

# Maintenance Directive

July 17, 2007

**To:** All General Managers  
All Assistant General Managers  
All General Superintendents, Maintenance  
All Concerned

**From:** Stephen A. Vidal, Chief Maintenance Officer, Department of Buses

**Subject:** Interior Dome Lights and Evaporator hose on New Flyer 1997, 1998, 2000 and 2003 Articulated Buses

Recently, a problem was reported with the interior dome light connectors on the 2000 New Flyer Articulated buses. Water was entering the roof hatch and seeping into the fluorescent light ballasts, contaminating the Molex connector of the pig tail harness. This condition was also found in the evaporator drain hose area. If the fluorescent light is burnt out, the high voltage at the connector plus the water from the hatch can result in a thermal event as seen in Figure #1 below. This wiring configuration is on 1997 (1000-1069), 1998 (1070-1109), and 2000 (5250-5509) New Flyer Articulated buses. Therefore, in order to eliminate this concern, the high voltage wire in the specified dome light connectors must be separated from the remaining two wires, (see Figure #2 for the affected dome light locations). Additionally, the roadside forward evaporator drain hose, in the rear section of the bus, must be rerouted to avoid any evaporator drain hose/ballast contact. Constant chaffing of the drain tube from the ballast can result in a water leak into the ballast and/or ballast connector.

No connector wiring change is needed on the 2003 (5510-5769) New Flyer Articulated buses, due to the use of a Deutsch connector instead of the Molex connector. However, the rerouting of the evaporator drain hose is still required on all the New Flyer Articulated buses.

It is recommended that the depots perform the attached procedure as soon as possible. A MIDAS Campaign # 4451 and Benchmark work order # 30439 have been created in the "CMO" location. Depots are to copy these and create their own campaigns in their respective locations. TA job number will be forthcoming.

**Material: per bus**

Description	TA #	Qty
Female connector	88-57-0807	2
Male connector	88-30-7765	2
Plug (Female connector)	88-83-1020	5
Receptacle (Male connector)	88-83-1021	5
Fitting kit	92-83-2007	1

**Tools:**

Extraction tool TA # 42-69-0080 Molex # 11-03-0006  
Snap-on needle nose Pliers 597CCP TA # 42-42-6965  
Snap on terminal removing kit TA # 42-69-3645

