-pin, 6-pin, & 16-pin). (See Photo 8)
   - **NOTE: BE SURE TO MATCH EACH CONNECTOR PROPERLY FOR WIRE COLOR CODE ON EACH SIDE OF THE CONNECTORS AND RECEPTACLES. IMPROPER CONNECTION OF COLOR CODED WIRES COULD RESULT IN FAILURE OF THE ELECTRICAL COMPONENTS!**



Top Screws

Photo 7

10. Connect the gray colored Deutsch connector on the harness to its mate on the converter unit. (See Photo 9)

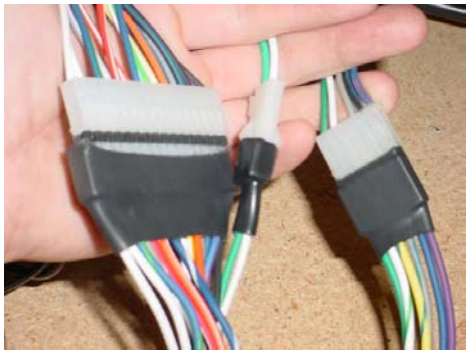


Photo 8

Begin wire termination.

11. Connect the 2 red wires together and attach the black wire with ¼" ring terminal to the chassis.
    - **The red wire is the 12-volt positive feed from the converter unit to the Fuse Block. (See Photo 10, next page)**

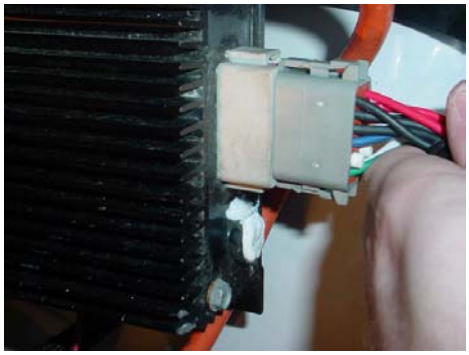


Photo 9

- **The black wire is 12-volt Ground. Secure this terminal to chassis. There is an existing chassis mount located to the lower right of the converter unit above the floor pan. Use a 3/8" driver as shown in the picture. (See Photo 11)**

12. Secure the long green wire (apprx 32") with male spade terminal to 72-volt Ground. (Each install and connection of this wire depends on style of charger equipped in the vehicle.)
    - Schott – Using standard pliers, install and attach the provided red/maroon colored t-tap connector to one of the green wires secured to B- of the Motor Controller unit. Connect the green wire with male spade connector to the red t-tap. (See Photo 12)
    - Zivan – Disconnect the short green pigtail wire with female spade connector from the top of the Zivan. Connect the long green wire to the short pigtail. (See Photo 13)
    - Delta-Q – Disconnect the short green pigtail wire with female spade connector from the small black wire of the Delta-Q charger. Connect the long green wire to the short pigtail. (See Photo 14, next page)

13. Now, using one of the provided black plastic tie wraps from the kit, tie the three (3) Molex connectors (2-pin, 6-pin & 16-pin) together along with the red wire, violet/blue, green and two (2) black wires. Use the provided black electrical tape from the kit to

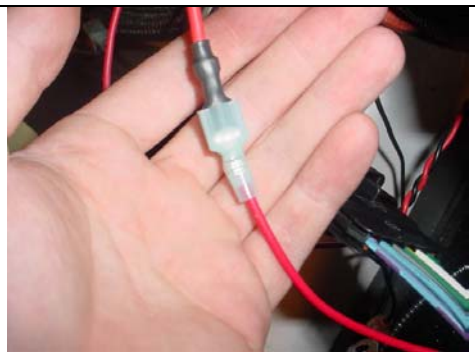


Photo 10

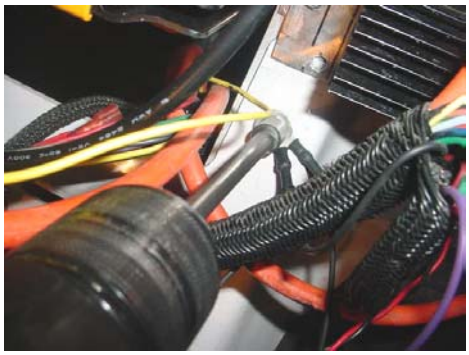


Photo 11

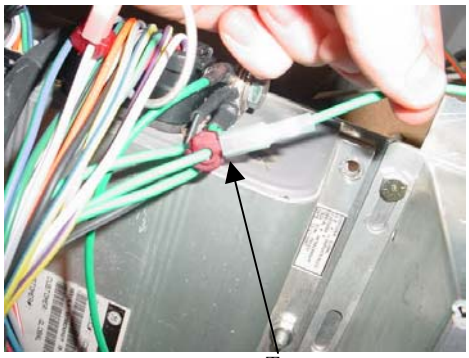


Photo 12

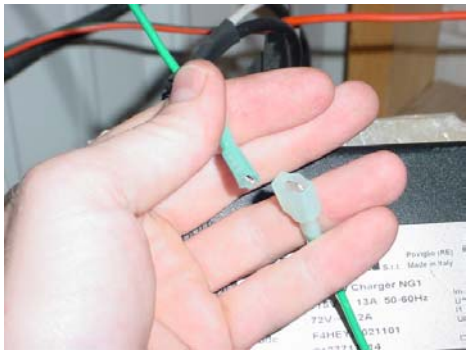


Photo 13

wrap each of the 3 main white connectors. (See Photo 15)

<u>Install electrical components.</u>

14. Next is to attach each electrical component provided in the kit to the harness. Included are the Timer, Relay and Buzzer.
    - **Note wire orientation. (See Wire Termination Chart & Diagrams below)**

15. First, start with the Buzzer. Connect the Blue/Green wire and the White wire. The buzzer is labeled as (+) and (-). (See Photo 16)

16. Second, connect the wires to the Timer. The timer is labeled as 1, 2, 3, & 6. (See Photo 17)
    - **NOTE: The green wire (pin 6) is spliced and has a long tail with a ¼" female 'fast-on' spade terminal. This leads across the ECM to the charger unit and connects to the Interlock Relay Circuit. Disable the already connected green wire on the chargers interlock circuit, (this green wire typically leads straight over to the Motor Controller Unit, B-). This is the wire removed previously in Step 12. Plug the new green wire (pin 6) in to this location of the Interlock Circuit.**
        a. **For Schott insert the provided short green wire with male spade and female Molex terminal to Pin 2 of the 8-pin white Molex connector on the bottom of the charger**

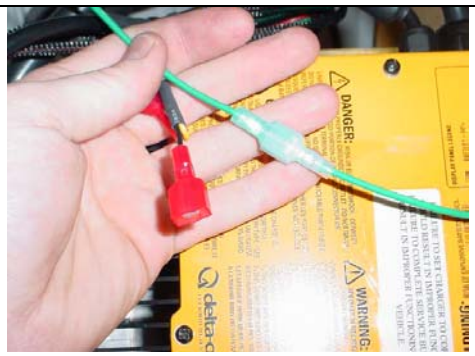
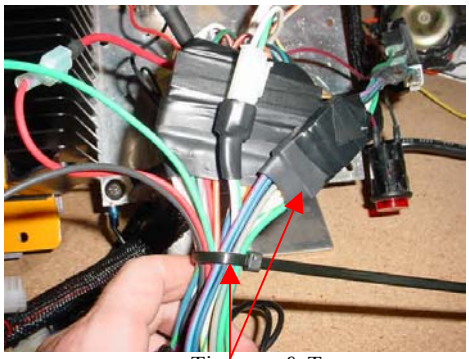


Photo 14



Tie wrap & Tape

Photo 15

Photo 16

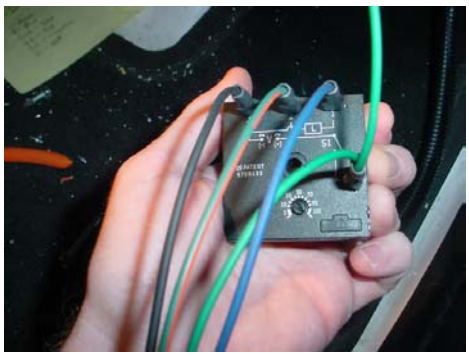


Photo 17

unit. Then connect the long green wire from Timer Pin 6 to this location. (See Photo 18)

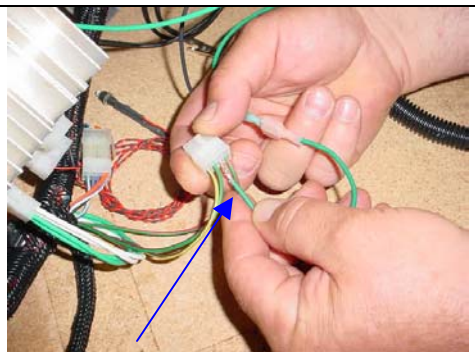
b. For Zivan connect the long green wire from Timer Pin 6 to the male spade terminal next to the red/green on top of the charger. (See Photo 19)

c. For Delta-Q connect the long green wire from Timer Pin 6 to the small black wire on the charger. (See Photo 20)

- **See also Wire Schematic Drawings below, Pages 14-16.**

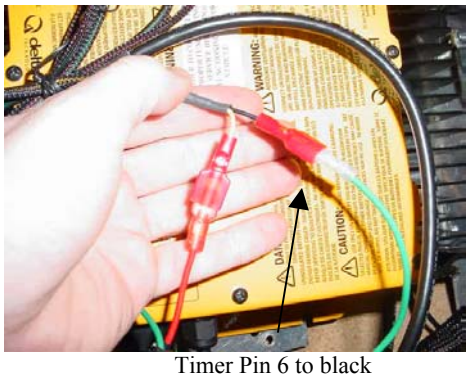
17. Lastly, connect the wires to the Relay. The relay is labeled as 1, 2, COM, & NO. (See Photo 21)
    - **Note orientation. See Wire Termination Chart and Diagram below, Pages 12-13.**

18. Mount the electrical components. Next to the Main Contactor on the ECM plate is a good location for these three (3) components.
    - **Using the four (4) small self-drilling screws provided in the kit, mount the Buzzer and Relay as shown. (See Photo 22, next page) <u>NOTE: It is important that the buzzer mounts with the hole pointing downward!</u> DO NOT over-tighten!**
    - **Using the last 1-1/2" self-drilling screw provided in the kit, mount the Timer as shown. (See Photo 23, next page) DO NOT over-tighten!**



Insert to Pin 2, between red/green & brown/green
Photo 18

Photo 19



Timer Pin 6 to black
Photo 20

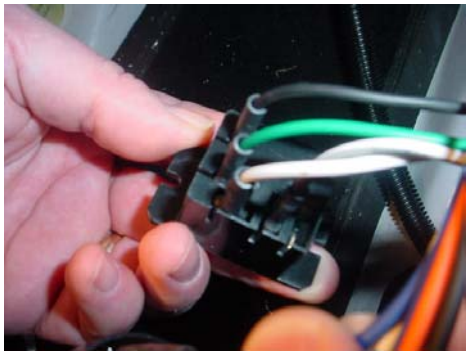


Photo 21

- **As an alternate solution for mounting locations, if an accessory contactor already occupies the above suggested area, the cross member tube frame to the right of the ECM plate and/or the dash support bracket may be used as well.**

19. With the electrical components now installed, using the last black plastic tie wrap provided in the kit, take the main section of the harness that is looped up to the electrical components and tie it just below the gray Deutsch connector of the Sure Power converter unit. (See Photo 24)

20. Inspect the Timer. Set the adjustable time switch to 30 seconds (recommended) or desired time delay length, (1-100 seconds).

