Nightsun® Searchlight Safety and Service Bulletin

Date: 08/04/98

Bulletin # SL0898-01

Subject: SX-16 Junction Box Booster Diode Insulation

Affected Products:

All SX-16 Nightsun® Searchlight Junction Boxes which utilize an internal booster assembly, P/N 020045, manufactured through August 4th, 1998. The Junction Box is the power distribution box for Nightsun® Searchlight systems.

Dear Searchlight Product User:

It has come to our attention that the insulation on the booster diode in SX-16 Junction Boxes may be damaged upon field installation or may crack and separate with age. Either instance may cause a malfunction of your searchlight equipment.

The short circuit created by the broken insulation may create smoke and /or cause circuit breakers to "open" unexpectedly.

WARNING: TO AVOID A POTENTIALLY DANGEROUS SITUATION WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE, ENSURE THAT THE JUNCTION BOX BOOSTER DIODE IS MODIFIED AS DESCRIBED IN THIS BULLETIN.

What you should do:

Follow the procedure in the pages that follow as "Attachment A" to this document. This procedure will guide you through the proper installation of the supplied insulation kit.

What is included with this bulletin:

1. Attachment A – Insulation replacement procedure.
2. Convolex Tubing (insulation) in two sizes.
3. Cable ties to secure the tubing.

If you would like to have Spectrolab perform this service for you, please call our Customer Service Department at 1-800-936-4888 to obtain a return authorization number. Customers that have Junction Boxes less than one year old will not be charged for this modification.

If you have any questions or comments, please contact me at any of the numbers below.

Sincerely,

Shawn Mitschelen
Customer Service Manager
Spectrolab, Inc.

Phone: (818) 898-2826
Fax: (818) 361-5102

Bulletin # SL0898-01

Attachment A

SX-16 Junction Box - Booster Diode Insulation Replacement Procedure

Release Date: August 4, 1998

Affected Products: Any SX-16 Nightsun® Junction Box assembly which utilizes the internal Booster assembly P/N 020045, manufactured through August 4th, 1998.

1. Tools required:

- #2 Phillips screwdriver
- Cable tie tensioning / cutting tool
- Pliers
- Diagonal cutters
- Voltmeter or multimeter

2. Parts supplied in this kit:

    - 1 each 12" length of helical Convolex® tubing, slit full length
    - **OR** 1 each 4" length of 1" diameter Convolex® tubing, slit
    - 3 each 7" cable ties

Background:

Any SX-16 Junction Box which incorporates a Booster assembly (P/N 020045) may be subject to electrical shorting due to broken insulation on the high current blocking diode. This diode can be readily identified by its heavy gauge braided wire which is insulated with heat-shrink tubing – See Figure 2. On page 4-4 in the Searchlight Operation and Maintenance Manual, the electrical schematic (drawing 020720) identifies this diode as CR1. This kit contains the hardware you must install to ensure continued reliable operation of your SX-16 Nightsun® Searchlight system.

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Attachment A

SX-16 Junction Box - Booster Diode Insulation Replacement Procedure

Release Date: August 4, 1998

Procedure:

1. Turn off all electrical power to the searchlight system. Use a voltmeter to verify that the power has been disconnected and that no residual voltage exists.

2. Some installations may require that the Junction Box be removed to allow access for servicing. If you cannot easily perform service on the Booster diode, remove the Junction Box before you continue.

3. Remove the four Phillips head machine screws holding the cover onto the Junction Box, as shown in Figure 1.

4. Lift the cover and support it so that it is positioned as shown in Figure 2.

5. Identify diode CR1 and its attached wire, as shown in Figure 2. This wire will be insulated with heat-shrink tubing. Units built within the last year have a 1-piece diode lead, exactly as shown in Figure 2. Older units have a 2-piece diode lead, with a bolted connection in the middle.

6. If your Junction Box has the 1-piece diode lead, you will install the (smaller size) ½" inside diameter by 12" long Convolex® tubing. Open the precut slit at one end of the tubing. Place it over the blocking diode lead, and install as shown in Figure 3.
   If your Junction box has the 2-piece diode lead (with the "knuckle" in the middle), place the 1" I.D. tubing over the lead. Position the tubing in the middle of the lead so it covers the large bolted splice joint in the center of the diode lead.

