SL-054-13

Los Angeles County Sheriff's Department

MAIT SUPPLEMENTAL

This investigation was conducted by the California Highway Patrol (CHP) Southern Division Multidisciplinary Accident Investigation Team (MAIT).

MAIT PERSONNEL

Officer J. K[redacted] Southern Division MAIT Investigator*
Officer T. B[redacted] Southern Division MAIT Investigator
Officer J. H[redacted] Southern Division MAIT Investigator
*Denotes primary investigator

SUBPOENAS FOR MAIT PERSONNEL SHOULD BE DIRECTED TO:

California Highway Patrol
Southern Division Investigative Services Unit/MAIT
437 North Vermont Avenue
Los Angeles, California 90004-3512
Attention: Sergeant K. M[redacted]

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INTRODUCTION

Notification

On Saturday, November 30, 2013, at approximately 1526 hours, a single vehicle traffic collision occurred on Hercules Street west of Constellation Road. The collision occurred within the city of Santa Clarita, within Los Angeles County.

Deputies from the Los Angeles County Sheriff's Department (LASD), Santa Clarita Valley Station, responded and conducted the on-scene investigation of the collision.

Upon their arrival, LASD deputies located Vehicle #1 (Porsche) on the east side of Hercules Street, south of Constellation Road. The traffic collision caused fatal injuries to the driver, Mr. Roger Rodas, and the passenger, Mr. Paul Walker.

As a result of their investigation, LASD deputies generated traffic collision report number 013-16236-0645-470.

On Monday, December 9, 2013, LASD Traffic Investigator J. M[redacted], contacted the California Highway Patrol (CHP) Southern Division Multidisciplinary Accident Investigation Team (MAIT) and requested assistance with their investigation.

Issues

Southern Division MAIT conducted a limited investigation to include the following:

1. A mechanical inspection of Vehicle #1 (Porsche).
2. A search for safety recalls, repair records and vehicle history pertaining to Vehicle #1 (Porsche).

INVESTIGATIVE SUMMARY

12-09-2013: Los Angeles County Sheriff's Department (LASD) Deputy J. M[redacted] contacted Southern Division MAIT and requested assistance in the investigation of this traffic collision.

12-10-2013: MAIT Investigators B[redacted] and H[redacted] responded to Wolf's Towing and Auto Repair storage facility located at 26321 Ferry Court, Santa Clarita, California 91351, to photograph Vehicle #1 (Porsche).

12-13-2013: Investigators K[redacted] and B[redacted] responded to Wolf's Towing and Auto Repair storage facility to inspect Vehicle #1 (Porsche) with LASD investigators.

Investigator K[redacted] responded to the collision scene to examine the roadway configuration, the collision scene and any roadway evidence.

12-26-2013: Investigator K[redacted] responded to Pacific Porsche, 2900 Pacific Coast Highway, Torrance, California 90505, (888) 322-4541, to inquire about service recalls applicable to Vehicle #1.

01-15-2014: Investigators K[redacted] and B[redacted] responded to Wolf's Towing and Auto Repair storage facility to meet with LASD investigators and Porsche engineers.

02-05-2014: Investigator K[redacted] responded to Pacific Porsche, to acquire additional information regarding Vehicle #1.

Investigator K[redacted] responded to the Beverly Hills Porsche Service Center, 10923 Santa Monica Boulevard, Los Angeles, California 90025, (888) 711-2748, to obtain any service or repair records pertinent to Vehicle #1.

Investigator K[redacted] telephonically contacted the following companies to inquire about service or repair records concerning Vehicle #1:

Porsche of Orlando
9590 South Highway 17-92
Maitland, Florida 32751
(407) 680-0785

Byers Imports Audi Subaru
401 North Hamilton Road
Columbus, Ohio 43213
(888) 739-7771

Ferrari Maserati of Fort Lauderdale
5750 North Federal Highway
Fort Lauderdale, Florida 33308
(954) 889-6580

Ferrari of Long Island
65 South Service Road
Plainview, New York 11803
(516) 882-5472

INVESTIGATIVE SUMMARY

02-05-2014: Investigator K[redacted] responded to Global Motorsports Group, 3210 South Shannon Street, Santa Ana, California 92704, (714) 432-1582, to obtain service records applicable to Vehicle #1.

03-17-2014: This investigation was released for publication.

MECHANICAL INSPECTION

Inspection Dates	December 13, 2013, and January 15, 2014
Location	Wolf's Towing and Auto Repair 26321 Ferry Court Santa Clarita, California 91351 (661) 259-7676
Manufacturer	Porsche
Model	Carrera GT
Color	Guards Red
License Plate Number	[redacted] / California
Vehicle Identification Number (VIN)	[redacted]
Year	2005
Manufacture Date	December 7, 2004
Manufacturer Location/Assembly Plant	Leipzig, Germany
Type of Vehicle	Two-door sports car
Odometer	Unknown due to thermal damage[1]
Gross Vehicle Weight Rating	3,605 pounds[2]
Front Axle Weight Rating	1,576 pounds[3]
Rear Axle Weight Rating	2,061 pounds[4]
Registered Owner	Mr. Roger Rodas [redacted]

Vehicle #1 (Porsche) was impounded as evidence at the collision scene pursuant to California Vehicle Code §22655.5(b), on November 30, 2013, by Los Angeles County Sheriff's Department investigators.

Vehicle #1 was towed via flatbed tow truck from the collision scene to Wolf's Towing and Auto Repair, where it was placed in a fenced and locked facility.

[1] Based on the CARFAX® Vehicle History Report™, Vehicle #1 (Porsche) had 3,333 miles reported on September 4, 2013.
[2] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 184.
[3] Ibid.
[4] Ibid.

Mechanical Inspection

Vehicle #1 (Porsche)

Introduction

Vehicle #1 was a two-door sports vehicle manufactured by Porsche Leipzig GmbH, Porschestraße 1, 04158 Leipzig, Germany, on December 7, 2004. Vehicle #1 was one of 1,270 Porsche Carrera GT's built between the model years 2004 and 2006.[5]

A vehicle information label was affixed to the brake fluid reservoir cover in the trunk of the vehicle. The label is shown below:

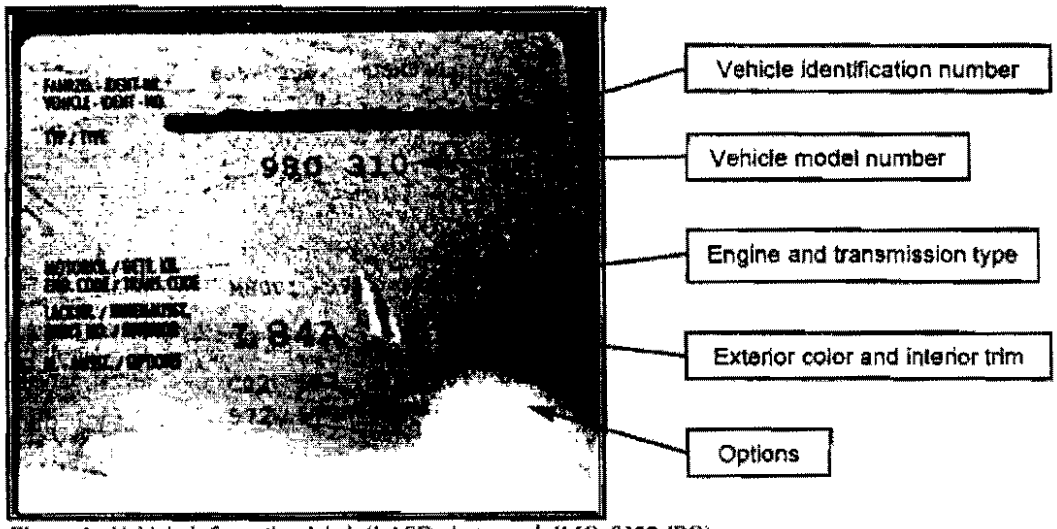


Figure 1: Vehicle information label. (LASD photograph IMG_0122.JPG)

Based on the information on the label affixed to the brake fluid reservoir cover, Vehicle #1 was outfitted with the following equipment:[6]

CODE	DESCRIPTION
DZ	Leather interior in natural dark grey.
C02	USA
197	Battery
572	Manually adjustable air conditioning system
681	Carrera GT sound system
690	Porsche Online Pro CD-Radio with BOSE Sound system
579	Luggage set dark grey

[5] <http://www.porsche-leipzig.com/en/porscheleipzig/meilensteine.aspx>. Accessed on December 24, 2013.
[6] Vehicle Build Sheet. Source: Pacific Porsche Service Department, Torrance, California.

Mechanical Inspection

Vehicle #1 (Porsche)

Introduction (continued)

The mechanical components of this vehicle were divided into the following subsystems for inspection:

- Powertrain and Exhaust
- Throttle and Fuel System
- Electrical System
- Steering
- Suspension
- Brake System
- Tires and Wheels
- Airbag Control Module

Additionally, a vehicle history search was conducted through CARFAX® and The National Insurance Crime Bureau (NICB). A search for recalls was conducted through the National Highway Traffic Safety Administration (NHTSA) and Porsche.

The damage noted to Vehicle #1 is not intended to be inclusive of all of the damage sustained by Vehicle #1. All measurements in the following narrative are approximate, and all references to direction were oriented from the driver's seat looking forward through the windshield of the vehicle.

Numerous sources of reference material that ranged between the model year 2004 Porsche Carrera GT to the model year 2006 Porsche Carrera GT were used in the preparation of this supplemental report. Vehicle #1 was a limited production automobile, and due to the lack of changes between the model years of this vehicle, all of the reference material utilized was applicable to Vehicle #1.[7]

[7] Source: Pacific Porsche Service Department, Torrance, California, February 5, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Introduction (continued)

Vehicle #1 was located in a fenced and locked facility on the dates of the inspections by MAIT investigators. The dates, locations, and attending personnel at each inspection are noted below:

DATE	LOCATION	PERSONNEL
12-10-2013	Wolf's Towing and Auto Repair	CHP MAIT Investigator T. B[redacted] CHP MAIT Investigator J. H[redacted]
12-13-2013	Wolf's Towing and Auto Repair	CHP MAIT Investigator J. K[redacted] CHP MAIT Investigator T. B[redacted] LASD Traffic Investigator J. M[redacted] LASD Deputy Traffic Investigator A. P[redacted]
01-15-2014	Wolf's Towing and Auto Repair	CHP MAIT Investigator J. K[redacted] CHP MAIT Investigator T. B[redacted] LASD Sergeant R. C[redacted], ID[redacted] LASD Sergeant D. D[redacted] ID[redacted] LASD Traffic Investigator J. M[redacted] LASD Deputy Traffic Investigator A. P[redacted] ID[redacted] Mr. T. R[redacted], Mr. D. S[redacted], and Mr. S. R[redacted] [redacted] Mr. R. K[redacted] L[redacted] [redacted] Mr. J. C[redacted], [redacted], [redacted] C[redacted] [redacted] S[redacted]4 ([redacted]0 Mr. D. R[redacted], [redacted], [redacted] Mr. S. A[redacted] [redacted] ([redacted] Mr. C. S[redacted] S[redacted] [redacted] [redacted] Mr. N. C[redacted] [redacted] [redacted] [redacted] Mr. S. W[redacted] [redacted] [redacted] [redacted]

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Recalls

A search of safety recalls was conducted through the National Highway Traffic Safety Administration (NHTSA) and Pacific Porsche, 2900 Pacific Coast Highway, Torrance, California 90505, (888) 322-4541.

A safety recall is defined as a recall by the manufacturer (or governmental agency) due to an immediate safety hazard with the involved vehicle. A recall is initiated when a motor vehicle or item of motor vehicle equipment (including tires) does not comply with a Federal Motor Vehicle Safety Standard (FMVSS), or when there is a safety related defect in the vehicle or equipment.

A check of the NHTSA Web site <http://www-odi.nhtsa.dot.gov/owners/SearchResults.action> on Tuesday, December 24, 2013, indicated there were no safety recalls for a 2005 Porsche Carrera GT.

The vehicle identification number was checked through Pacific Porsche on Thursday, December 26, 2013. Checking Vehicle #1 by the vehicle identification number confirmed there were no open, or unaddressed, safety recalls for Vehicle #1.

There was one service campaign that related to Vehicle #1; campaign number W735. Campaign number W735 applied to a "Retaining Ring."

Based on information obtained from Pacific Porsche, the "retaining ring" was a spacer ring on the clutch assembly, and was to be installed to alleviate noise. According to Pacific Porsche, this repair was not completed on Vehicle #1. It should be noted that the Porsche service centers are not connected together via the internet, therefore it is unknown if campaign number W735 was repaired at another facility.

A check of the NHTSA Web site <http://www-odi.nhtsa.dot.gov/owners/SearchResults.action> on Tuesday, December 24, 2013, indicated there were no safety recalls for the tires of Vehicle #1.

Based on this information, there were no safety recalls that applied to Vehicle #1, or to the tires mounted on Vehicle #1, at the time of the collision.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Vehicle History

In order to document the history of Vehicle #1, a Vehicle History Report™ was obtained through CARFAX®. Additionally, other sources of information were utilized to obtain information regarding the history of Vehicle #1. The sources were the National Insurance Crime Bureau, and the Pacific Porsche data system, which was accessed by Pacific Porsche personnel on Thursday, December 26, 2013. A total of six owners were located for Vehicle #1.[8]

According to the vehicle identification number, Vehicle #1 was manufactured in Leipzig, Germany, and assembly was completed on Vehicle #1 on December 7, 2004.[9] Vehicle #1 had a shipping date of January 4, 2005.[10] Vehicle #1 was shipped to Dealer Number 255, Desert European Motorcar, Porsche of Rancho Mirage, 71-387 Highway 111, Rancho Mirage, California 92270, (877) 900-0740.[11] Vehicle #1 was subsequently delivered to Beverly Hills Porsche, 10959 Santa Monica Boulevard, Los Angeles, California 90025, (213) 655-5414, on January 18, 2005.[12,13] Vehicle #1 had 25 miles on the odometer at the time of the initial vehicle sale on March 12, 2005.[14,15,16]

Based on the CARFAX® Vehicle History Report™, there was no "total loss," "structural damage," "air bag deployment," accident or damage reported to a Department of Motor Vehicles. The last reported mileage of Vehicle #1 to CARFAX® was 3,333 miles, which was recorded on September 4, 2013, in Los Angeles, California, during an emissions inspection.

[8] CARFAX® Vehicle History Report™.
[9] Pacific Porsche data system. Accessed on December 26, 2013.
[10] National Insurance Crime Bureau.
[11] Pacific Porsche data system. Accessed on December 26, 2013.
[12] National Insurance Crime Bureau.
[13] CARFAX® Vehicle History Report™.
[14] Pacific Porsche data system. Accessed on December 26, 2013.
[15] National Insurance Crime Bureau.
[16] CARFAX® Vehicle History Report™.

Mechanical Inspection

Vehicle #1 (Porsche)

Vehicle History (continued)

The tables on the following pages illustrate the information obtained from CARFAX®, as well as other sources, where applicable.

OWNER	DATE	MILEAGE	SOURCE	COMMENTS
Owner #1	01-18-2005	-	Beverly Hills Porsche	Pre-delivery inspection completed.
	03-12-2005	25 miles	California Department of Motor Vehicles, Malibu, California Pacific Porsche, Torrance, California	Title issued or updated. First owner reported. Titled or registered as a personal vehicle.
	03-25-2005	-	Beverly Hills Porsche	Battery replaced, battery charged.
	09-16-2005	-	Beverly Hills Porsche	Vehicle serviced.
	07-06-2006	-	Beverly Hills Porsche	Oil and filter changed.
	10-31-2006	-	Beverly Hills Porsche	Vehicle serviced.
	03-15-2007	-	Dealer Inventory	Vehicle offered for sale.
Owner #2	08-17-2007	456 miles	California Department of Motor Vehicles, La Cañada Flintridge, California	Odometer reading reported.
	05-05-2008	-	California Department of Motor Vehicles, La Cañada Flintridge, California	Title issued or updated. New owner reported.
Owner #3	01-23-2009	1,510 miles	Texas Motor Vehicle Department, Dallas, Texas Title #[redacted]	Title issued or updated. New owner reported.
	06-10-2010	-	Texas Motor Vehicle Department, Dallas, Texas Title #[redacted]	Registration issued or renewed. Passed safety inspection.
	06-01-2011	-	Texas Motor Vehicle Department, Dallas, Texas Title #[redacted]	Title issued or updated. Registration issued or renewed. Passed safety inspection.
	10-04-2011	-	Dealer inventory	Vehicle offered for sale.
	10-05-2011	1,701 miles	Texas Inspection Station	Passed emissions inspection.
Owner #4	10-07-2011	-	Texas Motor Vehicle Department	Vehicle purchase reported.
	11-07-2011	1,703 miles	Florida Motor Vehicle Department	Vehicle purchase reported.
	11-08-2011	1,772 miles	Porsche of Orlando, Maitland, Florida	Tire condition and pressure checked.
	12-11-2011	2,100 miles	Dealer inventory	Vehicle offered for sale.
	02-07-2012	-	Florida Motor Vehicle Department, Pompano Beach, Florida Title #[redacted]	Title issued or updated. New owner reported. Titled or registered as a personal vehicle. Vehicle color noted as red.
	03-03-2012	-	Indiana Motor Vehicle Department	Vehicle purchase reported.
	03-05-2012	-	Dealer inventory	Vehicle sold.
	03-06-2012	-	Florida Motor Vehicle Department, Pompano Beach, Florida Title #[redacted]	Title issued or updated. Duplicate title issued. Titled or registered as a personal vehicle. Vehicle color noted as red.
	04-06-2012	-	Indiana Motor Vehicle Department, Carmel, Indiana	Registration issued or renewed. Vehicle color noted as red.

