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CALSPAN ON-SITE MOTORCOACH FIRE INVESTIGATION

SCI CASE NO.: CA10032

VEHICLE: 2001 MOTOR COACH INDUSTRIES MODEL G4500

LOCATION: TEXAS

INCIDENT DATE: JULY 2010

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Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety system.

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BACKGROUND

This on-site investigation focused on the origin and severity of a fire that consumed a 2001 Motor Coach Industries (MCI) Model G4500 motorcoach **(Figure 1)**. The coach was occupied by the 43-year-old male driver and 38 passengers. The driver was traveling at highway speeds when the passengers noticed smoke emanating from the floor and the air conditioner vents. The passengers alerted the driver of a potential fire. The driver exited the highway onto an off-ramp and opened the right side access door prior to stopping the motorcoach in a safe area. The driver ordered the immediate evacuation of the passengers. The fire subsequently spread to the passenger compartment and consumed the entire vehicle. Six of the passengers were transported by ambulance to a local hospital. Two of the six passengers were treated and released for smoke inhalation, inclusive of a 10-year-old female. The remaining four passengers were evaluated for possible respiratory issues and released. Seven additional passengers were evaluated at the scene, but did not require transport.

Figure 1. On-Scene image of the 2001 MCI Motorcoach. (Image obtained through an internet-based news site.)

The Crash Investigation Division (CID) of the National Highway Traffic Safety Administration (NHTSA) provided notification of this incident to the Calspan Special Crash Investigations (SCI) team on July 19, 2010. The SCI team contacted the investigating police agency, the responding fire department, the Fire Marshall's office and the insurance carrier for the motorcoach company, and established cooperation to conduct the on-site inspection of the motorcoach and to obtain the official reporting documentation for this incident. The on-site inspection was conducted on July 30, 2010. The SCI investigation involved a detailed documentation of the fire damage to the motorcoach with primary focus on the fire's origin. In addition, the incident site was documented and interviews were conducted with the Fire Marshall and his Deputy that responded to the incident site, and the investigating police officer. Attempts to interview the motorcoach company and the driver were unsuccessful due to language barriers. A fire expert conducted a review of the images and the SCI documentation for this investigation to determine fire origin and cause. His opinion relating to these issues is included as *Attachment A* of this report.

SUMMARY

Incident Site

Figure 2. Northeasterly view of the off-ramp approach to the incident site.

This fire incident occurred on a limited-access divided highway in a rural area during daylight hours. In the vicinity of the incident, the highway consisted of two travel lanes in each of the north and southbound travel directions. The travel lanes were separated by a grass and tree-lined median. In the area of the incident, the highway curved to the left for northbound traffic with an off-ramp located to the right. This off-ramp provided access to a designated rest area. The ramp consisted of a single travel lane and was straight and level **(Figure 2)**. Both edges of the exit ramp were bordered by concrete curbs. The driver stopped the motorcoach at a Y-junction of the ramp with a right lane designated for truck traffic only. A painted gore area was at the junction of the lanes. The travel lanes, inclusive of the highway, were surfaced with concrete. The posted speed limit of the highway was 113 km/h (70 mph). The exit ramp was posted with an advisory speed limit of 48 km/h (30 mph). At the time of the incident, local weather reports indicated the weather conditions were clear with a temperature of 25 degrees C (77 degrees F). The wind was easterly at a speed of 5.6 km/h (3.5 mph). The Incident Schematic is included as **Figure 17** of this report.

Vehicle Data

Figure 3. Exemplar 2001 MCI G4500 series motorcoach.

The 2001 MCI motorcoach was built in Mexico in June 2001 and was licensed with dual registrations for Mexico and Texas. The motorcoach was identified by Vehicle Identification Number (VIN): 3BMXSMPAX1S (production number deleted). The Model was designated as a G4500 with a passenger capacity of 46. The motorcoach was powered by a rear-mounted Detroit Diesel Series 60, 12.7-liter diesel engine linked to an Allison B500 series automatic transmission. The service brakes were air-operated drum with automatic slack adjusters. The parking and emergency brakes were spring-activated on the drive axle. The interior-mounted manufacturer placard that identified the Gross Vehicle Weight Ratings, Gross Axle Weight Ratings, and the tire data was burned; therefore this data would have to be obtained from the vehicle manufacturer's records. The G4500 series motorcoach was supported by three axles; the steer axle, the dual-wheel drive axle, and the tag axle. **Figure 3** is a view of an exempler 2001 MCI G4500 series motorcoach.

