126-TRC-11-005

SAFETY COMPLIANCE TESTING FOR FMVSS 126
Electronic Stability Control Systems

Nissan Motor Co. Ltd.
2011 Nissan Juke
NHTSA No. CB5206

TRANSPORTATION RESEARCH CENTER INC.
10820 State Route 347
East Liberty, Ohio 43319

July 5, 2011

FINAL REPORT

Prepared Under Contract No.: DTNH22-08-D-00097

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
1200 New Jersey Avenue, SE
West Building, 4th Floor (NVS-221)
Washington, DC 20590

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16. Abstract A test was conducted on a 2011 Nissan Juke, NHTSA No. CB5206, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-126-02 for the determination of FMVSS 126 compliance. Test failures identified were as follows: None			
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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this test is to determine if the test vehicle, a MY 2011 Nissan Juke meets the minimum equipment and performance requirements stated in Federal Motor Vehicle Safety Standard (FMVSS) 126, "Electronic Stability Control Systems."

This standard establishes performance and equipment requirements for Electronic Stability Control (ESC) Systems installed in passenger cars, multipurpose passenger vehicles, trucks, and buses with a gross vehicle weight rating of 4,536 kilograms or less.

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS

Testing of the MY 2011 Nissan Juke was conducted at Transportation Research Center Inc. (TRC Inc.) in accordance with NHTSA TP-126-02, dated November 19, 2008.

The vehicle was inspected to ensure it was equipped with an ESC System that:

- Augments vehicle directional stability by applying and adjusting brake torques individually at each wheel to induce a correcting yaw moment to a vehicle;
- Is computer controlled with the computer using a closed-loop algorithm to limit vehicle oversteer and to limit vehicle understeer;
- Has a means to determine the vehicle's yaw rate and to estimate its side slip or side slip derivative with respect to time;
- Has a means to monitor driver steering inputs;
- Has an algorithm to determine the need, and a means to modify engine torque, as necessary, to assist the driver in maintaining control of the vehicle, and
- Is operational over the full speed range of the vehicle (except at vehicle speeds less than 20km/h (12.4mph), when being driven in reverse, or during system initialization).

The vehicle was subjected to a 0.7Hz Sine with Dwell (SWD) Steering Maneuver to ensure that it would meet the stability and responsiveness requirements of the standard as follows:

- At 1.0 second after completion of a required sine with dwell steering input, the yaw rate of the vehicle must not exceed 35 percent of the first peak value of yaw rate recorded after the steering wheel angle changes sign (between first and second peaks during the same test run).
- At 1.75 seconds after completion of a required sine with dwell steering input, the yaw rate of the vehicle must not exceed 20 percent of the first peak value of yaw rate recorded after the steering wheel angle changes sign (between first and second peaks during the same test run).

- The lateral displacement of the vehicle center of gravity with respect to its initial straight path must be at least 1.83 m (6 feet) (for vehicles with a GVWR of 3,500kg (7,716 lb) or less) when computed 1.07 seconds after the Beginning of Steer (BOS) at the specified steering wheel angles.

System malfunction simulations were executed to verify vehicle could identify and indicate a malfunction.

The vehicle's ESC System appears to meet the performance and equipment requirements as required by FMVSS 126. The test results are summarized on the following summary sheet.

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS …continued

DATA SUMMARY (Sheet 1 of 2)

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA NO.: CB5206 VIN: JN8AF5MVXBT016590

VEHICLE TYPE: MPV DATE OF MANUFACTURE: 01/11

LABORATORY: Transportation Research Center Inc.

REQUIREMENTS	**PASS/FAIL**
ESC Equipment and Operational Characteristics (Data Sheet 2)	
The vehicle is to be equipped with an ESC System that meets the equipment and operational characteristics requirements. (S126, S5.1, S5.6)	PASS
ESC Malfunction Telltale (Data Sheet 3)	
The vehicle is equipped with a telltale that indicates one or more ESC System malfunctions. (S126, S5.3)	PASS
"ESC Off" and other System Controls and Telltale (Data Sheet 3 & 4)	
The vehicle is equipped with an ESC off telltale indicating the vehicle has been put into a mode that renders the ESC System unable to satisfy the performance requirements of the standard, if such a mode exists. (S5.5.1)	PASS
If provided, off control and other system controls as well as the ESC off telltale meets the operational requirements (S126, S5.4, S5.4.1, S5.4.2, S5.5.4, and S5.5.9)	PASS

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS …continued

DATA SUMMARY (Sheet 2 of 2)

REQUIREMENTS	PASS/FAIL
If provided, off control and other system controls as well as the ESC off telltale meets the operational requirements (S126, S5.4, S5.4.1, S5.4.2, S5.5.4, and S5.5.9)	PASS

Vehicle Lateral Stability (Data Sheet 8)

Yaw Rate Ratio at 1 second after COS is less than 35% of peak value. (S126, S5.2.1)	PASS
Yaw Rate Ratio at 1.75 seconds after COS is less than 20% of peak value. (S126, S5.2.2)	PASS

Vehicle Responsiveness (Data Sheet 8)

Lateral displacement at 1.07 seconds after BOS is at least 1.83 m (6 feet) for vehicles with a GVWR of 3,500 kg (7,716 lbs.) or less, and 1.52 m (5 feet) for vehicles with a GVWR greater than 3,500 kg (7,716 lbs.). (S126 S5.2.3)	PASS

ESC Malfunction Warning (Data Sheet 9)

Warning is provided to driver after malfunction occurrence. (S126. S5.3)	PASS
Malfunction telltale stayed illuminated as long as malfunction existed and must extinguish after malfunction was corrected. (S126, S5.3.7)	PASS