Mechanical Inspection

Vehicle #1 (Porsche)

Vehicle History (continued)

OWNER	DATE	MILEAGE	SOURCE	COMMENTS
Owner #5	04-06-2012	-	Indiana Motor Vehicle Department, Carmel, Indiana Title # [redacted]	New title issued or updated. New owner reported.
	07-27-2012	3,055 miles	Byers Imports-Audi Subaru, Columbus, Ohio	Recommended maintenance performed. Battery/charging system checked. Exhaust system checked.
	09-11-2012	3,199 miles	Byers Imports-Audi Subaru, Columbus, Ohio	Engine/powertrain computer module checked. Tire condition and pressure checked.
	09-12-2012	3,211 miles	Ferrari Maserati of Fort Lauderdale, Fort Lauderdale, Florida	Battery replaced. Washed/detailed.
	09-13-2012	-	Ferrari of Long Island, Plainview, New York	Vehicle offered for sale.
	11-07-2012	3,219 miles	Ferrari Maserati of Fort Lauderdale, Fort Lauderdale, Florida	Washed/detailed.
	12-03-2012	-	Dealer inventory	Vehicle offered for sale.
	02-05-2013	3,231 miles	Ferrari Maserati of Fort Lauderdale, Fort Lauderdale, Florida	Vehicle sold.
Owner #6	03-30-2013	3,254 miles	California Department of Motor Vehicles, Valencia, California	Odometer reading reported.
	06-25-2013	3,282 miles	California Inspection Station, Santa Clarita, California	Failed emissions inspection.
	09-04-2013	3,333 miles	California Inspection Station, Santa Clarita, California	Passed emissions inspection.
	09-25-2013	-	California Department of Motor Vehicles, Valencia, California	Title issued or updated. New owner reported. Loan or lien reported. Titled or registered as a lease vehicle.
	11-27-2013	-	California Department of Motor Vehicles, Valencia, California	Title issued or updated. Loan or lien reported. Titled or registered as a lease vehicle.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Repair Records

On Wednesday, February 5, 2014, the following facilities were contacted either telephonically or in person to obtain any available service or repair records for Vehicle #1:

- Beverly Hills Porsche Service Center
  10923 Santa Monica Boulevard
  Los Angeles, California 90025
  Service Department: (888) 711-2748

- Porsche of Orlando
  9590 South Highway 17-92
  Maitland, Florida 32751
  Service Department: (407) 680-0785

- Byers Imports Audi Subaru
  401 North Hamilton Road
  Columbus, Ohio 43213
  Service Department: (888) 739-7771

- Ferrari Maserati of Fort Lauderdale
  5750 North Federal Highway
  Fort Lauderdale, Florida 33308
  Service Department: (954) 889-6580

- Ferrari of Long Island
  65 South Service Road
  Plainview, New York 11803
  Service Department: (516) 882-5472

- Global Motorsports Group
  3210 South Shannon Street
  Santa Ana, California 92704
  Office: (714) 432-1582

The facilities contacted above were listed on the CARFAX® Vehicle History Report™, and does not preclude the possibility that Vehicle #1 was serviced at facilities that did not report to CARFAX®.

Mechanical Inspection

Vehicle #1 (Porsche)

Repair Records (continued)

Based on the service and/or repair records obtained by MAIT investigators, the following table and subsequent information illustrates the service or repair work completed on Vehicle #1. This data may not be inclusive of all of the service or repair work completed on Vehicle #1.

DATE	FACILITY	VEHICLE MILEAGE	SERVICE OR REPAIR WORK COMPLETED	SOURCE
01-10-2005	Beverly Hills Porsche	3 miles	Pre-delivery inspection, fill fuel tank.	Service records
03-29-2005	Beverly Hills Porsche	39 miles	Vehicle towed to dealership; no start condition. Replaced battery.	Service records
09-16-2005	Beverly Hills Porsche	257 miles	Vehicle towed to dealership; no start condition. Service Campaign W536 – headlight ventilation kit. Vehicle detail.	Service records
07-06-2006	Beverly Hills Porsche	366 miles	Oil change. Vehicle detail.	Service records
11-03-2006	Beverly Hills Porsche	427 miles	Replace retainer spring in lower Henn Coupling, front side radiators. Tire compressor hose. Replace front chin spoiler	Service records

- Per electronic mail correspondence from Ferrari of Long Island dated Wednesday, February 5, 2014, Vehicle #1 was not serviced at that facility. Refer to Annex A of this report for the electronic correspondence from Ferrari of Long Island.

- Per telephonic conversation with the service department of Ferrari Maserati of Fort Lauderdale on Wednesday, February 5, 2014, Vehicle #1 was not serviced at that facility.

- As of the date of publication of this MAIT supplemental report, there has been no return correspondence from Porsche of Orlando in Maitland, Florida, or Byers Imports Audi Subaru, in Columbus, Ohio.

- Mr. F[redacted]K[redacted] Vice President of Global Motorsports Group, related the aftermarket exhaust system installed on Vehicle #1 was manufactured by Global Motorsports Group; however, the system was not installed on Vehicle #1 at their facility in Santa Ana, California. No receipts or paperwork regarding the aftermarket exhaust system were forwarded to MAIT investigators as of the date of publication of this MAIT supplemental report.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Damage Description

Figure 2: Vehicle #1 at Wolf's Towing and Auto Repair storage facility. (LASD photograph IMG_0152.JPG)

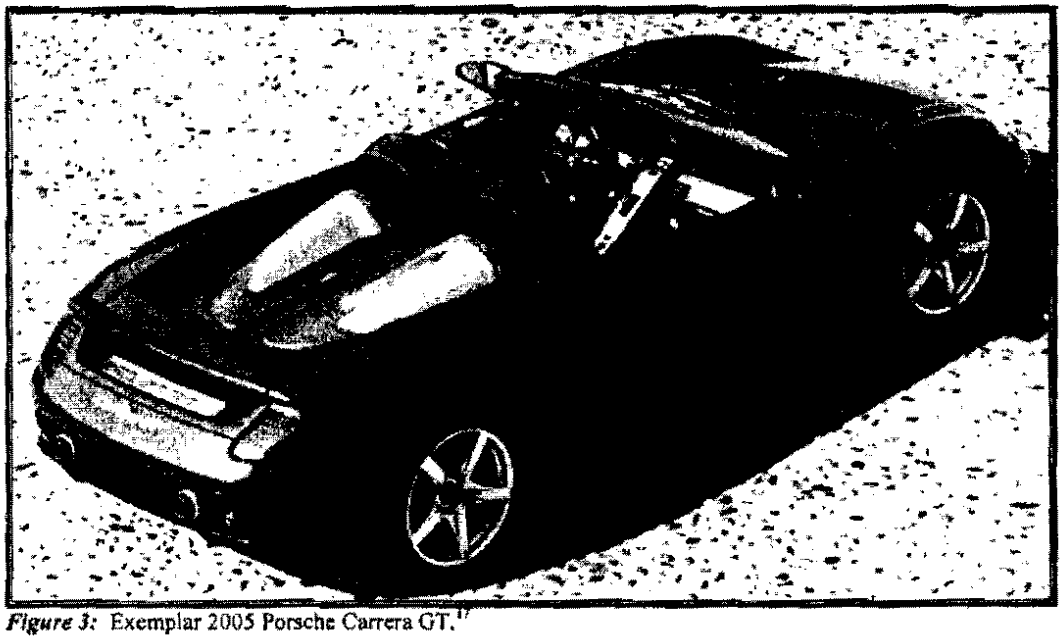


Figure 3: Exemplar 2005 Porsche Carrera GT.[17]

[17] <http://press.porsche.com/archive/products/photos/photos_2005/GT/gt.html>. Accessed on January 16, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Damage Description (continued)

Vehicle #1 sustained major collision and thermal damage as a result of the initial collision, and the subsequent post-collision fire. The fire consumed or damaged the majority of the non-ferrous[18] components of the vehicle.

Vehicle #1 was of monocoque[19,20] construction that consisted of carbon fiber reinforced composite.[21] The majority of the external body panels were composed of carbon fiber reinforced composite, and the front and rear bumper covers were composed of polyurethane.[22] The majority of the vehicle structure, the monocoque, as well as the underlying and associated structures, were damaged in the post-collision fire. As a result, during the recovery process the rear portion of the vehicle separated from the front portion of the vehicle. Only the left front portion of the vehicle was intact and relatively undamaged.

The engine and transmission assemblies were intact; however the exterior components of these assemblies were damaged as a result of the post-collision fire. The interior of the vehicle and the electrical systems were damaged during the initial collision, as well as the post-collision fire.

[18] There are two groups of metals; ferrous and non-ferrous. Ferrous metals contain iron (e.g. carbon steel, stainless steel, and wrought iron). Non-ferrous metals do not contain iron (e.g. aluminum, brass, copper, and titanium).
Source: http://engineershandbook.com/Materials/nonferrous.htm>. Accessed on December 26, 2013.

[19] "Monocoque" vehicle construction is a design of a vehicle's body where a single shell has the engine and suspension attached to it in various places to spread the load evenly over the whole shell. Holes are cut only to install the engine and allow the driver to get into it. Source: <http://www.engineering-dictionary.org/Monocoque>. Accessed on December 31, 2013.

[20] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 0.3.

[21] Ibid., p. 5.11.

[22] Ibid., p. 6.5.

Mechanical Inspection

Vehicle #1 (Porsche)

Damage Description (continued)

The vehicle's two front and left door mounted airbags were consumed in the post-collision fire (circled areas, Figure 4). There was evidence of airbag deployment from the left door that consisted of a separated airbag compartment cover (page 19, Figure 5). The right door panel was not located.

Figure 4: The frontal airbag compartments of Vehicle #1 (circled areas). (LASD photograph IMG_0145.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Damage Description (continued)

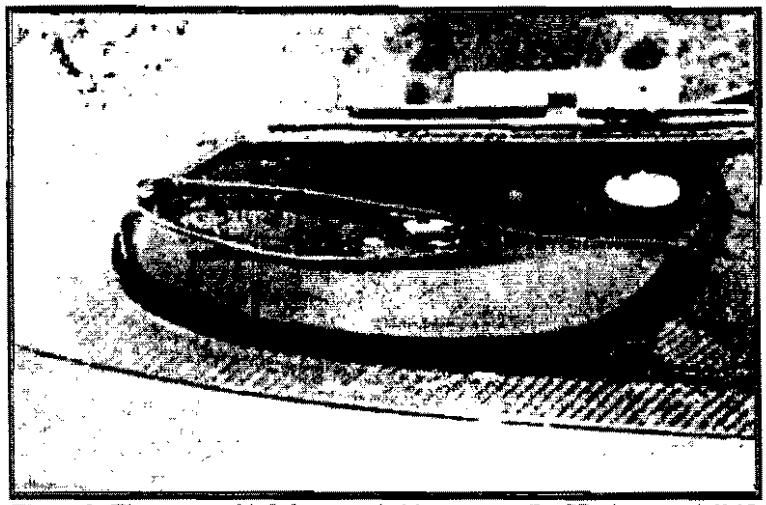


Figure 5: The separated left door panel airbag cover. (LASD photograph IMG_0081.JPG)

The occupant restraint webbing was consumed in the post-collision fire; however, the restraint latch plates were located securely fastened within the driver and passenger buckle assemblies.

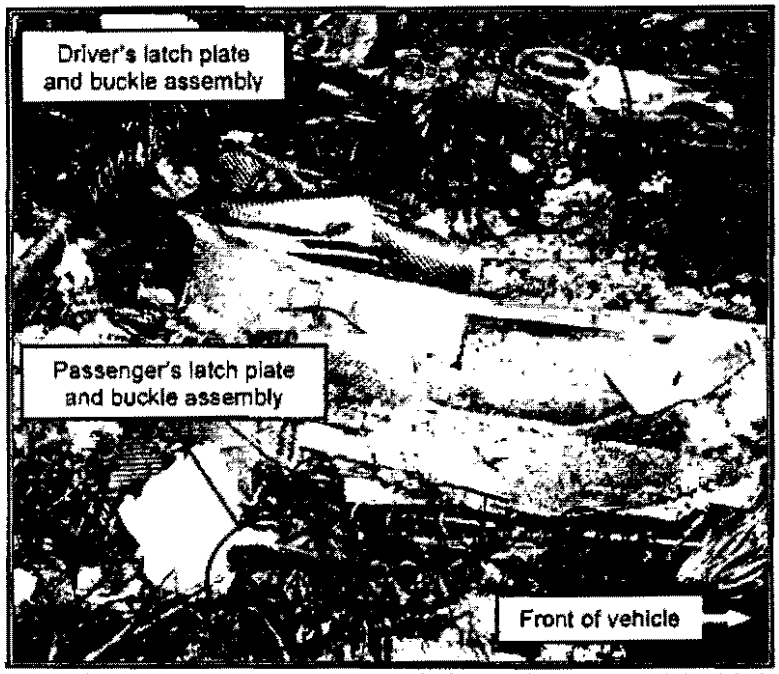


Figure 6: The driver's and passenger's latch plates and buckle assemblies (circled areas). (LASD photograph IMG_0128.JPG)

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Fluid Levels

An examination of the various fluid levels of Vehicle 1 revealed the following:

Coolant Level

The cooling system was comprised of three frontal mounted radiators and associated piping and hoses. All of the radiators were separated from the vehicle during the collision, and sustained varying degrees of damage. The expansion tank was located at the front of the engine compartment and sustained thermal damage. As a result of the damage sustained by the cooling system, the system was void of coolant.

Engine Oil Level

The engine was not equipped with a dipstick. The engine oil level must be checked electronically using the onboard computer.[23] The oil level of Vehicle #1 could not be determined without engine disassembly.

Power Steering System Fluid Level

The remotely mounted power steering fluid reservoir and the power steering fluid hoses were consumed in the post-collision fire. As a result, the fluid level in the power steering system was unknown.

Brake System Hydraulic Fluid Level

The fluid reservoir was correctly mounted in the center of the front compartment. The twist-on cap was tight, and the fluid level sensor wires were connected. The reservoir was filled to below the "min" mark embossed on the brake fluid reservoir.

[23] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 119.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Powertrain and Exhaust

Vehicle #1 was outfitted with a mid-engine, rear wheel drive powertrain configuration, with the powertrain located to the rear of the passenger compartment, within a two-piece unit carrier composed of carbon fiber reinforced composite.

Vehicle #1 was equipped with an electronically controlled, 5.7 liter, sequentially timed, multi-port fuel injected, gasoline powered, longitudinally mounted, 605 horsepower, V-10 engine. The engine was connected to a G80, manually shifted, six speed transmission. The engine and transmission were mounted to the chassis via three engine and transmission mounts. Engine power was routed to the rear wheels via equal length drive shafts splined to the rear hubs of the vehicle. The transmission gear selector lever was mounted in a console located to the right of the driver. The exhaust system consisted of stainless steel, equal length tubing exhaust manifolds, four three-way catalytic converters, four exhaust gas oxygen sensors, a stainless steel muffler box equipped with dual exhaust outlets, and associated heat shields. The exhaust system originated at the left and right sides of the engine, traveled over the left and right sides of the transaxle, and was collected at the rear of the vehicle behind the engine. The dual exhaust outlets exited at the rear of the vehicle.

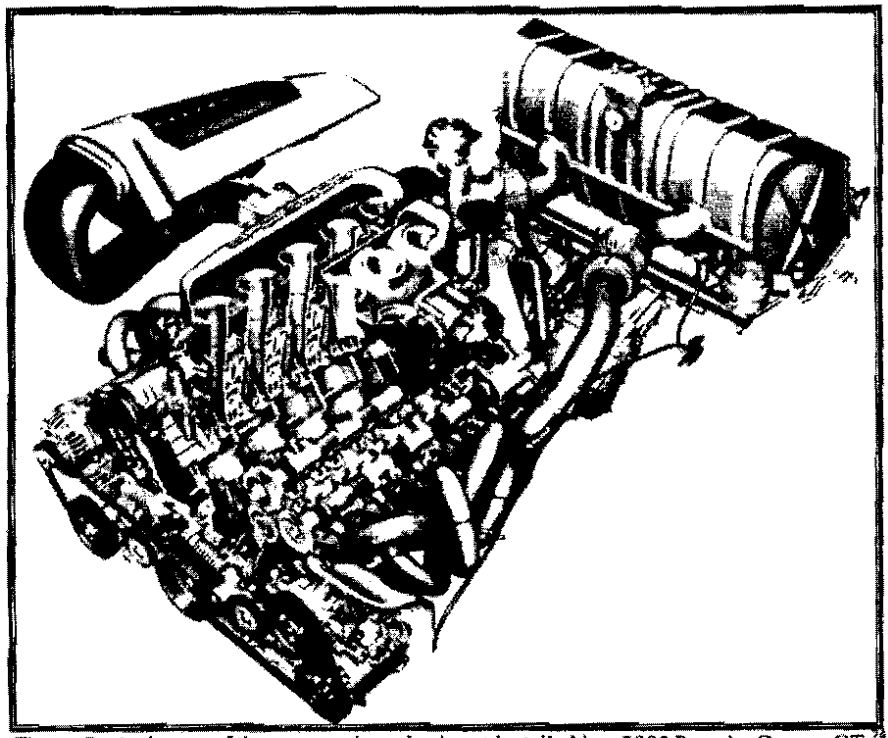


Figure 7: An image of the powertrain and exhaust installed in a 2005 Porsche Carrera GT.[24]

[24] <http://press.porsche.com/archive/products/photos/photos_2005/GT/gt.html>. Accessed on January 16, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Powertrain and Exhaust (continued)

An inspection revealed the engine, transmission, and driveshaft assemblies were located in their original positions within the chassis. The externally mounted components of the engine and transmission assemblies sustained varying degrees of thermal damage. The dual air intake distributors were detached from the engine and sustained thermal damage. There were two multi-groove serpentine drive belts that drove the alternator, the air conditioning compressor, the water pump, and the power steering pump. The drive belts were partially consumed in the post-collision fire, and were no longer properly attached to the belt driven components. The pre-collision belt tension could not be determined. All of the three frontal mounted radiators were displaced from the vehicle. Each radiator exhibited damage to their cores that were consistent with contact with each radiator's electric cooling fan.