7. The final position of the Convolex® tubing should be approximately centered on the diode lead, as shown in Figure 4.

8. As shown in Figure 5, install one cable tie approximately ¾" (19 mm) from each end of the ½" diameter tubing. Install one more cable tie approximately in the middle of the tubing. Pull the cable ties tight and snip off the ends using a cable tie installation tool or pliers and a diagonal wire cutter. If the 1" tubing is used, it will be centered over the bolted joint and held in place with three cable ties.

Attachment A

SX-16 Junction Box - Booster Diode Insulation Replacement Procedure

Release Date: August 4, 1998

9. Position the diode lead with installed Convolex® tubing as shown and described in Figure 6, and close the Junction Box cover.

10. Replace the cover screws and reinstall the Junction Box in the aircraft.

11. Check all associated aircraft and Searchlight system electrical connections.

12. Check all associated fasteners and lock wire points.

13. Complete the installation of any aircraft parts removed for this service and perform a final operational test of the Searchlight system with all aircraft components in place.

14. Perform other pre-flight safety checks as required.

15. Complete any entries to the aircraft maintenance log as required. Refer to Spectrolab Safety and Service Bulletin # SL0898-01, dated August 4, 1998.

Contact Spectrolab Customer Service at 1-800-936-4888 if you have any questions or have difficulty performing this procedure.

