



**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**VEHICLE FACTORS GROUP CHAIRMAN'S
FACTUAL REPORT**

A. CRASH INFORMATION

Location: 4600 block North State Route 25 in Rochester, Fulton County, Indiana
Vehicle 1: 2017 Toyota Tacoma pick-up truck
Operator 1: Private Operator
Pedestrian #1: 6-year-old male
Pedestrian #2: 9-year old female
Pedestrian #3: 6-year-old male
Pedestrian #4: 11-year-old male
Date: October 30, 2018
Time: Approximately 7:12 a.m. EDT
NTSB #: **HWY19MH003**

B. VEHICLE FACTORS GROUP

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C. CRASH SUMMARY

For a summary of the crash, refer to the *Crash Summary Report* in the docket for this investigation.

D. DETAILS OF THE VEHICLE FACTORS INVESTIGATION

The Vehicle Factors Group Chairman's Factual Report is a collection of factual information regarding the 2017 Toyota Tacoma pickup truck (pickup). On October 31, 2018, The Indiana State Police allowed the NTSB staff to observe the pickup and take some photographs, but not conduct a full inspection. On February 10, 2019, NTSB staff returned to Rochester, IN. to complete the on-scene investigation and inspect the pickup. On February 12, 2019, a detailed inspection of the pickup was conducted at Reichert & Knepp INC., in Plymouth, IN.

All major vehicle operation systems were examined, including the steering, braking, electrical, and suspension systems. Overall collision damage, along with any damage or anomalies identified within the major vehicle operation systems were documented. No items were removed or downloaded (imaged) by NTSB staff.

1. 2017 TOYOTA TACOMA PICKUP

1.1. General Information:¹

Year/Make/Model:	2017 Toyota Tacoma
VIN: ²	3TMCZ5AN4HM[REDACTED]
Date of Manufacture:	December 2016
GVWR: ³	5,600 lbs.
GAWR (front axle): ⁴	2,910 lbs.
GAWR (rear axle):	3,280 lbs.
Engine:	Gasoline, 3.5 Liter V-6, 278 HP
Transmission:	6-Speed Automatic

¹ See Vehicle Attachment – Vehicle Specs – 2017 Tacoma

² Vehicle Identification Number

³ Gross Vehicle Weight Rating (GVWR) is the total maximum weight that a vehicle is designed to carry when loaded, including the weight of the vehicle itself plus fuel, passengers, and cargo

⁴ Gross Axle Weight Rating (GAWR) is the maximum distributed weight that a given axle is designed to support

1.2. Damage Description:

1.2.1. Overall:

The front of the pickup sustained damage from the impact with the pedestrians. The leading edge of the hood was displaced rearward, and the center was arched upward. To the right of the left headlamp assembly, the hood contained contact damage. At the approximate longitudinal centerline of the hood, there was additional contact damage. The grill and much of the front bumper covering were missing. The right headlamp assembly was displaced from its mounting location but was still attached to the vehicle. The left headlamp assembly had been crushed and the leading edge of the left fender was damaged. The left-front fender was displaced rearward, and the trailing edge of the fender was contacting the leading edge of the driver's door.⁵

1.2.2. Headlamps:

Halogen headlamps were mounted on the pickup. According to the scene photographs, taken by the Indiana State Patrol, the headlamps were working after the crash. Additionally, witness statements indicated the children were illuminated by the pickup headlamps prior to the crash.

1.2.3. Engine Compartment:

The hood was cut away from the hood latch by NTSB staff to facilitate the engine compartment inspection.

The radiator and air conditioning condenser were displaced rearward into the engine cooling fan. The radiator coolant return hose was collapsed approximately in half. The degasser bottle was broken. The radiator, as well as the degasser bottle, contained trace amounts of coolant. The serpentine accessory drive belt was intact and in place. The power steering fluid reservoir was empty, but still contained a trace amount of fluid. The fluid return hose was found to have separated from the power steering fluid reservoir.

1.3. Tires and Wheels

⁵ See Vehicle Photographs

According to the vehicle manufacturer's specification label, located on the driver's side B-pillar, the vehicle was specified to be equipped with 265/70R16 tires, mounted on 16x7J rims. The tires were specified to be inflated to 30 psi for both front (steer) and rear (drive) axles. **Table 1** includes the tire and wheel information documented at the time of the inspection by NTSB staff.