The drive axles remained securely fastened to the transmission and were splined to the rear hubs. The drive axle bellows about the inner and outer joints were missing.

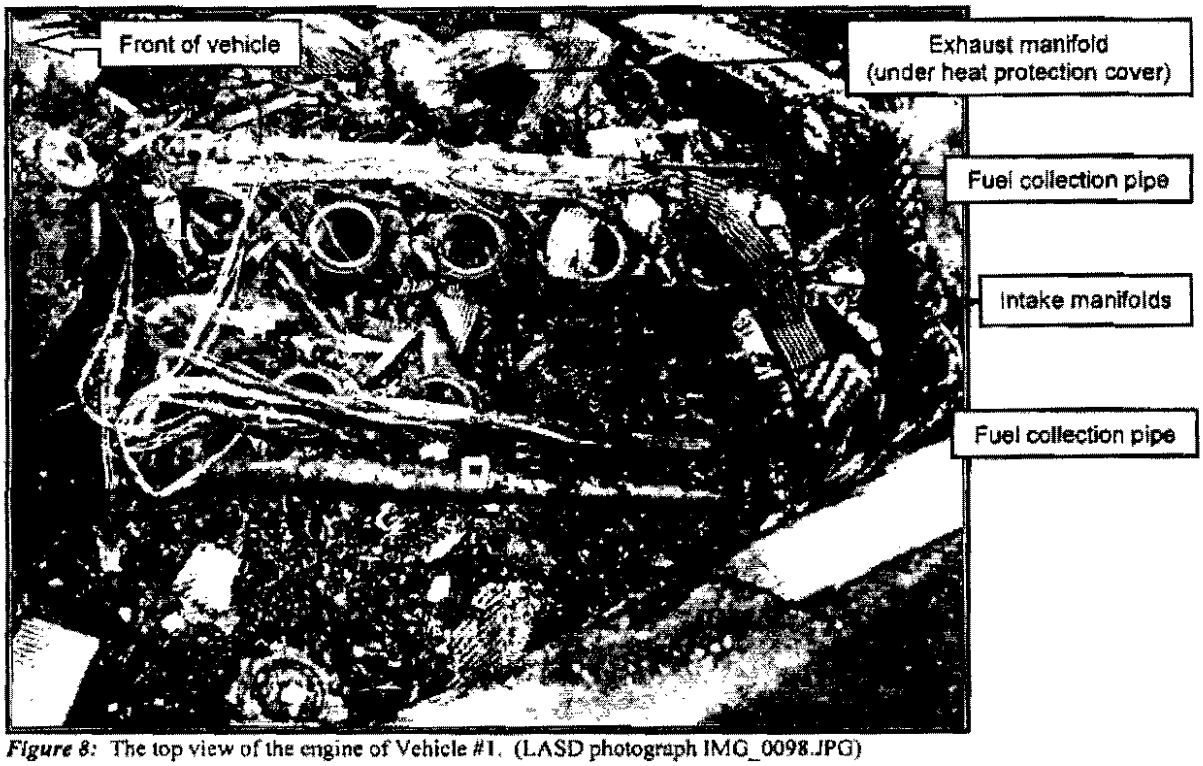


Figure 8: The top view of the engine of Vehicle #1. (LASD photograph IMG_0098.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Powertrain and Exhaust (continued)

Examination of the exhaust system revealed that it was an aftermarket unit. The aftermarket exhaust system remained intact; however, the right side of the exhaust tubing was slightly bent upward. The exhaust outlets were separated from the tubing. The exhaust system of Vehicle #1 is shown below, along with an image of an exemplar muffler box that is typically installed in a 2005 Porsche Carrera GT:

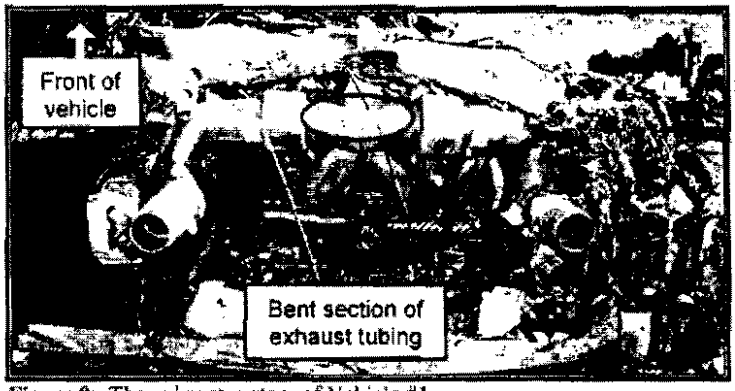


Figure 9: The exhaust system of Vehicle #1. (LASD photograph IMG_0352.JPG)

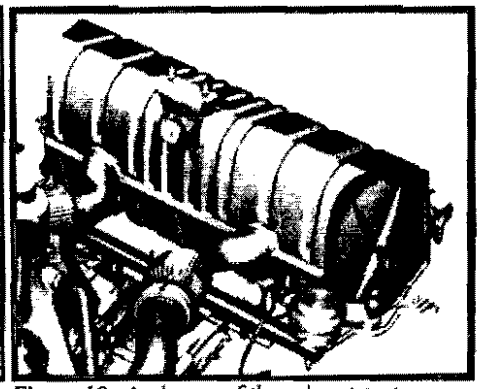


Figure 10: An image of the exhaust system typically installed in a 2005 Porsche Carrera GT.[25]

The aftermarket exhaust system was manufactured by:

Global Motorsports Group
32210 South Shannon Street
Santa Ana, California 92704
(714) 432-1582

A metal tab (Figure 9, circled area) was welded on the exhaust system tubing, and was stamped with the following information:

www.gmgracing.com
Part #GMG WC-GT
Production Date: 5 22 12
Serial #384

[25] <http://press.porsche.com/archive/products/photos/photos_2005/GT/gt.html>. Accessed on January 16, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Powertrain and Exhaust (continued)

The electronic engine management system of Vehicle #1 utilized two Bosch ME 7.1.1 control units. The control units were mounted under the seats of the vehicle. Prior to the vehicle inspection by MAIT investigators, LASD investigators removed the control units from the vehicle for evaluation by Porsche.

On Tuesday, January 14, 2014, the control units were examined by Porsche engineers in the presence of LASD personnel, counsel representing Porsche A.G., and the Rodas Estate. MAIT investigators were not present for the examination.

The data obtained from the control units was translated by Porsche engineers. The translated data and the findings of the examination were forwarded to MAIT investigators on Monday, February 3, 2014 by LASD personnel, along with a cover letter from Mr. C[redacted] S[redacted], counsel representing Porsche, dated January 31, 2014. The findings of the data imaging of the control units of Vehicle #1 are summarized below:

- No communication with the master control unit was possible; therefore no data could be obtained.
- Communication was possible with the slave control unit, and the software programmed in the control unit was the original software programmed from the factory. It had not been reprogrammed or reflashed.
- There was no other useful data obtained from the slave control unit.
- There was no collision related data in the slave control unit.

The translated imaged data from the control units of Vehicle #1, along with the cover letter by Mr. S[redacted], are contained in Annex B of this report.

Mechanical Inspection

Vehicle #1 (Porsche)

Powertrain and Exhaust (continued)

Findings

Inspection of the powertrain and exhaust indicated the following collision related damage:

- The externally mounted components of the engine and transaxle assemblies sustained varying degrees of thermal damage. The drive axle bellows were missing as a result of the post-collision fire.
- All of the components installed on the front of the engine sustained thermal damage.
- All of the radiators and the coolant hoses and piping were disfigured, sustained thermal damage, or were separated from the vehicle.

The visual inspection of the powertrain and exhaust indicated they were intact and functional prior to the collision. The following preexisting conditions were noted:

- The original exhaust system muffler box, and the associated tubing, was replaced with an aftermarket unit manufactured by Global Motorsports Group, in Santa Ana, California.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Throttle and Fuel System

Vehicle #1 utilized a multipoint, electronically controlled and sequentially timed, mass air flow type, returnless fuel injection and air intake system. The fuel and air intake systems were incorporated into the electronic engine control system to control and monitor fuel and air delivery during engine operation. Air volume entering the engine was determined by dual "hot film" type mass air flow meters plumbed into the air intake system.

Air induction into the engine was facilitated by dual air intakes formed into the sides of the vehicle; one in front of each of the rear wheels. The intake air passed through water separators, through paper element air filters, and through the "hot film" mass air flow meters. Intake air then passed through electronically controlled throttle bodies fastened to the intake manifolds; one for each bank of cylinders. Each throttle body was outfitted with a single throttle blade, a throttle valve motor, and throttle position sensors. Each throttle blade was electronically controlled by the on-board computer system. The Bosch ME 7.1.1 control units were the control centers for the fuel injection and air induction systems.

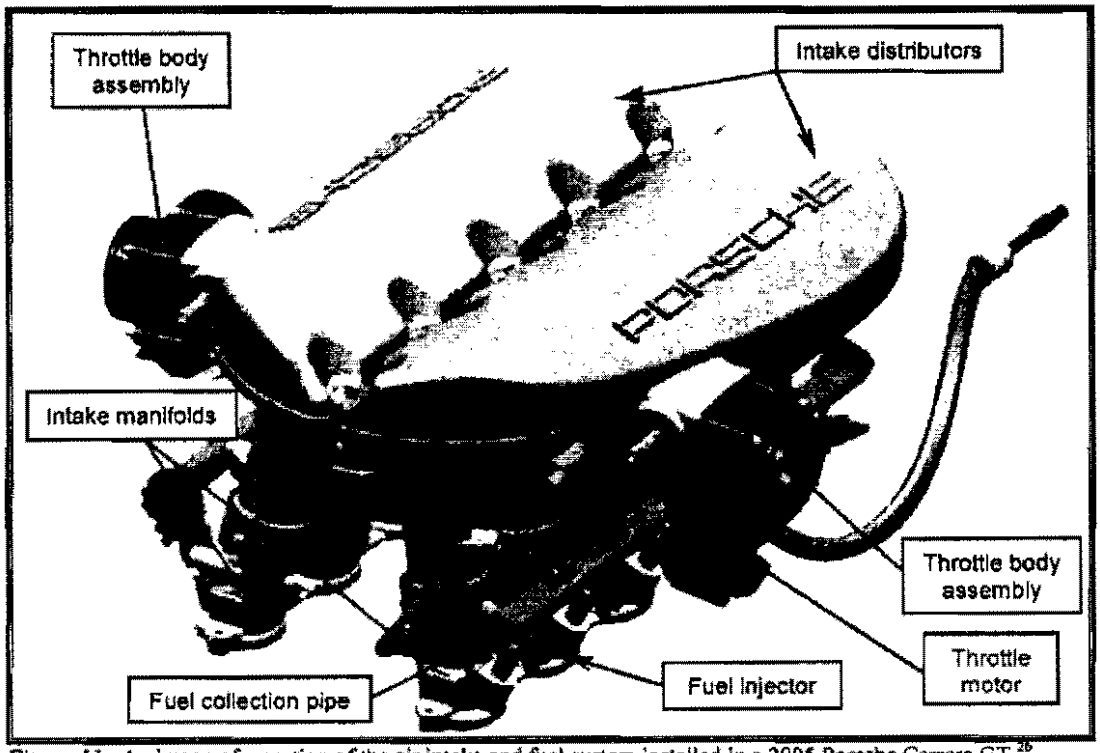


Figure 11: An image of a portion of the air intake and fuel system installed in a 2005 Porsche Carrera GT.[26] The air cleaner assemblies are not shown.

[26] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 2.16.

Mechanical Inspection

Vehicle #1 (Porsche)

Throttle and Fuel System (continued)

The fuel supply system consisted of a 24.3 gallon, vertically mounted, aluminum fuel tank mounted between the monocoque and the front of the powertrain. The fuel system also consisted of dual in-tank high pressure fuel pumps, an in-tank fuel filter, an in-tank mounted fuel pressure regulator, fuel collection pipes, ten fuel injectors, and fuel delivery lines and hoses.

The air intake ducting, the air cleaner assemblies, and portions of the intake distributors were consumed in the post-collision fire. Both intake distributors were found separated from the engine. Only portions of the left and right intake manifolds remained, which remained attached to the engine. The right throttle body was not located. The left throttle body remained attached to the intake distributor. The left throttle body was burned and the throttle blade was found in the closed position. The throttle motor was partially consumed, and movement of the throttle blade was not possible as it was stuck within the throttle bore. All of the wire harnesses within the engine compartment were damaged. All of the rubber sleeves that connected the intake distributors to the intake manifolds sustained thermal damage, and the majority of the sleeves were missing.

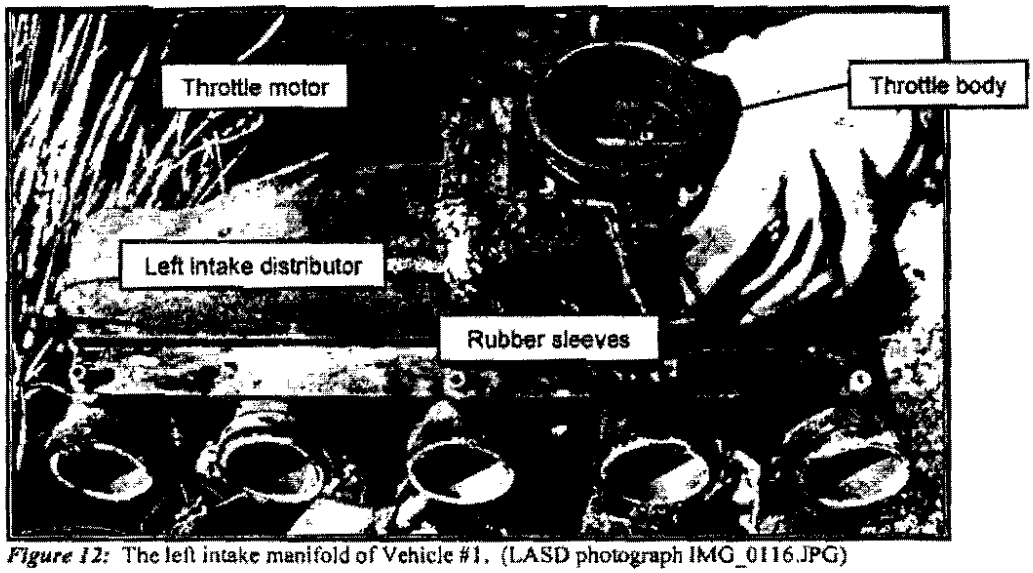


Figure 12: The left intake manifold of Vehicle #1. (LASD photograph IMG_0116.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Throttle and Fuel System (continued)

The area in the vicinity of the accelerator pedal was inspected. The floor and the area surrounding the accelerator pedal were damaged from the post-collision fire. The accelerator pedal was capable of being moved, but its movement was restricted and rough. The majority of the electrical components associated with the accelerator pedal were consumed in the post-collision fire.

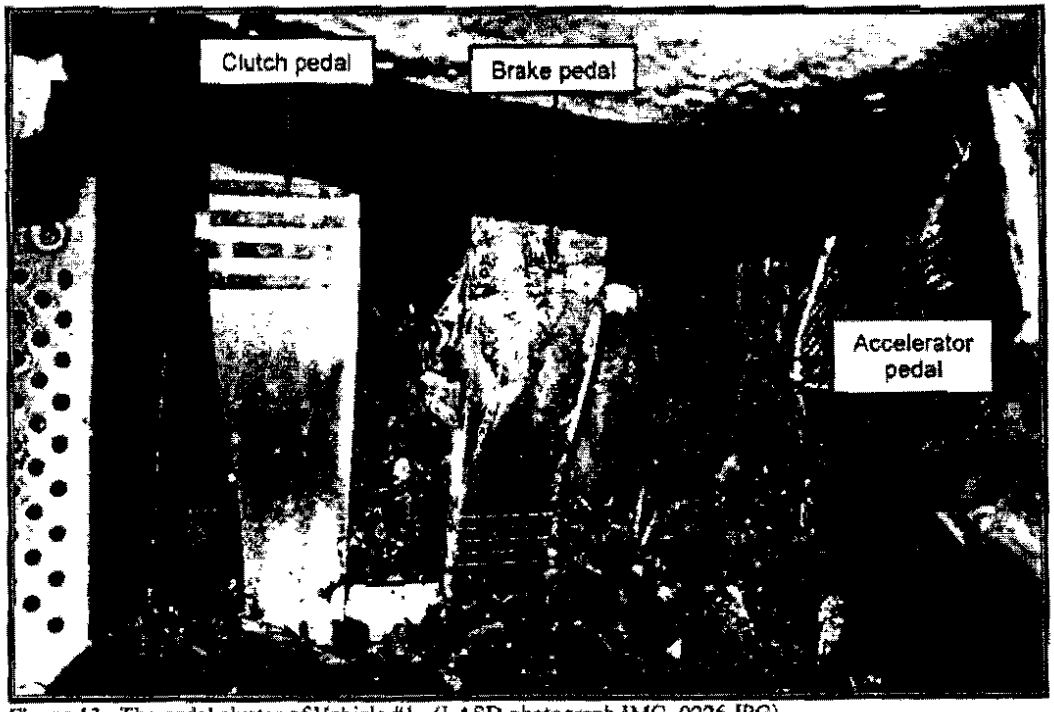


Figure 13: The pedal cluster of Vehicle #1. (LASD photograph IMG_0226.JPG)

Vehicle #1 was not originally equipped with floor mats, nor was there any evidence of the existence of aftermarket floor mats in Vehicle #1.