REMARKS

3.0 TEST DATA

DATA SHEET 1 (Sheet 1 of 2)
TEST VEHICLE INSPECTION AND TEST PREPARATION

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

NHTSA No.: CB5206 TEST DATE: 5-23-11

VIN: JN8AF5MVXBT016590 MANUFACTURE DATE: 01/11

GVWR: 1,890 KG FRONT GAWR: 1,010 KG REAR GAWR 910 KG

SEATING POSITIONS: FRONT 2 REAR 3

ODOMETER READING AT START OF TEST: 68 (109) Miles (Kilometers)

DESIGNATED TIRE SIZE(S) FROM VEHICLE LABELING:

Front Axle P215 / 55R17 93V Rear Axle P215 / 55R17 93V

INSTALLED TIRE SIZE(S) ON VEHICLE:

From Tire Sidewall	Front Axle	Rear Axle
Manufacturer and Model	Goodyear Eagle RS-A	Goodyear Eagle RS-A
Tire Size Designation	P215 / 55R17 93V	P215 / 55R17 93V

Are installed tire sizes same as labeled tire sizes? X Yes _____ No
If no, contact COTR for further guidance.

DRIVE CONFIGURATIONS (MARK ALL THAT APPLY):

_____ Two Wheel Drive (2WD): ( ) Front Wheel Drive ( ) Rear Wheel Drive
X All Wheel Drive (AWD)
_____ Four Wheel Drive Automatic – differential not locked full time (4WD Automatic)
_____ Four Wheel Drive High Gear Unlocked Center Differential
_____ Four Wheel Drive High Gear Locked Center Differential
_____ Four Wheel Drive Low Gear Unlocked Center Differential
_____ Four Wheel Drive Low Gear Locked Center Differential
_____ Other (define _____)

3.0 TEST DATA….continued

DATA SHEET 1 (Sheet 2 of 2)
TEST VEHICLE INSPECTION AND TEST PREPARATION

DRIVE CONFIGURATIONS AND MODES: (ex. default, performance, off)
(For each of the vehicle's drive configurations identify available operating modes)

Drive Configuration AWD
Mode(s) default

Drive Configuration _____
Mode(s) _____

Drive Configuration _____
Mode(s) _____

VEHICLE STABILITY SYSTEMS (Check applicable technologies):

X ESC X Traction Control X Roll Stability Control

_____ Active Suspension X Electronic Throttle Control _____ Active Steering

X ABS

List other systems; _____

REMARKS:

RECORDED BY: Alan Ida DATE: 5-23-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 2 (Sheet 1 of 2)
ESC SYSTEM HARDWARE AND OPERATIONAL CHARACTERISTICS

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

NHTSA No.: CB5206 TEST DATE: 6-15-11

ESC SYSTEM IDENTIFICATION:

Manufacturer / Model Hitachi Automotive Systems ABS / VDC / TDS Unit / LX5-VDC

ESC SYSTEM HARDWARE (Check applicable hardware):

X Electronic Control Unit	X Hydraulic Control Unit
X Wheel Speed Sensors	X Steering Angle Sensor
X Yaw Rate Sensor	X Lateral Acceleration Sensor

List other components; _____

ESC SYSTEM OPERATIONAL CHARACTERISTICS:

System is capable of generating brake torques at each wheel X Yes (PASS)
_____ No (FAIL)

List and describe component(s): ABS Actuator & Electric Control Unit

System is capable of determining yaw rate X Yes (PASS)
_____ No (FAIL)

List and describe component(s): Yaw Rate Sensor

System is capable of monitoring driver steering input X Yes (PASS)
_____ No (FAIL)

List and describe component(s): Steering wheel angle sensor

System is capable of estimating side slip or side slip derivation X Yes (PASS)
_____ No (FAIL)

List and describe component(s): The ESC system collects signal inputs from Stop-lamp switch, longitudinal acceleration, lateral acceleration, yaw rate, wheel speed, steering angle, accelerator signal, engine torque signal, and gear position signal. It calculates the request, which is based on the actuating variable of the driver from the steering angle signal and it estimates the driving condition of the vehicle from the yaw rate signal and the acceleration signal. The slip angle model of the vehicle estimates the slip angle of the vehicle from the steering angle signal, lateral acceleration signal, and yaw rate signal. The Yaw rate model estimates yaw rate from the steering angle signal and lateral acceleration signal.

3.0 TEST DATA….continued

DATA SHEET 2 (Sheet 2 of 2)
ESC SYSTEM HARDWARE AND OPERATIONAL CHARACTERISTICS

ESC SYSTEM OPERATIONAL CHARACTERISTICS (continued):

System is capable of modifying engine torque during ESC activation. ___X___ Yes (PASS)
_____ No (FAIL)

Method used to modify engine torque: The engine controller module will receive the engine torque request from the ESC controller unit and modifies the engine torque by differentiating the throttle opening and fuel delivery.

System is capable of activation at speeds of 20 km/h (12.4 mph) and higher. ___X___ Yes (PASS)
_____ No (FAIL)

Speed system becomes active. 15 km/h (9.3 mph)

System is capable of activation during the following driving phases (acceleration, deceleration, coasting, and during activation of ABS or traction control). ___X___ Yes (PASS)
_____ No (FAIL)

Driving phases that the system is capable of activation. The ESC system is active during all of the following driving phases: acceleration, deceleration, coasting, and during activation of ABS or traction control. The ESC system will not activate during backwards driving, low velocity, or when the ESC Off switch is activated.