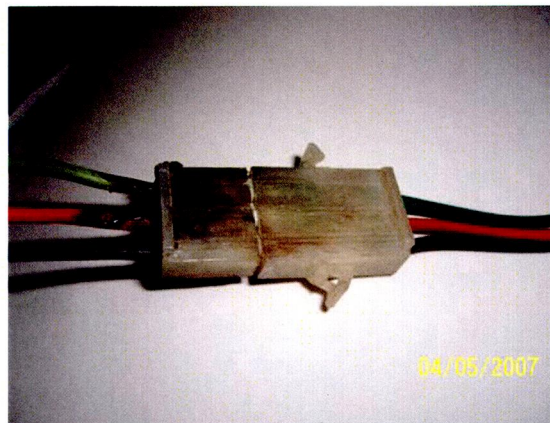
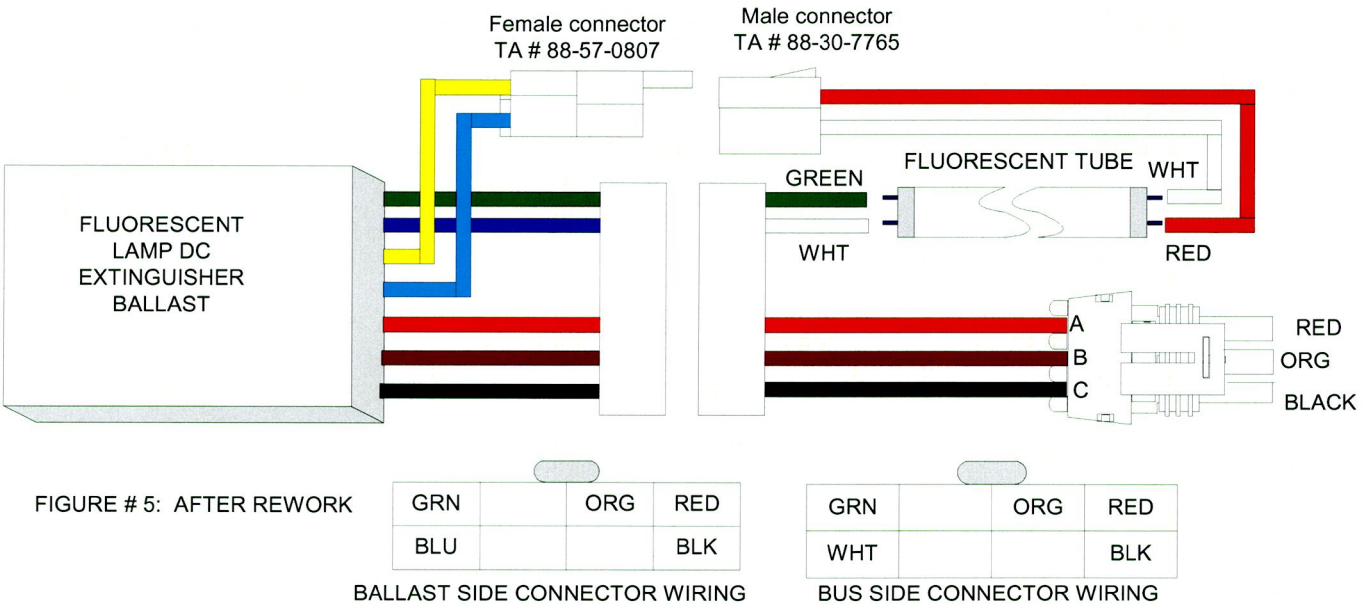
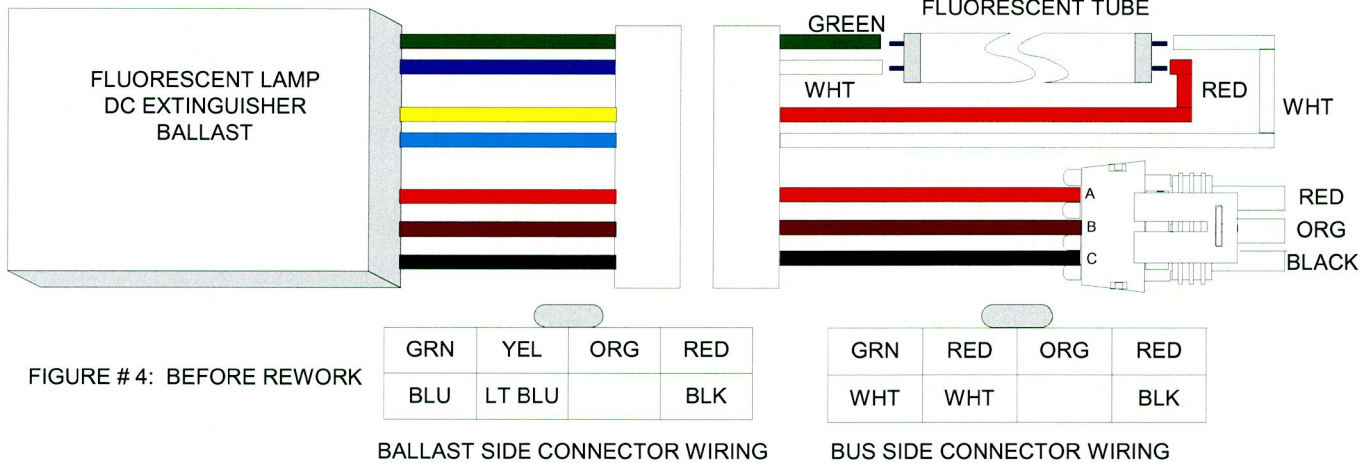
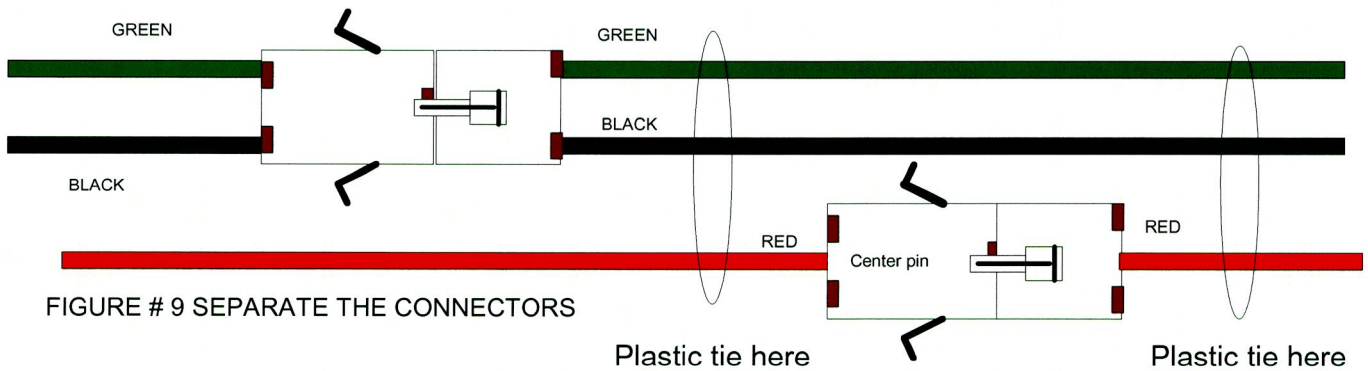


Figure # 1 : Molex Connector

4. For the front RH and LH #1 dome lights, disconnect the 8-way connector at the ballast.
5. At the ballast connector, locate the yellow and light blue wires (see Figure # 4). Use Snap-On tool # 597 CCP needle nose pliers (TA # 42-42-6965) to extract the wires. The locking pin on these wires must be reopened before inserting into the female connector (TA # 88-57-0807). See Figure # 5.
6. On the bus side connector, use the small screw driver from the Snap On terminal removing kit (TA # 42-69-3645) to extract the red and white wires. Re-open the female terminal locking pin before inserting into the male connector (TA # 88-30-7765). See Figure #5. Check the connector wiring. Make sure they match the wiring arrangement as shown in Figure #5.
7. Reconnect all the connectors. Make sure no other terminals were pushed out of the connectors during this process. Secure the connectors with plastic ties, make sure to place them away from each other (see Figure # 6). Reinstall the ballast and fluorescent lamp.



10. Reconnect all the connectors. Make sure no other terminals were pushed out of the connectors during this process. Secure the connectors with plastic ties, and make sure to place them away from each other (see Figure # 9). Reinstall the ballast and fluorescent light.



11. Turn the battery switches ON and start the bus. Check the front dome lights by placing the Master run switch to the night run position, turn the front dome light switch OFF, and VERIFY:

- The front dome lights are OFF when front door is in a fully closed position.
- The front dome lights are ON, when front door is in an opened position.