STEP 1

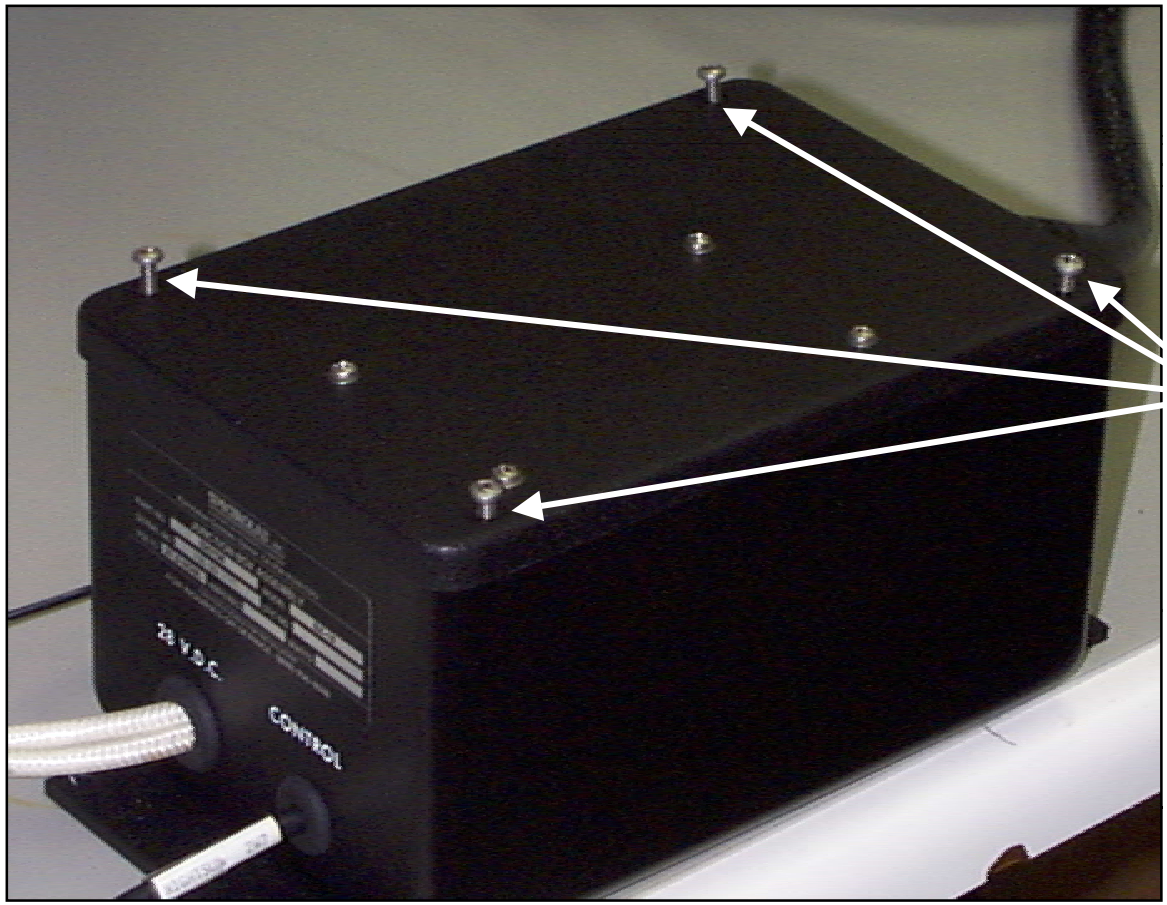

Figure 1

Remove top cover by removing 4 screws shown.