Vehicle manufacturer submitted documentation explaining how the ESC system mitigates understeer? ___X___ Yes (PASS)
_____ No (FAIL)

DATA INDICATES COMPLIANCE PASS/FAIL PASS

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 3 (Sheet 1 of 2)
ESC MALFUNCTION AND OFF TELLTALES

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA NO. CB5206 TEST DATE: 6-15-11

ESC Malfunction Telltale

Vehicle is equipped with malfunction telltale? X Yes (Pass) ____ No (Fail)

Telltale Location Instrument cluster, inside the tachometer

Telltale Color Yellow

Telltale symbol or abbreviation used.

Or **ESC**

X Vehicle uses this symbol
____ Vehicles uses this abbreviation
____ Neither symbol or abbreviation is used

If different than identified above, make note of any message, symbol or abbreviation used.

Is telltale part of a common space? ____ Yes X No

Is telltale also used to indicate activation of the ESC system? X Yes ____ No

If yes, explain telltale operation during ESC activation: The ESC telltale flashes

DATA SHEET 3 (Sheet 2 of 2)
ESC MALFUNCTION AND OFF TELLTALES

"ESC OFF" Telltale (if provided)

Vehicle is equipped with "ESC Off" telltale? __X__ Yes _____ No

Is "ESC OFF" telltale combined with "ESC Malfunction" telltale utilizing a two part telltale?

_____ Yes __X__ No

Telltale Location Instrument cluster, inside the tachometer

Telltale Color Yellow

Telltale symbol or abbreviation used.

Or **ESC OFF**

__X__ Vehicle uses this symbol
_____ Vehicle uses this abbreviation
_____ Neither symbol or abbreviation is used

If different than identified above, make note of any message, symbol or abbreviation used.

_____

_____

Is telltale part of a common space? _____ Yes __X__ No

DATA INDICATES COMPLIANCE PASS/FAIL PASS
(Vehicle is compliant if equipped with a malfunction telltale)

REMARKS:

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 1 of 3)
ESC AND ANCILLARY SYSTEM CONTROLS

“ESC OFF” Controls Identification and Operational Check:

Is the vehicle equipped with a control or controls whose purpose is to deactivate the ESC system or place the ESC system in a mode or modes that may no longer satisfy the performance requirements of the standard?

__X__ Yes _____ No

Type of control or controls provided? (mark all that apply)

_____X_____ Dedicated “ESC Off” control
_____ Multi-functional control with an “ESC Off” mode
_____ Other (describe)

Identify each control location, labeling and selectable modes.

First Control:
Location Dash panel, left of steering column
Labeling Skidding car symbol with “OFF” underneath
Modes ESC Off
ESC On

Identify standard or default drive configuration AWD - default

Verify standard or default drive configuration selected. __X__ Yes _____ No

Does the “ESC Off” telltale illuminate upon activation of the dedicated ESC off control or selection of the “ESC Off” mode on the multi-function control?

__X__ Yes _____ No (fail)

Does the “ESC Off” telltale extinguish when the ignition is cycled from “On” (“Run”) to “Lock” or “Off” and then back again to the “On” (“Run”) position?

__X__ Yes _____ No (fail)

If no, describe how the off control functions:

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 2 of 3)
ESC AND ANCILLARY SYSTEM CONTROLS

If a multi-function control is provided, cycle through each mode setting on the control and record which modes illuminate the "ESC Off" telltale. Also, for those modes that illuminate the ESC Off" telltale identify if the telltale extinguishes upon cycling the ignition system.

Control Modes	"ESC Off" telltale illuminates upon activation of control? (Yes/No)	"ESC Off" telltale extinguishes upon cycling ignition? (Yes/No)
N/A		

For each mode that illuminates the "ESC Off" telltale, did the telltale extinguish when the ignition was cycled from "On" ("Run") to "Lock" or "Off" and then back again to the "On" ("Run") position?

_____ Yes _____ No (fail)

Other System Controls that have an ancillary effect on ESC Operation:

Is the vehicle equipped with any ancillary controls that upon activation may deactivate the ESC System or place the ESC System in a mode or modes that may no longer satisfy the performance requirements of the standard?

_____ Yes ___X_ No

List and describe each control (i.e. alternate drive configuration selection controls):

Ancillary Control: System N/A
Control Description
Labeling

Ancillary Control: System N/A
Control Description
Labeling

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 3 of 3)
ESC AND ANCILLARY SYSTEM CONTROLS

Activate each control listed above and record whether the control illuminates the "ESC Off" telltale. Also, record warnings or messages provided regarding the ESC System.

Ancillary Control	Control Activates "ESC Off" Telltale? (Yes/No)	Warnings or Messages Provided
N/A	N/A	N/A

For those controls that illuminate the "ESC Off" telltale above identify if the "ESC Off" telltale extinguishes upon cycling the ignition system.

Ancillary Control	"ESC Off" telltale extinguishes upon cycling ignition? (Yes/No)
N/A	N/A

For each control that illuminates the "ESC Off" telltale, did the telltale extinguish when the ignition is cycled from "On" ("Run") to "Lock" or "Off" and then back again to the "On" ("Run") position? If the control activated places the vehicle into a low-range four-wheel drive configuration designed for low-speed, off–road driving, the ESC System may remain turned off after the ignition has been cycled off and then back on and therefore the "ESC Off" telltale may not extinguish.