12. Turn the “Aisle light” switch ON. Verify all the lights are working properly.

13. Reinstall all the lenses.

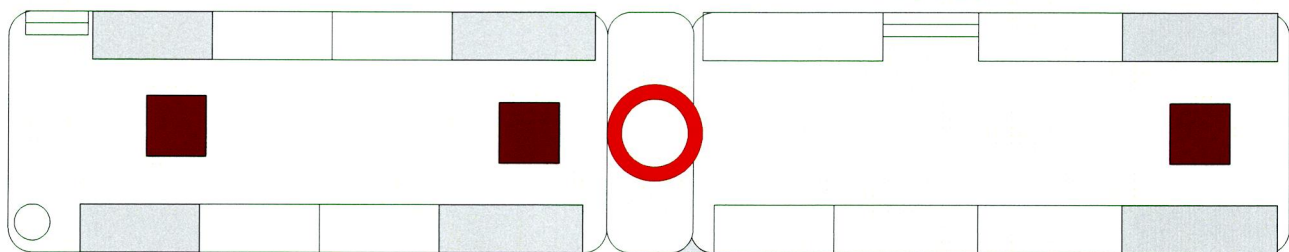
**THE FOLLOWING IS THE PROCEDURE TO REROUTE THE EVAPORATOR DRAIN HOSE**

14. When performing the connector upgrade in the LH #5 light panel, locate the evaporator drain hose. Remove the hose and plastic fitting at the top of the evaporator assembly. See Figure #10, 11 and 12.

FIGURE # 10 reroute the evaporator drain hose

ENT. Door

Exit Door



LH light #5 and  
Evaporator drain hose area

16. Attach the evaporator hose back onto the new hose barb fitting (if hose is damaged or chaffed replace with TA # 79-22-0271). Secure with the original hose clamp. See Figure #15.

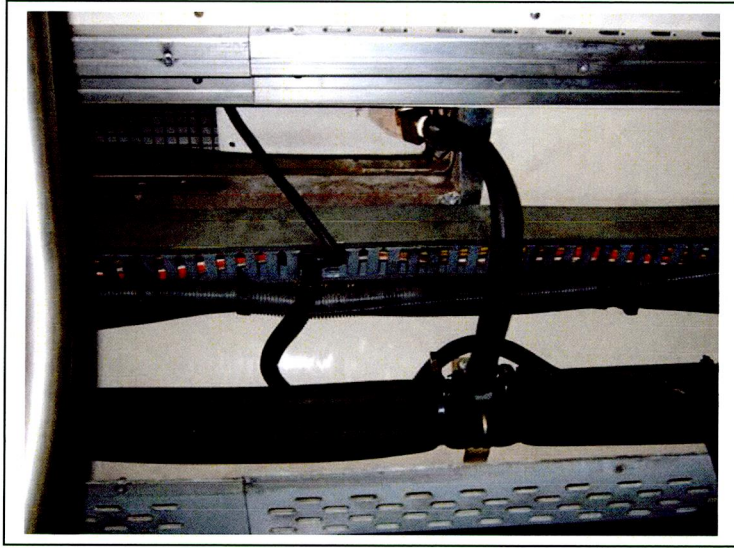


Figure #15: Install the hose back onto the hose barb fitting and secure.

Note: Secure/repair/replace, surrounding wires/hoses/harnesses as needed.

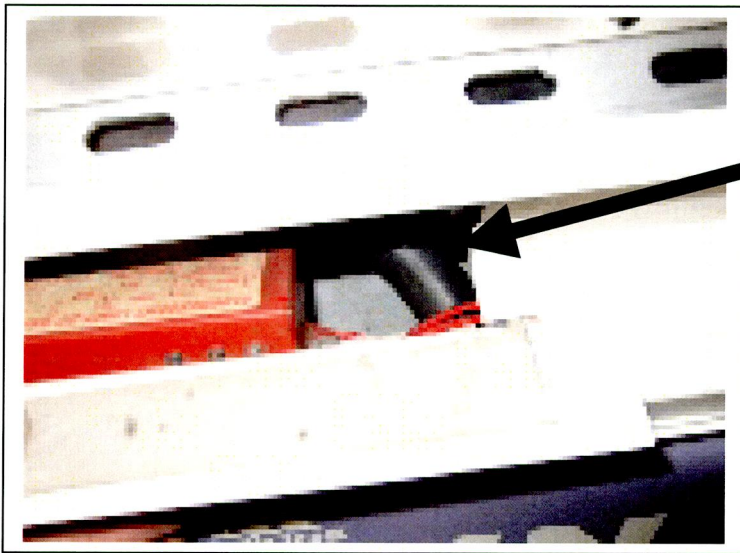
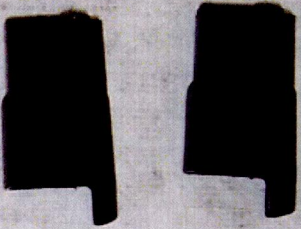


Figure # 16: Evaporator drain hose in now relocated and no longer contacting the dome light ballast and/or ballast connector.