STEP 2

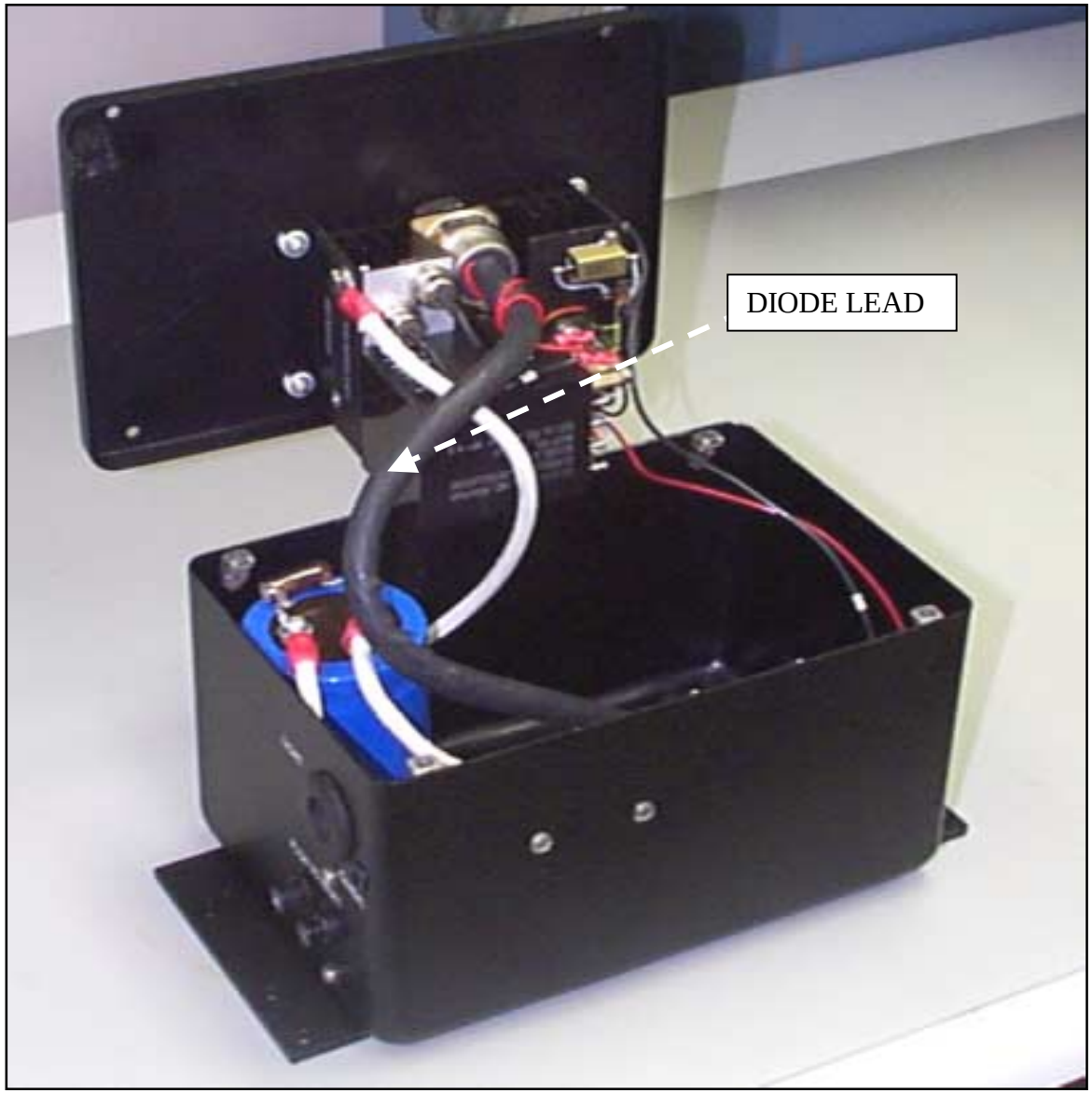

Figure 2

Open lid as shown.

STEP 3

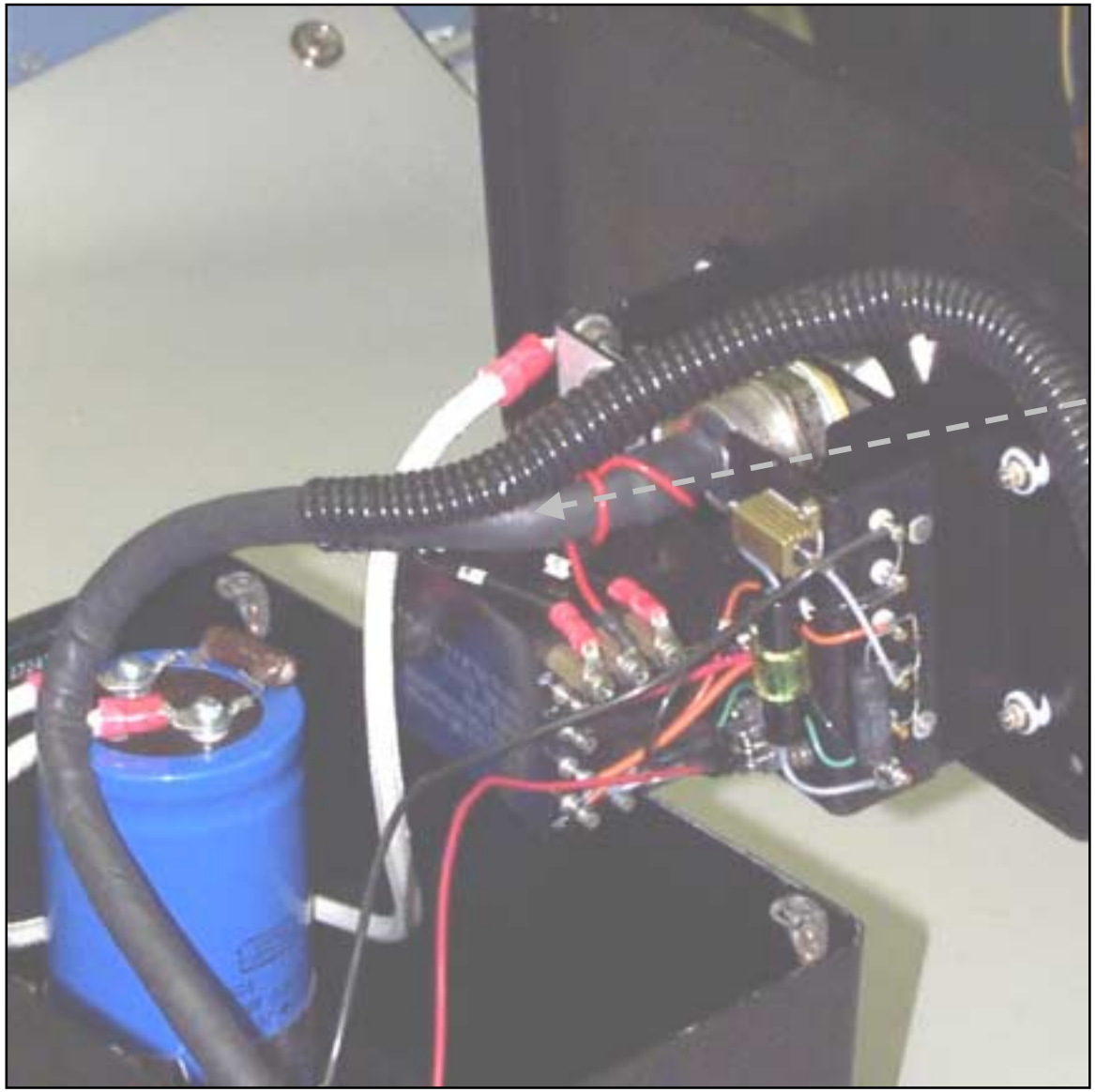

Figure 3

Slide Convolex® tubing over diode cable starting from diode end.