Mechanical Inspection

Vehicle #1 (Porsche)

Throttle and Fuel System (continued)

All of the fuel lines, hoses, the fuel injection wire harnesses, and the fuel injectors sustained varying degrees of thermal damage. The fuel collection piping was intact and remained attached to the intake manifolds, but the piping was discolored. The fuel supply hoses from the fuel tank to the fuel collection piping were missing.

The fuel tank was found separated from the vehicle at the tow facility. The fuel tank was misshapen, and the upper portion of the tank sustained thermal damage exposing the internal components.

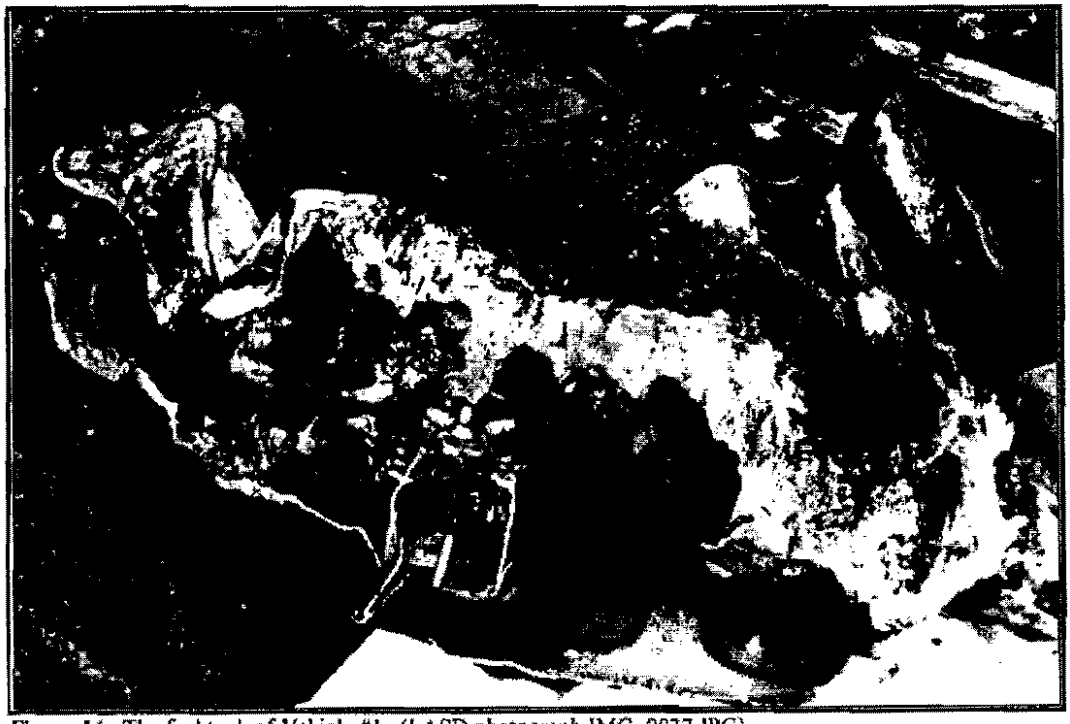


Figure 14: The fuel tank of Vehicle #1. (LASD photograph IMG_0037.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Throttle and Fuel System (continued)

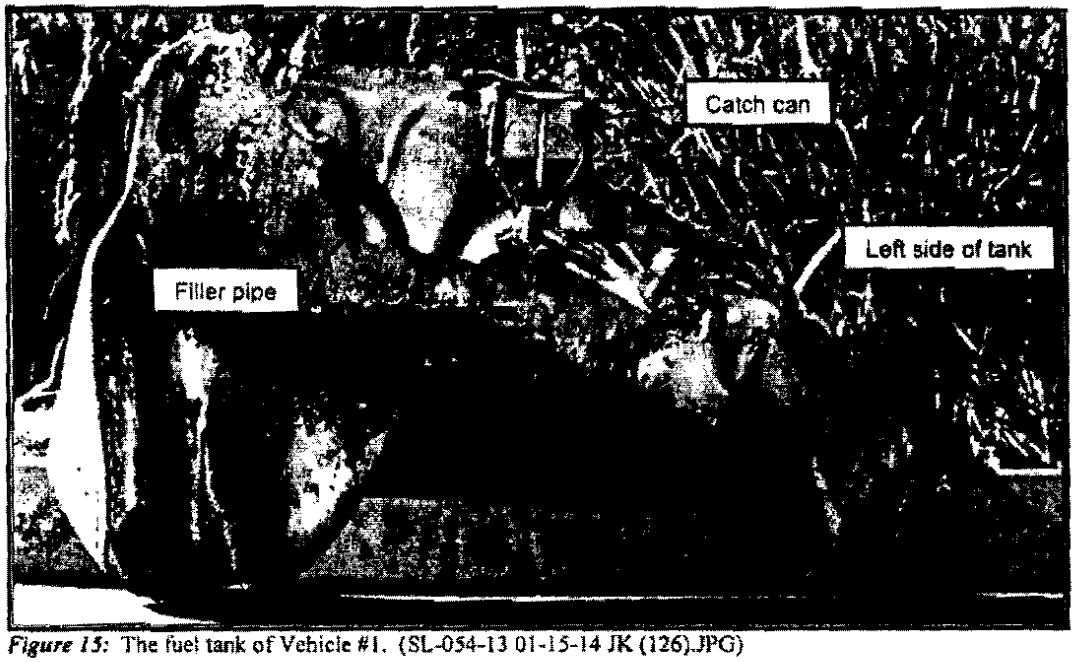


Figure 15: The fuel tank of Vehicle #1. (SL-054-13 01-15-14 JK (126).JPG)

Findings

Inspection of the throttle and fuel system indicated the following collision related damage:

- The fuel tank was disfigured from collision damage and sustained thermal damage from the post-collision fire.
- The majority of the throttle and fuel system components sustained thermal damage from the post-collision fire.
- Movement of the accelerator pedal was restricted and its range of motion was limited due to thermal damage to the area surrounding the pedal.

The visual inspection of the throttle and fuel system indicated they were intact and functional prior to the collision. All of the damage noted to the throttle and fuel system was the result of the collision. No preexisting conditions were found. No functional testing could be conducted due to collision and thermal damage.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Electrical System

Vehicle #1 was equipped with a 12 volt, negative ground electrical system.

The charging system was comprised of a belt driven 150 amp alternator with an internal voltage regulator, and the associated wiring. The starting system was comprised of a 12 volt starter motor, associated wiring, and the instrument panel mounted ignition switch. A 12 volt, 80 Ah, maintenance free battery was designed to be located at the right rear side of the vehicle beneath the transaxle oil cooler. The electrical system also contained underdash and underhood fuse and relay panels.

The battery was not located. The alternator was in place, but the multi-groove drive belt sustained thermal damage. The belt tension could not be determined as a result. The headlamp switch was mounted to the left side of the instrument panel. The panel was dislodged and sustained thermal damage. The position of the headlamp switch was not determined.

The underdash fuse and relay panel, as well as the underhood fuse and relay panel, sustained thermal damage. The majority of the vehicle's wire harnesses were damaged as a result of the post-collision fire.

Findings

Inspection of the electrical system indicated the following collision related damage:

- The majority of the electrical system of Vehicle #1 sustained damage as a result of the post-collision fire. This damage included the battery, the wire harnesses, the instrument panel, and the passenger compartment and engine compartment mounted fuse and relay panels.

The visual inspection of the electrical system indicated it was intact and functional prior to the collision. All of the damage noted to the electrical system was the result of the collision. Due to the damage sustained by the vehicle, post-collision testing to determine system functionality was not possible. No preexisting conditions were found.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Steering

Vehicle #1 was equipped with a power assisted rack and pinion type steering system. The steering consisted of a 14.7 inch steering wheel, adjustable steering column, multi-link steering column shaft, a rack and pinion steering gear, non-adjustable inner joints and adjustable track rods. The steering wheel was connected to the top of the steering column shaft. The steering wheel was equipped with an airbag unit. The multi-link steering column shaft extended through the monocoque to the input shaft of the rack and pinion steering gear. The rack and pinion was securely attached to the front wall of the monocoque. The inner joints were threaded to the ends of the rack and pinion, and extended outward to the track rods, which were attached to the front upper portion of the wheel carriers.

The steering system was augmented with a belt driven, engine mounted vane-type, power steering pump with a remotely mounted expansion tank. Hydraulic fluid was routed from the pump through high pressure hoses and piping under the floor of the vehicle to the rack and pinion steering gear. Low pressure hoses and piping were routed from the rack and pinion steering gear, under the floor of the vehicle, and returned to the expansion tank.

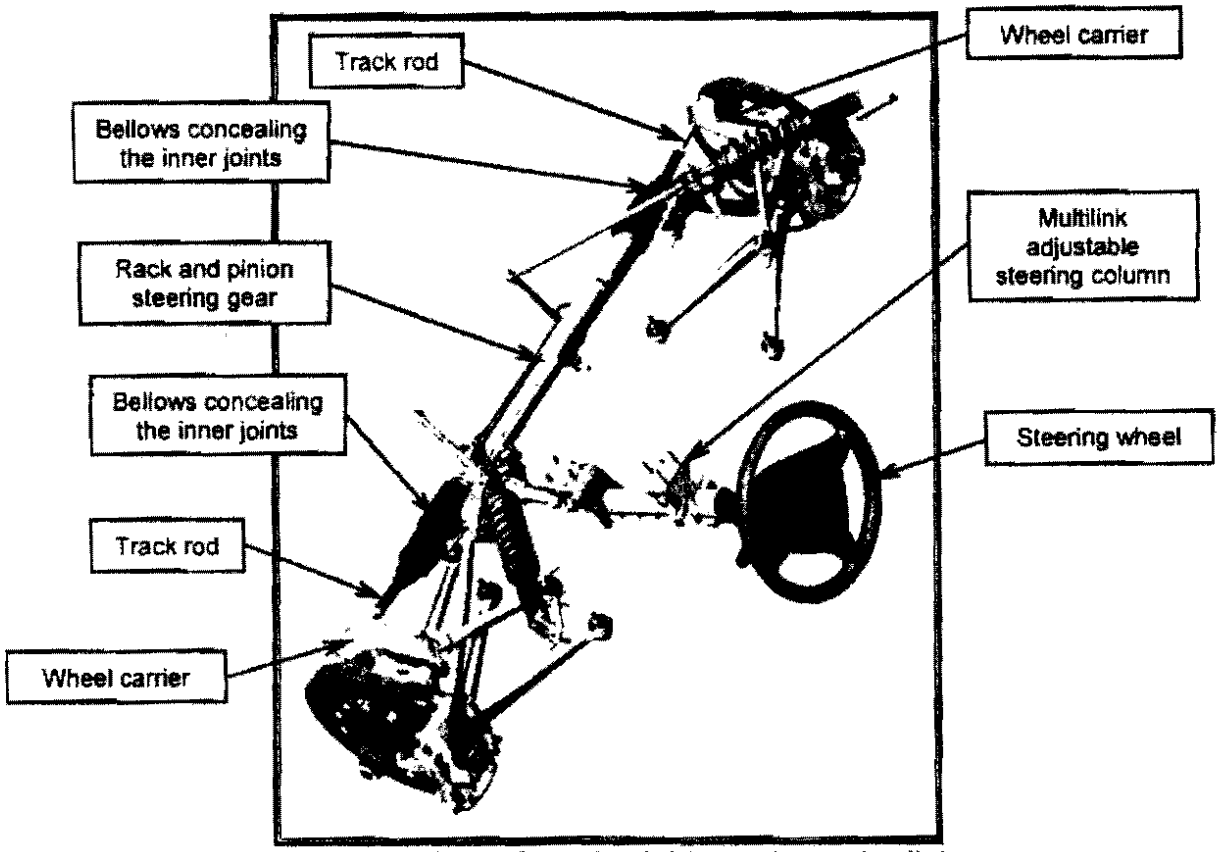


Figure 16: An image of the rack and pinion steering gear installed in a 2005 Porsche Carrera GT.[27] Monocoque is not shown.

[27] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.4.

Mechanical Inspection

Vehicle #1 (Porsche)

Steering (continued)

The power steering pump sustained thermal damage and was not securely mounted to the engine. The drive belt was no longer attached to the driven pulley, and also sustained thermal damage. The remote expansion tank was not located. The pressure and return hoses sustained both collision and thermal damage. As a result of collision and thermal damage, functional testing of the power assist system was not possible.

All of the steering linkage was properly connected but sustained varying degrees of thermal damage. The rack and pinion steering gear remained attached to the monocoque; however, the right side bellows were missing. Lateral movement was observed within the right inner joint. The right outer joint remained tight, with no lateral or vertical movement noted. The left side of the steering system was relatively undamaged.

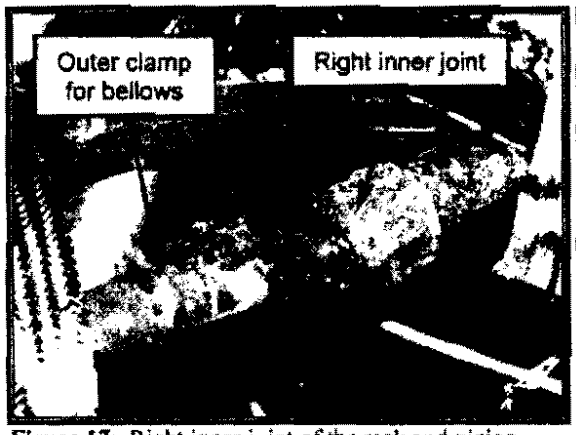


Figure 17: Right inner joint of the rack and pinion steering gear of Vehicle #1. (LASD photograph IMG_0132.JPG)

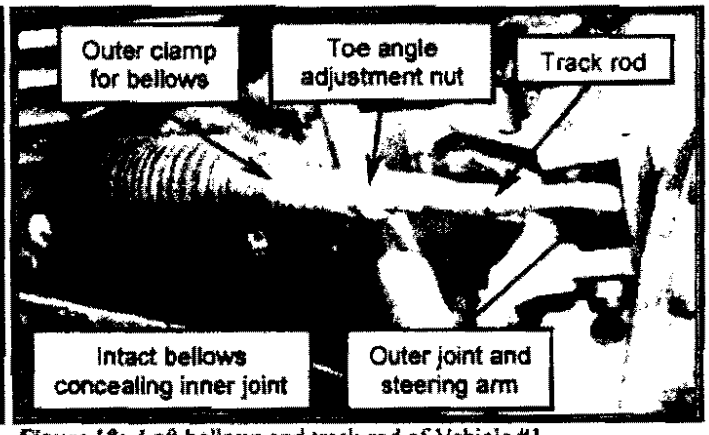


Figure 18: Left bellows and track rod of Vehicle #1. (LASD photograph IMG_0222.JPG)

The steering column remained attached to the monocoque but sustained thermal damage. The steering wheel mounted airbag was deployed, but was missing as a result of the post-collision fire. Rotational movement of the steering wheel was unrestricted, and rotation of the steering wheel resulted in smooth, unrestricted lateral movement of the wheel carriers from the left and right steering stops.

Mechanical Inspection

Vehicle #1 (Porsche)

Steering (continued)

Findings

Inspection of the steering system indicated the following collision related damage:

- The majority of the steering system of Vehicle #1 sustained damage as a result of the collision, as well as the post-collision fire. This damage included mechanical damage to the under-vehicle pressure and return hoses and piping, thermal damage to the power steering pump, the drive belt, and the expansion tank.
- The right side of the steering system sustained thermal damage that included the consumed the bellows and caused looseness in the right inner joint.
- The steering wheel and column external coverings, and the steering wheel mounted airbag were consumed in the post-collision fire.

The visual and functional inspection of the steering system indicated it was intact and functional prior to the collision. All of the damage noted to the steering system was the result of the collision, and the post-collision fire. No preexisting conditions were found.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Suspension

Front

The front suspension operated on the "pushrod" principal,[28] which meant that suspension and spring movement were not transmitted directly to the spring struts, but individually via a pushrod and rocker arm.

The front suspension consisted of upper and lower control arms, steering arms, wheel carriers, pushrod operated, gas charged spring struts with attached, adjustable tension coil springs, and a stabilizer with associated adjustable connecting rods. Each front suspension assembly consisted of upper and lower arms which were attached to the monocoque, and extended outward to the top and bottom of the wheel carriers via uniball joints. A pushrod was attached to the outer portion of the lower control arm, and was connected to a rocker arm fastened to the monocoque. The spring struts were indirectly actuated via the pushrods and rocker arms from the movement of the control arms and the wheel carriers.

The stabilizer was mounted to the splashboard of the monocoque. The ends of the stabilizer were fastened to connecting rods, which were in turn fastened to each of the rocker arms.