21. Turn the MDS to the **'ON'** position. Secure the bench seat. Verify the operation of the vehicle and 12 volt accessories. (Turn the ignition key switch <u>on</u>)
    - **Leave one of the accessories turned on, (ex. Headlights). Turn the ignition key <u>off</u>. Be sure the parking brake lever is set at this point. Once the key is turned off, the timer should enable and will begin countdown to the selected time, (30 seconds). At the end of the countdown the selected accessory should shut down. Verify this operation.**
    - **Verify reverse buzzer is operable.**
    - **Verify the charger Interlock Relay Circuit. With the key turned on, plug the vehicle in to**

Photo 22

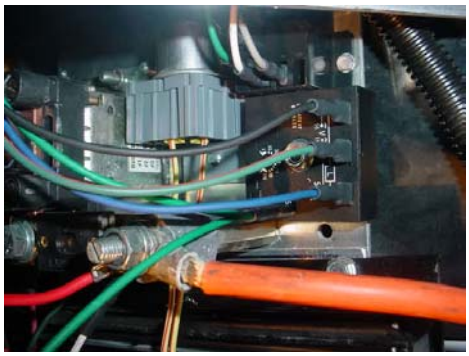
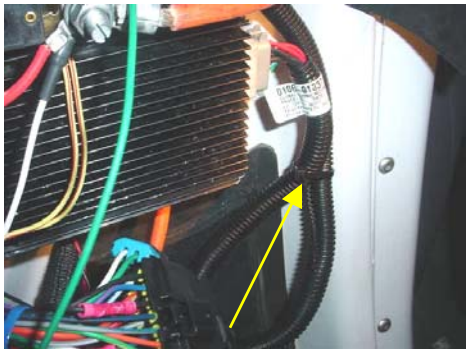


Photo 23



Black tie wrap

Photo 24

charge. Once the vehicle is plugged in the vehicle should shut down (display will go blank) and begin charging.

- **The Interlock Relay is a safety device and an ignition override so the vehicle will not drive away when the vehicle is plugged in and charging.**
- **Any concerns call Technical Support 866.764.0616.**

Sure Power Conversion complete.

<u>Install Splash Protection & 5A Wiper Fuse & Seal Motor.</u> (SVC Bulletins 06A3001 & 05A1012)

22. First, locate the Fuse Block on the outside of the vehicle under the hood on the passenger side, (under the existing rubber splash guard, remove plastic rivet). (See Photo 25)

23. Remove the big black 7.5A fuse on the lower driver-side corner of the Fuse Block. (See Photo 26) Dispose of this fuse.

24. Install the new 5A fuse provided in the kit in to this location. (See Photo 27) (SVC Bulletin 05A1012)

25. Begin splash protection. (SVC Bulletin 06A3001) With the upper & lower dashes still removed, using a 5/16" driver, remove the small black self drilling screws securing the black plastic splash shield on the upper cross member. (See Photo 28)

26. Remove self-drilling screw (3/8" driver), bolt and retainer nut from the body side panel. (See Photo 29, next page)

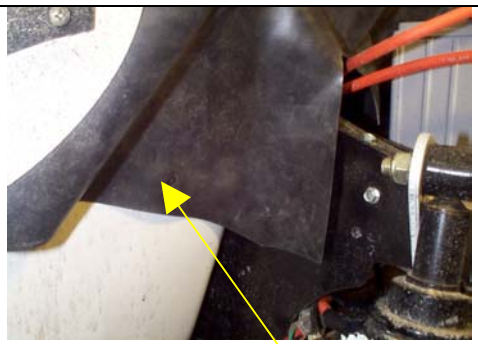


Photo 25

Photo 26

Photo 27

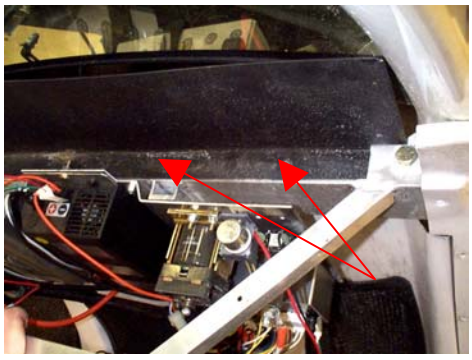


Photo 28

27. Prepare the new rubber splashguard. Cut the rubber using the template provided. (Photo 30)

28. Fold the new splash shield along the cut/slit in the rubber. The 10" portion of the splash shield needs to be on the bottom of the fold. Lay the folded splash shield on top of the vehicle cross member, under the hard plastic shield and under the existing front rubber shield. If required, use a piece of tape to secure new splash shield to frame cross member to keep it in place. (See Photo 31)

29. The cut out in the new splash shield goes around the lower dash frame support. Tuck the portion of the splash shield, right of the cut out, under the body side. (See Photo 32)

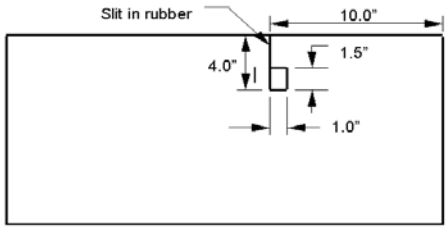
30. Secure both of the rubber shields under the black plastic shield on the cross member using the two (2) screws removed prior.

31. Tuck the short 10" portion of the rubber shield behind the white floor pan so it is outside the vehicle. Then secure the rubber and body side panel with the existing self-drilling screw and ¼" bolt. Install one of the provided ¼" flat washers on to the screw before tightening. DO NOT INSTALL THE ¼" RETAINING NUT AT THIS TIME. (See Photo 33, next page)

32. From inside the vehicle, pull the remaining portion of the new splash shield towards you; lay it over all the electrical components attached to the ECM plate. (See Photo 34)

Screw & bolt

Photo 29



Template for splash shield
Use current battery shield, part # 0310-00161, 12" x 24" piece

Photo 30

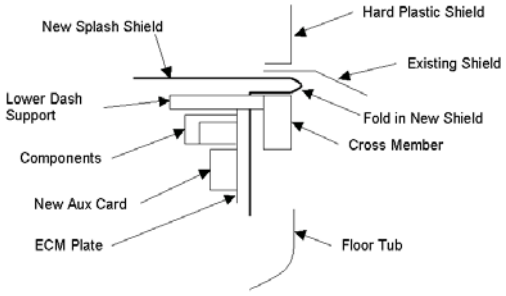
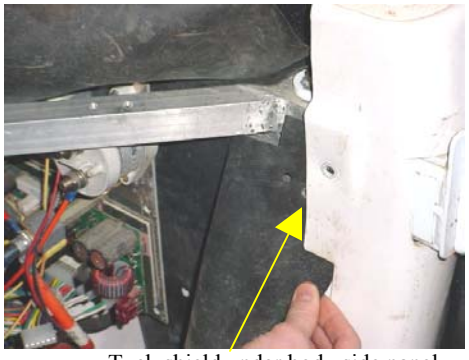


Photo 31 – Side view; drawing



Tuck shield under body side panel

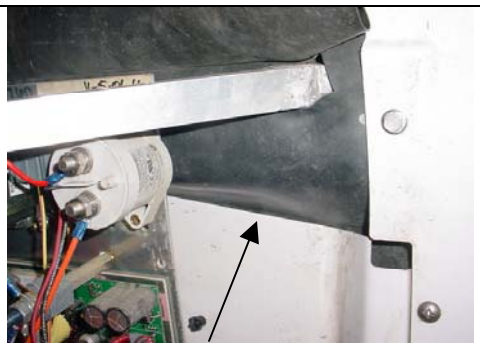
Photo 32

33. On the outside of the vehicle in the fender well, locate the ¼" bolt. Stretch the rubber shields over to the bolt, mark a hole locate and poke a hole in the rubbers. Secure the rubber on to the bolt with the existing Keps lock style retainer nut and ¼" flat washer provided in the kit. (You may find it easier to locate the hole by removing the bolt and using a scratch awl to poke the hole.)