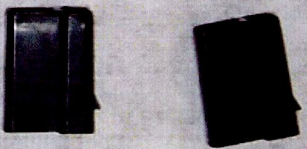
Male terminal TA # 88-30-7767



Female Connector  
TA # 88-57-0807



Male Connector  
TA # 88-30-7765



Female terminal TA # 88-30-7765

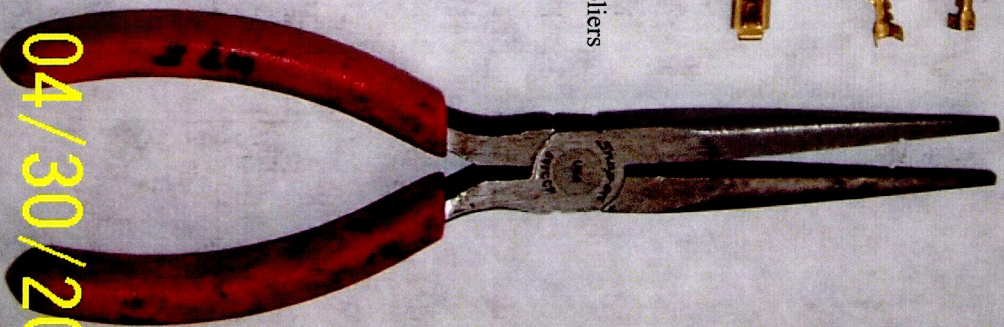


Prepared by: Steven Lu 04/30/07

Snap on TT600 Terminal removing tool kit  
TA # 42-69-3645



Snap On needle nose pliers  
597CCP  
TA # 42-42-6965

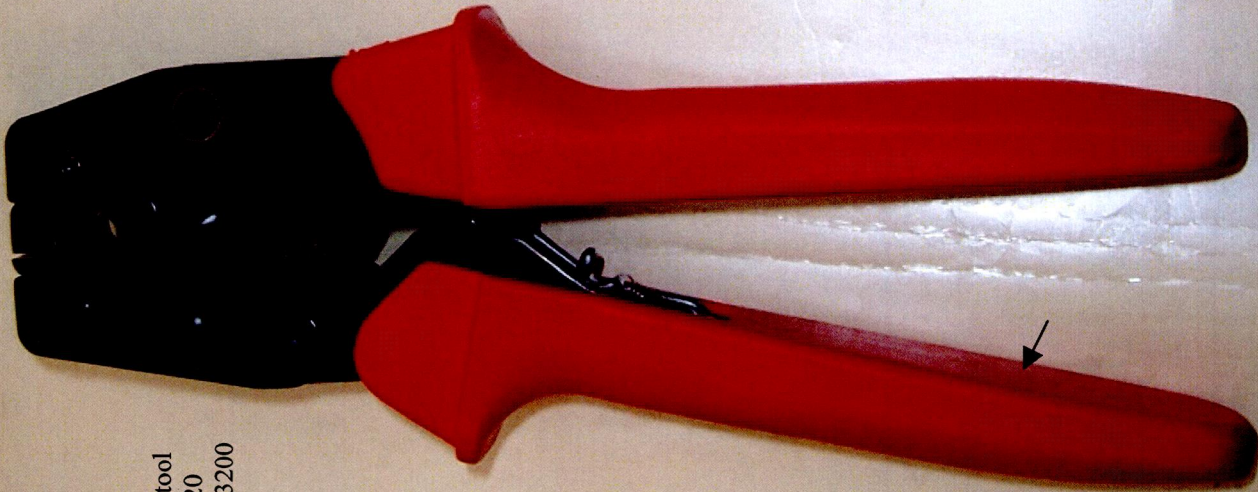


04/30/2007

# Molex Connector for New Flyer Dome Light Ballast

Prepared by: Steven Lu 04/23/07

Hand crimping tool  
TA # 42-69-0020  
Molex #63811-3200



Extraction tool  
TA # 42-69-0080  
Molex #11-03-0006

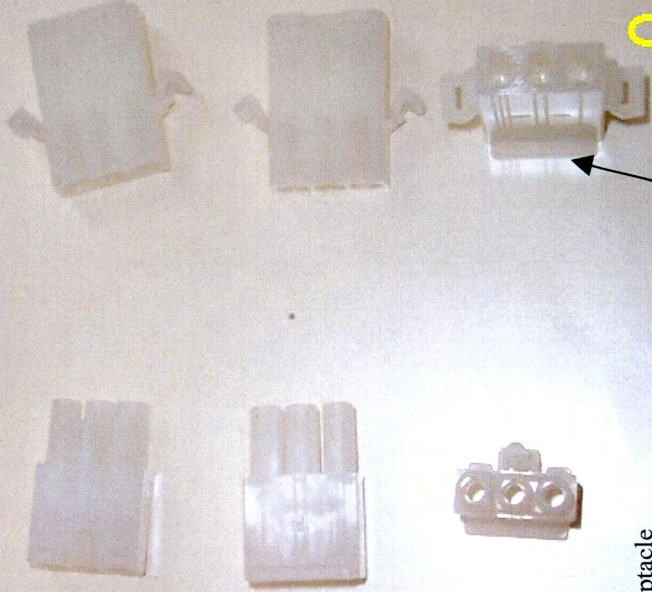


Insertion tool (No picture)  
TA # 42-69-1990  
Molex #11-02-0003

Male terminal  
TA # 88-83-1023  
Molex # 02-09-2103  
Tin 14-20 AWG



Female terminal  
TA # 88-83-1022  