The motorcoach was equipped with a mixed set of tires that were mounted on steel wheels. All of the undamaged tires were size 315/80R22.5. The placard listing the manufacturers recommended tire size and tire pressures was consumed by the fire. The tire data documented during the SCI investigation is detailed in the following table:

Position	Make Model	Measured Tire Pressure	Measured Tread Depth	Damage
Left Steer Axle	Unknown	Flat	8 mm (10/32 in)	Sidewall burned
Right Steer Axle	Michelin Unknown	Flat	10 mm (12/32 in)	Tread and sidewall burned
Left Drive Axle -Outer	Pirelli FH85 Amaranto	Unknown	4 mm (5/32 in)	None
Left Drive Axle - Inner	Pirelli FH85 Amaranto	Unknown	6 mm (7/32 in)	None
Left Tag Axle	Michelin XZA2 Energy	779 kPa (113 PSI)	6 mm (7/32 in)	None
Right Drive Axle – Outer	Pirelli FH85 Amaranto	Unknown	6 mm (8/32 in)	None
Right Drive Axle - Inner	Pirelli FH85 Amaranto	Unknown	6 mm (7/32 in)	None
Right Tag Axle	Michelin XZA2 Energy	607 kPa (88 PSI)	11 mm (14/32 in)	None

The left side exterior of the motorcoach was configured with three underbody luggage compartments, the onboard air conditioning (AC) system and the fuel tank located forward of the drive axle. The three luggage bays contained suitcases and backpacks that belonged to the passengers. All of the onboard luggage was burned by the fire.

The air conditioning system utilized a series of five electrically operated, thermostatically controlled fans that provided cooling to the condensers. The evaporators and duct work were located in the center of the motorcoach, forward of the drive axle position.

The fuel tank was aluminum and was mounted transversely forward of the drive axle. Filler ports were located on each site of the motorcoach. The fuel tank was manufactured in April 2001 and was labeled as meeting All FHWA NON-SIDE MOUNTED Fuel Tank Requirements. The part No. of the fuel tank was 09-06-6095. The tank was labeled as having a capacity of 863 liters (228 US gallons). The tank was also labeled with the following: *Section 393.67 of Motor Carrier Safety Regulations Require That This tank Not Contain More Than 817 liters (216 US gallons).* The fuel tank was intact and the filler caps were in place. There was no known fuel leakage associated with this incident. The level of the fuel tank at the time of the fire is unknown.

The right side of the motorcoach was equipped with the electrically operated right front loading door. It is unknown if this door was equipped with an interlock system that

prevented the door from opening while the motorcoach was in the travel mode. Three top-hinged luggage bay doors were located in the underbody and a wheelchair lift was incorporated into the right side at pillar locations F- to G-. The lift system was incorporated into the undercarriage of the motorcoach and was concealed by a forward hinged door. Access to the passenger compartment was obtainable through a sliding door that opened toward the rear of the motorcoach.

Located aft of the wheelchair lift at pillar locations G to H was the battery compartment with the master cut-off switch and the battery equalizer. Two large 12-volt batteries were connected in a series circuit to provide 24-volt power to the vehicle. The battery compartment remained intact and undamaged by the fire.

The interior of the motorcoach was configured with a conventionally mounted left side driver's compartment with forward controls. The driver's seat was a suspension seat with an integral head restraint. A 3-point lap and shoulder safety belt system was mounted to the left B-pillar with a seat frame-mounted buckle assembly.

The passenger compartment was configured with 12 rows of seats on the left and 11 rows on the right side of the center aisle. Each row consisted of two seats with a total passenger capacity of 46. The seats were steel-framed with foam padding and a synthetic blend fabric. The seats were high back with integral head restraints, reclining seatbacks, and outboard armrests. Based on debris found in the passenger compartment, fiberglass constructed overhead compartments provided storage space for the passengers. The floor of the motorcoach was plywood with a finished covering of the inside surface of the vehicle. The entire interior of the motorcoach was consumed by the fire. **Figure 4** is an interior view of an exemplar motorcoach.

Figure 4. Interior view of an exemplar 2001 MCI G4500 series motorcoach.