34. Lastly, secure the outside rubber to the floor pan. Stretch the rubber downward. Locate the existing hole in the floor pan. Using the scratch awl poke a hole through the rubber. To secure, insert existing black plastic push rivet through the rubber splash shield in to the floor pan. (See Photo 35)

35. Before continuing with the installation of the black plastic wheel well splash protection, add silicone provided in kit to the Field and Armature contacts/studs of the electric motor. (See Photo 36)

36. Finish installation of the splash protection by adding the plastic splashguards to the inner fender wells. These will attach to the front aluminum sub frame.
    - Driver side – remove two (2) existing self-drilling screws securing the horn and brake line to the frame. Place splashguard in its correct mounting location. Secure using the previously removed self-drilling screws. (See Photo 37, next page)
    - Passenger side – align the splashguard to the motor and aluminum frame. Secure the



Rubber shield behind floor pan

Photo 33

Photo 34

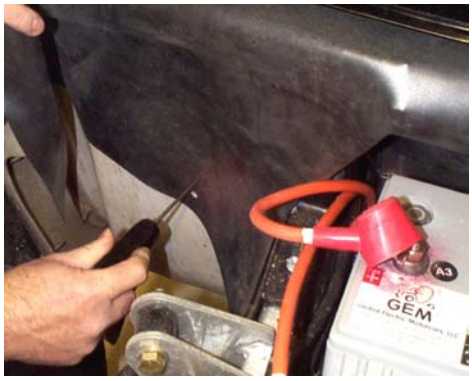
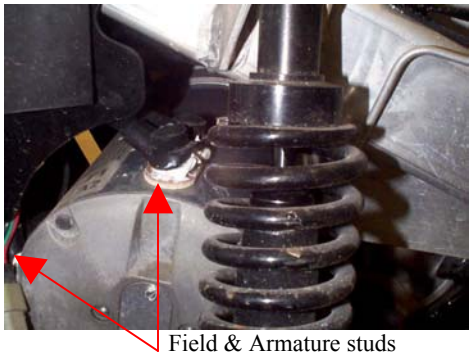


Photo 35



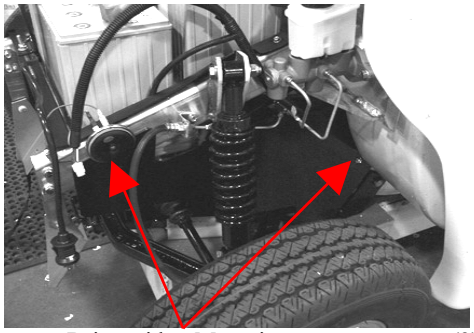
Field & Armature studs

Photo 36

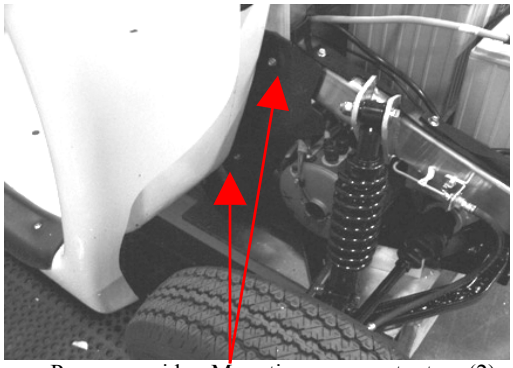
splashguard to the frame using two (2) provided self-drilling screws. (See Photo 38)

37. Install the upper and lower dashes using the existing hardware.

38. Installation complete.
    - Any concerns call Technical Support 866.764.0616.



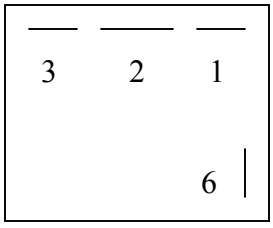
Driver side - Mounting screws qty. two (2)
Photo 37



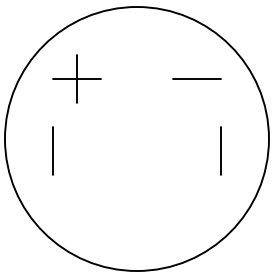
Passenger side - Mounting screws qty. two (2)
Photo 38

Diagrams

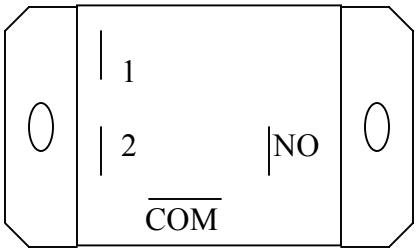
Timer:



Buzzer:



Relay:



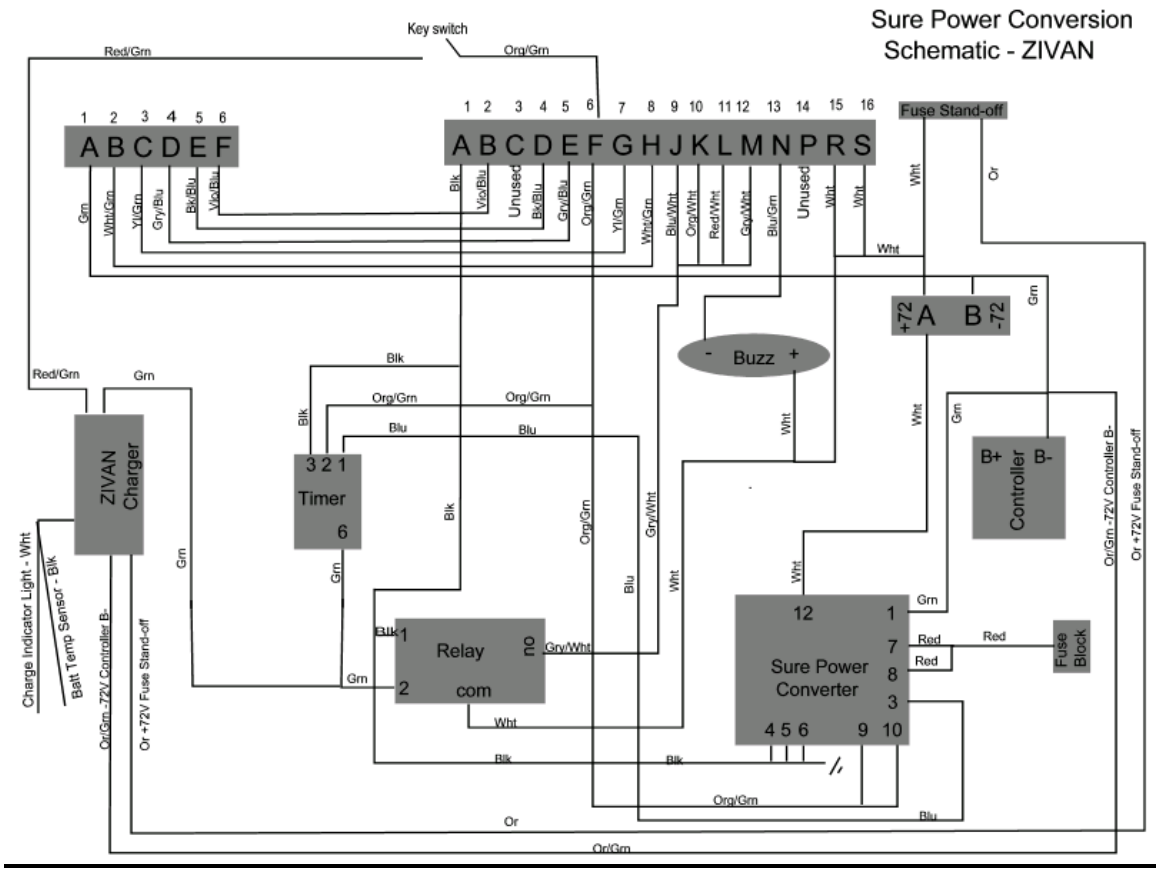
*** ALL DIAGRAMS ARE SHOWN IN 'TOP VIEW' ONLY.**

Wire Termination Chart

*** NOTE: Each connector is labeled using a numbering system. These numbers are not always stamped on the connectors. The old style white Molex connectors DO NOT have any markings and are noted normally as a numbering system, left to right, top to bottom; depending on connector style. Use the chart below as a reference guide.**

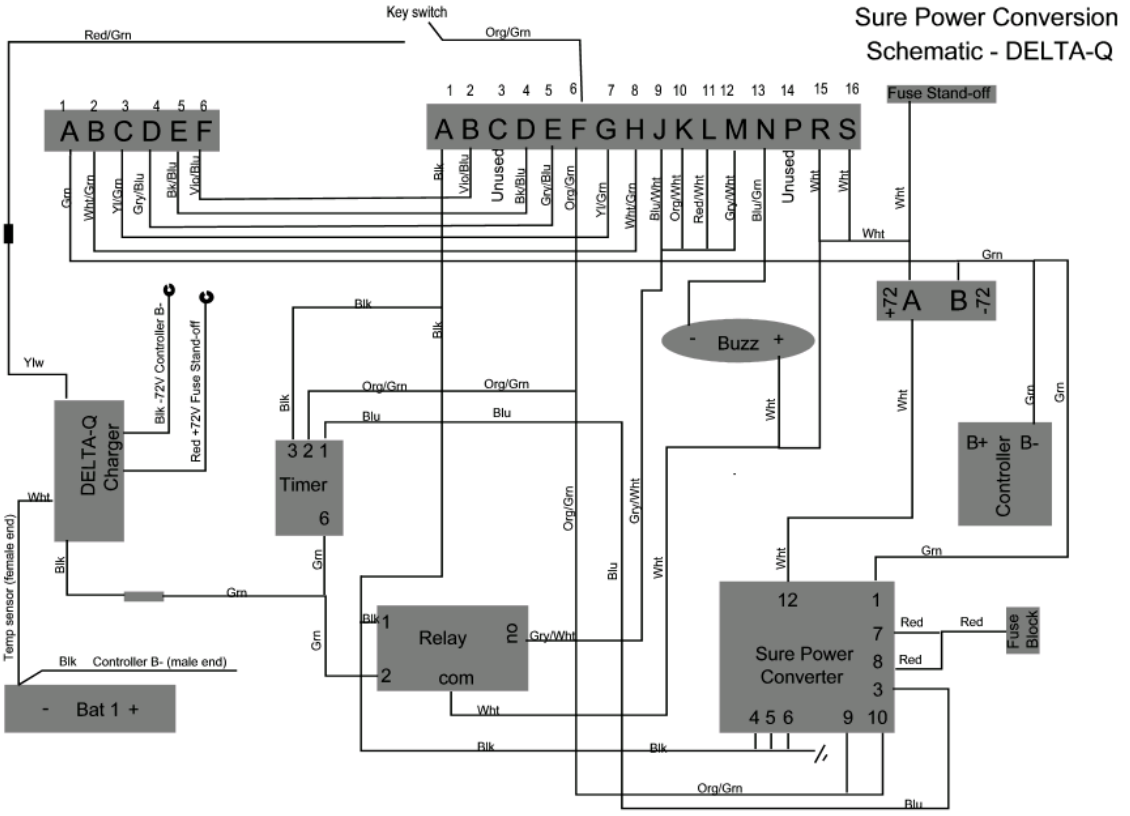
Component/Connector	Pin	Color Code
J4 Molex 2-Pin	1 = A	WHITE
	2 = B	GREEN
J3 Molex 6-Pin	1 = A	GREEN
	2 = B	WHITE/GREEN
	3 = C	YELLOW/GREEN
	4 = D	GRAY/BLUE
	5 = E	BLACK/BLUE
	6 = F	VIOLET/BLUE
J2 Molex 16-Pin	1 = A	BLACK
	2 = B	VIOLET/BLUE
	3 = C	----------
	4 = D	BLACK/BLUE
	5 = E	GRAY/BLUE
	6 = F	ORANGE/GREEN
	7 = G	YELLOW/GREEN
	8 = H	WHITE/GREEN
	9 = J	BLUE/WHITE
	10 = K	ORANGE/WHITE
	11 = L	RED/WHITE
	12 = M	GRAY/WHITE
	13 = N	BLUE/GREEN
	14 = P	----------
	15 = R	WHITE
	16 = S	WHITE
Deutsch 12-pin	1	GREEN
	2	----------
	3	BLUE
	4	BLACK
	5	BLACK
	6	BLACK
	7	RED
	8	RED
	9	ORANGE/GREEN
	10	ORANGE/GREEN
	11	----------
	12	WHITE
BUZZER	+	WHITE
	-	BLUE/GREEN
RELAY	1	BLACK
	2	GREEN
	COM	WHITE
	NO	GRAY/WHITE
TIMER	1	BLUE
	2	ORANGE/GREEN
	3	BLACK
	4	----------
	5	----------
	6	GREEN