Molex # 02-09-1104  
Tin 14-20 AWG



Receptacle  
TA # 88-83-1021  
Molex #19-09-1039

Plug  
TA # 88-83-1020  
Molex # 19-09-2038

04/23/2007

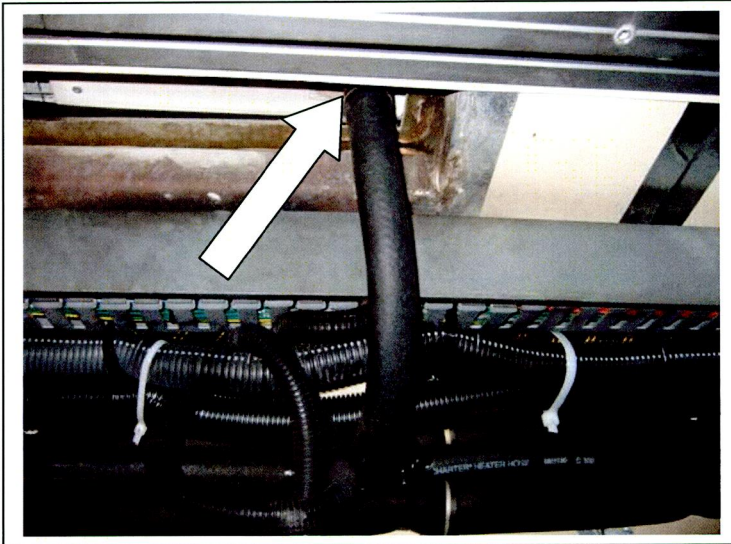


Figure #11: Loosen the hose clamp and remove evaporator drain hose at the top.

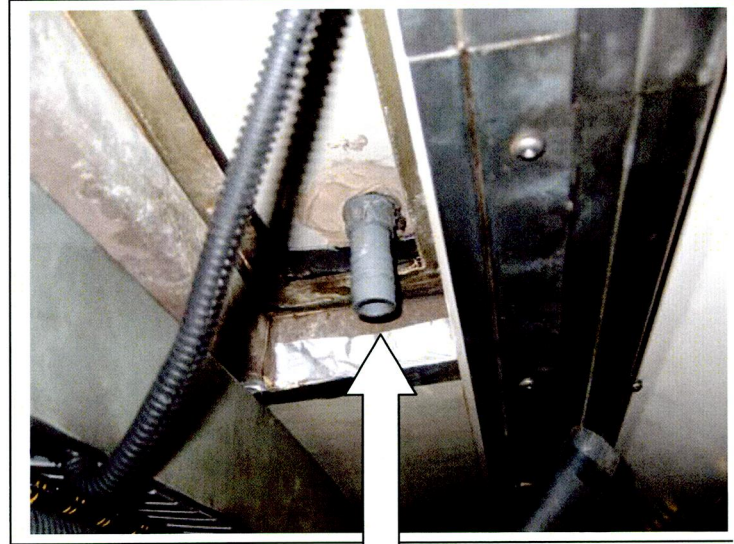


Figure #12: Remove and discard the OEM plastic fitting

15. Install the 45 degree Elbow and the hose barb fitting from fitting kit TA # 92-83-2007. The fitting should face the front of the bus as shown in the Figure #13 and 14.

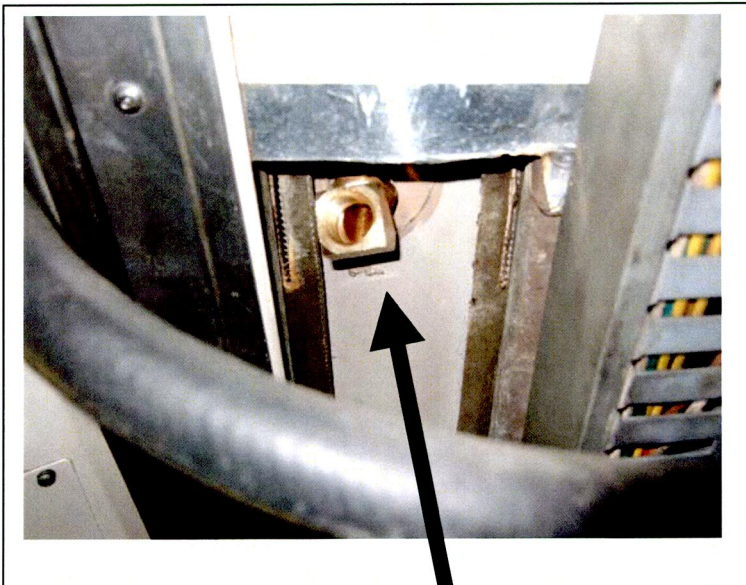


Figure #13: Install/secure the 45-degree elbow with reducer fitting attached. Elbow must face towards front of bus as shown.

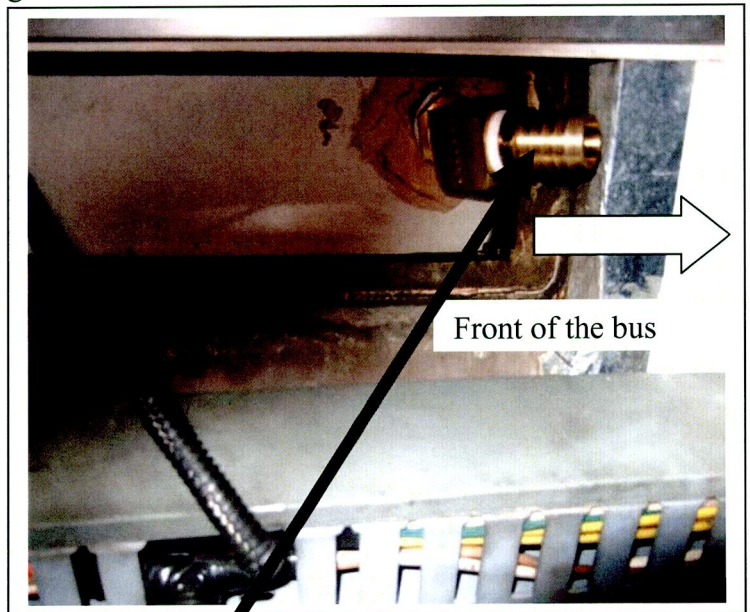


Figure #14: Now install/secure the hose barb fitting into the 45-degree fitting as shown above.