STEP 4

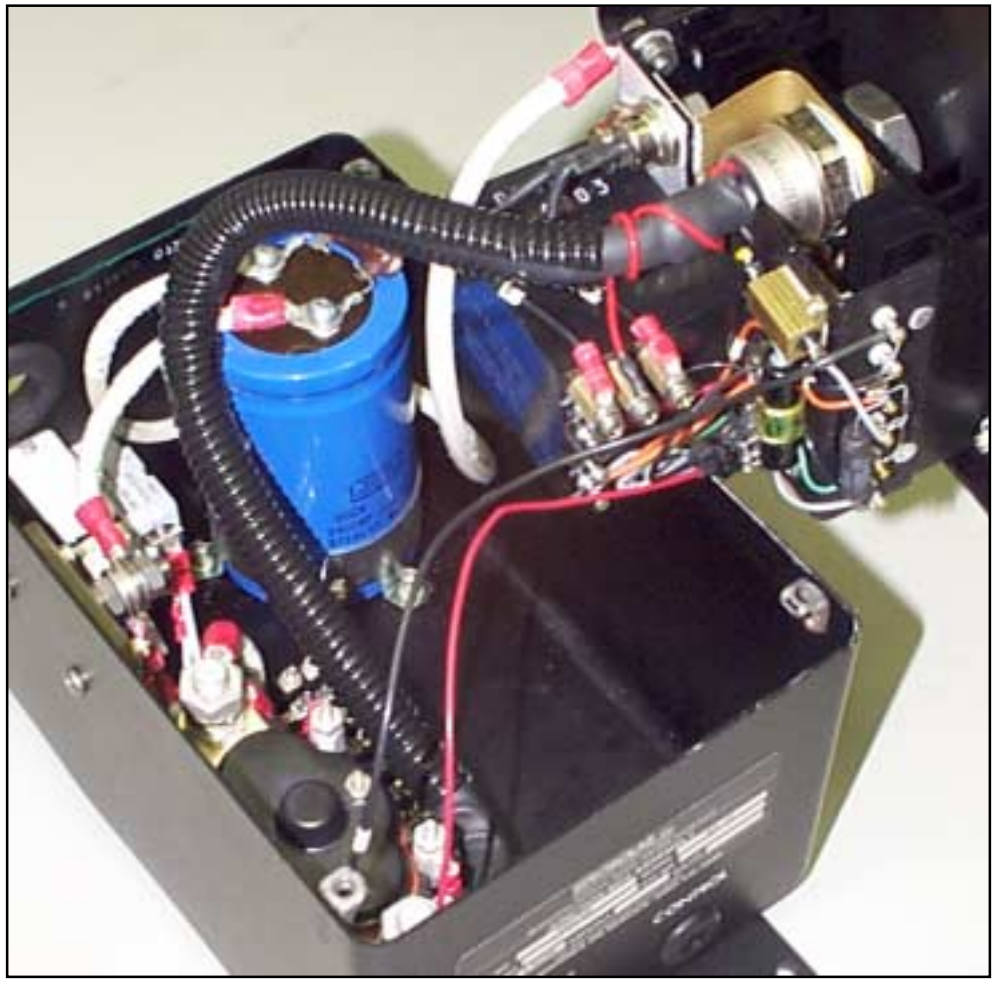

Figure 4

The installed Convolex® tubing should look like this before cable ties are installed. Junction boxes more than one year old will appear somewhat different. They have a bolted connection in the middle of this cable. On those units a shorter, larger diameter piece of tubing will be installed instead of the one shown. It will be placed the center section of this cable, over the bolted joint covered with heat shrink tubing.