Wire Schematic Drawing
Zivan Charger

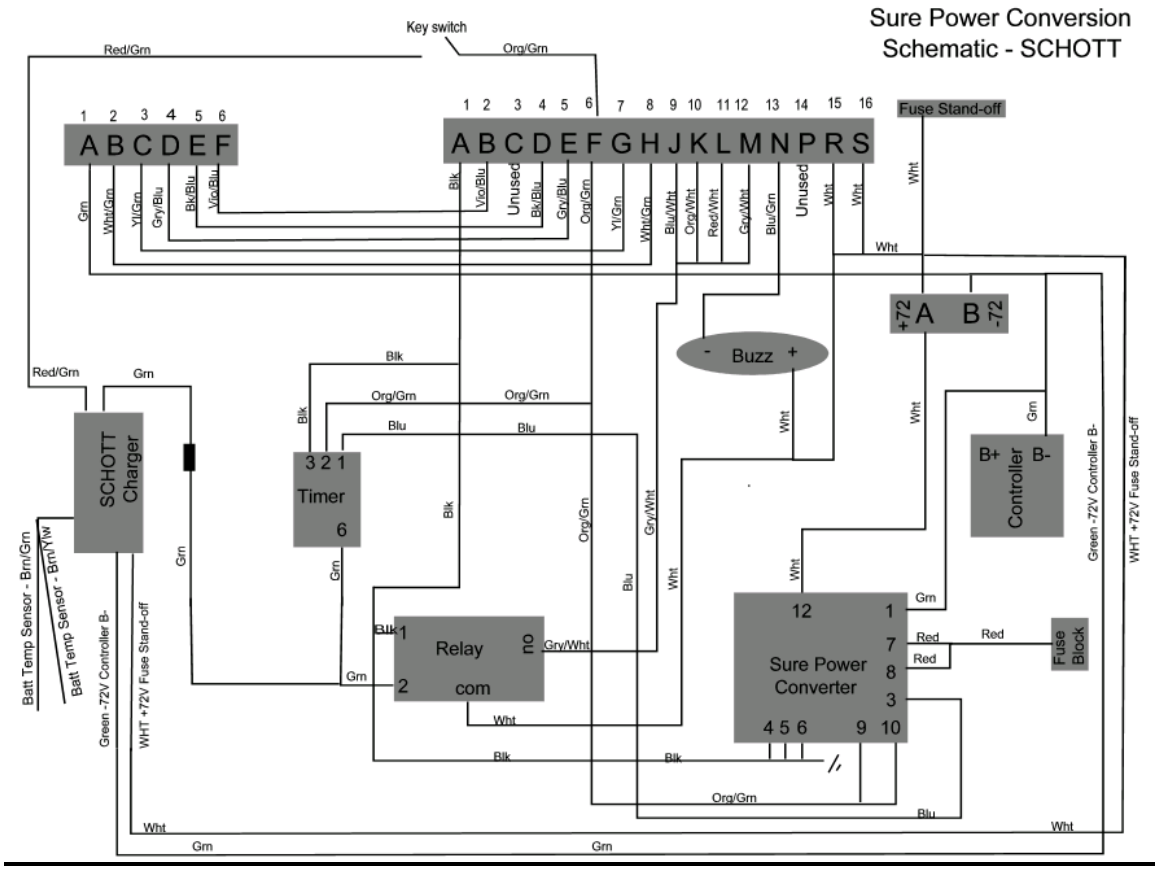


Wire Schematic Drawing

Delta-Q Quiq Charger



Wire Schematic Drawing
Schott Charger



Tool List:

1. Wire stripper
2. Wire cutters
3. Standard crimp tool
4. Needle nose pliers
5. Electrical tape (supplied)
6. Scissors or Utility knife
7. Phillips screwdriver
8. Cordless or Electric drill
9. 3/8” driver, wrench, or socket & ratchet
10. 5/16” driver, wrench, or socket & ratchet
11. ¼” driver, wrench, or socket & ratchet
12. T27 Torx driver
13. ½” wrench, or socket and ratchet (2)
14. 7/16” wrench
15. 10mm wrench
16. 13mm wrench, or socket & ratchet

Parts List:

1206-00041 ASSY, KIT – SURE POWER RETROFIT, RECALL COMPLETE

NO.	QTY.	PART DESCRIPTION	PART NO.
1.	1	ASSY, HARNESS - SURE POWER CONVERSION	0106-01837
2.	1	CONVERTER, DC/DC - 72V/12V, 30A (SURE POWER)	0606-00421
3.	1	BUZZER, BACKUP - 12V	0606-00493
4.	1	RELAY, TIME DELAY - SSAC ABB KSPSP22B	0606-00649
5.	1	RELAY, 12V - SURE POWER CONVERSION	0606-00650
6.	1	CONNECTOR, DOUBLE MALE - FEMALE, .25 PUSH-ON	0606-00368
7.	1	PLATE, MOUNTING	0610-00079
8.	5	SCREW, HEX - WASHER HEAD SELF DRILL 1/4 - 14 X 1.5 ZINC PLATED	0523-00122
9.	4	SCREW, DRILL - HEX WASHER HEAD #6 X 3/4 #2 POINT 410 SS	0523-00176
10.	2	BOLT, TORX - TRUSS HD - ¼” - 20 X 1 - T-27 DRIVE - 18-8 S.S.	0522-00333
11.	2	NUT, KEPS - 1/4 - 20 UNC ZINC PLATED	0521-00071
12.	2	TIE, CABLE W/#10 MOUNT HOLE 9" BLACK	0510-00137
13.	1	ASSY, HARNESS WIRE – SCHOT CHARGER INTERLOCK	0106-02140
14.	1	CONNECTOR, T – WIRE	0606-00176
15.	1	TAPE, ELECTRICAL – BLACK	0906-00350
16.	1	MAT, FIREWALL – OUTTER	0310-00161
17.	1	SHIELD, SPLASH GUARD, LH	0305-00850
18.	1	SHIELD, SPLASH GUARD, RH	0305-00851
19.	4	SCREW, HEX – WASHER HEAD SELF DRILL ¼ X .75	0523-00032
20.	2	WASHER, FLAT – ¼ ZINC PLATED	0524-00062
21.	1	SEALANT, SILICONE – NOVAGARD RTV 400-100 1OZ	0408-00264

NEV SERVICE, LLC
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Service Bulletin

Sure Power Converter Retrofit Installation

Models: All Pre-2005
Part Number: 1206-00041
Description: DC-DC Converter Recall

Bulletin Number: 06A1004
NHTSA Number: 06V222
Date: August 1, 2006

*** THIS KIT IS DESIGNED FOR THE REPLACEMENT AND UPGRADE OF THE DC CONVERTER UNIT IN ANY OLDER MODEL GEM VEHICLE EQUIPPED WITH A SPS POTTED AUXILIARY BOARD OR SPS GREEN OPEN-FACED DC-DC CONVERTER UNIT. PLEASE REVIEW ALL INSTRUCTIONS AND POSTED RECOMMENDATIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION.**

WARNING! TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE BE SURE TO TURN THE MASTER DISCONNECT SWITCH (MDS) TO THE 'OFF' POSITION BEFORE ATTEMPTING ANY SERVICE TO THE VEHICLE.

*** BULLETIN 06A3001 & 05A1012 MUST BE PERFORMED BEFORE INSTALLATION OF THIS KIT. (Included in kit)**

Parts/Tool List: Page 16
Wire Termination Chart: Page 12
Drawing/Schematic: Page 13-15
Diagrams: Page 11

INSTRUCTIONS:

1. Remove the seat bench to gain access to the Master Disconnect Switch located toward the passenger side above the batteries. Turn the MDS to the '**OFF**' position. (See Photo 1)

2. Remove the upper and lower dashes to gain access to the charger unit. (See Service Manual Part # 1010-00021, Section 7 – BODY.)

Removing the SPS DC-DC converter.

Photo 1

3. Locate the old style converter unit, (Printed Wire Board) along the aluminum Electronic Control Module (ECM) mounting plate on the passenger side of the vehicle. (See Photo 2) (See numbered arrows)
    a. **(1) Motor Controller Unit**
    b. **(2) Charger Unit:**
        - **Schott/SPS**
        - **Zivan**
        - **Delta-Q**
    c. **(3) Converter Unit:**
        - **SPS Printed Wire Board**

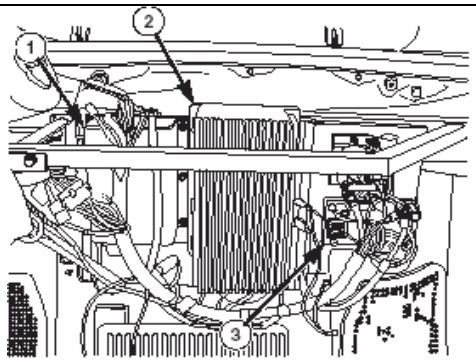


Photo 2

4. Disconnect the wire connectors and individual wires from the green printed wire board.

5. Remove the old style converter unit, four (4) screws. (See Photo 3)

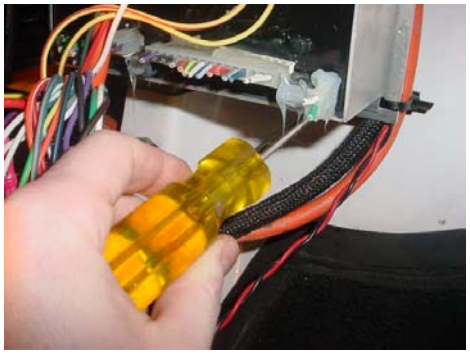


Photo 3

<u>Mounting the Sure Power DC-DC converter.</u>

6. Prepare to install the new converter unit and mounting plate provided in kit.
    - **It may be necessary to relocate the Fuse Stand-off to the next hole above it if not already done. (See Photo 4) Picture indicates top hole used, already relocated. The fuse becomes horizontal.**
    - **If there are any obstructions in the way or attached to the ECM plate, remove them at this time. (See Photo 5)**

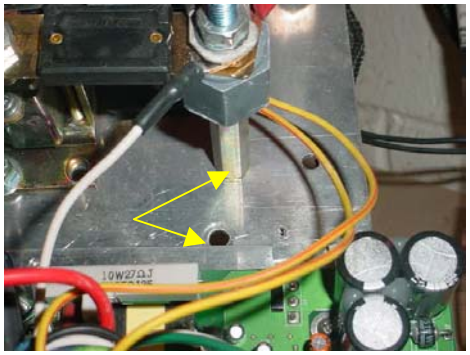


Photo 4

7. Mount the Sure Power converter unit to the mounting plate horizontally so the gray housing is facing to the passenger side. (The unit over hangs the plate when secured.)