_____ Yes _____ No (fail)

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 5 (Sheet 1 of 3)
VEHICLE AND TEST TRACK DATA

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

NHTSA No.: CB5206 TEST DATE: 6-13-11

Test Track Requirements: Test Surface Slope (0-1 %) 1 %

Peak Friction Coefficient (at least 0.9) 0.96

Full Fluid Levels: Fuel X Coolant X Other Fluids Washer (specify)

Tire Pressures: **Required:** Front Axle 240 kPa Rear Axle 240 kPa

Actual: LF: 240 kPa RF: 240 kPa LR: 240 kPa RR: 240 kPa

Vehicle Dimensions: Track Width 152.1 cm Wheelbase 252.7 cm

Roof Height 155.0 cm

Vehicle weight ratings: GAWR Front 1,010 KG GAWR Rear 910 KG

Unloaded Vehicle Weight (UVW)

Front Axle 858.4 KG Left Front 427.0 KG Right Front 431.4 KG

Rear Axle 574.0 KG Left Rear 292.4 KG Right Rear 281.6 KG

Total UVW 1,432.4 KG

Baseline Weight and Outrigger Selection (only for MPVs, Trucks, Buses)

Calculated Baseline Weight (UVW+ 73 kg) 1,505.4 KG

Outrigger size required ("Standard" or "Heavy") Standard

Standard - Baseline weight under 2,722 kg (6,000 lbs.)
Heavy - Baseline weight equal to or greater than 2,722 kg (6,000 lbs.)

DATA SHEET 5 (Sheet 2 of 3)
VEHICLE AND TEST TRACK DATA

UVW with Outriggers (only for MPVs, Trucks, Buses)

Front Axle 905.0 KG Left Front 451.8 KG Right Front 453.2 KG

Rear Axle 610.8 KG Left Rear 309.0 KG Right Rear 301.8 KG

Total UVW w/ Outriggers 1,515.8 KG

Loaded Vehicle Weight w/ Driver and Instrumentation (No Ballast)

Front Axle 982.6 KG Left Front 496.8 KG Right Front 485.8 KG

Rear Axle 668.4 KG Left Rear 346.4 KG Right Rear 322.0 KG

Total Loaded Vehicle Weight 1,651.0 KG

Ballast Required = [**UVW w/ Outriggers** + 168 KG] - **Total Loaded Weight w/ Driver and Instrumentation**

= [1,515.8 KG + 168 KG] - 1,651.0 KG

= 32.8 KG

Total Loaded Vehicle Weight

Front Axle 996.4 KG Left Front 500.4 KG Right Front 496.0 KG

Rear Axle 687.4 KG Left Rear 351.8 KG Right Rear 335.6 KG

Total Loaded Vehicle Weight 1,683.8 KG

3.0 TEST DATA….continued

DATA SHEET 5 (Sheet 3 of 3)
VEHICLE AND TEST TRACK DATA

Center of Gravity and Inertial Sensing System Location at Loaded Vehicle Condition

x-distance (longitudinal) Point of reference is the front axle centerline. (Positive from front axle toward rear of vehicle.)

y-distance (lateral) Point of reference is the vehicle centerline. (Positive from the center toward the right.)

z-distance (vertical) Point of reference is the ground plane. (Positive from the ground up.)

Locations:

	Center of Gravity	Inertial Sensing System
x-distance	103.2 cm	149.2 cm
y-distance	-0.9 cm	0.4 cm
z-distance	58.9 cm	76.7 cm

Distance Between Ultrasonic Sensors: 173.7 cm

TEST TRACK DATA MEETS REQUIREMENTS: YES/NO YES
If no, explain: _____

REMARKS:

RECORDED BY: Alan Ida DATE: 6-13-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 6 (Sheet 1 of 3)
BRAKE AND TIRE CONDITIONING

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA No.: CB5206

Measured Cold Tire Pressures: LF 240 kPa RF 240 kPa

LR 240 kPa RR 240 kPa

Wind Speed 2.2 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 15.6 °C

Brake Conditioning Time; 9:00 AM Date; 6-14-11

56 km/h (35 mph) Brake Stops

Number of stops executed (10 required) 10 stops

Observed deceleration rate range (.5g target) 0.50 – 0.60 g

72 km/h (45 mph) Brake Stops

Number of stops executed (3 required) 3 stops

Number of stops ABS activated (3 required) 3 stops

Observed deceleration rate range 1.20 – 1.30 g

72 km/h (45 mph) Brake Cool Down Period

Duration of cool down period (5 minutes min.) 5:17 minutes

3.0 TEST DATA….continued

DATA SHEET 6 (Sheet 2 of 3)
BRAKE AND TIRE CONDITIONING

Tire Conditioning Series No. 1 Time: 9:10 AM Date: 6-14-11

Measured Tire Pressures: LF 250 kPa RF 250 kPa

LR 248 kPa RR 249 kPa

Wind Speed 1.8 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 16.1 °C

30 meter (100 ft) Diameter Circle Maneuver				
Test Runs	Steering Direction	Target Lateral Acceleration (g)	Observed Lateral Acceleration (g)	Observed Vehicle Speed (km/h)
1-3	Clockwise	0.5-0.6	0.55	32.2
4-6	Counterclockwise	0.5-0.6	0.55	32.2

1 Hz 5 Cycle Sinusoidal Steering Maneuver to Determine Steering Wheel Angle For 0.5-0.6g Lateral Acceleration				
Test Runs	Vehicle Speed Km/h(mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1	56±2 (35±1)	30	0.5-0.6	0.26
2	56±2 (35±1)	60	0.5-0.6	0.50
3	56±2 (35±1)		0.5-0.6	
4	56±2 (35±1)		0.5-0.6	

Steering wheel angle that corresponds to a peak 0.5–0.6g lateral acceleration; 60 degrees

1 Hz 10 Cycle Sinusoidal Steering Maneuver				
Test Runs	Vehicle Speed Km/h (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1 - 3	56±2 (35±1)	60 (cycles 1-10)	0.5-0.6	0.50
4	56±2 (35±1)	60 (cycles 1-9)	0.5-0.6	0.50
		120 (cycle 10)*	N/A	0.90

* The steering wheel angle used for cycle 10 should be twice the angle used for cycles 1-9.