Incident

Pre-Incident

The motorcoach company was providing one-way service to a group of travelers from Mexico to the United States. The estimated timeframe for this one-way trip was 24 hours. The passenger luggage was stowed and distributed throughout the underbody luggage compartments. The motorcoach traveled to the border crossing, a distance of approximately 1,130 km (700 miles). The investigating officer suspected that there was a change of drivers at this location. It is unknown if all 38 passengers onboard the motorcoach traveled the entire distance, or boarded the vehicle along its route.

As the motorcoach cleared the border crossing and the US Customs inspection, the 43-year-old male driver proceeded in a northeasterly direction en route to the final

destination. The travel route required numerous speed changes as the motorcoach traveled though towns and areas requiring speed reduction from the maximum speed limit of 113 km/h (70 mph). The travel distance from the border crossing to the incident site was approximately 315 km (196 miles). The ambient temperature coupled with 96 percent humidity required the use of the air conditioning system in the motorcoach.

Incident

The motorcoach was traveling in the northeasterly direction in the 113 km/h (70 mph) speed zone when the passengers observed smoke emanating from the air conditioner ducts within the motorcoach. They informed the driver of a potential problem and he immediately exited the highway onto the off-ramp for the rest area. The driver, concerned for the safety of the passengers, opened the right side loading door prior to stopping the bus on the ramp to the rest area. He stated to the investigating officer that he was concerned that if the fire was electrical in nature, he may not be able to open the door to safety evacuate the passengers.

Figure 5. Northeasterly view of the location of the fire and the final rest position of the motorcoach.

As the driver stopped the motorcoach at the gore area of the ramp **(Figure 5)**, he ordered the immediate evacuation of the passengers. All 38 passengers exited the motorcoach. The driver exited the vehicle and proceeded to the back right side of the motorcoach. This was the area that he observed smoke. He opened the wheelchair lift door and did not see fire. He moved forward and opened the most rearward luggage bay door and observed flames in the center area of the undercarriage, in the vicinity of the AC system. The driver relayed to the investigating officer that at this point, the fire spread rapidly throughout the motorcoach. The driver used his cellular telephone to call the emergency response system to report the fire incident and provided the location, as he was familiar with the area. He further ensured that all passengers were located a safe distance from the motorcoach.

Post-Incident

The emergency response system received the cellular call for assistance and dispatched the call to the volunteer fire department within 11 seconds. The volunteer firefighters departed the fire station 14 minutes after the call and arrived on scene 32 minutes after the driver initially called for assistance. The fire department dispatched a tanker truck to the remote incident site with the responding fire apparatus. As the fire department arrived on-scene, the motorcoach was fully engulfed in fire. The firefighters used water to contain and extinguish the fire. The entire passenger compartment was consumed by the fire as well as passengers' luggage that was stowed in the luggage bays.

Of the 38 passengers, one adult and one child (10-year-old) complained of respiratory issues with headaches and nausea. They were transported along with four family members to a local hospital for treatment. The two passengers were treated for smoke inhalation while the other four family members were evaluated for signs of injury. An additional seven passengers were evaluated at the scene of the incident. These seven passengers did not require treatment or medical transport. The remaining 25 passengers refused medical attention.

The passengers were transported by community shuttle buses to a city shelter where they were served a meal while they waited for another motorcoach to transport them to their final destination.

The motorcoach was towed from the scene of the incident to a local tow yard where it was inspected for this SCI investigation.

Fire Damage

The fire consumed the forward half of the exterior of the motorcoach and the entire interior. The rear area of the motorcoach was intact and undamaged. This included the drive and tag axle tires, the engine and engine compartment, and the exterior body panels of the rear side and back areas. A description of the damage by location is provided in the following sections:

Front

Most of the combustible materials on the frontal area of the motorcoach were consumed by the fire. This included the bumper fascia, the headlamp assemblies, and the windshields. The bumper beam was separated from the vehicle and was missing at the time of the inspection. A portion of a fiberglass body panel that was located above the bumper remained at the center and left areas of the vehicle. The exterior surface of a sheet metal panel that was located between the headlamp assemblies was charred with high heat oxidation present on the right side. The high heat oxidation was also present in the area above and below the right headlamp area. This suggested the fire spread through the interior and undercarriage areas and vented through the front right location. The lower windshield gasket was charred and melted, but it retained its shape and position. The remaining gaskets were completely consumed. **Figure 6** is an overall view of the fire damage to the front of the motorcoach.