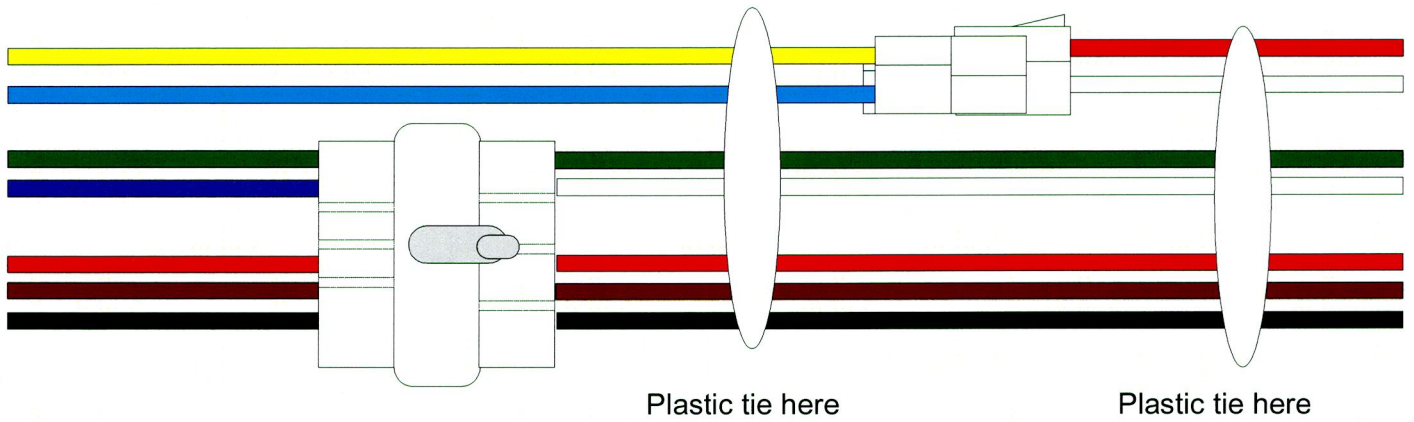


FIGURE # 6: SEPARATE THE CONNECTORS

8. For the RH # 4, # 7 and LH # 4, #5 and # 8 dome lights, disconnect the Molex connector. Use the extraction tool (TA # 42-69-0080) to remove the Red wire from the plug (female) and from the receptacle (male) connectors (see Figure # 7).
9. Use the extraction tool to slightly open the male and female terminal locking tabs. Then, insert the terminals into the new connectors at the center (middle) slot as shown in Figure # 8.