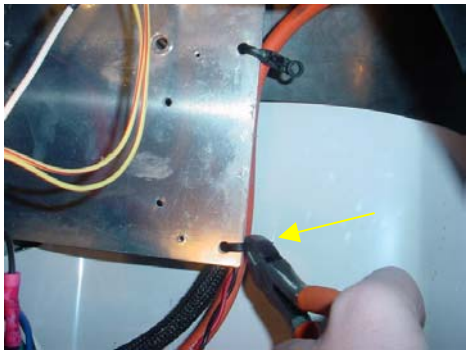


Photo 5

- **Use the ¼" bolts & nuts (arrows) provided and secure the converter to the bottom mounting holes of the mounting plate. (See Photo 6)**

8. Mount assembly to the ECM plate. The mounting plate should appear flush to the ECM on the passenger side and flush to the bottom of the Main Contactor. Secure the assembly to the ECM plate using the four (4) provided 1½" self-drilling screws, (arrows). (See Photo 7)

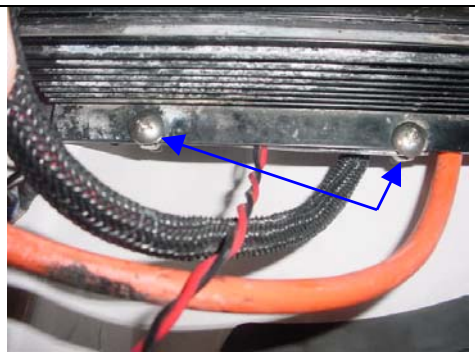
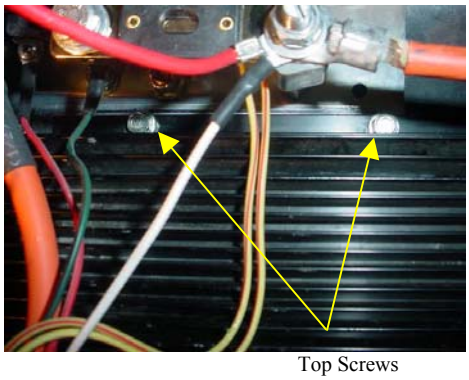


Photo 6

Begin harness installation.

9. Connect the assembled harnesses together to the existing ECM harness on the vehicle. Connect each harness receptacle to its mate, (2-pin, 6-pin, & 16-pin). (See Photo 8)
   - **NOTE: BE SURE TO MATCH EACH CONNECTOR PROPERLY FOR WIRE COLOR CODE ON EACH SIDE OF THE CONNECTORS AND RECEPTACLES. IMPROPER CONNECTION OF COLOR CODED WIRES COULD RESULT IN FAILURE OF THE ELECTRICAL COMPONENTS!**



Top Screws

Photo 7

10. Connect the gray colored Deutsch connector on the harness to its mate on the converter unit. (See Photo 9)

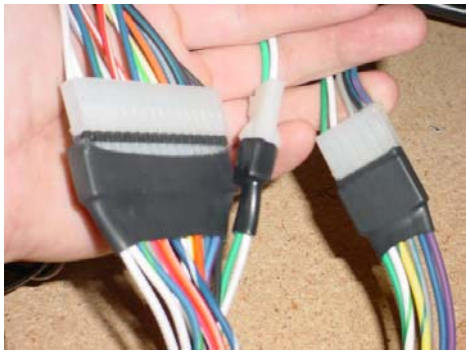


Photo 8

Begin wire termination.

11. Connect the 2 red wires together and attach the black wire with ¼" ring terminal to the chassis.
    - **The red wire is the 12-volt positive feed from the converter unit to the Fuse Block. (See Photo 10, next page)**

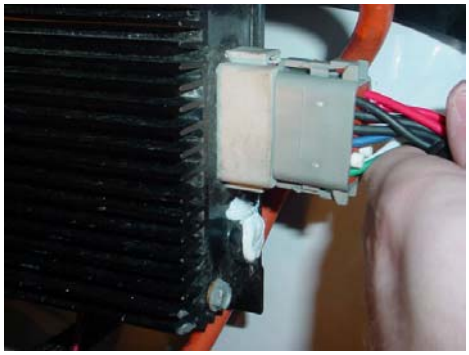


Photo 9

- **The black wire is 12-volt Ground. Secure this terminal to chassis. There is an existing chassis mount located to the lower right of the converter unit above the floor pan. Use a 3/8" driver as shown in the picture. (See Photo 11)**

12. Secure the long green wire (apprx 32") with male spade terminal to 72-volt Ground. (Each install and connection of this wire depends on style of charger equipped in the vehicle.)
    - Schott – Using standard pliers, install and attach the provided red/maroon colored t-tap connector to one of the green wires secured to B- of the Motor Controller unit. Connect the green wire with male spade connector to the red t-tap. (See Photo 12)
    - Zivan – Disconnect the short green pigtail wire with female spade connector from the top of the Zivan. Connect the long green wire to the short pigtail. (See Photo 13)
    - Delta-Q – Disconnect the short green pigtail wire with female spade connector from the small black wire of the Delta-Q charger. Connect the long green wire to the short pigtail. (See Photo 14, next page)

13. Now, using one of the provided black plastic tie wraps from the kit, tie the three (3) Molex connectors (2-pin, 6-pin & 16-pin) together along with the red wire, violet/blue, green and two (2) black wires. Use the provided black electrical tape from the kit to

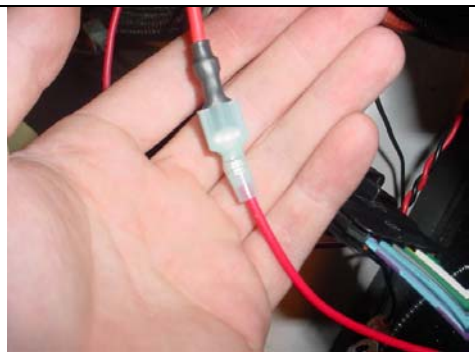


Photo 10

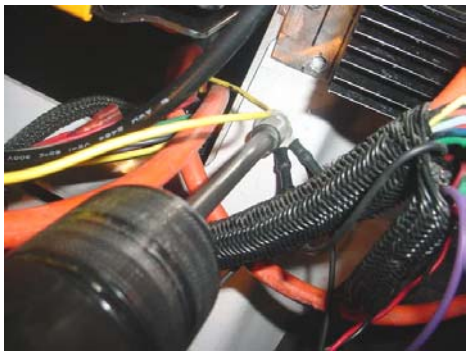


Photo 11

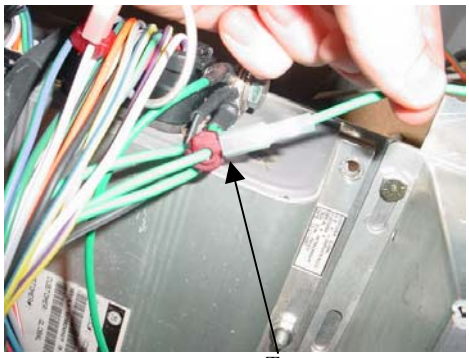


Photo 12

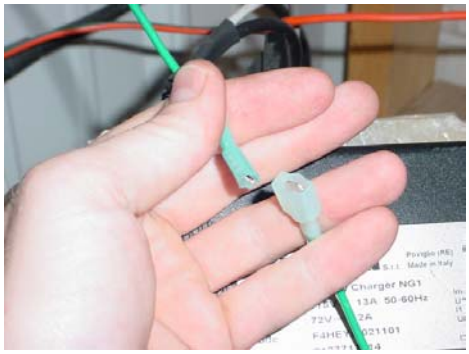


Photo 13

wrap each of the 3 main white connectors. (See Photo 15)

<u>Install electrical components.</u>

14. Next is to attach each electrical component provided in the kit to the harness. Included are the Timer, Relay and Buzzer.
    - **Note wire orientation. (See Wire Termination Chart & Diagrams below)**

15. First, start with the Buzzer. Connect the Blue/Green wire and the White wire. The buzzer is labeled as (+) and (-). (See Photo 16)

16. Second, connect the wires to the Timer. The timer is labeled as 1, 2, 3, & 6. (See Photo 17)
    - **NOTE: The green wire (pin 6) is spliced and has a long tail with a ¼" female 'fast-on' spade terminal. This leads across the ECM to the charger unit and connects to the Interlock Relay Circuit. Disable the already connected green wire on the chargers interlock circuit, (this green wire typically leads straight over to the Motor Controller Unit, B-). This is the wire removed previously in Step 12. Plug the new green wire (pin 6) in to this location of the Interlock Circuit.**
        a. **For Schott insert the provided short green wire with male spade and female Molex terminal to Pin 2 of the 8-pin white Molex connector on the bottom of the charger**

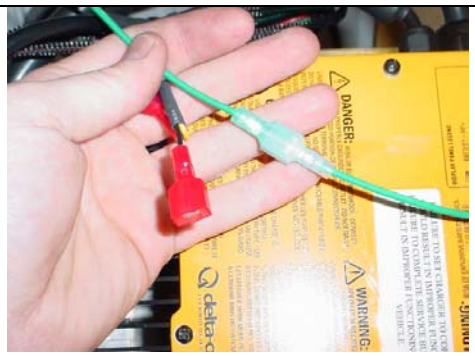
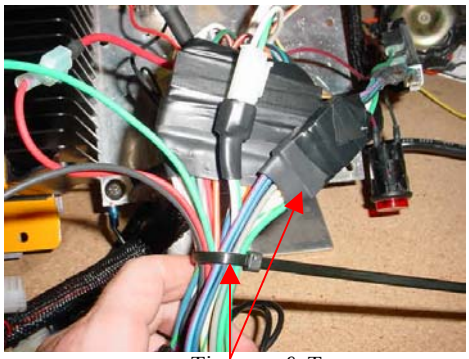