Figure 6. Frontal view of the fire damage to the MCI motorcoach.

Left Side

The side exterior body panels of the motorcoach were fiberglass with a thin gauge sheet metal outer surface. The panels were placed over the structure of the motorcoach that consisted of a monocoque frame design constructed of gusseted square tubing in the sides

and undercarriage. Sheet metal panels were spot welded to the frame in the area that spanned the floor to the beltline.

The fire damage to the left side began at the G-pillar and spread forward. The painted surface of the body panel between the G- and the F-pillar was charred and blistered. The sheet metal and fiberglass body panel at the F-pillar was burned at this pillar location. The panels from this point forward were completely consumed to the B-pillar. The underlying sheet metal panels were warped by heat. The three luggage compartment doors were completely consumed. The louvered door for the AC condenser cooling fans was smoke and soot stained at the upper surface and melted at the leading edge along the hinge location. The side panels below the driver compartment were charred, with blistering of the paint. **Figure 7** is a left side view of the fire damage to the motorcoach.

Figure 7. Left side view of the fire damage to the MCI motorcoach.

The left side of the motorcoach exterior, aft of the G-pillar area was not damaged by the fire. The painted surfaces were intact and clean.

Back

The back plane of the motorcoach was not involved in the fire. The fiberglass engine compartment door was closed and operational post-incident. The taillights were intact and all painted surfaces were without damage by fire or smoke. There was no fire damage to the engine or the engine compartment **(Figure 8)**.

Figure 8. Undamaged back plane and the engine compartment area.

Figure 9. Right side view of the fire damage to the motorcoach.

Right Side

The right side fire damage began at the F-pillar and extended forward **(Figure 9)**. The wheelchair lift was located at the F- to G-pillar locations. The leading edge of the sliding

door to the passenger compartment was burned and the painted surface of the lift door was charred. The body panels from the F-pillar forward were completed consumed by the fire. The right loading door was fiberglass and was totally consumed as were the luggage bay doors on the underbody. The underlying sheet metal panels on the side body structure were warped from the F- to the B-pillar.

Roof

The roof was surfaced with overlapping aluminum panels that spanned the width of the motorcoach. These roof panels were completely burned from the back of the motorcoach forward. The right roof side rails retained a portion of the aluminum, protected by the structure of the vehicle. The longitudinal roof rails were deformed by heat. The lateral roof bows between the pillars sagged at the B- through D-pillar locations. The forward aspect of the roof structure over the windshield areas displayed the greatest amount of sag to both the lateral and longitudinal structures. **Figure 10** is a view of the roof damage to the motorcoach.

Figure 10. Rearward view of the roof of the motorcoach.

The two roof emergency exits located at the A- to B-pillars and the F- to G-pillars were completely burned with only the structural opening remaining at these locations.

Glazing

The glazing at the right rear corner of the motorcoach was the only glazing panel that remained intact. This panel was positioned in the area of the onboard restroom. It is unknown if the glazing panels were consumed by the fire or were knocked out by the firefighters in their attempt to vent and contain the fire. The left glazing at pillar locations G- to H-, H- to I-, and I- to J- appeared to have been taken out by the firefighting activities as perimeter glass remained in the frames, most prevalent at the lower and rear aspects of the frames. The aluminum frames for the side windows forward of the F-pillar were completely consumed by the fire.

There was perimeter glazing remaining at the right G- to H- and H- to I-pillars, indicative of firefighting activities. The glazing and aluminum frames for the forward windows were completely consumed.

Tires/Wheels

The tire damage was limited to the front steer axle tires. The sidewalls of the left front tire were charred. The fire burned away all tire identifications on the sidewalls and resulted in an air-out of the tire. The tire tread had superficial charring at the top surface with the majority of the 8 mm (10/32 in) tread thickness remaining intact. The painted surface of the left front steel wheel was charred and smoke stained.

The right front tire sustained partial burning of the sidewalls and tread. The bottom tread patch that was in contact with the pavement during the fire retained its 10 mm (12/32 in) thickness. The remainder of the tread surface was burned and melted. The right front steel wheel retained its paint except for the area surrounding the lug nuts. It appeared that heat was transferred through the axle into the hub area of the wheel.