STEP 5

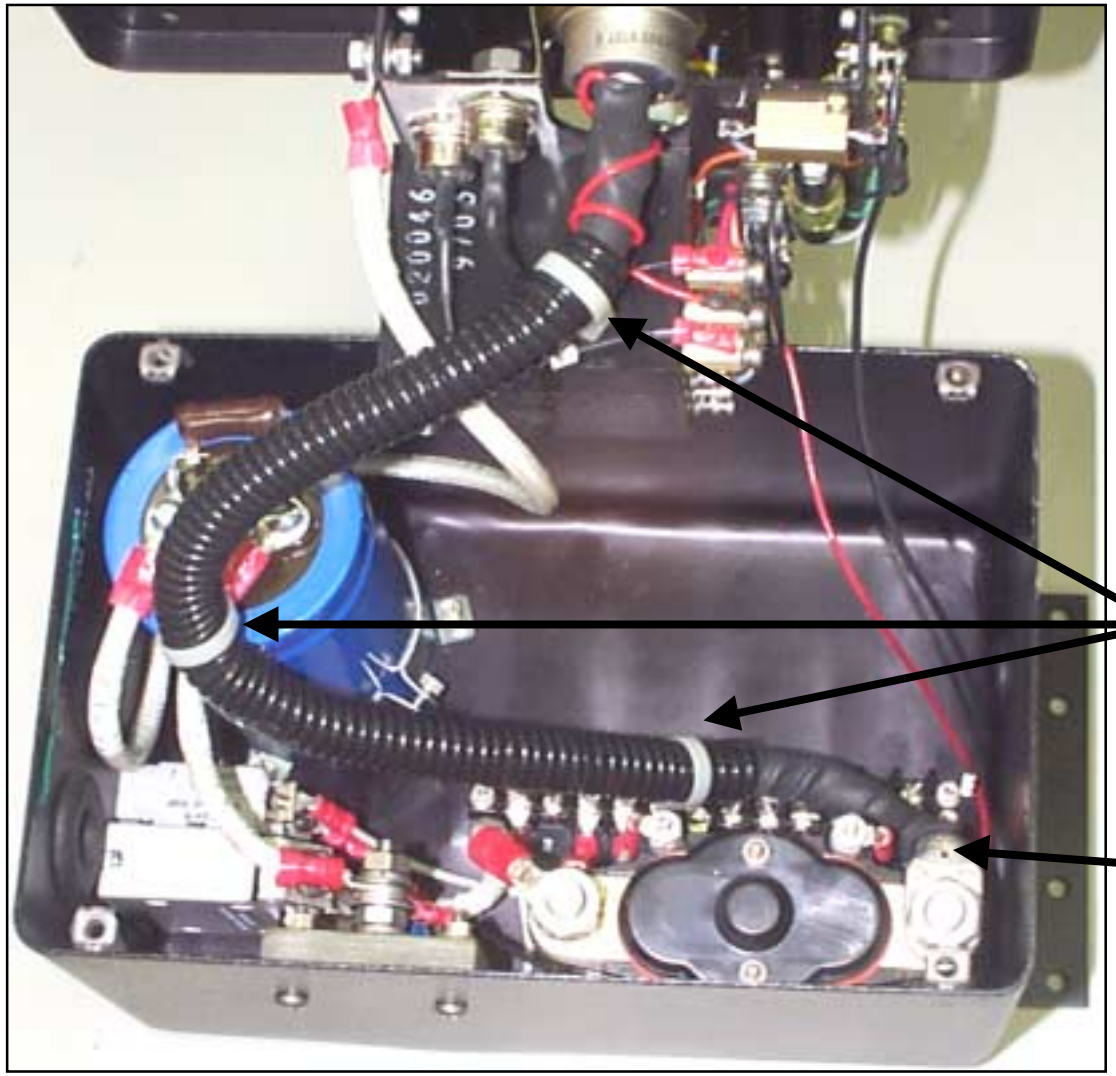

Figure 5

Install cable ties as shown. If short piece of large diameter tubing is used, it will be placed over the “knuckle” in the middle of the cable and held in place with three cable ties.