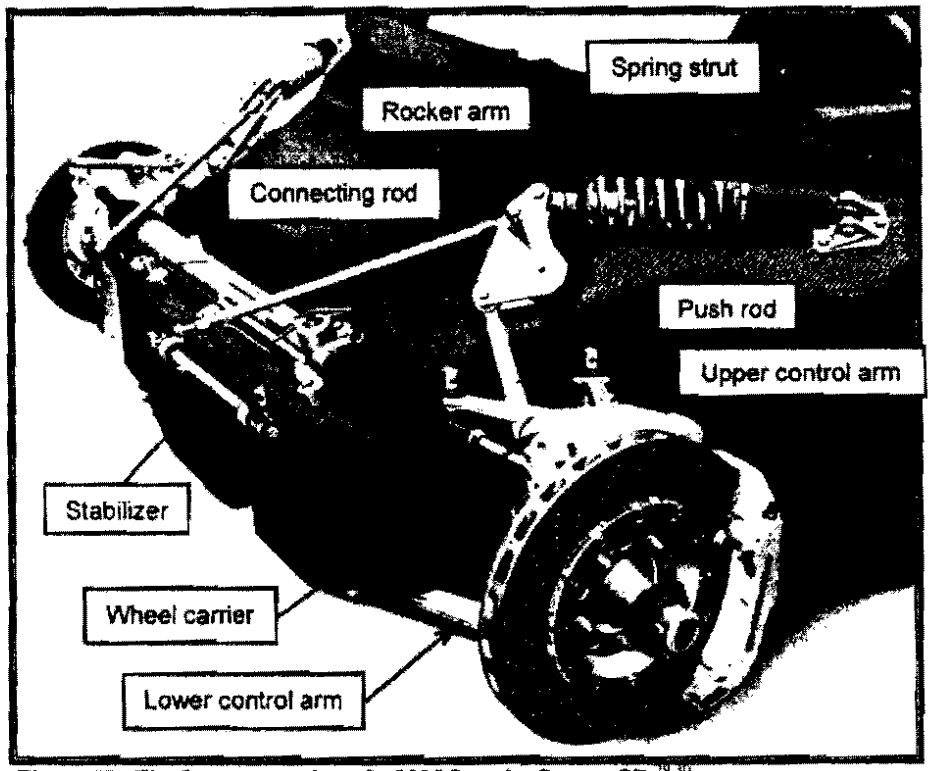


Figure 19: The front suspension of a 2005 Porsche Carrera GT.[29,30]

[28] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.2.
[29] <http://press.porsche.com/archive/products/photos/photos_2005/GT/gt.html>. Accessed on January 16, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Suspension

Front (continued)

The left front suspension assembly was undamaged. The right front suspension was collapsed as a result of damage to the monocoque. The right lower control arm was undamaged and remained attached to the chassis. The remainder of the right front suspension was intact but sustained thermal damage.

Figure 20: The left upper control arm, pushrod, and wheel carrier of Vehicle #1. (LASD photograph IMG_0191.JPG)

Figure 21: The right front suspension of Vehicle #1. (LASD photograph IMG_0272.JPG)

[30] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.8.

Mechanical Inspection

Vehicle #1 (Porsche)

Suspension (continued)

Rear

The rear suspension operated in a similar manner as the front suspension. The rear suspension operated on the "pushrod" principal, which meant that suspension and spring movement were not transmitted directly to the spring struts, but individually via a pushrod and rocker arm.

The rear suspension consisted of upper and lower control arms, steering arms, wheel carriers, track rods, pushrod operated, gas charged spring struts with attached, adjustable tension coil springs, and a stabilizer with associated adjustable connecting rods.

Each rear suspension assembly consisted of upper and lower arms, which were attached to the monocoque, and extended outward to the top and bottom of the wheel carriers via uniball joints. A pushrod was attached to the wheel carrier via a steering arm, and was connected to a rocker arm fastened to the monocoque. The spring struts were indirectly actuated via the pushrods and rocker arms from the movement of the control arms and the wheel carriers.

The stabilizer was mounted to the monocoque via two rubber mounts. The ends of the stabilizer were fastened to adjustable length connecting rods, which were in turn fastened to each of the rocker arms.

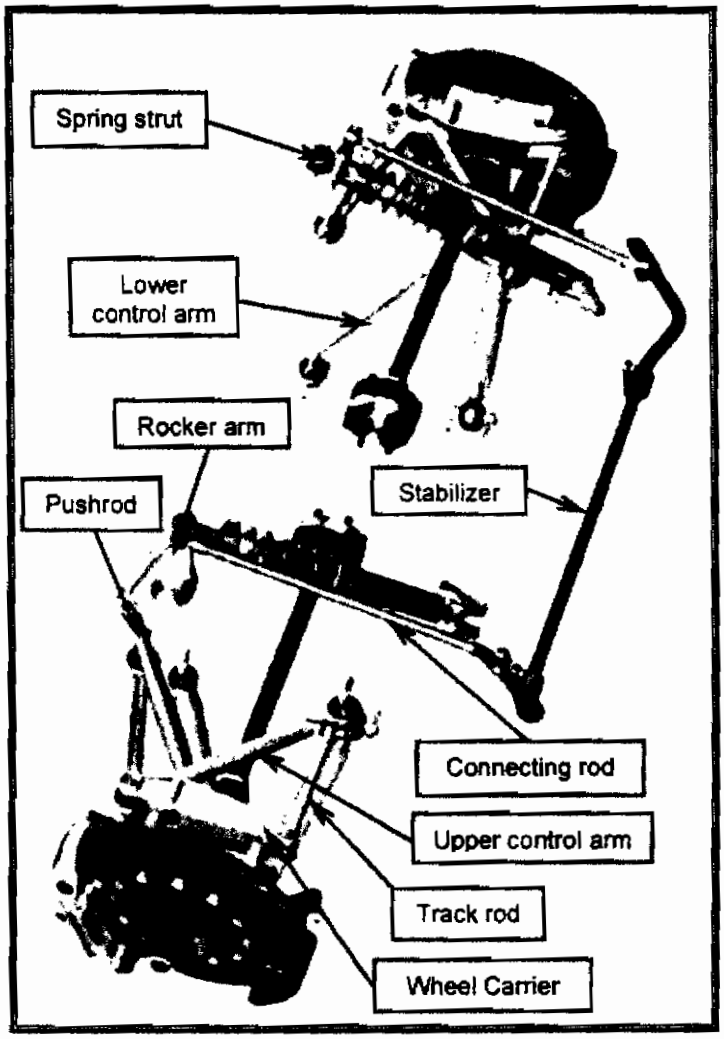


Figure 22: The rear suspension of a 2005 Porsche Carrera GT.[31]

[31] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.12.

Mechanical Inspection

Vehicle #1 (Porsche)

Suspension

Rear (continued)

The rear stabilizer, in contrast to the front stabilizer, was adjustable for firmness of response in three stages (Figure 23, circled area). When the Carrera GT is delivered, it is set to the firmest ride, which tends to oversteer in a sporty dynamic style of driving. The two other settings change the driving dynamics successively towards understeer.[32]

The connecting rods of the rear stabilizer of Vehicle #1 were set in the center of three settings (Figure 24, circled area).

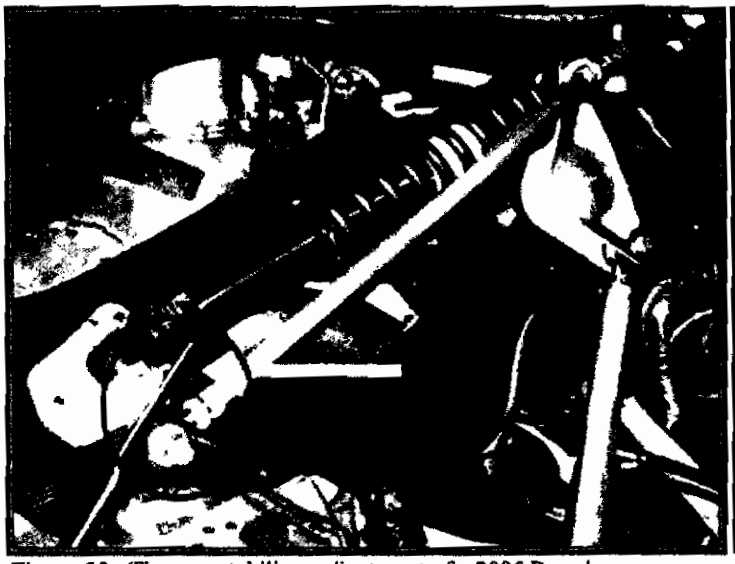


Figure 23: The rear stabilizer adjustment of a 2005 Porsche Carrera GT.[33]

Figure 24: The rear stabilizer adjustment of Vehicle #1.
(LASD photograph IMG_0352.JPG)

[32] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.16.
[33] Ibid.

Mechanical Inspection

Vehicle #1 (Porsche)

Suspension

Rear (continued)

The left rear suspension assembly was collapsed as a result of damage to the chassis. The upper and lower arms were intact. The track rod was misshapen and broken (Figure 25 – circled area). The pushrod remained fastened to the rocker arm, which remained mounted to the chassis. The lower arm was undamaged and remained fastened to the chassis and wheel carrier. The spring strut was broken and the coil spring was separated from the spring strut (Figure 26 – arrows). The connecting rod was broken at the rocker arm (Figure 26 – circled area).

Figure 25: The left rear suspension of Vehicle #1. (LASD photograph IMG_0407.JPG)

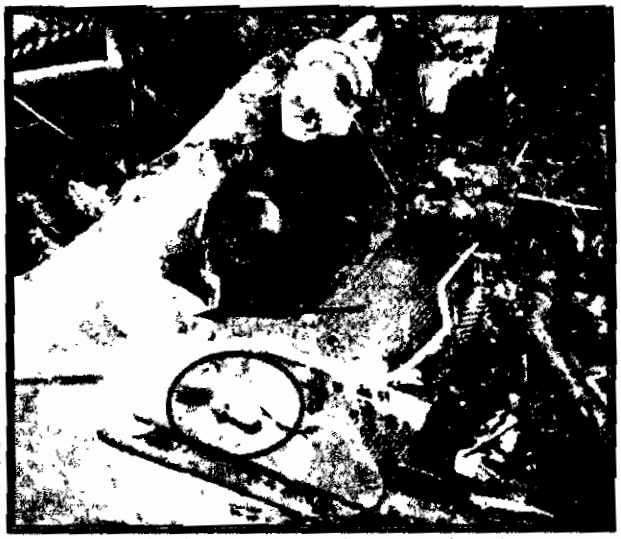


Figure 26: The damaged left spring strut of Vehicle #1. (LASD photograph IMG_0419.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Suspension

Rear (continued)

The forward portion of the right upper arm was broken (Figure 27 – circled area). The dust seal on the upper arm uniball joint sustained thermal damage. The track rod was broken (Figure 27 – arrow). The pushrod was separated from the rocker arm (Figure 28 – circled area). The lower control was undamaged and remained attached to the chassis. The rocker arm and the spring strut were located in the damaged chassis debris (Figure 28 – arrow). Neither component was located in its original mounting position.

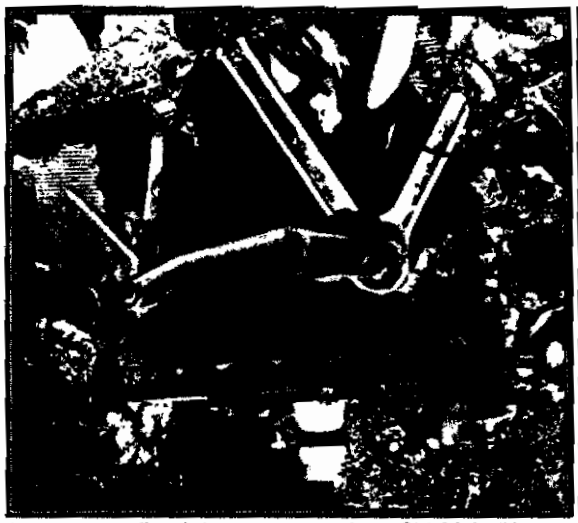


Figure 27: The right rear suspension of Vehicle #1. (LASD photograph IMG_0364.JPG)

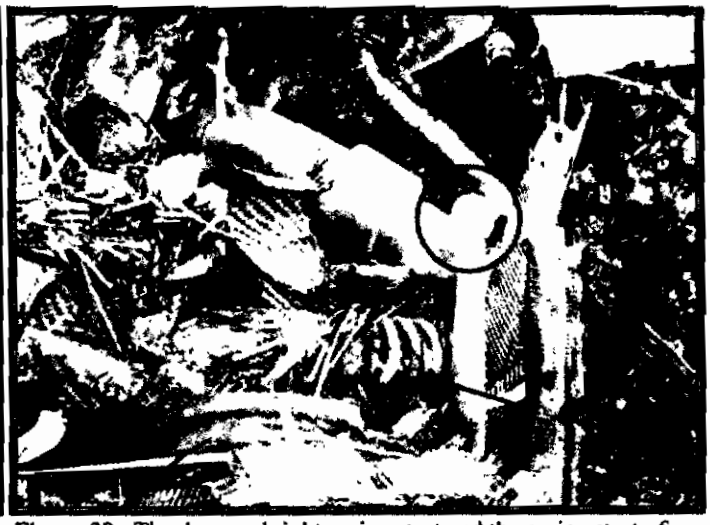


Figure 28: The damaged right spring strut and the spring strut of Vehicle #1. (LASD photograph IMG_0104.JPG)

Findings

Inspection of the front and rear suspension indicated they were intact and functional prior to the collision. All of the damage noted to the front and rear suspension was the result of the collision, and the post-collision fire. No preexisting conditions were found.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Brake System

Overview

The brake system of Vehicle #1 consisted of a hydraulic, power assisted, front and rear split, dual circuit,[34] front and rear disc brake system. The brake system was equipped with an alloy, single-bore, dual piston master cylinder. The master cylinder utilized a remotely mounted plastic fluid reservoir that incorporated a fluid level sensor and a single twist-on cap. The master cylinder was aligned with, and placed in front of the brake pedal. The fluid reservoir was located in front of the steering rack on the front of the monocoque and was accessible via a cover in the trunk. The specified brake fluid for Vehicle #1 was "Super DOT 4."[35]

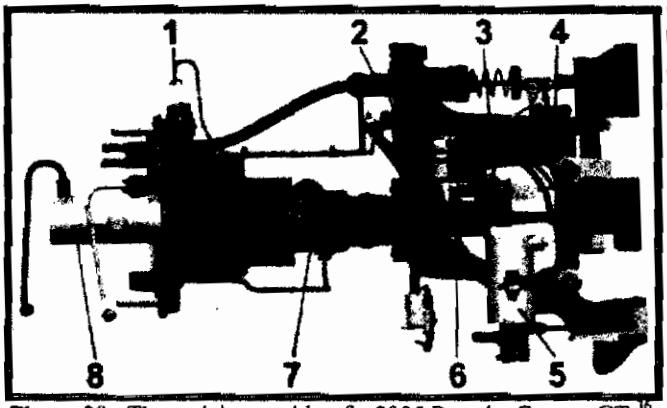


Figure 29: The pedal assembly of a 2005 Porsche Carrera GT.[36]

Figure 30: The pedal assembly of a 2005 Porsche Carrera GT.[37]

The legend for Figure 29 is shown below:

1 - Clutch pressure sensor
2 - Clutch master cylinder
3 - Brake light switch
4 - Mechanical clutch switch
5 - Pedal position sensor
6 - Connection plug
7 - Hydraulic brake servo
8 - Master brake cylinder

Vehicle #1 was equipped with Porsche Ceramic Composite brakes that were 380 millimeters in diameter and 34 millimeters in thickness.[38]

[34] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 37
[35] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.29.
[36] Ibid., p. 4.11.
[37] Ibid., p. 4.29.
[38] Ibid., p. 4.30.

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Overview (continued)

This vehicle was equipped with a four channel anti-lock brake system (ABS), Traction Control, which included Automatic Brake Differential, and Engine Drag Torque Control.[39]

Brake boost was achieved with hydraulic pressure generated with an electric motor and stored in an accumulator. The electric motor was activated when the ignition switch was turned to the "on" position.

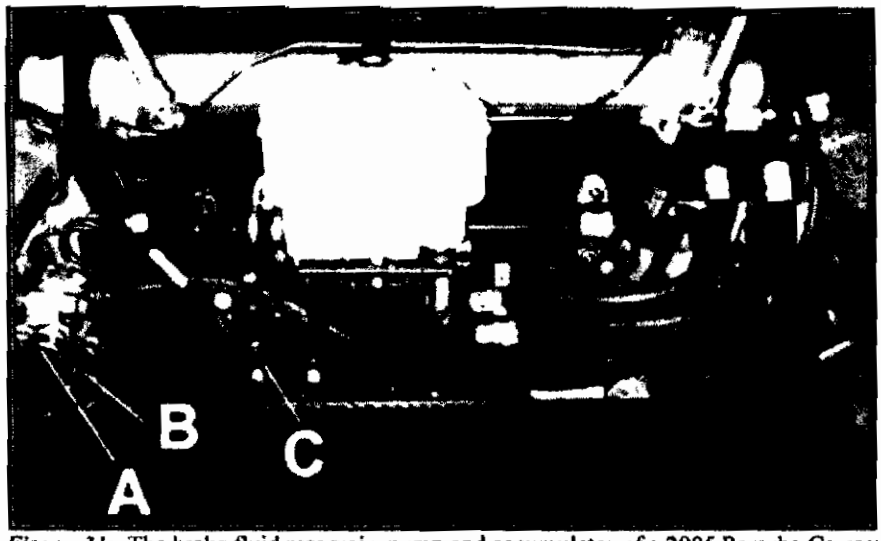


Figure 31: The brake fluid reservoir, pump and accumulator of a 2005 Porsche Carrera GT.[40]

The legend for Figure 31 is shown below:

A - Pressure switch
B - Pressure pump
C - Pressure accumulator

The parking brake acted through two floating parking brake calipers on the rear axle brake rotors, operated by mechanical Bowden cables. The parking brake calipers were separate from the service brake calipers. The parking brake was applied by a manual handbrake lever, which was located to the left of the driver's seat. Parking brake application force was initiated by pulling the handbrake lever upward. The application force was transferred through the brake cables to the left and right parking brake calipers. The handbrake was designed to release an applied parking brake system when the release button was depressed and the handbrake lever was moved downward.

[39] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.32 and 4.33.
[40] Ibid., p. 4.29.

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System (continued)

The master cylinder was intact but was displaced. The reservoir was slightly displaced but the twist-on cap was properly installed and sustained minor thermal damage. The brake fluid level was below the "min" mark embossed on the side of the reservoir (Figure 32).