The dual drive axle tires and the tag axle tires were not damaged. A Stemco hubometer was mounted to the right outer drive axle tire. This device yielded a partial reading of 20?7?6 miles. The unknown digits were the result of wear to the unit and not fire related.

Undercarriage

The undercarriage area of the motorcoach that was inspected for this fire investigation involved the luggage compartments and the electrical boxes and AC system that were located immediately rearward of the luggage bays **(Figure 11)**. The undercarriage area of the rear drive and tag axles, in addition to the engine compartment were not involved or damaged by this fire.

Figure 11. View from the right rear luggage bay looking rearward at the electrical boxes and the AC system components.

The three luggage bays appeared to have contained a single layer of passenger luggage and personnel belonging consisting of synthetic fabric suit cases and backpack-type luggage. The entire collection of luggage was burned by the fire in a uniform pattern from back to front. There was no distinct burn pattern across the luggage bays indicating the fire started within the stowed luggage. During the inspection process, some of the luggage was removed from the third bay to gain access to the electrical and AC components located aft of the compartments. This task required the use of a pry bar to loosen the burned and melted luggage from the floor of the motorcoach. While performing this task, the luggage was pried part and contents were exposed. The majority of the luggage contained personal clothing and shoes. In additional, several glassware items and package food were found. There was no indication of self-combustible cargo within the luggage.

The investigation then focused on the electrical panel box that was mounted on the left side of the undercarriage, aft of the luggage bays. This panel box consisted of a sheet metal formed box. The cover and back plate was missing and was presumed to have been constructed of a combustible material such as plywood, as wood fragments were found in the debris. The box could have been covered by a plastic or aluminum cover that melted in the fire.

Figure 12. Left side panel box, wiring, and heat evidence.

Figure 13. Right side panel box and the cable damage (arrow).

This panel box contained a bundle of small gauge wires with a mix of a several 8-10 gauge wires. All of the wire insulation was burned and the remaining copper wire was clustered together. These wires extended through the top of the panel box and over the centerline of the motorcoach to a wire bundle that extended forward on the centerline and to the right side mounted box. There wires appeared to be intact with no evidence of arcing, separation, or welding of the braided wire. The sheet metal wall at the rearward aspect of the panel box displayed a burn pattern of high heat oxidation that extended upward to the floor of the passenger compartment **(Figure 12)**.

The matching right side-mounted panel box contained three distinct bundles of small gauge wire and five larger gauge wires and cables that extended to the center mounted AC system. Several of these larger gauge cables were routed rearward to the electric wheelchair lift. The cables at the lift unit were intact and not involved in the fire. Three of the large diameter cables within the box were burned through with welding of the braided copper wire. Two of the cables exhibited 10 cm (4 in) of wire welding while the third cable was welded over a 20 cm (8 in) length **(Figure 13)**. The welded patterns extended upward. Melted aluminum was present on top of the panel box and fused to the copper wire. All of the combustible wire insulation was burned from the wires. The box was not enclosed at the front or back aspects as the covers were consumed by the fire.

The AC evaporator and associated plenum/duct work/shielding were located on the vehicle's centerline, rearward of the above referenced panel boxes **(Figure 14)**. The AC compartment was enclosed by sheet metal side walls and a plywood front access panel. The sheet metal walls were blackened by the fire with an area of high heat oxidation present on the forward aspect of the right wall. Charred remnants of the plywood access panel were present at the bottom of the opening.

Figure 14. AC evaporators and related fire damage located aft of the luggage compartments.

Aluminum duct work or shielding was present at the forward aspect of the right evaporator. This formed component was melted at the upper forward corner. It also appeared that the formed duct work was displaced, possibly by efforts of the fire department. The evaporators consisted of copper coils with aluminum fins. The evaporators were intact and blackened by smoke and fire. The forward upper area of the right evaporator was clean as if exposed to high heat. This area was located under the melted aluminum duct.

The AC system was comprised of two additional evaporators, one located in the upper rear area of the passenger compartment and the other in the front floor area. Copper supply and return lines conducted the refrigerant to these evaporators.

Figure 15. Example of the fire damage to the copper refrigerant supply and return lines.