FIGURE # 7: BEFORE REWORK

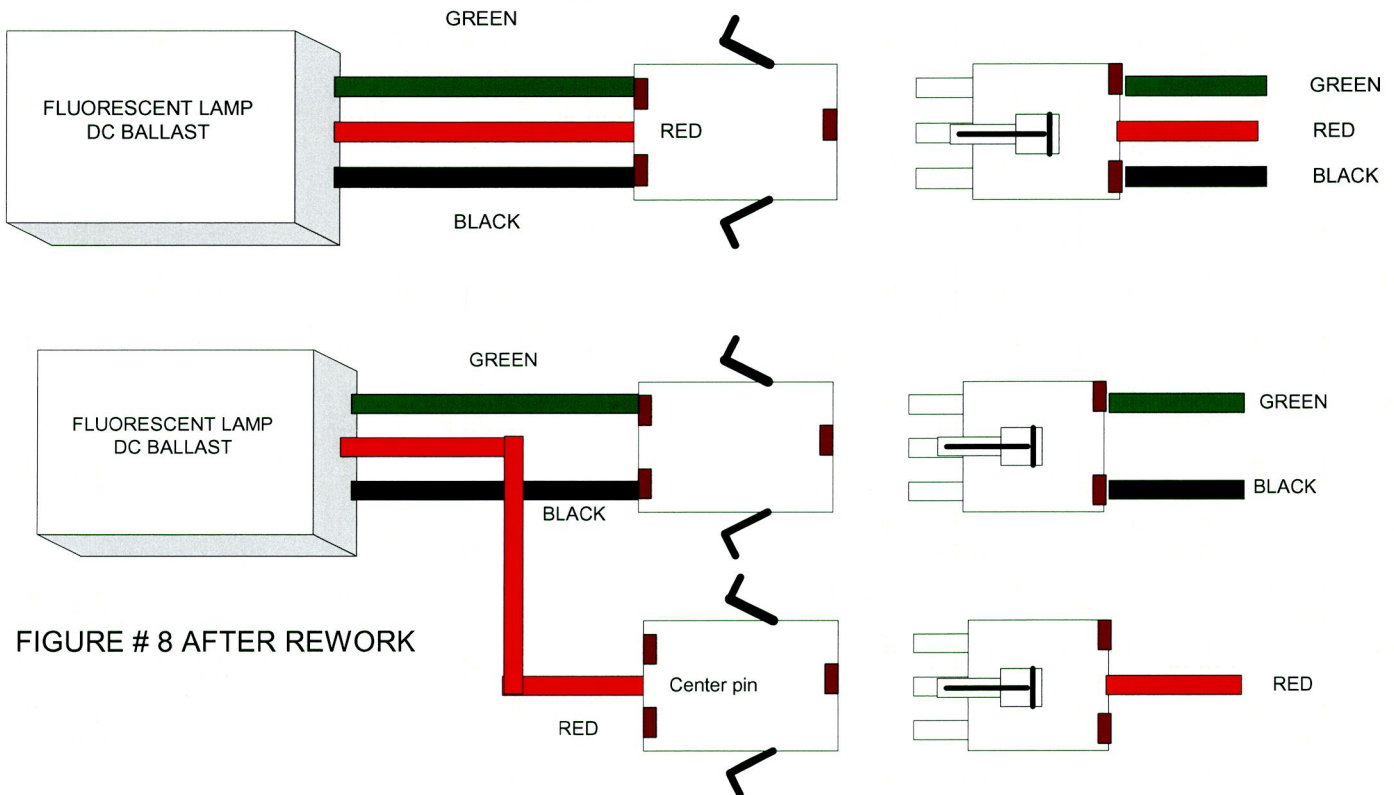


FIGURE # 8 AFTER REWORK

Plug  
TA # 88-83-1020  
Molex # 19-09-2038

Receptacle  
TA # 88-83-1021  
Molex #19-09-1039

## PROCEDURE TO REWORK THE MOLEX CONNECTOR ON THE BALLAST AND REROUTE THE EVAPORATOR HOSE.

**Task Time:** 90 minutes per bus including light connector and evaporator hose reroute.  
30 minutes per bus for evaporator hose reroute only. (Step #14 to #16)

1. Turn the battery disconnect switches off. *Normally, is important to make sure the lights are off before removing any fluorescent lamp. The failure to do so can result in an electrical arc being produced which can damage the light socket and/or cause personal injury. See Figure # 2 for the rework dome lights locations.*
2. Remove the dome light lens, and the fluorescent light.
3. Remove the two screws on the ballast and slide the ballast out to gain access to the pigtail harness. See Figure # 3.

FIGURE # 2 rework light location

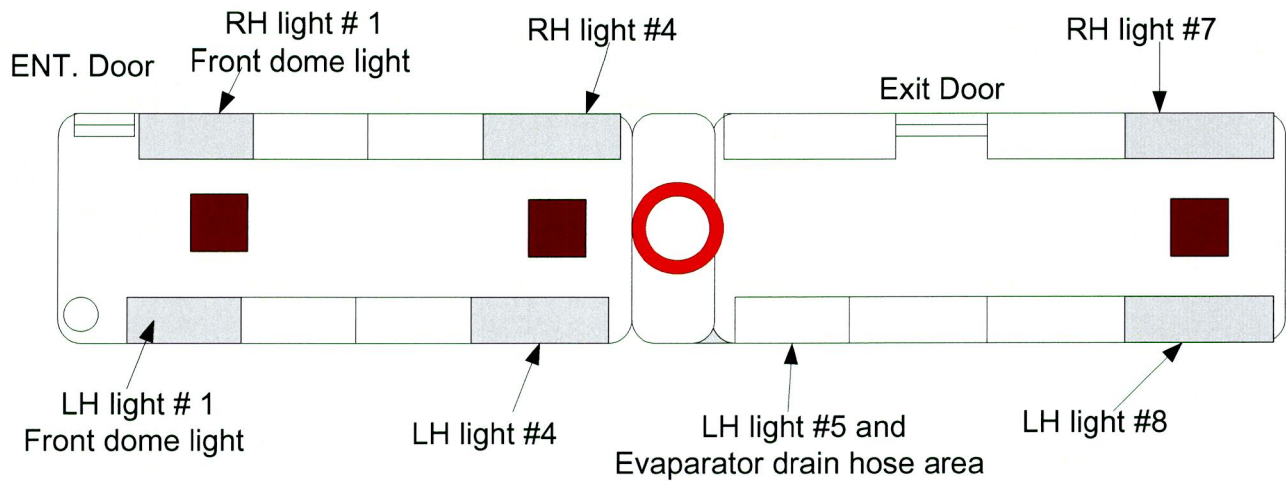
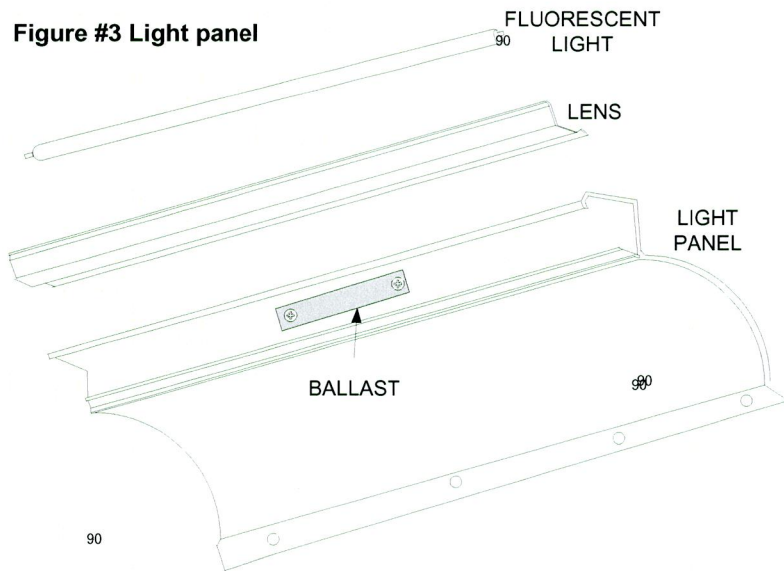


Figure #3 Light panel





6 September 2007

Sonny Murianka  
National Highway Traffic Safety Administration  
Office of Defects Investigation, NVA-11,  
1200 New Jersey Ave. SE,  
Washington, DC 20590

**Subject: Rooftop Evaporator Drains – New York City Transit**

Dear Sonny:

Recently your office inquired what New Flyer's response will be, regarding an incident at New York City Transit in which, a rooftop evaporator drain hose on a 60 foot high floor bus (D60HF, unit number and VIN unknown), failed due to long term contact with another component. The failed drain hose allowed sufficient moisture accumulation inside a lighting panel to short out the lighting assembly connector. It was also determined by New York that the electrical short would only occur if the fluorescent lamp in the lighting assembly was burnt out at the same time that the moisture was present.