The brake pedal was intact and there was melted material affixed to the left side of the brake pedal (Figure 33, circled area). Movement of the brake pedal was possible, but the movement of the pedal was restricted and rough.

The area in the vicinity of the brake pedal was inspected. There was thermal damage to the floorboard and remnants of associated debris were located in the vicinity of the brake pedal.

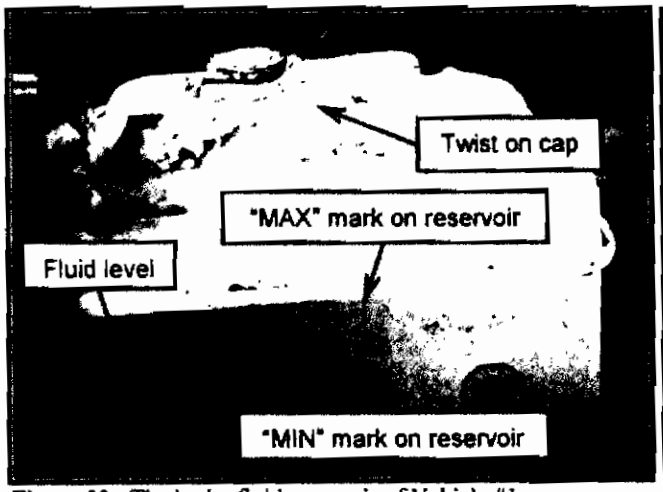


Figure 32: The brake fluid reservoir of Vehicle #1. (SL-054-14 01-15-14 JK (81).JPG)

Figure 33: The brake pedal assembly of Vehicle #1. (LASD photograph IMG_0226.JPG)

As previously noted, Vehicle #1 was not originally equipped with floor mats, nor was there any evidence of the existence of aftermarket floor mats in Vehicle #1.

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System (continued)

The accumulator was intact but was displaced. The pressure pump was separated from the vehicle and the associated hydraulic lines were disfigured. No hydraulic fluid leaks were noted.

Figure 34: The pressure accumulator of Vehicle #1. (LASD photograph IMG_0231.JPG)

The parking brake system was checked for operation before the service brakes were checked. The parking brake was found in the unapplied position. The handbrake lever was pulled upward, and application of the lever would apply the rear parking brake calipers of Vehicle #1. Release of the handbrake release lever would release the parking brake lever locking mechanism, and adequately released the rear brake assemblies.

Each wheel hub was rotated to ensure they rotated freely before the brake system components were disassembled. All four hubs rotated freely.

Examination revealed the right front and both rear flexible brake hoses were consumed in the post-collision fire. As a result of the damage to the hoses, functional testing of the brake calipers via the hydraulic system was not possible. The functionality of each brake caliper was checked with compressed air. Upon the application of 90 pounds per square inch of air pressure to each caliper, the pistons within each caliper applied and locked each brake rotor. Removal of air pressure from each caliper resulted in an immediate release of the caliper application force from each brake rotor.

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System (continued)

Front

Each side of the front brake system was equipped with a perforated fiber reinforced ceramic, internally cooled brake rotor, a Brembo six piston, monoblock, fixed brake caliper, a flexible hydraulic hose, attachment hardware and bonded brake pads. Additionally, a wheel speed sensor was installed in each wheel carrier, and brake pad friction material wear sensors were mounted to each brake pad.

Examination revealed the brake rotors were intact and the friction surfaces were smooth. The calipers were intact and properly mounted to the wheel carriers. The caliper attachment hardware was properly tightened. Each of the brake pads were correctly mounted to each caliper, and the friction material was smooth, intact and securely mounted to their respective backing plates.

The caliper bleed valves on both calipers were tight. The dust caps on the left caliper were intact; however portions of the dust caps on the left caliper sustained thermal damage.

All of the caliper piston dust seals were intact and undamaged. No evidence of preexisting hydraulic fluid leaks were observed.

All of the antilock brake system wiring, the brake pad sensor wiring, as well as the hydraulic hose for the left front brake assembly were undamaged. All of the antilock brake system wiring and the hydraulic hose for the right front brake assembly were missing as a result of the post-collision fire. The right side brake pad wear sensor wiring was damaged in the post-collision fire.

The total friction material thickness was measured from the metal backing plate to the surface of the friction material.

The table below illustrates the measured values obtained during the inspection:

COMPONENT	LEFT	RIGHT
Lining Type	Bonded	Bonded
Lining Thickness, Outboard	10.3 millimeters	11.1 millimeters
Lining Thickness, Inboard	10.3 millimeters	11.1 millimeters
Number of Pistons	6	6
Rotor Thickness	34.1 millimeters	34.2 millimeters
MANUFACTURER'S SPECIFICATIONS		
Rotor Minimum Thickness	34.0 millimeters	
Lining Minimum Thickness	3.0 millimeters	

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Front (continued)

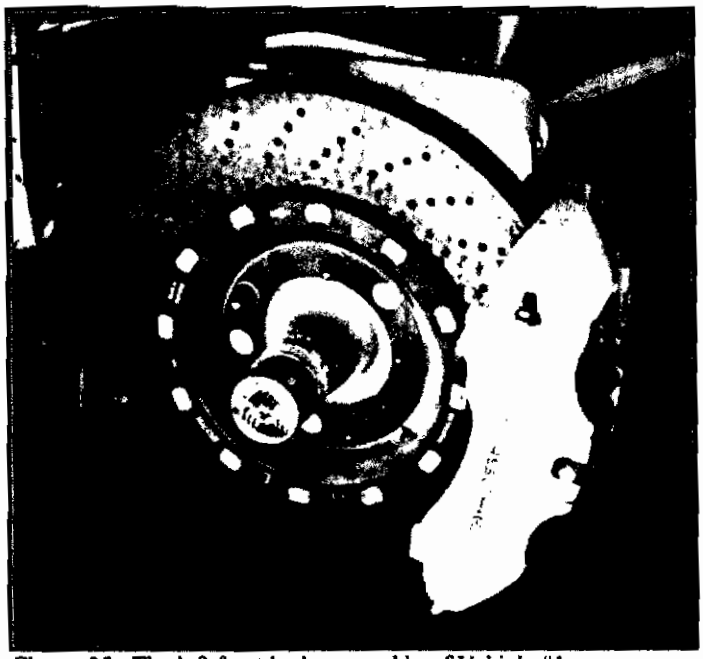


Figure 35: The left front brake assembly of Vehicle #1.
(LASD photograph IMG_0182.JPG)

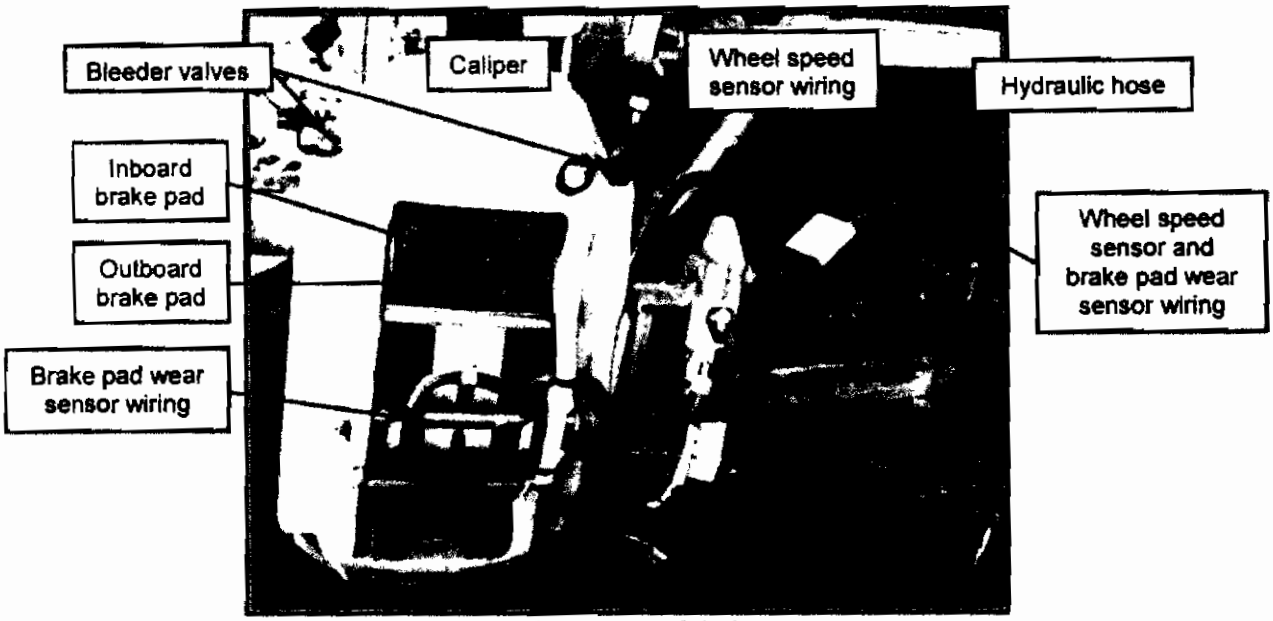


Figure 36: The left front brake assembly of Vehicle #1.
(LASD photograph IMG_200.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Front (continued)

Figure 37: The left front inboard brake pad of Vehicle #1. (LASD photograph IMG_0207.JPG)

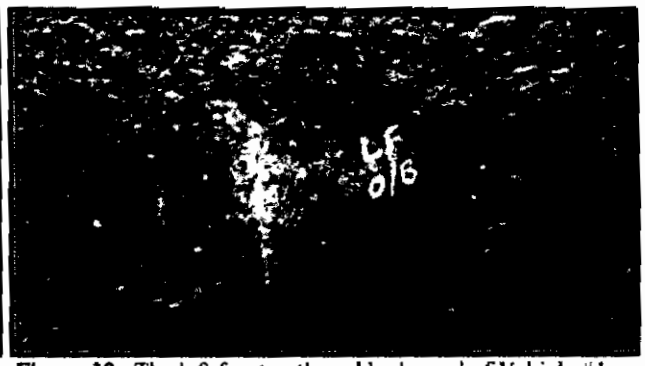


Figure 38: The left front outboard brake pad of Vehicle #1. (LASD photograph IMG_0210.JPG)

Figure 39: The right front brake assembly of Vehicle #1. (LASD photograph IMG_0277.JPG)

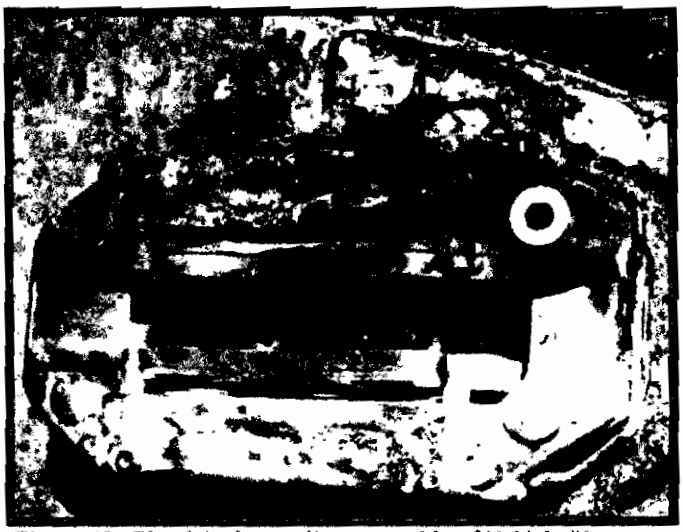


Figure 40: The right front caliper assembly of Vehicle #1. (LASD photograph IMG_0290.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Front (continued)

Figure 41: The missing left front brake hydraulic hose and wiring of Vehicle #1. (LASD photograph IMG_0336.JPG)

Figure 42: The right front outboard brake pad of Vehicle #1. (LASD photograph IMG_0297.JPG)

Figure 43: The right front inboard brake pad of Vehicle #1. (LASD photograph IMG_0298.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System (continued)

Rear

Each side of the rear brake system was equipped with a perforated fiber reinforced ceramic, internally cooled brake rotor, a Brembo six piston, monoblock, fixed brake caliper, a flexible hydraulic hose, attachment hardware and bonded brake pads. Additionally, a wheel speed sensor was installed in each wheel carrier, and brake pad friction material wear sensors were mounted to each brake pad.

Examination revealed the rotors were intact and the friction surfaces smooth. The calipers were intact and properly mounted to the wheel carriers. The caliper attachment hardware was properly tightened. Each of the brake pads were correctly mounted to each caliper, and the friction material was smooth, intact and securely mounted to their respective backing plates.

The caliper bleed valves on both calipers were tight. The dust caps on both calipers sustained thermal damage.

All of the caliper piston dust seals were intact and undamaged. No evidence of preexisting hydraulic fluid leaks were observed.

All of the antilock brake system wiring, the warning contact wiring, as well as the hydraulic hoses for the rear brakes sustained thermal damage.

The total friction material thickness was measured from the metal backing plate to the surface of the friction material.

The table below illustrates the measured values obtained during the inspection:

COMPONENT	LEFT	RIGHT
Lining Type	Bonded	Bonded
Lining Thickness, Outboard	11.1 millimeters	11.1 millimeters
Lining Thickness, Inboard	11.1 millimeters	11.1 millimeters
Number of Pistons	6	6
Rotor Thickness	33.5 millimeters	34.1 millimeters
MANUFACTURER'S SPECIFICATIONS		
Rotor Minimum Thickness	34.0 millimeters	
Lining Minimum Thickness	3.0 millimeters	

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Rear (continued)

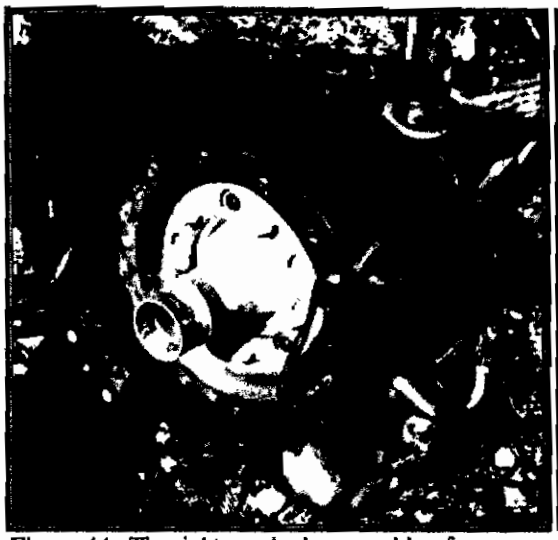


Figure 44: The right rear brake assembly of Vehicle #1.
(LASD photograph IMG_0360.JPG)

Figure 45: The right rear brake caliper assembly of Vehicle #1.
(LASD photograph IMG_0373.JPG)

Figure 46: The right rear inboard brake pad of Vehicle #1.
(LASD photograph IMG_0381.JPG)

Figure 47: The right rear outboard brake pad of Vehicle #1.
(LASD photograph IMG_0384.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System

Rear (continued)

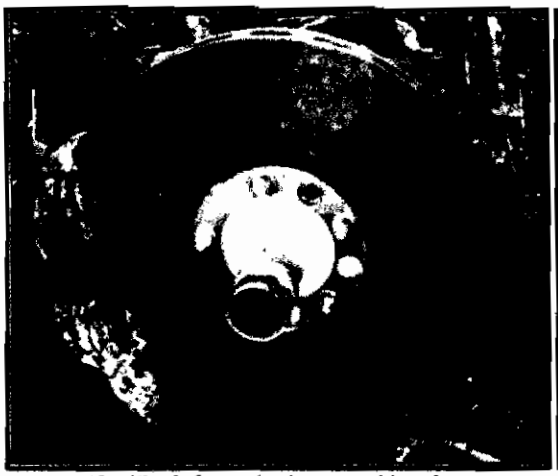


Figure 48: The left rear brake assembly of Vehicle #1.
(LASD photograph IMG_0413.JPG)

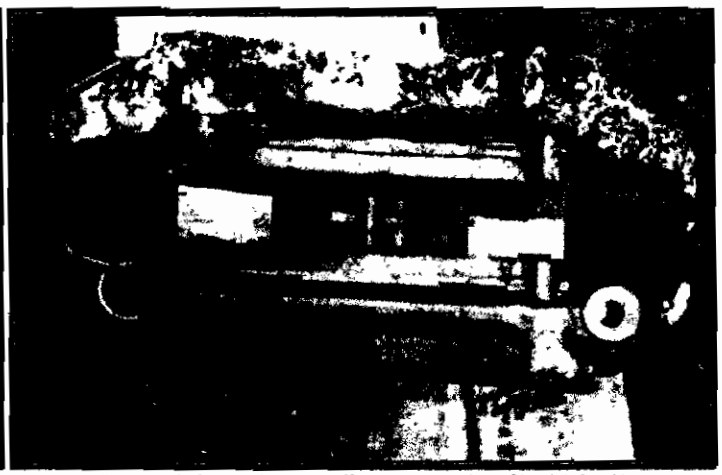


Figure 49: The left rear brake caliper assembly of Vehicle #1.
(LASD photograph IMG_0422.JPG)

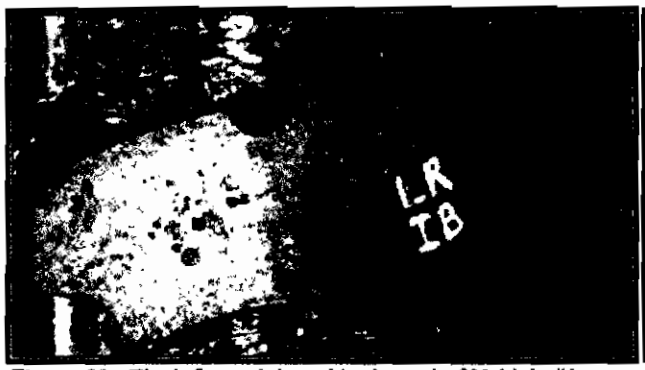


Figure 50: The left rear inboard brake pad of Vehicle #1.
(LASD photograph IMG_0425.JPG)

Figure 51: The left rear outboard brake pad of Vehicle #1.
(LASD photograph IMG_0427.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Brake System (continued)

Findings

The visual and functional inspection of the brakes indicated they were intact and functional prior to the collision. All of the brake assemblies had sufficient brake pad friction material thickness. One preexisting condition was noted:

- The left rear brake rotor measured thickness was below the specification. This condition did not affect the pre-collision braking capabilities of Vehicle #1.