Photo 14



Tie wrap & Tape

Photo 15

Photo 16

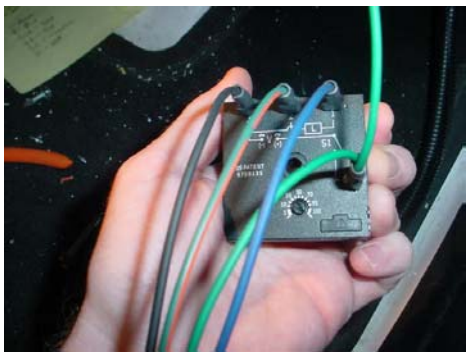


Photo 17

unit. Then connect the long green wire from Timer Pin 6 to this location. (See Photo 18)

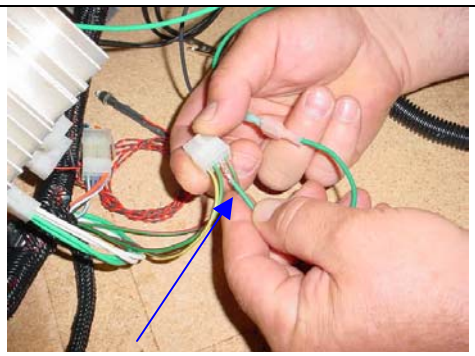
b. For Zivan connect the long green wire from Timer Pin 6 to the male spade terminal next to the red/green on top of the charger. (See Photo 19)

c. For Delta-Q connect the long green wire from Timer Pin 6 to the small black wire on the charger. (See Photo 20)

- **See also Wire Schematic Drawings below, Pages 14-16.**

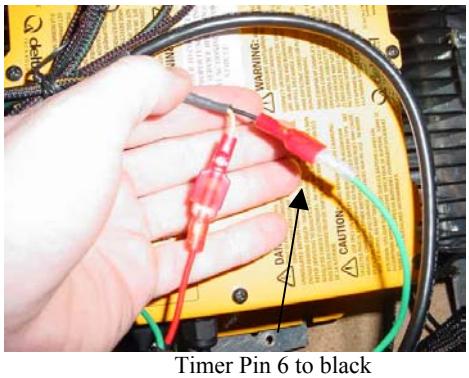
17. Lastly, connect the wires to the Relay. The relay is labeled as 1, 2, COM, & NO. (See Photo 21)
    - **Note orientation. See Wire Termination Chart and Diagram below, Pages 12-13.**

18. Mount the electrical components. Next to the Main Contactor on the ECM plate is a good location for these three (3) components.
    - **Using the four (4) small self-drilling screws provided in the kit, mount the Buzzer and Relay as shown. (See Photo 22, next page) <u>NOTE: It is important that the buzzer mounts with the hole pointing downward!</u> DO NOT over-tighten!**
    - **Using the last 1-1/2" self-drilling screw provided in the kit, mount the Timer as shown. (See Photo 23, next page) DO NOT over-tighten!**



Insert to Pin 2, between red/green & brown/green
Photo 18

Photo 19



Timer Pin 6 to black
Photo 20

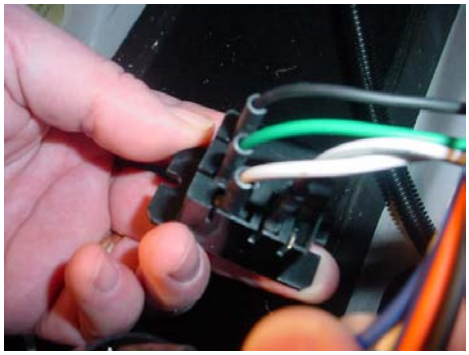


Photo 21

- **As an alternate solution for mounting locations, if an accessory contactor already occupies the above suggested area, the cross member tube frame to the right of the ECM plate and/or the dash support bracket may be used as well.**

19. With the electrical components now installed, using the last black plastic tie wrap provided in the kit, take the main section of the harness that is looped up to the electrical components and tie it just below the gray Deutsch connector of the Sure Power converter unit. (See Photo 24)

20. Inspect the Timer. Set the adjustable time switch to 30 seconds (recommended) or desired time delay length, (1-100 seconds).

21. Turn the MDS to the **'ON'** position. Secure the bench seat. Verify the operation of the vehicle and 12 volt accessories. (Turn the ignition key switch <u>on</u>)
    - **Leave one of the accessories turned on, (ex. Headlights). Turn the ignition key <u>off</u>. Be sure the parking brake lever is set at this point. Once the key is turned off, the timer should enable and will begin countdown to the selected time, (30 seconds). At the end of the countdown the selected accessory should shut down. Verify this operation.**
    - **Verify reverse buzzer is operable.**
    - **Verify the charger Interlock Relay Circuit. With the key turned on, plug the vehicle in to**

Photo 22

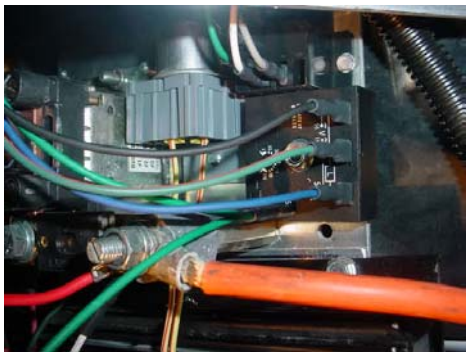
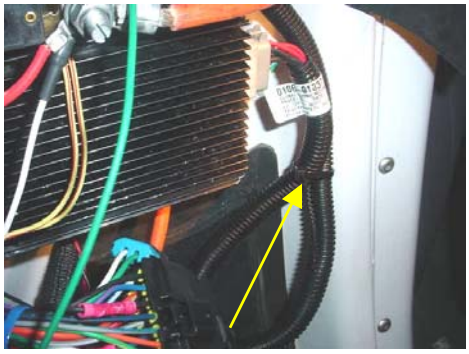


Photo 23



Black tie wrap

Photo 24

charge. Once the vehicle is plugged in the vehicle should shut down (display will go blank) and begin charging.

- **The Interlock Relay is a safety device and an ignition override so the vehicle will not drive away when the vehicle is plugged in and charging.**
- **Any concerns call Technical Support 866.764.0616.**

Sure Power Conversion complete.

<u>Install Splash Protection & 5A Wiper Fuse & Seal Motor.</u> (SVC Bulletins 06A3001 & 05A1012)

22. First, locate the Fuse Block on the outside of the vehicle under the hood on the passenger side, (under the existing rubber splash guard, remove plastic rivet). (See Photo 25)

23. Remove the big black 7.5A fuse on the lower driver-side corner of the Fuse Block. (See Photo 26) Dispose of this fuse.

24. Install the new 5A fuse provided in the kit in to this location. (See Photo 27) (SVC Bulletin 05A1012)

25. Begin splash protection. (SVC Bulletin 06A3001) With the upper & lower dashes still removed, using a 5/16" driver, remove the small black self drilling screws securing the black plastic splash shield on the upper cross member. (See Photo 28)

26. Remove self-drilling screw (3/8" driver), bolt and retainer nut from the body side panel. (See Photo 29, next page)

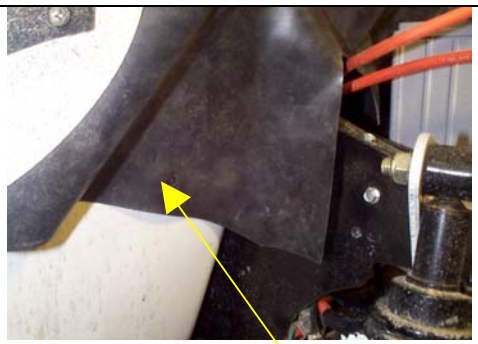


Photo 25

Photo 26

Photo 27

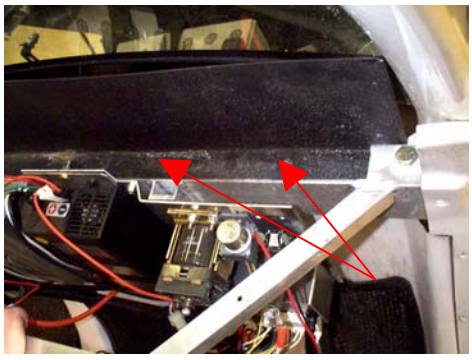


Photo 28

27. Prepare the new rubber splashguard. Cut the rubber using the template provided. (Photo 30)

28. Fold the new splash shield along the cut/slit in the rubber. The 10" portion of the splash shield needs to be on the bottom of the fold. Lay the folded splash shield on top of the vehicle cross member, under the hard plastic shield and under the existing front rubber shield. If required, use a piece of tape to secure new splash shield to frame cross member to keep it in place. (See Photo 31)

29. The cut out in the new splash shield goes around the lower dash frame support. Tuck the portion of the splash shield, right of the cut out, under the body side. (See Photo 32)

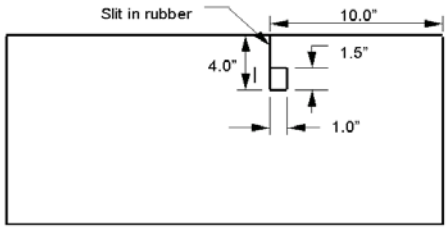
30. Secure both of the rubber shields under the black plastic shield on the cross member using the two (2) screws removed prior.