3.0 TEST DATA….continued

DATA SHEET 6 (Sheet 3 of 3)
BRAKE AND TIRE CONDITIONING

Tire Conditioning Series No. 2 Time: 11:10 AM Date: 6-14-11

Measured Tire Pressures: LF 251 kPa RF 252 kPa

LR 248 kPa RR 250 kPa

Wind Speed 2.7 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 17.2 °C

30 meter (100 ft) Diameter Circle Maneuver				
Test Runs	Steering Direction	Target Lateral Acceleration (g)	Observed Lateral Acceleration (g)	Observed Vehicle Speed (km/h)
1-3	clockwise	0.5-0.6	0.55	32.2
4-6	counterclockwise	0.5-0.6	0.55	32.2

1 Hz 5 Cycle Sinusoidal Steering Maneuver to Determine Steering Wheel Angle For 0.5-0.6g Lateral Acceleration				
Test Runs	Vehicle Speed Km/h (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1	56±2 (35±1)	N/A	0.5-0.6	N/A
2	56±2 (35±1)		0.5-0.6	
3	56±2 (35±1)		0.5-0.6	
4	56±2 (35±1)		0.5-0.6	

Steering wheel angle that corresponds to a peak 0.5–0.6g lateral acceleration; 60 degrees

1 Hz 10 Cycle Sinusoidal Steering Maneuver				
Test Runs	Vehicle Speed (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1 - 3	56±2 (35±1)	60 (cycles 1-10)	0.5-0.6	0.50
4	56±2 (35±1)	60 (cycles 1-9)	0.5-0.6	0.50
		120 (cycle 10)*	N/A	0.92

* The steering wheel angle used for cycle 10 should be twice the angle used for cycles 1-9.

REMARKS:

RECORDED BY: Alan Ida DATE: 6-14-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 7 (1 of 2)
SLOWLY INCREASING STEER (SIS) MANEUVER

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA No.: CB5206 TEST DATE: 6-14-11

Wind Speed 2.2 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 16.1 °C

Static Data File Number: 0008

Selected Drive Configuration: AWD

Selected Mode: default

Preliminary Left Steer Maneuver:

Lateral Acceleration measured at 30 degrees steering wheel angle ($a_{y,30\ degrees}$)

$a_{y,30\ degrees}$ = 0.38 g

Assuming a linear relationship the following ratio should be used to calculate the steering wheel angle at .55g.

$$\frac{30\,\text{degrees}}{a_{\text{y,30 degrees}}} = \frac{\delta_{SIS}}{0.55\,\text{g}}$$

δ_{SIS} = 43 degrees @ 0.55g

δ_{SIS} = 40 degrees (rounded)

Steering Wheel Angle at Corrected 0.3 g Lateral Acceleration:

Maneuver #	Initial Steer Direction	Time Clock (5 min max between runs)	Steering Wheel Angle to nearest 0.1 degree (degrees)	All Conditions Met?
0010	Left	9:42 am	-27.1	Yes
0011	Left	9:47 am	-27.3	Yes
0012	Left	9:50 am	-27.2	Yes
0013	Right	9:54 am	26.6	Yes
0014	Right	9:57 am	26.9	Yes
0016	Right	10:03 am	26.8	Yes*

3.0 TEST DATA….continued

DATA SHEET 7 (2 of 2)
SLOWLY INCREASING STEER (SIS) MANEUVER

Average Overall Steering Wheel Angle:

$$\delta_{0.3\ g,\ overall} = (|\ \delta_{0.3\ g,\ left\ (1)}\ | + |\ \delta_{0.3\ g,\ left\ (2)}\ | + |\ \delta_{0.3\ g,\ left\ (3)}\ | + \delta_{0.3\ g,\ right\ (1)} + \delta_{0.3\ g,\ right\ (2)} + \delta_{0.3\ g,\ right\ (3)}) / 6$$

$\delta_{0.3\ g,\ overall}$ = 27.0 degrees
[to nearest 0.1 degree]

REMARKS:

*The time clock between maneuvers 0014 and 0016 indicates more than 5 minutes since maneuver 0015 was omitted due to the vehicle speed not meeting the requirements

RECORDED BY: Alan Ida DATE: 6-14-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 8 (1 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA No.: CB5206 TEST DATE: 6-14-11

Tire conditioning completed	X Yes	No
ESC system is enabled	X Yes	No
On track calibration checks have been completed	X Yes	No
On track static data file for each sensor obtained	X Yes	No