The rear mounted passenger compartment evaporator was exposed due to the severity of the fire to the interior of the motorcoach. The forward mounted evaporator was concealed by the remaining floor forward of the B-pillars. Four copper supply and return lines were routed along the centerline of the motorcoach from the mid-mounted evaporator system to the forward evaporator. These copper lines sustained significant damage forward of the evaporator consisting of burn through, complete melting of the copper, and burst fractures of the lines **(Figure 15)**. The lines were completely burned through at the level of the D- to E-pillars and had fallen from the under floor mounting points to the floor of the luggage bays. A burst fracture was noted to one of the (3/4 in) copper lines at the midpoint of the second luggage bay. This occurred from heat build-up within the refrigerant line during the fire.

Interior

Figure 16. Rearward view of the interior fire damage to the motorcoach.

The interior of the motorcoach was completely burned by the fire **(Figure 16)**. All combustible materials within the seats, overhead storage compartments, side wall, and ceiling were consumed. The plywood partitions for the back right mounted restroom were partially intact, but heavily burned. The plywood floor was completely burned from the B-pillar location the F-pillar area. The floor immediately forward of the drive axle to the back of the passenger compartment was charred, but intact. The longitudinal and lateral cross members of the floor were warped by the heat of the fire. An

area of high heat was present on the floor structure between the second and third luggage bays. The center rail was warped at the midline of the third luggage bay (E-pillar area). The fiberglass matting that was used in the construction of the overhead compartments was not completely burned and had fallen onto the outboard seat frames. The driver compartment and the instrument panel were completely consumed.

SCI Fire Source

A detailed and thorough inspection of the motorcoach, in conjunction with passenger and driver statements, placed the origin of the fire in the undercarriage area of the motorcoach, forward of the drive axle. The burn pattern was intense in the lower rear area aft of the luggage bays and spread forward, consuming the exterior and interior surfaces of the motorcoach from the F-pillar location forward. The engine compartment, the back exterior of the motorcoach, and the drive and tag axles tires were all undamaged by the fire.

The SCI investigator identified two possible sources as the origin of the fire; one in the electrical system and the second in the mid-mounted AC system. Both of these areas were located between the drive axle and the third luggage bay. The heavy gauge electrical cables in the right side mounted panel box were burned through with welding of the braided cables. The insulation of the wires within the left side panel box was consumed by the fire. There was an area of high heat oxidation present on the sheet metal wall behind the left side panel box. The fire could have originated in either electrical panel box and spread to the centerline of the motorcoach, into the AC system.

The AC system was electrically powered. An AC system problem could have occurred resulting in the fire originating in this area. The high heat evidence that was present on the right evaporator and the adjacent wall suggested a potential issue at this location. This is also consistent with the passenger's detection of smoke emitting from the AC vents without disruption of other onboard systems.

It should be noted that the luggage stowed in the rear underbody luggage compartments was removed to gain access to the electrical panels noted above. The fire charred luggage consisted primarily of clothing, personnel possessions, and some food items. There was no evidence of high heat within the luggage areas, or evidence of combustible materials contained within the luggage.