Your inquiry was our first and only notice of this incident which occurred sometime in mid-June. No formal notification was ever sent to New Flyer from the customer. New Flyer subsequently made inquiries with our customer regarding this issue and received copies of the maintenance directive, which has been forwarded to your attention.

A review by New York of the other 630 New Flyer D60HF buses in their fleet found approximately 10 additional units with the drain hose making contact with adjacent components, creating a potential for wear and a similar failure. This potential contact was determined by New York to only be possible on units built prior to 2000, as newer models have a different lighting assembly.

New York issued the Maintenance Directive to systematically replace the drain fitting in this area over the next several years during normal routine maintenance. The units identified as having contact at the drain hose during their fleet inspection, will be completed first. Our discussions with New York's Manager of Accident Analysis, Joseph Covelli, indicates that they (New York) are not seeking New Flyer's assistance or involvement in this campaign, nor are they seeking remuneration for the damage caused by the short in the initial incident.

**Headquarters/  
Winnipeg Facility**  
711 Kernaghan Ave.  
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Winnipeg, Manitoba  
R2J 4G5 Canada  
Ph: (204) 982-8400

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R2J 4B9 Canada  
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**Crookston  
Facility**  
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Crookston, Minnesota  
56716 USA  
Ph: (218) 281-5752

**St. Cloud  
Facility**  
6200 Glenn Carlson Dr.  
St. Cloud, Minnesota  
56301 USA  
Ph: (320) 203-0576

[www.newflyer.com](http://www.newflyer.com)

Total damage to the bus in that incident was approximately \$30.00 for parts, and required approximately 3/4 hour of labor, to replace the shorted connector and section of drain line. There have been no other reported instances of this occurring on same or similar installations on the other 1352 D60HF we buses have manufactured.

New Flyer engineering's assessment of this situation is that it was a one of a kind failure. It was not due to a production installation error and was most likely attributed to normal service and maintenance adjustments done in and around the hose assembly, and to the lighting panel during the (approx.) seven years of service life.

A review of this situation by New Flyer has concluded that this issue does not warrant a service bulletin or campaign on the part of New Flyer at this time.

Sincerely,

A handwritten signature in black ink, appearing to read "Kerry Legg". The signature is fluid and cursive, with a large loop at the end.

Kerry Legg  
Safety & Compliance Manager  
Customer Services Head Office  
(204) 934-4876

cc: Hans Peper, Cliff Murray, Don Bean, Scott Halbesma, Alan Farrant, Bernie Hejda

**Kerry Legg**

**From:** Bernard Hejda  
**Sent:** Wednesday, August 22, 2007 6:10 AM  
**To:** Contact Reports - Service  
**Subject:** Contact Report - Service, New York

## **Contact Report - Service**

**Customer/City:**  
[REDACTED]

**Date of Call:**  
8-20-07

**Phone or Visit:**  
Visit

**Contact(s):**  
Bart Betz, New Bus  
Mike Lyons, Warranty Manager

**Remaining Acceptance Issue(s) Status:**  
• None

**Warranty Issue Issue(s):**  
• Went through a rather large stack of claims. Most if not all are charge backs to vendor.

**Retrofit Progress:**  
• N/A

**New Technical issue(s):**  
• N/A

**Pictures:**  
None

**Competitor Information:**  
None

**Special Topic(s):**  
Butch Seay has resigned. I am told his last day is 8/31/07. Rumor is he is going to Washington DC to head the para transit operation.

**Miscellaneous:**  
Most managers are sitting on the end of their chairs waiting for Joe Smith's reorganization plan. Everyone knows a shake up is coming. Steve Vidal, ex CMO was removed last month. Henry Sullivan was put in his place for now. Statement was made he will not get this position. Steve is now looking after a small task force to reduce accidents.

**From:** Alan Farrant  
**Sent:** Monday, September 03, 2007 8:12 PM  
**To:** Contact Reports - Service  
**Subject:** New York City Transit, Week of Aug-27-07

This week we started the steering recall at NYCT.

We started at 100th Street garage using Apache employees. There were supposed to have been four mechanics, but only three arrived as one was injured in a car accident coming up from Philadelphia. He has a broken jaw, shoulder & two broken ribs.

The first night we had considerable hassle from the union as they thought they were going to do the work. As it is we need them to shuttle the buses and operate the lifts and they took their sweet time doing this. They had set up two bays for us with lifts.

The first night we only got 6 buses completed. The next night we had 4 mechanics and things improved considerably. We completed 15 buses. On Wednesday and Thursday we got 18 buses both nights. So far we have not needed to change any mitre boxes but have changed 6 steering columns.

We will be alternating garages in the Bronx and Manhattan and the last three buses are on loan to the MTA so we will have to go to an additional garage.

On Friday, August 24th Joe Smith announced that all borough divisions were to have new G.M's. They are: Jimmy Reynolds, Manhattan; Richard DeVito, Bronx; Darryl Irick, Brooklyn; Jennifer Sinclair, Queens and John Hein, Staten Island.

Additionally, Pat Sullivan was appointed acting GM, Road Operations. This was Steve Vidals' old position.

Steve Vidal is now Chief Officer, Safety and Operations Performance.

Ken Daube, formerly GM of Queens was appointed Chief Transportation Officer.



6 September 2007

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R2J 4B9 Canada  
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Facility**  
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56716 USA  
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**St. Cloud  
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