PUBLIC TRANSPORTATION SAFETY BOARD
COMBINED ABBREVIATED BUS ACCIDENT REPORT

1. CASE#: 8715
3a. ACCIDENT TYPE: Fire
4a. DATE: October 29, 2005
5. ACCIDENT LOCATION: Cross Bronx Expressway Service Road at Pugsley Avenue
8. BUS NUMBER: 287
9. NUMBER OF INJURIES: 0
11. HOURS OF SERVICE: 8 hr 32 min in last 24 hrs/62 hrs 20 min in last 7 days

1. CASE#: 8852
3a. ACCIDENT TYPE: Fire
4a. DATE: February 21, 2006
5. ACCIDENT LOCATION: Murray Street at North End Avenue
6. TOWN/CITY/BOROUGH: New York, NY
8. BUS NUMBER: 133
9. NUMBER OF INJURIES: 0
11. HOURS OF SERVICE: 7 hr 55 min in last 24 hrs/48 hrs 19 min in last 7 days

12a. SYNOPSIS: Case 8715
At approximately 1:50 p.m., MTA New York City Transit (NYCT) bus #287 was traveling west on the Cross Bronx Expressway Service Road near Pugsley Avenue when the bus driver observed smoke in the rear interior of the bus.

12b. SYNOPSIS: Case 8852
At approximately 9:36 a.m., MTA NYCT bus #133 was traveling west on Murray Street at the intersection with North End Avenue when the bus driver smelled a hot electrical type odor and subsequently observed smoke coming from the right rear exterior of the bus.

In both cases the bus drivers safely curbed and shut down the bus’ engine, evacuated the passengers and called for assistance. The on board fire suppression systems were activated on both buses (one automatically/one manually) and the fire department responded and insured that the fires were extinguished. There were no reported injuries and both buses sustained moderate damage within the right side of the engine compartment.

The environment played no part in the fire.

Both buses are 1993 Orion V transit type buses with a seating capacity of 40 passengers. Bus #287 is housed and maintained at the Casey Stengel and bus #133 at the Michael J. Quill depots. Review of the bus records showed that Preventive Maintenance Inspections (PMI) was performed at regular intervals, (bus #287-3,500 miles; bus #133-3,000 miles). The most recent PMI for bus #287 was completed on October 24, 2005 and the bus had traveled 441 miles since then and the PMI for bus
#133 was completed on December 6, 2005 and the bus had traveled 2,854 miles since then. There were no safety or recurring defects noted in the 45 days prior to the accident for either bus. Further review of the maintenance records showed the following:

- **Bus #287**
  - On May 2, 2005 Atlantic Detroit Diesel Allison (ADDA), for warranty reasons, removed and replaced the bus’ alternator and terminals.
  - On September 6, 2005 MTA NYCT depot maintenance personnel removed and replaced the alternator’s wiring harness.
  - During October, 2005 bus fire occurs. Due to the alternator being under warranty, ADDA removed and replaced the alternator, in the process also repairing the fire damage to the bus, and returned the alternator to the manufacturer for failure analysis. No report of the results of that analysis has yet to be received by NYCT.

- **Bus #133**
  - On June 10, 2005 MTA NYCT depot maintenance personnel installed a generator bracket.
  - On December 6, 2005 MTA NYCT personnel (after a PMI) replaced the alternator drive belt, alternator mounting assembly and installed a missing bolt.
  - During February, 2006, bus fire occurs.

Post accident inspections of both buses found the root causes of both fires was the failure of the fiber insulating washer on the alternator’s DC post terminal. This allowed the metal washer on the terminal to short to ground and caused the cable to overheat and catch fire. Due to the fire damage, decelerometer braking tests were not performed on either bus.

*The driver of bus #287* was hired by the MTA NYCT on July 31, 2000 and completed the New Bus Operator Training Program. A review of the driver’s Department of Motor Vehicles records for the past three years showed no violations, convictions or suspensions. NYS Vehicle & Traffic Law, Article 19-A records were reviewed and found to be complete, in-order and up-to-date. A review of the driver’s NYCT accident record for the past three years showed one preventable (02/04/04-warning) and one non-preventable (11/09/02) collision accidents.

*The driver of bus #133* was hired by the MTA NYCT on August 9, 1982 and completed the New Bus Operator Training Program. A review of the driver’s Department of Motor Vehicles records for the past three years showed no violations, convictions or suspensions. NYS Vehicle & Traffic Law, Article 19-A records were reviewed and found to be complete, in-order and up-to-date. A review of the driver’s NYCT accident record showed no collision accidents from his date of hire.

No post incident drug/alcohol tests were performed on either bus driver.

The MTA NYCT Department of Buses (DOB) has identified a trend in alternator fires, particularly in the Orion V buses due to the location of the surge tank (cooling system overflow tank) directly over the alternator. Any leakage from the tank or spillage when the coolant is topped up usually ends up directly on the DC stud, due to it’s location directly below the surge tank, causing corrosion to
buildup on the studs (requiring cleaning or replacement of the stud terminals) and deterioration/failure of the fiber insulating washer. In addition, the constant (daily) power washing of the buses also can lead to, or contribute to, the same deterioration/failure of the insulating washer in the Orion V’s, as well as all other buses.

The MTA NYCT DOB, after recognizing the trend and determining that it was impractical to move the surge tank in the Orion Vs and that the problem extended to the entire NYCT bus fleet – not just the Orion Vs, requested that the alternator manufacturer replace the fiber insulating washer with a synthetic washer to help stabilize the terminal assembly and to lessen the deteriorating effects of vibration and fluid exposure to the terminal assembly. The MTA NYCT DOB began testing a synthetic insulating washer/ring provided by the manufacturer in May of this year and will keep the Public Transportation Safety Board (PTSB) staff informed of the progress of the test and if/when use of the new washer will be implemented. In addition, the MTA NYCT DOB is considering the addition of a shield over the alternator’s terminal assembly on the Orion V fleet to further protect the terminal assembly from leakage/spillage from the surge tank.

The MTA NYCT DOB found that these two fires were non-preventable on the part of the MTA NYCT driving and maintenance staffs.

Public Transportation Safety Board staff finds that the probable cause of the fires was the failure of the fiber DC terminal stud insulating washer which allowed the metal washer on the terminal stud to make contact with the alternator’s metal casing and cause a short to ground. The short caused the terminal cable to overheat and catch fire.

Based on the action taken by the MTA New York City Transit regarding these fires, the Public Transportation Safety Board staff makes no recommendation in this case.

INVESTIGATOR: Harry W. Gerham

CHIEF, ACCIDENT INVESTIGATION SECTION

DIRECTOR, PCSB, NYSDOT

DATE 1/22/07

DATE 2/24/07