Selected Drive Configuration: AWD
Selected Mode: default

Overall steering wheel angle ($\delta_{0.3\ g,\ overall}$) 27.0 degrees

Static Data File Number 0017

Lateral Stability Test Series No. 1 – Counterclockwise Initial Steer Direction

Maneuver #	Clock Time (1.5 – 5 min between each test run)	Commanded Steering Wheel Angle[1] (degrees)		Yaw Rates (degrees/sec)			YRR at 1.0 sec after COS [≤ 35%]		YRR at 1.75 sec after COS [≤ 20%]	
		Scalar	Angle	$\dot{\psi}_{Peak}$	$\dot{\psi}_{1.0sec}$	$\dot{\psi}_{1.75sec}$	%	Pass/ Fail	%	Pass/ Fail
0019	11:29 am	1.5* $\delta_{0.3\ g}$	41	12.71	0.06	0.00	0.46	Pass	0.03	Pass
0020	11:32 am	2.0* $\delta_{0.3\ g}$	54	17.28	-0.08	0.04	-0.48	Pass	0.24	Pass
0021	11:35 am	2.5* $\delta_{0.3\ g}$	68	21.69	0.08	0.06	0.37	Pass	0.27	Pass
0022	11:38 am	3.0* $\delta_{0.3\ g}$	81	24.21	0.01	-0.14	0.04	Pass	-0.57	Pass
0023	11:42 am	3.5* $\delta_{0.3\ g}$	95	27.91	-0.02	0.09	-0.08	Pass	0.33	Pass
0024	11:45 am	4.0* $\delta_{0.3\ g}$	108	33.54	-0.05	-0.07	-0.15	Pass	-0.21	Pass
0025	11:48 am	4.5* $\delta_{0.3\ g}$	122	39.52	0.02	0.00	0.05	Pass	-0.01	Pass
0026	11:51 am	5.0* $\delta_{0.3\ g}$	135	45.10	0.08	-0.03	0.18	Pass	-0.06	Pass
0027	11:54 am	5.5* $\delta_{0.3\ g}$	149	49.89	-0.02	-0.12	-0.05	Pass	-0.25	Pass
0028	11:57 am	6.0* $\delta_{0.3\ g}$	162	52.15	-0.20	-0.18	-0.39	Pass	-0.34	Pass
0029	12:00 pm	6.5* $\delta_{0.3\ g}$	176	49.93	0.06	-0.04	0.12	Pass	-0.08	Pass
0030	12:03 pm	7.0* $\delta_{0.3\ g}$	189	46.31	0.06	0.11	0.13	Pass	0.24	Pass
0032	12:09 pm	7.5* $\delta_{0.3\ g}$	203	47.58	0.22	0.12	0.47	Pass	0.25	Pass
0033	12:12 pm	8.0* $\delta_{0.3\ g}$	216	48.67	0.03	0.02	0.07	Pass	0.04	Pass
0034	12:15 pm	8.5* $\delta_{0.3\ g}$	230	50.86	0.00	-0.05	0.00	Pass	-0.10	Pass
0035	12:18 pm	9.0* $\delta_{0.3\ g}$	243	51.59	0.04	-0.01	0.09	Pass	-0.02	Pass
0036	12:21 pm	9.5* $\delta_{0.3\ g}$	257	50.06	0.06	0.01	0.11	Pass	0.02	Pass
0037	12:24 pm	10.0* $\delta_{0.3\ g}$	270	50.38	-0.06	-0.01	-0.11	Pass	-0.02	Pass

1. Maneuver execution should continue until a steering wheel angle magnitude factor of 6.5*$\delta_{0.3\ g,\ overall}$ or 270 degrees is utilized, whichever is greater provided the calculated magnitude of 6.5*$\delta_{0.3\ g,\ overall}$ is less than or equal to 300 degrees. If 6.5*$\delta_{0.3\ g,\ overall}$ is less than 270 degrees maneuver execution should continue by increasing the steering wheel angle magnitude by multiples of 0.5*$\delta_{0.3\ g,\ overall}$ without exceeding the 270 degree steering wheel angle.

3.0 TEST DATA….continued

DATA SHEET 8 (2 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

Lateral Stability Test Series No. 2 – Clockwise Initial Steer Direction

Maneuver #	Clock Time (1.5 – 5 min between each test run)	Commanded Steering Wheel Angle[1] (degrees)		Yaw Rates (degrees/sec)			YRR at 1.0 sec after COS [≤ 35%]		YRR at 1.75 sec after COS [≤ 20%]	
		Scalar	Angle	$\dot{\psi}_{Peak}$	$\dot{\psi}_{1.0\text{sec}}$	$\dot{\psi}_{1.75\text{sec}}$	%	Pass/ Fail	%	Pass/ Fail
0038	12:27 pm	1.5* $\delta_{0.3\,g}$	41	-12.31	-0.10	-0.15	0.81	Pass	1.26	Pass
0039	12:30 pm	2.0* $\delta_{0.3\,g}$	54	-16.32	-0.19	-0.15	1.14	Pass	0.94	Pass
0040	12:33 pm	2.5* $\delta_{0.3\,g}$	68	-20.58	0.07	0.04	-0.33	Pass	-0.20	Pass
0041	12:36 pm	3.0* $\delta_{0.3\,g}$	81	-24.17	0.03	0.00	-0.11	Pass	-0.01	Pass
0042	12:39 pm	3.5* $\delta_{0.3\,g}$	95	-29.79	0.05	0.14	-0.18	Pass	-0.48	Pass
0043	12:42 pm	4.0* $\delta_{0.3\,g}$	108	-35.74	-0.12	-0.12	0.35	Pass	0.32	Pass
0044	12:45 pm	4.5* $\delta_{0.3\,g}$	122	-41.41	0.11	0.13	-0.28	Pass	-0.31	Pass
0045	12:48 pm	5.0* $\delta_{0.3\,g}$	135	-46.53	-0.16	-0.13	0.35	Pass	0.28	Pass
0046	12:51 pm	5.5* $\delta_{0.3\,g}$	149	-51.04	-0.27	-0.11	0.53	Pass	0.22	Pass
0047	12:54 pm	6.0* $\delta_{0.3\,g}$	162	-54.40	-0.28	-0.04	0.52	Pass	0.08	Pass
0048	12:56 pm	6.5* $\delta_{0.3\,g}$	176	-50.36	0.08	-0.01	-0.15	Pass	0.02	Pass
0049	12:59 pm	7.0* $\delta_{0.3\,g}$	189	-50.39	0.13	0.10	-0.25	Pass	-0.19	Pass
0050	1:02 pm	7.5* $\delta_{0.3\,g}$	203	-50.22	-0.12	-0.04	0.23	Pass	0.09	Pass
0051	1:05 pm	8.0* $\delta_{0.3\,g}$	216	-51.52	0.03	0.02	-0.06	Pass	-0.03	Pass
0052	1:08 pm	8.5* $\delta_{0.3\,g}$	230	-51.90	0.02	0.00	-0.03	Pass	0.00	Pass
0053	1:11 pm	9.0* $\delta_{0.3\,g}$	243	-51.20	0.08	0.03	-0.15	Pass	-0.05	Pass
0054	1:22 pm	9.5* $\delta_{0.3\,g}$	257	-56.89	-0.22	0.02	0.38	Pass	-0.04	Pass
0055	1:25 pm	10.0* $\delta_{0.3\,g}$	270	-54.19	0.00	-0.02	0.00	Pass	0.04	Pass