31. Tuck the short 10" portion of the rubber shield behind the white floor pan so it is outside the vehicle. Then secure the rubber and body side panel with the existing self-drilling screw and ¼" bolt. Install one of the provided ¼" flat washers on to the screw before tightening. DO NOT INSTALL THE ¼" RETAINING NUT AT THIS TIME. (See Photo 33, next page)

32. From inside the vehicle, pull the remaining portion of the new splash shield towards you; lay it over all the electrical components attached to the ECM plate. (See Photo 34)

Screw & bolt

Photo 29



Template for splash shield
Use current battery shield, part # 0310-00161, 12" x 24" piece

Photo 30

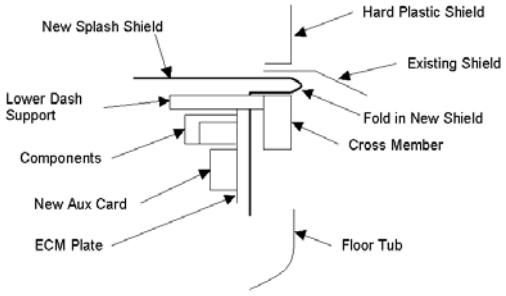
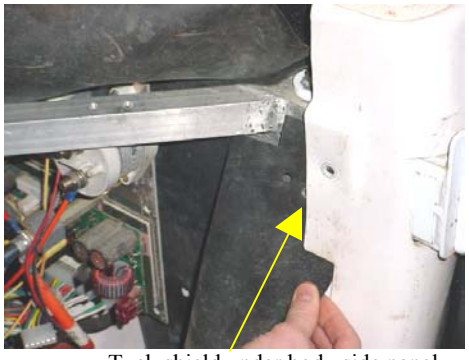


Photo 31 – Side view; drawing



Tuck shield under body side panel

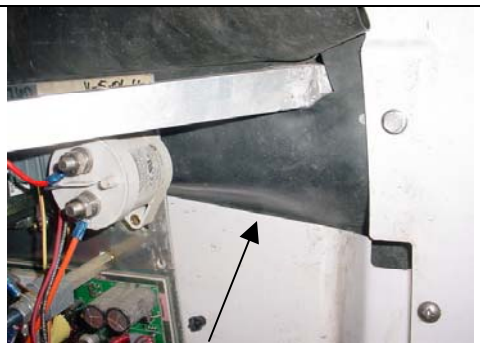
Photo 32

33. On the outside of the vehicle in the fender well, locate the ¼" bolt. Stretch the rubber shields over to the bolt, mark a hole locate and poke a hole in the rubbers. Secure the rubber on to the bolt with the existing Keps lock style retainer nut and ¼" flat washer provided in the kit. (You may find it easier to locate the hole by removing the bolt and using a scratch awl to poke the hole.)

34. Lastly, secure the outside rubber to the floor pan. Stretch the rubber downward. Locate the existing hole in the floor pan. Using the scratch awl poke a hole through the rubber. To secure, insert existing black plastic push rivet through the rubber splash shield in to the floor pan. (See Photo 35)

35. Before continuing with the installation of the black plastic wheel well splash protection, add silicone provided in kit to the Field and Armature contacts/studs of the electric motor. (See Photo 36)

36. Finish installation of the splash protection by adding the plastic splashguards to the inner fender wells. These will attach to the front aluminum sub frame.
    - Driver side – remove two (2) existing self-drilling screws securing the horn and brake line to the frame. Place splashguard in its correct mounting location. Secure using the previously removed self-drilling screws. (See Photo 37, next page)
    - Passenger side – align the splashguard to the motor and aluminum frame. Secure the



Rubber shield behind floor pan

Photo 33

Photo 34

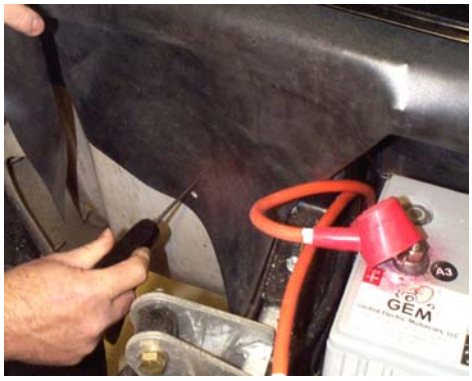
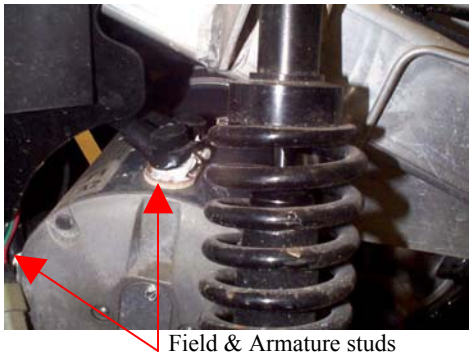


Photo 35



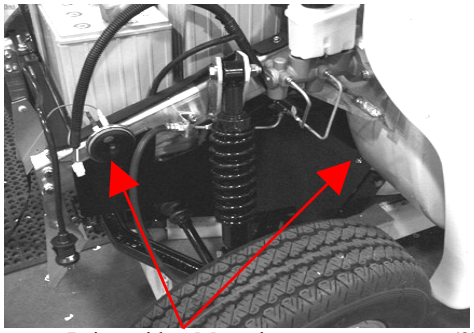
Field & Armature studs

Photo 36

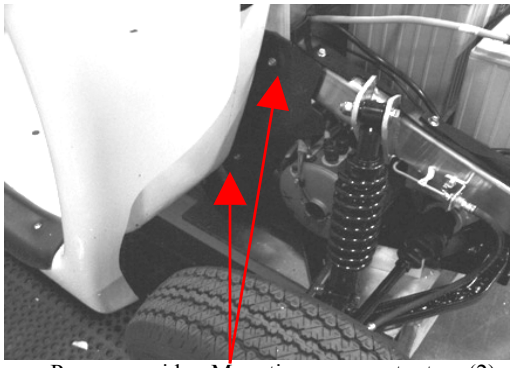
splashguard to the frame using two (2) provided self-drilling screws. (See Photo 38)

37. Install the upper and lower dashes using the existing hardware.

38. Installation complete.
    - Any concerns call Technical Support 866.764.0616.



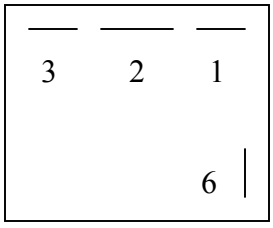
Driver side - Mounting screws qty. two (2)
Photo 37



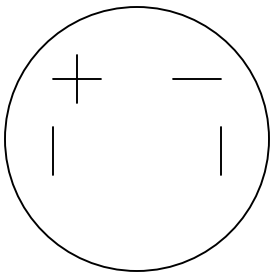
Passenger side - Mounting screws qty. two (2)
Photo 38

Diagrams

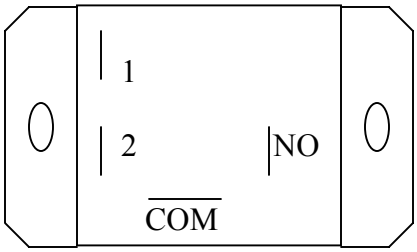
Timer:



Buzzer:



Relay:



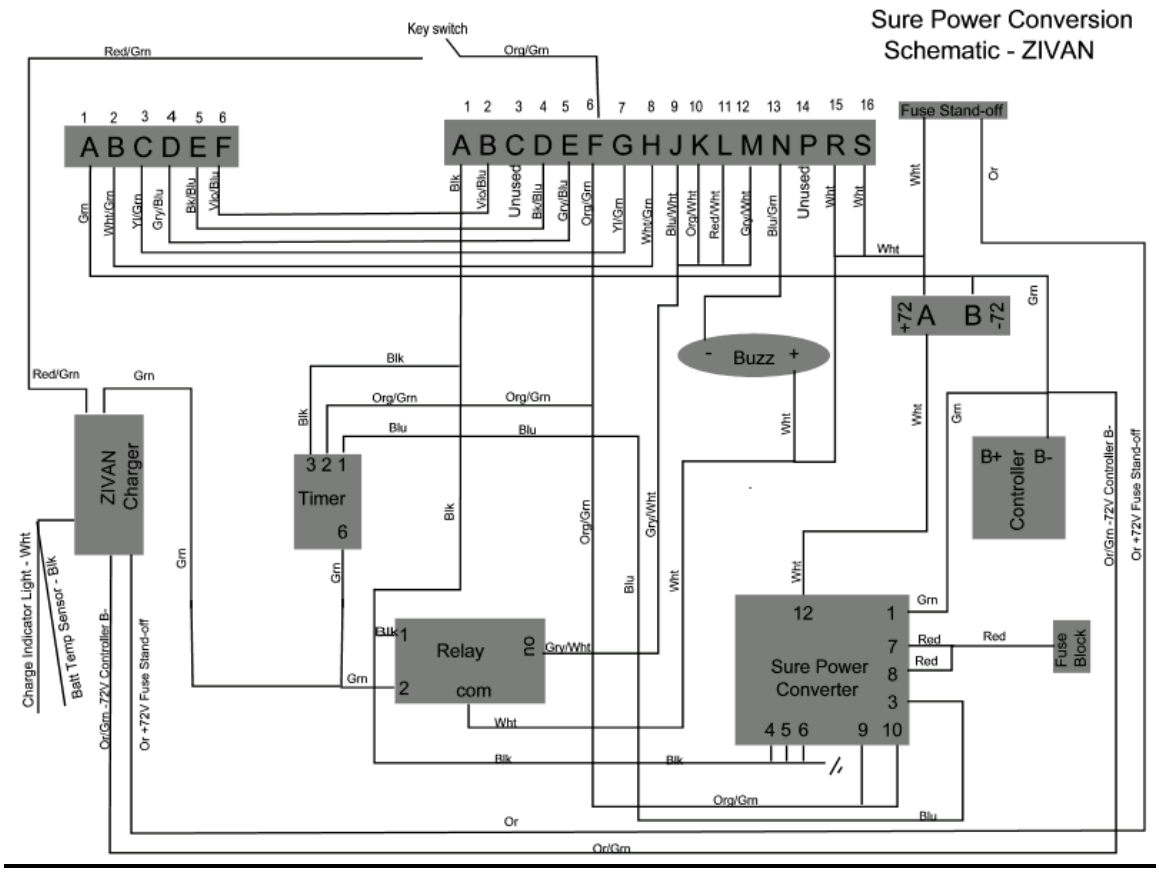
*** ALL DIAGRAMS ARE SHOWN IN 'TOP VIEW' ONLY.**

Wire Termination Chart

*** NOTE: Each connector is labeled using a numbering system. These numbers are not always stamped on the connectors. The old style white Molex connectors DO NOT have any markings and are noted normally as a numbering system, left to right, top to bottom; depending on connector style. Use the chart below as a reference guide.**