Terminal A2,
Relay K1

STEP 6

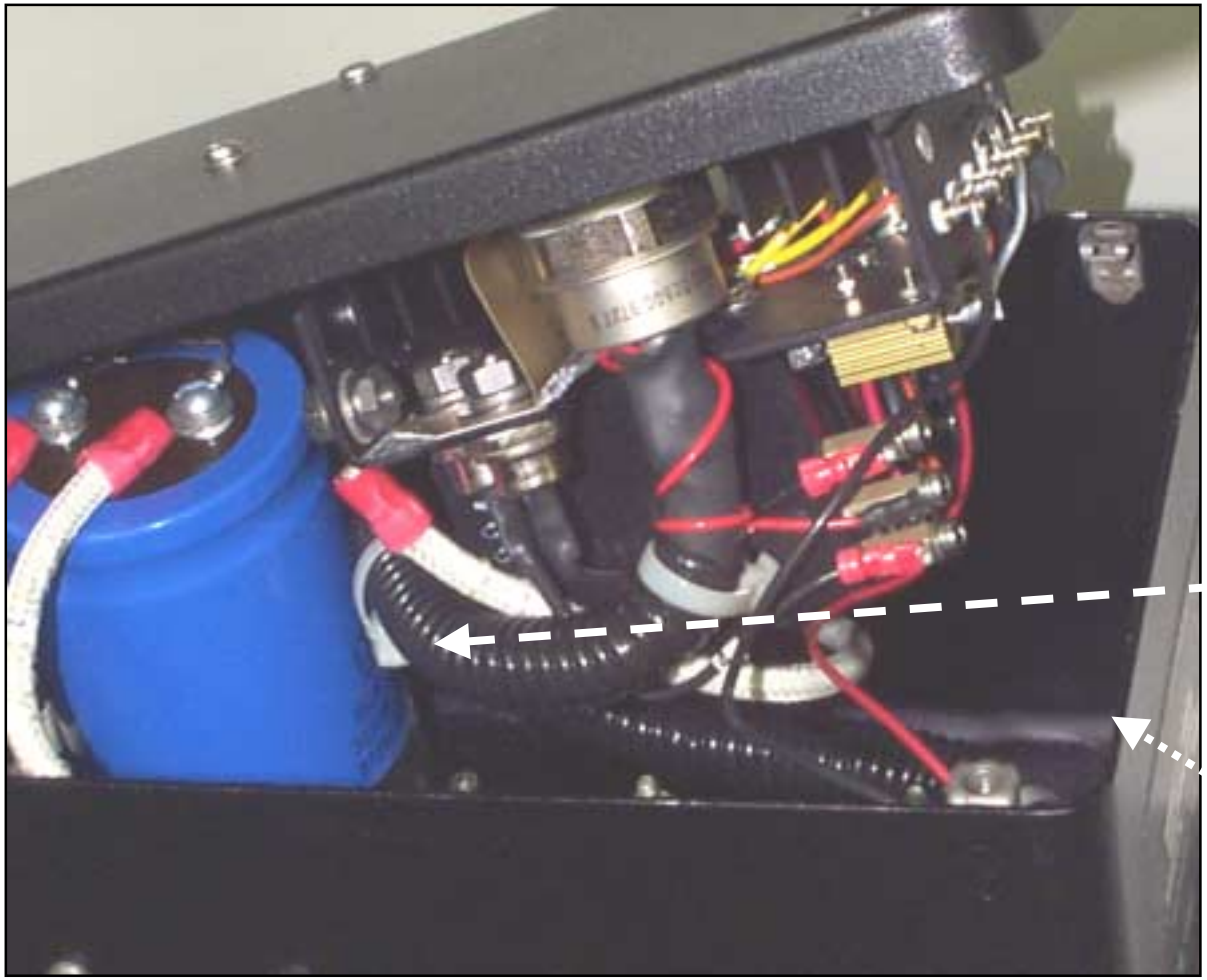

Figure 6

Route diode cable as shown when closing up box.

Verify that diode cable lies in front of large capacitor.

Make sure the diode cable is tucked into this corner of the Junction box.