1. Maneuver execution should continue until a steering wheel angle magnitude factor of 6.5*$\delta_{0.3\,g,\,overall}$ or 270 degrees is utilized, whichever is greater provided the calculated 6.5*$\delta_{0.3\,g,\,overall}$ is less than or equal to 300 degrees. If 6.5*$\delta_{0.3\,g,\,overall}$ is less than 270 degrees maneuver execution should continue by increasing the steering wheel angle magnitude by multiples of 0.5*$\delta_{0.3\,g,\,overall}$ without exceeding the 270 degree steering wheel angle.

During execution of the sine with dwell maneuvers were any of the following events observed?

Rim-to-pavement contact	_____ Yes	__X__ No
Tire debeading	_____ Yes	__X__ No
Loss of pavement contact of vehicle tires	_____ Yes	__X__ No
Did the test driver experience any vehicle loss of control or spinout?	_____ Yes	__X__ No

If "Yes" explain the event and consult with the COTR. _____

_____

_____

3.0 TEST DATA….continued

DATA SHEET 8 (3 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

Responsiveness – Lateral Displacement

Maneuver #	Initial Steer Direction	Commanded Steering Wheel Angle ($5.0*\delta_{0.3\ g,\ overall}$ or greater)		Calculated Lateral Displacement[1]	
		Scalar	Angle (degrees)	Distance (m)	Pass/Fail
0026	Counter Clockwise	5.0* $\delta_{0.3\ g}$	135	3.44	Pass
0027	Counter Clockwise	5.5* $\delta_{0.3\ g}$	149	3.58	Pass
0028	Counter Clockwise	6.0* $\delta_{0.3\ g}$	162	3.65	Pass
0029	Counter Clockwise	6.5* $\delta_{0.3\ g}$	176	3.66	Pass
0030	Counter Clockwise	7.0* $\delta_{0.3\ g}$	189	3.75	Pass
0032	Counter Clockwise	7.5* $\delta_{0.3\ g}$	203	3.69	Pass
0033	Counter Clockwise	8.0* $\delta_{0.3\ g}$	216	3.70	Pass
0034	Counter Clockwise	8.5* $\delta_{0.3\ g}$	230	3.63	Pass
0035	Counter Clockwise	9.0* $\delta_{0.3\ g}$	243	3.67	Pass
0036	Counter Clockwise	9.5* $\delta_{0.3\ g}$	257	3.68	Pass
0037	Counter Clockwise	10.0* $\delta_{0.3\ g}$	270	3.65	Pass
0045	Clockwise	5.0* $\delta_{0.3\ g}$	135	3.37	Pass
0046	Clockwise	5.5* $\delta_{0.3\ g}$	149	3.49	Pass
0047	Clockwise	6.0* $\delta_{0.3\ g}$	162	3.54	Pass
0048	Clockwise	6.5* $\delta_{0.3\ g}$	176	3.58	Pass
0049	Clockwise	7.0* $\delta_{0.3\ g}$	189	3.61	Pass
0050	Clockwise	7.5* $\delta_{0.3\ g}$	203	3.61	Pass
0051	Clockwise	8.0* $\delta_{0.3\ g}$	216	3.60	Pass
0052	Clockwise	8.5* $\delta_{0.3\ g}$	230	3.57	Pass
0053	Clockwise	9.0* $\delta_{0.3\ g}$	243	3.61	Pass
0054	Clockwise	9.5* $\delta_{0.3\ g}$	257	3.58	Pass
0055	Clockwise	10.0* $\delta_{0.3\ g}$	270	3.63	Pass

1. Lateral displacement should be $\geq$ 1.83 m (6 ft) for vehicles with a GVWR of 3,500 kg (7,716 lb) or less; and $\geq$ 1.52 m (5ft) for vehicles with a GVWR greater than 3,500 kg (7,716 lb).

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:

RECORDED BY: Alan Ida DATE: 6-14-11
APPROVED BY: Ken Webster DATE: 6-17-11

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 1 of 2)
MALFUNCTION WARNING TEST

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA No.: CB5206 TEST DATE: 6-15-11

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation: Disconnect the Left Front wheel speed sensor connector.

MALFUNCTION TELLTALE ILLUMINATION:
Telltale illuminates and remains illuminated after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes.

X Yes ____ No

Time for telltale to illuminate after ignition system is activated.
0 Seconds (must be within 2 minutes) X Pass ____ Fail

ESC SYSTEM RESTORATION:
Telltale extinguishes after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes.

X Yes ____ No

Time for telltale to extinguish after ignition system is activated and vehicle speed of 48± 8 km/h (30± 5mph) is reached.
0 Second (must be within 2 minutes) X Pass ____ Fail

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:
The vehicle did not require driving to illuminate or extinguish the malfunction telltales. When the wheel speed sensor was disconnected, the ESC, AWD, and ABS malfunction telltales illuminated. After the wheel speed sensor connector was restored, the ESC, AWD and ABS malfunction telltales had extinguished.