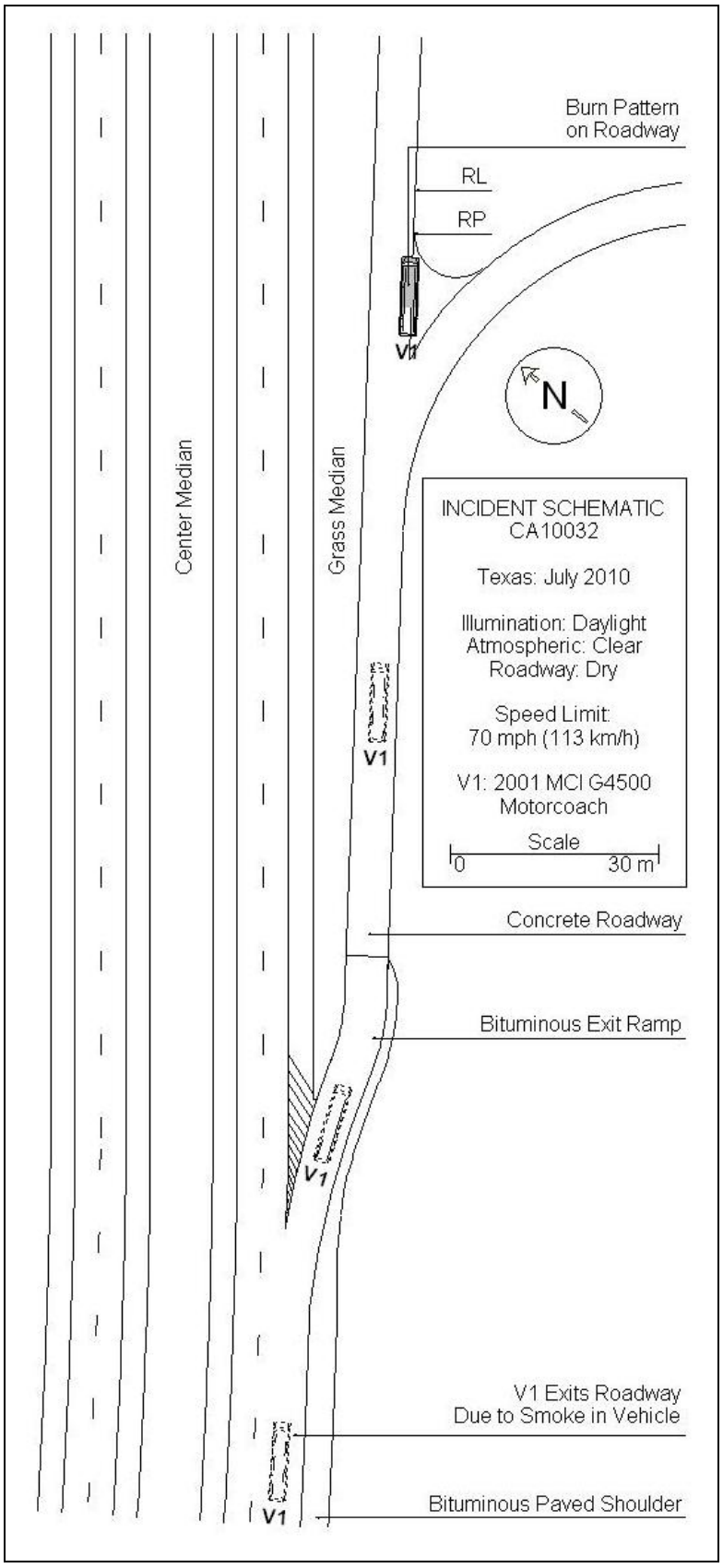

Figure 17. Incident Schematic

ATTACHMENT A:

FIRE EXPERT'S REVIEW AND OPINION REPORT

Independent review and subsequent opinion by a fire origin and cause investigator:

It should be noted that this investigator was not directly involved with the vehicle fire or scene inspections, but rather depended on the photographs and documentations collected by the Calspan SCI team. Whereas this is not the optimal process when conducting an origin and cause investigation, the option of reviewing previous documentation is acceptable methodology according to NFPA 921, "Guide for Fire and Explosion Investigations" (2008 edition), and is adequate for the subject investigations given the scope and purpose of these evaluations.

For each case, photographs and documents were reviewed initially to determine an area or point of origin for the fire. Then this area was analyzed to determine a most probable cause. The area of origin was determined by an interpretation of the fire patterns left by the fire and supporting witness information. Interpreting fire patterns involves assessing the different amounts of damage to the various components involved taking into consideration the progression of the fire which is determined by the various fuel loads involved, the physical properties of the various materials, environmental effects, and the dynamics of the fire itself.

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Determination of Origin: The best evidence for the determination of a point of origin on this motorcoach is the drivers report. He claims he could see smoke coming from the right rear of the vehicle, but did not see any flames until he opened the rearmost luggage compartment door and observed flames in the center area of the undercarriage close to the A/C system. The front, sides, interior, and roof of this vehicle were subjected to heavy damage and are mostly consumed. Only the engine compartment is intact. Based on the driver report, the area of origin is the center of the rearmost luggage compartment.

Determination of Cause: Within the area of origin, there were two electrical power distribution boxes and the mid-mounted A/C system. Heavy gauge cables in the right side panel were found to be burned completely through and welded. Additional heavy damage was observed at the right side A/C evaporator. Because of the amount of damage sustained to the electrical and A/C systems, this fire is consistent with an electrical fire of undetermined cause.