No other preexisting conditions were noted. All of the damage noted to the brake system components were collision induced.

The brake fluid observed in the reservoir was below the "MIN" mark located on the side of the reservoir. This condition may have been collision induced as a result of the mechanical damage to the brake system hydraulic lines. The level of the brake fluid in the reservoir prior to the collision is unknown.

Functional testing revealed the service brakes developed sufficient force to restrict each of the brake rotors. Due to thermal damage sustained by the vehicle, the functional testing of the brake calipers were tested with compressed air. Application of compressed air to the calipers resulted in immediate application of the brake caliper pistons. Release of the compressed air resulted in the retraction of the brake caliper pistons, and each of the brake rotors were free to rotate. No binding or sticking was noted.

The parking brake, when applied, developed sufficient force to lock the rear brake rotors of Vehicle #1. Release of the parking brake lever adequately released the parking brake mechanisms, and allowed the rear brake rotors to rotate.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Tires and Wheels

Description

The manufacturer's recommended tire size for the front of this vehicle were 265/35 ZR 19 (94Y) tires mounted on 9.5J x 19 wheels. The manufacturer's recommended tire size for the rear of this vehicle were 335/30 ZR 20 (104Y) tires mounted on 12.5 J x 20 wheels.[41,42] The recommended inflation pressure for the tires on this vehicle was 32 pounds per square inch (psi) for both the front and the rear tires.[43,44] As a result of collision and thermal damage to the vehicle, the vehicle mounted tire and manufacturer information labels that displayed this information were not located.

The manufacturer recommended tires to be installed on Vehicle #1 were Michelin Pilot Sport tires.[45]

The tires and wheels of Vehicle #1 were direction and position specific, meaning due to directional nomenclature on the tires, and the differences in tire and wheel sizes between the front and rear wheel positions, they must be mounted in a specific location on the vehicle.

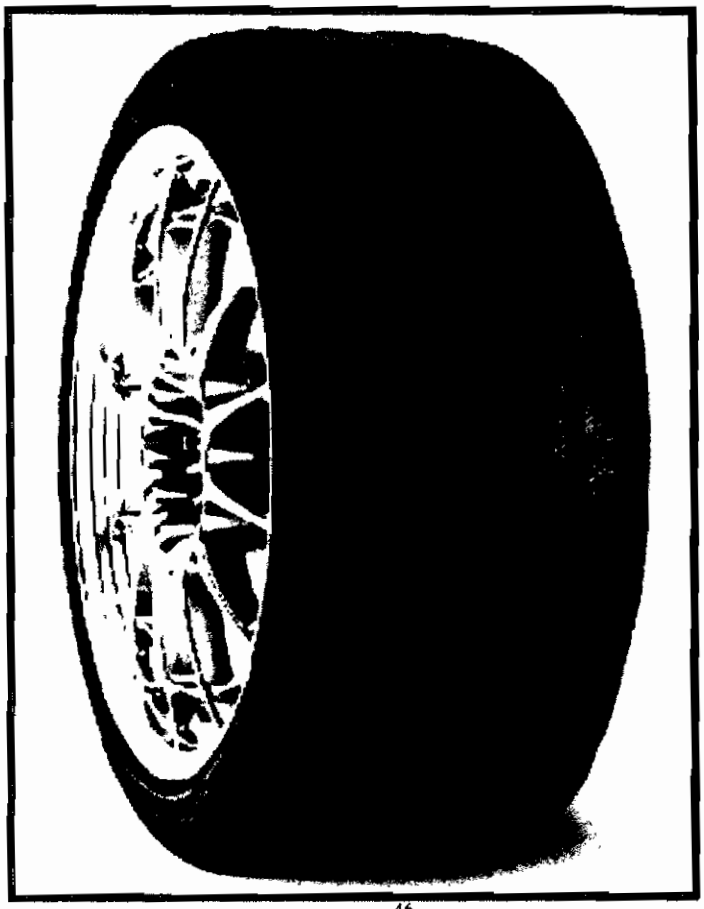


Figure 52: Michelin Pilot Sport tire.[46]

NEW TIRE SPECIFICATIONS[47]							
POSITION	SIZE, LOAD INDEX, SPEED RATING	TREADWEAR, TRACTION, TEMPERATURE	OVERALL DIAMETER	REVS/ MILE	TREAD DEPTH (IN 32NDS)	MAX LOAD (LB@PSI)	WEIGHT (POUNDS)
Front	265/35ZR19 94Y	220, AA, A	26.3 inches	790	8.5	1,477@51	25.1
Rear	335/30ZR20 104Y	220, AA, A	27.9 inches	744	9.5	1,984@51	34.6

[41] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p.182.
[42] 2013 Tire Guide, 1101 South Rogers Circle, Suite 6, Boca Raton, Florida 33487, ©2013, p. 213
[43] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p.182.
[44] 2013 Tire Guide, 1101 South Rogers Circle, Suite 6, Boca Raton, Florida 33487, ©2013, p. 213
[45] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.18.
[46] <http://www.michelinman.com/tire-selector/vehicle/2005/Porsche/Carrera%20GT/Base/OE/FNW/pilot-sport-ps2/tire-details> Accessed on January 22, 2014.
[47] Ibid.

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Description (continued)

All of the tires were mounted on magnesium, five spoke wheels.[48] Each wheel was fastened to Vehicle #1 with a single, aluminum central securing nut. Each central securing nut was comprised of a wave-shaped, multi-tooth external profile, and can only be removed with a corresponding nut socket.[49] The central securing nuts were color coded depending on the side of the vehicle they were to be installed on, as well as thread direction. The left hubs of the vehicle required red, right handed threads, while the right side of the vehicle required blue, left handed threads. Each hub was equipped with two spring loaded safety wedges that positively engaged the castellated outboard faces of the central securing nuts. The tightening specification for the central securing nut was a minimum 407 foot pounds.[50]

Each central securing nut was securely fastened to the hubs of the associated wheel carriers.

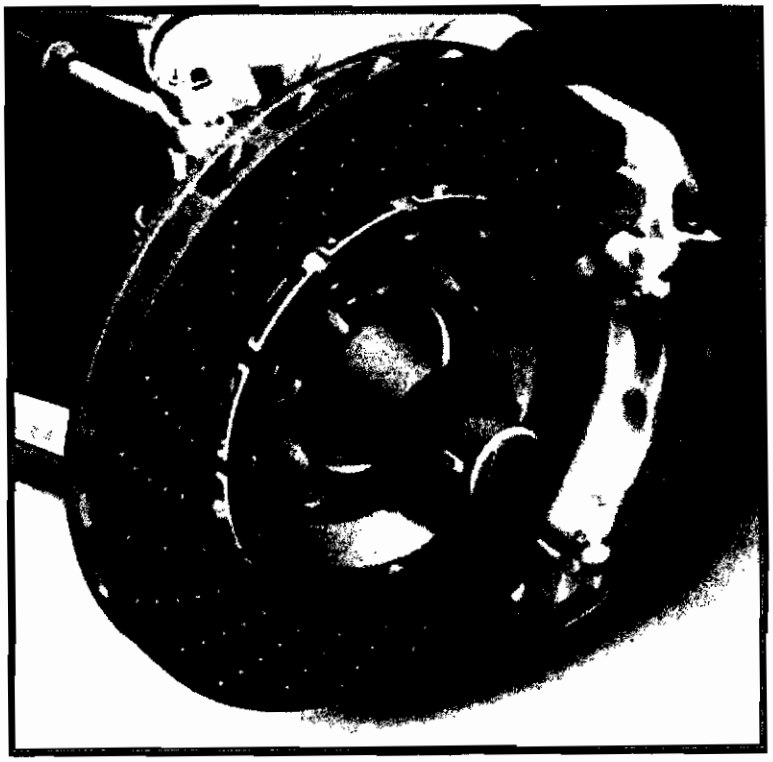


Figure 53: An image of the left front hub and central securing nut of a 2005 Porsche Carrera GT.[51]

[48] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.18.
[49] Ibid., p.4.17.
[50] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 154.
[51] <http://press.porsche.com/archive/products/photos/photos_2005/GT/gt.html>. Accessed on January 16, 2014.

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Description (continued)

Information and damage related to the outboard side of the tires were indexed to the Department of Transportation (DOT) number being located at the 12 o'clock position, and preceded about the tire in a clockwise fashion, as viewed from the outboard side of the tire. Information and damage related to the inboard side of the tires were indexed to the DOT number being located at the 12 o'clock position at the inboard tire side, and preceded about the tire in a clockwise fashion, as viewed from the inboard side of the tire.

Information and damage related to the wheels were indexed to the valve stem being located at the 12 o'clock position, and proceeding about the wheel in a clockwise fashion.

The tire tread depth measurements originated at the outboard shoulder of the tire, traversed the tread width, and terminated at the inboard shoulder of the tire. The tire tread depth measurements included the tread shoulders as well as the major tread grooves.

The circumferential tread ribs of each tire were numbered from the outboard side of the tire to the inboard side of the tire. The damage and information related to the tires and wheels in this section of the report are not all inclusive.

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels (continued)

Front

The following information was located on the front tires and wheels of Vehicle #1:

	LEFT	RIGHT
Make and Model	Michelin Pilot Sport	Michelin Pilot Sport
Size	265/35 ZR19 94Y	N/A
Tread Plies	1 rayon, 2 steel, 1 polyamide	N/A
Sidewall Plies	1 rayon	N/A
Maximum Load	1,477 lbs @ 51 psi	N/A
Treadwear	220	N/A
Traction	AA	N/A
Temperature	A	N/A
DOT Number	6UOW 34KX 1704	N/A
Week & Year of Mfg.	17th week of 2004	N/A
DOT Number Location	outboard	N/A
Pressure	0 psi	0 psi
Wheel Type	Magnesium	Magnesium
Wheel Part Number	980 362 158 08	980 362 158 08

TREAD DEPTH MEASUREMENTS			
LEFT FRONT TIRE		RIGHT FRONT TIRE	
12:00	8/32, 8/32, 7/32	12:00	9/32, 9/32, 7/32
3:00	8/32, 8/32, 7/32	3:00	9/32, 9/32, 7/32
6:00	8/32, 8/32, 7/32	6:00	N/A
9:00	9/32, 9/32, 7/32	9:00	N/A

Based on the DOT number of the left front tire, the left front tire was manufactured during the week of April 18-24, 2004. The left front tire was approximately 9 years and 7 months old.

The left front tire was manufactured by the following company:

SODG
Boulevard Louis Chartoire
Clermont-Ferrand, 63100, France

Inspection of the front tire and wheel assemblies indicated they were intact and functional prior to the collision, and were correctly mounted with respect to direction and position.

[52] The designation of "N/A" indicates the information applicable to that particular section in the table was not readable due to thermal damage of the associated tire.

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Front (continued)

Left Tire and Wheel Assembly

The tire was intact; however the outboard bead and the sidewall area was broken, and was associated with the displacement of the outboard rim edge. The break was approximately 0.4 feet in length.

The outboard rim edge was displaced radially approximately 0.15 feet, and was approximately 0.8 feet in length. The rim edge and wheel leg were fractured in the vicinity of the rim edge displacement, and the damage transitioned to the inboard wheel leg and rim edge. This damage was located at the 10 o'clock position. The valve stem was intact and undamaged.

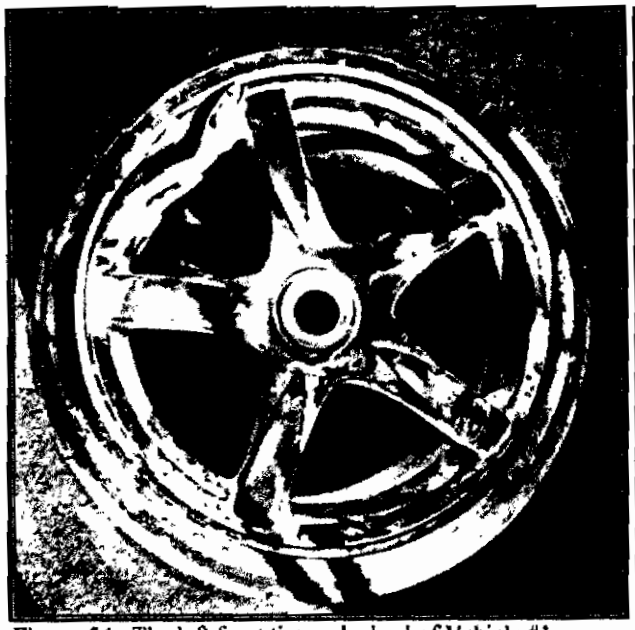


Figure 54: The left front tire and wheel of Vehicle #1.
(LASD photograph IMG_0238.JPG)

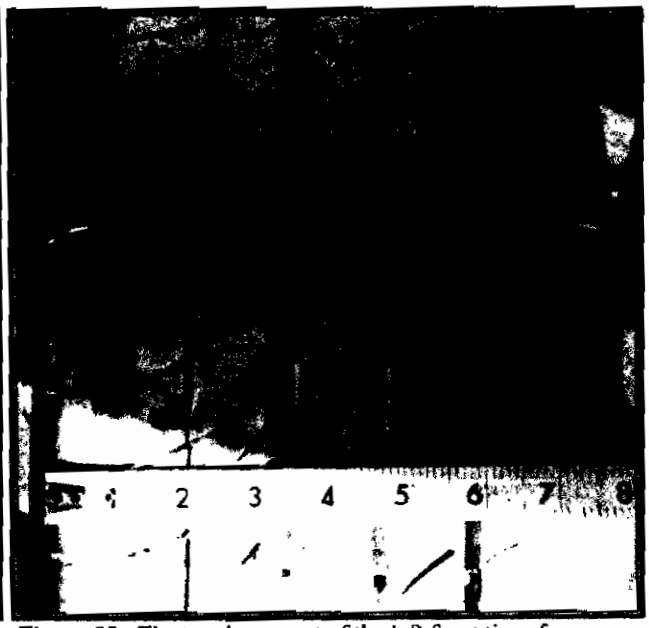


Figure 55: The tread segment of the left front tire of Vehicle #1.
(LASD photograph IMG_0243.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Front

Left Tire and Wheel Assembly (continued)

Figure 56: Damage to the left front tire and wheel of Vehicle #1. (LASD photograph IMG_0241.JPG)

Figure 57: The inboard side of the left front tire and wheel of Vehicle #1. (LASD photograph IMG_0245.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Front (continued)

Right Tire and Wheel Assembly

The majority of the tire sustained thermal damage. Approximately 1.1 feet of the tire tread segment was intact. The majority of the outboard sidewall was consumed in the post-collision fire and the sidewall nomenclature was unreadable. The entire inboard sidewall was consumed in the post-collision fire.

Three of the five outboard wheel spokes were fractured near the intersection of the spokes and wheel leg. The spokes near the fracture were also displaced in an angular manner. The outboard rim edge exhibited thermal damage. The inboard rim edge was undamaged. The valve stem was intact but sustained thermal damage.

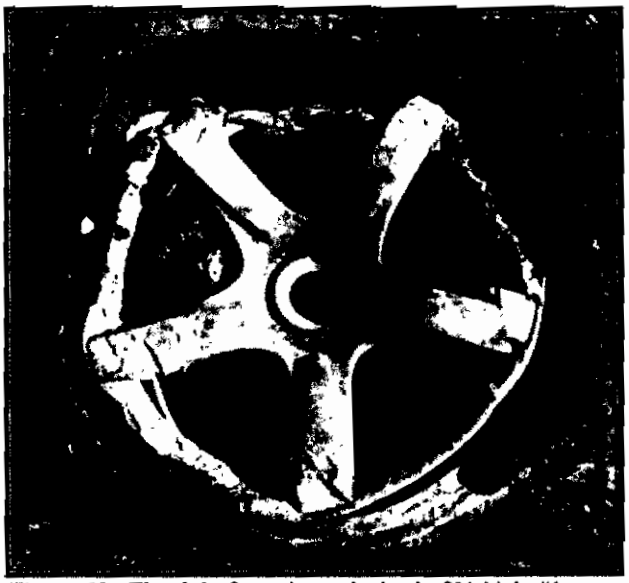


Figure 58: The right front tire and wheel of Vehicle #1.
(LASD photograph IMG_0282.JPG)

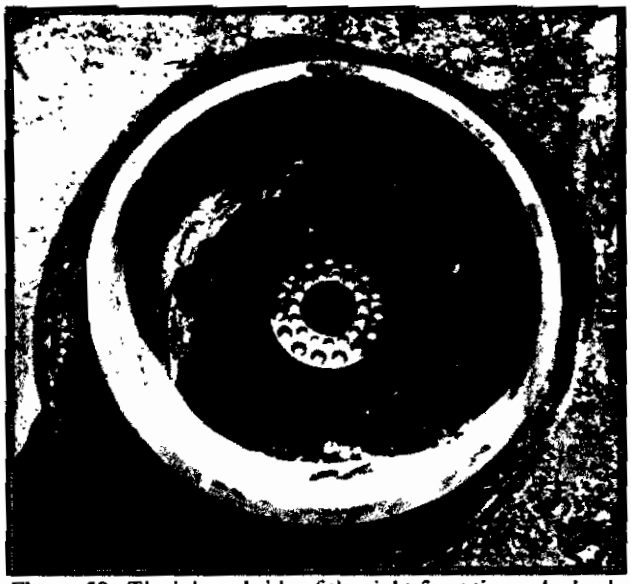


Figure 59: The inboard side of the right front tire and wheel of Vehicle #1.
(LASD photograph IMG_0309.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels (continued)

Rear

The following information was located on the rear tires and wheels of Vehicle #1:

	LEFT	RIGHT
Make and Model	Michelin Pilot Sport	Michelin Pilot Sport
Size	N/A	N/A
Tread Plies	N/A	N/A
Sidewall Plies	N/A	N/A
Maximum Load	N/A	N/A
Treadwear	N/A	220
Traction	N/A	AA
Temperature	N/A	A
DOT Number	N/A	6U7Y NIKX 2904
Week & Year of Mfg.	N/A	N/A
DOT Number Location	N/A	N/A
Pressure	0 psi	0 psi
Wheel Type	Magnesium	Magnesium
Wheel Part Number	980 362 174 12	980 362 174 12

TREAD DEPTH MEASUREMENTS			
LEFT REAR TIRE		RIGHT REAR TIRE	
12:00	7/32, 8/32, 6/32	12:00	9/32, 9/32, 7/32
3:00	N/A	3:00	N/A
6:00	N/A	6:00	N/A
9:00	N/A	9:00	N/A

Based on the DOT number of the right rear tire, the right rear tire was manufactured during the week of July 11-17, 2004. The right rear tire was approximately 9 years and 4 months old.