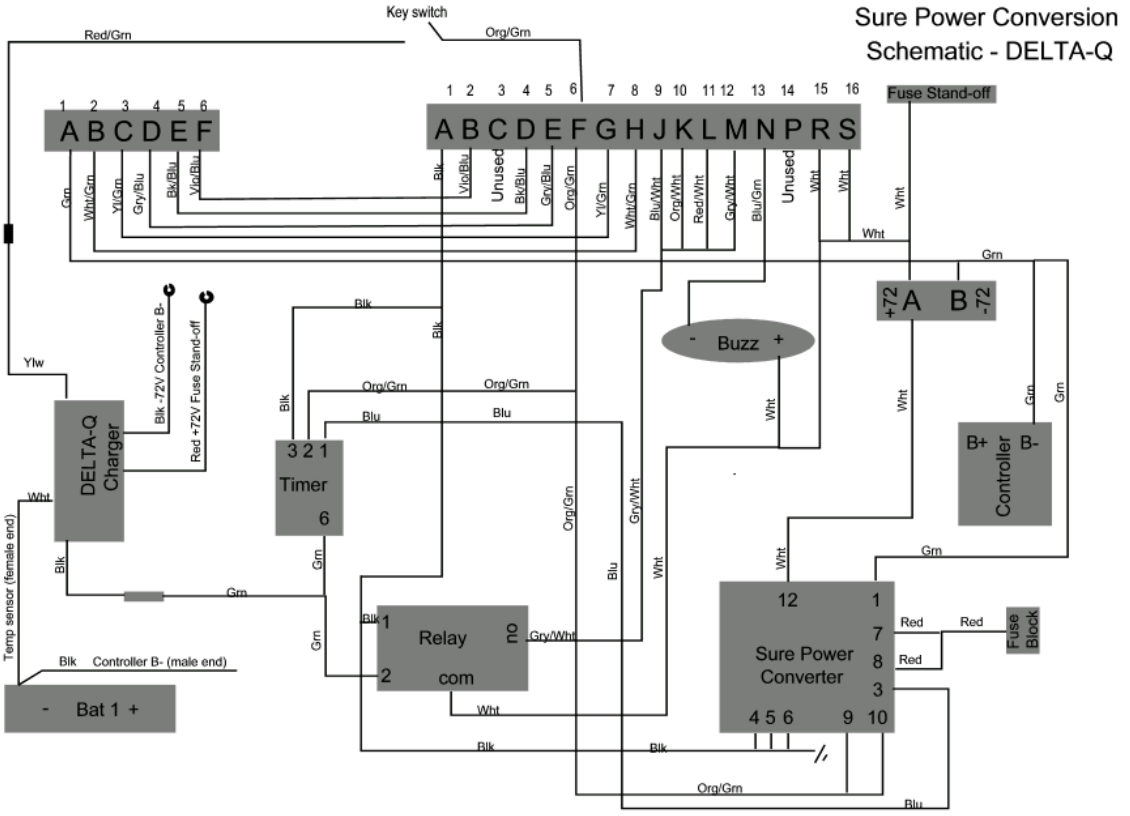
Component/Connector	Pin	Color Code
J4 Molex 2-Pin	1 = A	WHITE
	2 = B	GREEN
J3 Molex 6-Pin	1 = A	GREEN
	2 = B	WHITE/GREEN
	3 = C	YELLOW/GREEN
	4 = D	GRAY/BLUE
	5 = E	BLACK/BLUE
	6 = F	VIOLET/BLUE
J2 Molex 16-Pin	1 = A	BLACK
	2 = B	VIOLET/BLUE
	3 = C	----------
	4 = D	BLACK/BLUE
	5 = E	GRAY/BLUE
	6 = F	ORANGE/GREEN
	7 = G	YELLOW/GREEN
	8 = H	WHITE/GREEN
	9 = J	BLUE/WHITE
	10 = K	ORANGE/WHITE
	11 = L	RED/WHITE
	12 = M	GRAY/WHITE
	13 = N	BLUE/GREEN
	14 = P	----------
	15 = R	WHITE
	16 = S	WHITE
Deutsch 12-pin	1	GREEN
	2	----------
	3	BLUE
	4	BLACK
	5	BLACK
	6	BLACK
	7	RED
	8	RED
	9	ORANGE/GREEN
	10	ORANGE/GREEN
	11	----------
	12	WHITE
BUZZER	+	WHITE
	-	BLUE/GREEN
RELAY	1	BLACK
	2	GREEN
	COM	WHITE
	NO	GRAY/WHITE
TIMER	1	BLUE
	2	ORANGE/GREEN
	3	BLACK
	4	----------
	5	----------
	6	GREEN

Wire Schematic Drawing
Zivan Charger

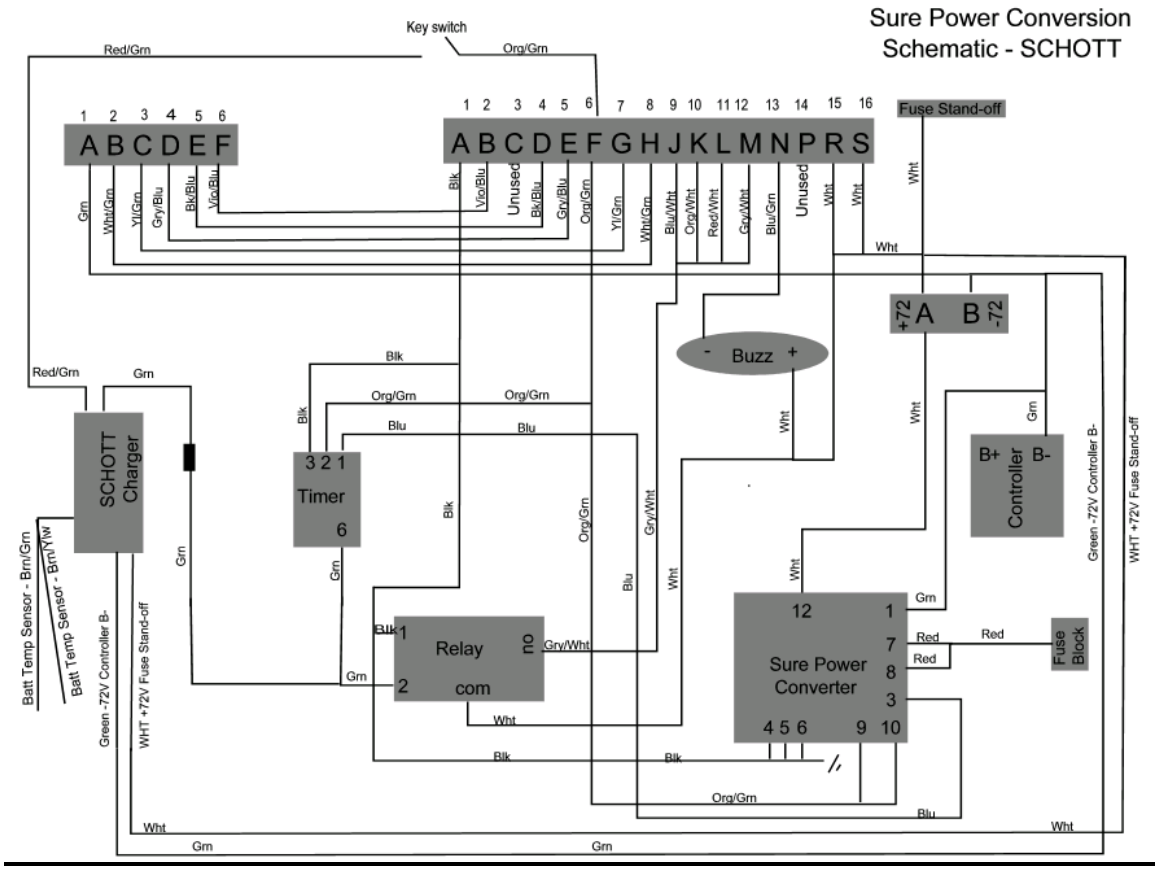


Wire Schematic Drawing

Delta-Q Quiq Charger



Wire Schematic Drawing
Schott Charger



Tool List:

1. Wire stripper
2. Wire cutters
3. Standard crimp tool
4. Needle nose pliers
5. Electrical tape (supplied)
6. Scissors or Utility knife
7. Phillips screwdriver
8. Cordless or Electric drill
9. 3/8” driver, wrench, or socket & ratchet
10. 5/16” driver, wrench, or socket & ratchet
11. ¼” driver, wrench, or socket & ratchet
12. T27 Torx driver
13. ½” wrench, or socket and ratchet (2)
14. 7/16” wrench
15. 10mm wrench
16. 13mm wrench, or socket & ratchet

Parts List:

1206-00041 ASSY, KIT – SURE POWER RETROFIT, RECALL COMPLETE

NO.	QTY.	PART DESCRIPTION	PART NO.
1.	1	ASSY, HARNESS - SURE POWER CONVERSION	0106-01837
2.	1	CONVERTER, DC/DC - 72V/12V, 30A (SURE POWER)	0606-00421
3.	1	BUZZER, BACKUP - 12V	0606-00493
4.	1	RELAY, TIME DELAY - SSAC ABB KSPSP22B	0606-00649
5.	1	RELAY, 12V - SURE POWER CONVERSION	0606-00650
6.	1	CONNECTOR, DOUBLE MALE - FEMALE, .25 PUSH-ON	0606-00368
7.	1	PLATE, MOUNTING	0610-00079
8.	5	SCREW, HEX - WASHER HEAD SELF DRILL 1/4 - 14 X 1.5 ZINC PLATED	0523-00122
9.	4	SCREW, DRILL - HEX WASHER HEAD #6 X 3/4 #2 POINT 410 SS	0523-00176
10.	2	BOLT, TORX - TRUSS HD - ¼” - 20 X 1 - T-27 DRIVE - 18-8 S.S.	0522-00333
11.	2	NUT, KEPS - 1/4 - 20 UNC ZINC PLATED	0521-00071
12.	2	TIE, CABLE W/#10 MOUNT HOLE 9" BLACK	0510-00137
13.	1	ASSY, HARNESS WIRE – SCHOT CHARGER INTERLOCK	0106-02140
14.	1	CONNECTOR, T – WIRE	0606-00176
15.	1	TAPE, ELECTRICAL – BLACK	0906-00350
16.	1	MAT, FIREWALL – OUTTER	0310-00161
17.	1	SHIELD, SPLASH GUARD, LH	0305-00850
18.	1	SHIELD, SPLASH GUARD, RH	0305-00851
19.	4	SCREW, HEX – WASHER HEAD SELF DRILL ¼ X .75	0523-00032
20.	2	WASHER, FLAT – ¼ ZINC PLATED	0524-00062
21.	1	SEALANT, SILICONE – NOVAGARD RTV 400-100 1OZ	0408-00264