The tread depth measurements documented was the average measurement taken across the full width of the tread area, in three separate locations, and within the major tread grooves of a given tire. All tread depths measured were within the minimum tread depth regulation for passenger vehicle tires, which is 2/32 of an inch for all axles.⁶

Table 1. Pickup Tire Information

Axle 1	Left	Right
Make	GOODYEAR	GOODYEAR
Model	WRANGLER	WRANGLER
DOT #	4BC2 KA1R 4616	4BC2 KA1R 4516
Size	265/70R16	265/70R16
Load Rating	2,469 lbs @ 51 psi	2,469 lbs @ 51 psi
Tread Plies	2 plies polyester, 2 plies steel, 1 polyamide	2 plies polyester, 2 plies steel, 1 polyamide
Sidewall Plies	2 plies polyester	2 plies polyester
Pressure	10 psi	32 psi
Tread Depth	4/32 inch	5/32 inch
Axle 2	Left	Right
Make	GOODYEAR	GOODYEAR
Model	WRANGLER	WRANGLER
DOT #	4BC2 KA1R 4516	4BC2 KA1R 4516
Size	265/70R16	265/70R16
Load Rating	2,469 lbs @ 51 psi	2,469 lbs @ 51 psi
Tread Plies	2 plies polyester, 2 plies steel, 1 polyamide	2 plies polyester, 2 plies steel, 1 polyamide

⁶ As observed or measured in two adjacent tread grooves at any location on the tire (49 CFR 570.9(a)).

Sidewall Plies	2 plies polyester	2 plies polyester
Pressure	32 psi	34 psi
Tread Depth	5/32 inch	4/32 inch

All four tires were mounted on alloy wheels held in place with six lug nuts each. Tire and wheel damage observed during the inspection is described in the following bullets. The tires and wheels not listed, exhibited no damage.

- The tire mounted to the left side of axle 1 was nearly flat at the time of this inspection. No obvious tire or wheel damage was observed.⁷

1.4. Steering:

The pickup was equipped with hydraulically power-assisted steering gear. The power steering reservoir contained a trace amount of fluid. The fluid return hose was found to be separated from the reservoir. The hose attachment port on the side of the reservoir was broken.

The steering gear was manually operated from the left-stop to the right-stop by rotating the steering wheel.

1.5. Suspension:

The pickup was manufactured with an independent suspension system on axle 1 (steering axle) and a non-independent suspension system on axle 2 (drive axle). No damage was observed to the suspension systems.

1.6. Braking:

The pickup was equipped with a hydraulic, Anti-lock braking system (ABS). Axle 1 had disc brakes and axle 2 had drum brakes. A visual inspection of the brake system components was conducted. Brake linings, discs, drums, and ABS wiring were intact and without damage. The brake master cylinder reservoir was intact, and the fluid was slightly above the “MAX” mark embossed on the side of the reservoir.

⁷ ISP photographs indicate this tire was inflated at the time of the crash.

No disassembly of the pickup was done for this inspection; therefore, no brake lining, rotor, or drum measurements were recorded.

1.7. Vehicle Recorded Event Data

The pickup was equipped with an Airbag Control Module (ACM). The Indiana State Police recovered the ACM and successfully imaged it. The information obtained from the ACM was provided to the NTSB staff.⁸ The pickup was equipped with multiple airbags, which did inflate, and triggered the ACM to capture and preserve event data.⁹

No electronic control modules were imaged or removed by NTSB staff.

1.8. Recalls

According to the National Highway Transportation Safety Agency (NHTSA), there have been no recalls issued for this vehicle.

2. ADDITIONAL INVESTIGATION DETAILS

The 2015 Thomas Built School bus, which was at the bus stop at the time of this crash, was not involved in the crash. Despite not being involved in the crash, the school bus was inspected by ISP and no mechanical deficiencies were found.¹⁰ However; an inspection of the exterior lights (headlamps, signal warning lamps, stop signal arm, stop and turn signals) was conducted by the NTSB staff. The signal warning lamps were cycled from off, to amber, and then to red. When the red signal warning lamps were activated, the stop signal arm activated automatically and extended out from the left side of the bus, just rear and below the driver's side window. The red signal warning lamps can be operated either manually, before the bus entrance door is opened, or automatically when the bus entrance door is opened. During the operation of the warning lights, it was noted that, in addition to the red warning lights, the headlamps alternately flashed between high beam and low beam, corresponding to side of the illuminated red warning signal lamp.

⁸ See Vehicle Attachment – ISP CDR Report

⁹ See Technical Reconstructionist Chairman's report for details

¹⁰ See Motor Carrier report attachment for post-crash inspection.

The signal warning lamps complied with 49 CFR 571.108 and the stop signal arm complied with 49 CFR 571.131.

No discrepancies were identified with the school bus lighting or stop signal arm operation.

E. DOCKET MATERIAL

The following attachment and photographs are included in the docket for this investigation:

ATTACHMENT

Vehicle Attachment – Vehicle Specs – 2017 Tacoma

Vehicle Attachment – ISP CDR Report

PHOTOGRAPHS

Vehicle Photograph – Damage to the left front of the pickup

Vehicle Photograph – Damage to the front of the pickup

Vehicle Photograph – Damage to the right front of the pickup

Vehicle Photograph – Damage to the hood of the pickup

END OF REPORT

Jerome F. Cantrell
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