The right rear tire was manufactured by the following company:

SODG
Boulevard Louis Chartoire
Clermont-Ferrand, 63100, France

Inspection of the rear tire and wheel assemblies indicated they were intact and functional prior to the collision and were correctly mounted with respect to direction and position.

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Rear (continued)

Left Tire and Wheel Assembly

The majority of the tire sustained thermal damage. Approximately 1.1 feet of the tire tread segment in the vicinity of the 12 o'clock position was intact. The inboard and outboard sidewall was damaged in the post-collision fire and the sidewall nomenclature was unreadable.

The rim edge and wheel leg were broken from the 6 o'clock to the 8 o'clock position. The damage was directed from outward to inward. The remainder of the wheel was undamaged. The valve stem was intact but sustained thermal damage.

Figure 60: The left rear tire and wheel of Vehicle #1. (LASD photograph IMG_0455.JPG)

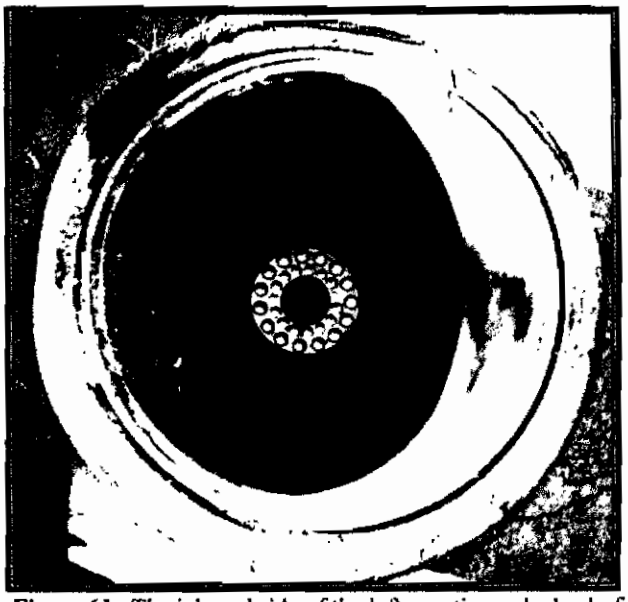


Figure 61: The inboard side of the left rear tire and wheel of Vehicle #1. (LASD photograph IMG_0442.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Rear

Left Tire and Wheel Assembly (continued)

Figure 62: The tread segment of the left rear tire of Vehicle #1.
(LASD photograph IMG_0445.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Rear (continued)

Right Tire and Wheel Assembly

The majority of the tire sustained thermal damage. Approximately 1.3 feet of the tire tread segment in the vicinity of the 12 o'clock position was intact. All of the inboard and the majority of the outboard sidewalls were damaged in the post-collision fire, and the majority of the sidewall nomenclature was unreadable.

The inboard rim edge and wheel leg from the 2 o'clock to the 4 o'clock position was consumed in the post-collision fire. The valve stem was intact but sustained thermal damage.

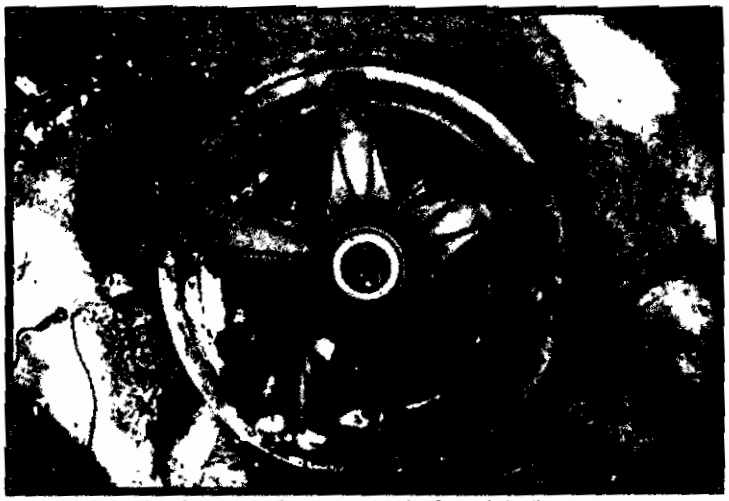


Figure 63: The right rear tire and wheel of Vehicle #1. (LASD photograph IMG_0396.JPG)

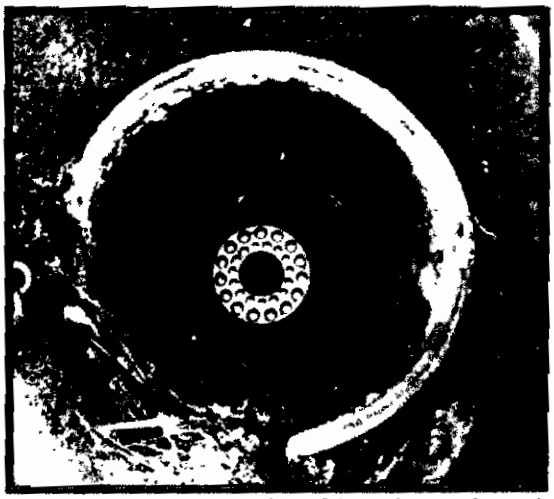


Figure 64: The inboard side of the right rear tire and wheel of Vehicle #1. (LASD photograph IMG_0403.JPG)

Mechanical Inspection

Vehicle #1 (Porsche)

Tires and Wheels

Findings

The visual inspection of the tire and wheel assemblies indicated they were intact and functional prior to the collision. All of the damage noted to the tire and wheel assemblies were either collision induced, or were damaged in the post-collision fire. The majority of the tire nomenclature was damaged in the post-collision fire and was unreadable. All of the tires installed on Vehicle #1 were the correct make and model as specified by the vehicle manufacturer.

The only tire size that was readable was the left front tire. The left front tire was the correct size and type recommended by the manufacturer. It could not be determined if the remaining tires mounted on Vehicle #1 were the correct size and type recommended by the manufacturer. All of the wheel assemblies were securely fastened to the corresponding hubs of the vehicle with the corresponding central securing nut. Each of the wheels installed on Vehicle #1 were the correct size, type and part number as specified by the vehicle manufacturer.

Inspection of the tires and wheels indicated the following preexisting condition:

- Based on the DOT numbers located on the left front and the right rear tires, the left front and right rear tires were over 9 years old at the time of the collision. The age of the right front and left rear tires could not be determined due to the thermal damage sustained by the tires.

Mechanical Inspection

Vehicle #1 (Porsche) (continued)

Airbag Control Module

As part of the vehicle inspection conducted on Friday, December 13, 2013, by MAIT investigators, the airbag control module[53] of Vehicle #1 was removed in the presence of, and with the assistance of, LASD investigators. The airbag control module was retained in evidence by the LASD.

On Wednesday, January 15, 2014, as part of the vehicle inspection by Porsche engineers and legal counsel, the airbag control module was imaged by Porsche engineers in the presence of MAIT investigators, LASD investigators, consultants for the parties of interest, and legal counsel. The data was subsequently translated by Porsche engineers. The translated data was forwarded to MAIT investigators on Monday, February 3, 2014, by LASD personnel, along with a cover letter from Mr. C. S[redacted] counsel representing Porsche, dated January 31, 2014. The findings of the data imaging of the airbag control module of Vehicle #1 are summarized below:

- There were three crash logs recorded by the airbag control module.
- Crash log #1 indicated the occupant restraint pretensioners deployed, both frontal airbags deployed, and the driver's side airbag deployed.
- Crash log #2 indicated that a rear impact had been detected.
- Crash log #3 indicated that the passenger side airbag deployed.

[53] Generic term for the electronic control unit that monitors and deploys the components of the occupant restraint system such as the air bags and the restraint pretensioners.

DIGITAL FILE LOG

During the course of this investigation, 288 digital images were taken by MAIT investigators. The following table illustrates the date, the photographer, the corresponding digital photograph file numbers, the number of photographs taken, and the subject matter.

DATE	PHOTOGRAPHER	FILE NUMBER	NUMBER	SUBJECT
12-10-2013	J. H[redacted]	DSC_0013.JPG to DSC_0119.JPG	108	Damage to Vehicle #1
12-26-2013	J. K[redacted]	DSC_1150.JPG to DSC_1189.JPG	39	Exemplar 2004 Porsche Carrera GT
01-15-2014	J. K[redacted]	SL-054-13 01-15-14 JK (1).JPG to SL-054-13 01-15-14 JK (141).JPG	141	Vehicle Inspection

Additionally, during the mechanical inspection of Vehicle #1 (Porsche) conducted by MAIT investigators on Friday, December 13, 2013, Los Angeles County Sheriff's Department investigators took 499 digital images (IMG_0001 to IMG_0498).

At the conclusion of this investigation, all of the digital files taken by MAIT investigators were saved to a recordable compact disc (CD-R) and delivered to the Los Angeles County Sheriff's Department, Santa Clarita Valley Station.

[redacted]

Los Angeles County Sheriff's Department
Santa Clarita Valley Station
23740 Magic Mountain Parkway
Santa Clarita, California 91355
(661) 255-1121

CONCLUSIONS

The mechanical examination of Vehicle #1 (Porsche) revealed no preexisting conditions in the engine and powertrain, throttle and fuel system, electrical, steering, suspension, or brakes, that would have affected the functionality of this vehicle upon the highway. The damaged components described in this report were the result of the collision, or the ensuing post-collision fire.

There were no recall campaigns applicable to Vehicle #1 (Porsche), or the tires of Vehicle #1 (Porsche), at the time of the collision that would have affected the operation of this vehicle prior to this collision.

There was one active service campaign that was applicable to Vehicle #1 (Porsche) at the time of the collision. The service campaign was to address noise associated with the clutch assembly of Vehicle #1 (Porsche). This service campaign did not affect Vehicle #1 (Porsche) during this collision.

The mechanical inspection of Vehicle #1 (Porsche) disclosed three preexisting conditions:

1. **The original exhaust system muffler box, and the associated exhaust tubing, was replaced with an aftermarket unit manufactured by Global Motorsports Group, in Santa Ana, California.**

   According to the exhaust system manufacturer's website, the installation of the aftermarket exhaust system could increase rear wheel horsepower by 19, and increased rear wheel torque by 16 pound-feet.[54]

   Modifications to the vehicle are addressed on page 8 of the 2004 Porsche Carrera GT Owner's Manual:

   > *Modifications may be carried out on your vehicle only if approved by Porsche. This ensures that your Porsche will remain reliable and safe to drive, and that it will not be damaged as a result of the modifications.*[55]

   It was not determined if the addition of the aftermarket exhaust system was approved by Porsche. This condition would possibly increase the power output of the engine of Vehicle #1 (Porsche).

2. **The measured thickness of the left rear brake rotor was below manufacturer's specifications.**

   This condition was minor, and was approximately one half millimeter below specification. This condition did not affect the pre-collision braking capabilities of Vehicle #1 (Porsche).

[54] <www.gmgracing.com>. Accessed on January 27, 2014.
[55] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 8.

Conclusions (continued)

3. **The left front and right rear tires were over nine years old at the time of the collision.**

The age of the tires were based on the last four digits of the Department of Transportation serial numbers embossed on the sidewalls of the associated tires.

The age of the right front and left rear tires could not be determined as a result of the damage sustained in the post-collision fire.

The National Highway Traffic Safety Administration has addressed the issue of tire age, and detailed the following with regard to when tires should be replaced:

> *While tire life will ultimately depend on the tires' service conditions and the environment in which they operate, there are some general guidelines. Some vehicle manufacturers recommend that tires be replaced every six years regardless of use. In addition, a number of tire manufacturers cite 10 years as the maximum service life for tires. Check the owner's manual for specific recommendations for your vehicle. Remember, it is always wise to err on the side of caution if you suspect your vehicle has tires that are over six years of age.*[56]

The 2004 Porsche Carrera GT Owner's Manual, page 150, specifically addresses the manufacturer recommended tire age limitation with the following:

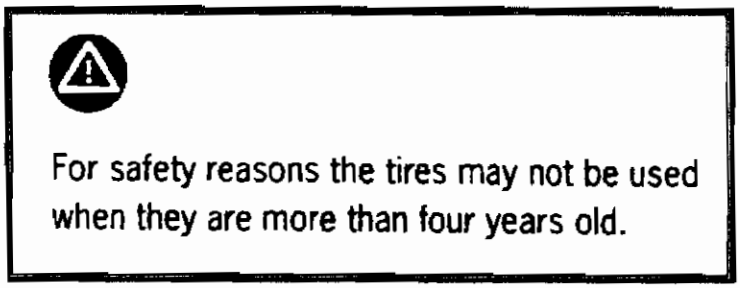
> *Under no circumstances should tires older than four years be used on your Porsche.*[57]
>
> *The perception that tire durability and performance are immune to the effects of storage and age is unfounded. Chemical additives, which make rubber elastic, lose their effectiveness in the course of time and the rubber becomes brittle and cracks.*[58]

[56] <www.safercar.gov>. Accessed on January 27, 2014.
[57] 2004 Porsche Carrera GT Owner's Manual, ©Dr. Ing. h.c. F. Porsche AG, WKD 980 021 01 8/03, p. 150.
[58] Ibid.

Conclusions (continued)

3. **The left front and right rear tires were over nine years old at the time of the collision** (continued)

The Porsche Carrera GT Service Information 2004, Technik Introduction, page 4.18, also addresses the manufacturer recommended tire age limitation with the following warning,[59] accompanied by a "safety"[60] symbol:



Michelin, the manufacturer of the tires installed on Vehicle #1 (Porsche), addresses the issue of tire age with the following:

> *While most tires will need replacement before they achieve 10 years, it is recommended that any tires in service 10 years or more from the date of manufacture, including spare tires, be replaced with new tires as a simple precaution even if such tires appear serviceable and even if they have not reached the legal wear limit.*[61,62]
>
> *For tires that were on an original equipment vehicle (i.e., acquired by the consumer on a new vehicle), follow the vehicle manufacturer's tire replacement recommendation, when specified (but not to exceed 10 years).*[63,64]
>
> *Tires which have been in use for 5 years or more should continue to be inspected by a specialist annually.*[65]

[59] Service Information, 2004 Technik Introduction, Carrera GT, Porsche Cars North America, Inc. ©2004, p. 4.18.
[60] Ibid. p. iii.
[61] <http://www.michelinman.com/faq-detail.page?categoryName=Tire_Problems&faqId=1D87B0CE436D00012D9115201230127F> Accessed on February 4, 2014.
[62] Michelin Technical Bulletin PM-06-02. Michelin North America, Inc. One Parkway South, P.O. Box 19001, Greenville, South Carolina 29602-9001.
[63] <http://www.michelinman.com/faq-detail.page?categoryName=Tire_Problems&faqId=1D87B0CE436D00012D9115201230127F> Accessed on February 4, 2014.
[64] Michelin Technical Bulletin PM-06-02. Michelin North America, Inc. One Parkway South, P.O. Box 19001, Greenville, South Carolina 29602-9001.
[65] Ibid.

Conclusions (continued)

3. **The left front and right rear tires were over nine years old at the time of the collision** (continued)

   In a presentation to the Society of Automotive Engineers on May 9, 2006, The Rubber Manufacturer's Association (RMA), a national trade association for the rubber products industry, presented a study addressing tire age. The study revealed that "chronological age alone cannot determine when a tire is removed from service."[66]

   In a statement adopted in March, 2006, the RMA "is not aware of any scientific or technical data that establishes or identifies a specific minimum or maximum service life for passenger and light truck tires. However, in some cases a tire or vehicle manufacturer may make a specific tire replacement recommendation regarding its products. If so, the consumer should consult the manufacturer with any questions with regard to following the recommendation. Further, any such recommendation should not be considered a **minimum**[67] serviceable life for a tire."[68]

As a result of Vehicle #1 (Porsche) being equipped with tires greater than the maximum age as specified by Porsche, the drivability and handling characteristics of Vehicle #1 (Porsche) prior to the collision may have been compromised.

[66] <http://www.rma.org/tire-industry-study-chronolgical-age-alone-does-not-determine-when-tires-are-removed-from-service/>. Accessed on March 17, 2014.
[67] Emphasis by Rubber Manufacturers Association.
[68] Statement of the Rubber Manufacturers Association. Statement obtained from Michelin Tire North America, and is attached to this report as Annex D.