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

DATA SHEET 9 (Sheet 2 of 2)
MALFUNCTION WARNING TEST

VEHICLE MAKE/MODEL/BODY STYLE: Nissan / Juke / MPV

VEHICLE NHTSA No.: CB5206 TEST DATE: 6-15-11

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation: Disconnect the Steering Wheel Angle Sensor connector.

MALFUNCTION TELLTALE ILLUMINATION:
Telltale illuminates and remains illuminated after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes.

X Yes ____ No

Time for telltale to illuminate after ignition system is activated.
0 Seconds (must be within 2 minutes) X Pass ____ Fail

ESC SYSTEM RESTORATION:
Telltale extinguishes after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes.

X Yes ____ No

Time for telltale to extinguish after ignition system is activated.
0 Second (must be within 2 minutes) X Pass ____ Fail

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:
The vehicle did not require driving to illuminate or extinguish the malfunction telltales. When the Steering Wheel Angle sensor connector was removed, the ESC and AWD malfunction telltales illuminated. After the Steering Wheel Angle sensor connector was restored, both the ESC and AWD malfunction telltales had extinguished.

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

Type	Output	Range	Resolution	Accuracy	Specifics	Serial Number	Calibration
Tire Pressure Gauge	Vehicle Tire Pressure	0 - 99.99 psi	0.01 psi	±0.5% of applied pressure	Intercomp Model: 360045 0 - 99.99 psi	0113SS11051	By: TRC Date: 6-02-11 Due: 9-02-11
Platform Scales	Vehicle Total, Wheel, and Axle Load	0-2500 lb per each of four pads	0.5 lb	±1.0% of applied load	Mettler Toledo Model: JXGA1000	5225831-5JC	By: Mettler Toledo Date: 5-16-11 Due: 8-16-11
Automated Steering Machine with Steering Angle Encoder	Handwheel Angle	±800 deg	0.25 deg	±0.25 deg	Heitz Automotive Testing Model: Sprint 3	60303	By: ATI-Heitz Date: 2-18-11 Due: 2-18-12
Multi-Axis Inertial Sensing System	Longitudinal, Lateral, and Vertical Acceleration Roll, Yaw, and Pitch Rate	Accelerometers: ±2 g Angular Rate Sensors: ±100 deg/s	Accelerometers: ≤10 ug Angular Rate Sensors: ≤0.004 deg/s	Accelerometers: ≤0.05% of full range Angular Rate Sensors: 0.05% of full range	BEI Technologies Model: MotionPAK MP-1	0768	By: BEI Tech. Date: 1-10-11 Due: 1-10-12
Radar Speed Sensor and Dashboard Display	Vehicle Speed	0-125 mph	0.009 mph	±0.25% of full scale	A-DAT Corp. Radar Model: DRS-6 Display Model: RD-2	1400603	By: B+S Multidata Date: 2-14-11 Due: 2-14-12
Ultrasonic Distance Measuring System	Left and Right Side Vehicle Height	5-24 inches	0.01 inches	±0.25% of maximum distance	Massa Products Corporation Model: M-5000/220	104619 & 104613	By: Consumers Energy Laboratory Services Date: 1-20-11 Due: 1-20-12
Data Acquisition System [Amplify, Anti-Alias, and Digitize]	Record Time; Velocity; Distance; Lateral, Longitudinal, and Vertical Accelerations; Roll, Yaw, and Pitch Rates; Steering Wheel Angle.	Sufficient to meet or exceed individual sensors	200 Hz	Sufficient to meet or exceed individual sensors	Dewetron Sidehand DAS Model: DA-121-16 Digitizer Model: Dewe-Orion-1616-100 Amplifier/AntiAliasing: MDAQ-FILT-10-S	12060 1105	By: Dewetron Date: 12-02-10 Due: 12-02-11
Load Cell	Vehicle Brake Pedal Force	0-300 lb	1 lb	±0.05% of full scale	DATRON Model: DTM-LPA	4970-1103	By: TRC Date: per test Due: per test
Coordinate Measurement Machine	Inertial Sensing System Location	0-10 feet	0.001 inch	±0.003% of full scale	FARO International Model: Faro Arm N10	U12-05-08-07108	By: FARO Date: 7-30-10 Due: 7-30-11
Outriggers	No output. Safety Item.	N/A	N/A	N/A	NHTSA Titanium Outriggers Model: Docket 2007-27662-11	N/A	N/A

5.0 PHOTOGRAPHS

5.1 ¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE
5.2 ¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE
5.3 VEHICLE CERTIFICATION LABEL
5.4 TIRE AND LOADING INFORMATION LABEL
5.5 WINDOW STICKER (MONRONEY LABEL)
5.6 ESC MALFUNCTION TELLTALE
5.7 ESC OFF TELLTALE
5.8 ESC OFF CONTROL
5.9 ¾ FRONT VIEW - TEST VEHICLE INSTRUMENTED
5.10 ¾ REAR VIEW – TEST VEHICLE INSTRUMENTED
5.11 STEERING WHEEL CONTROLLER AND DATA ACQUISITION SYSTEM
5.12 STEERING CONTROLLER BATTERY BOX
5.13 INERTIA MEASUREMENT UNIT
5.14 VEHICLE SPEED SENSOR
5.15 BODY ROLL SENSOR (DRIVER SIDE)
5.16 BODY ROLL SENSOR (PASSENGER SIDE)
5.17 BRAKE PEDAL FORCE TRANSDUCER

5.1 ¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE

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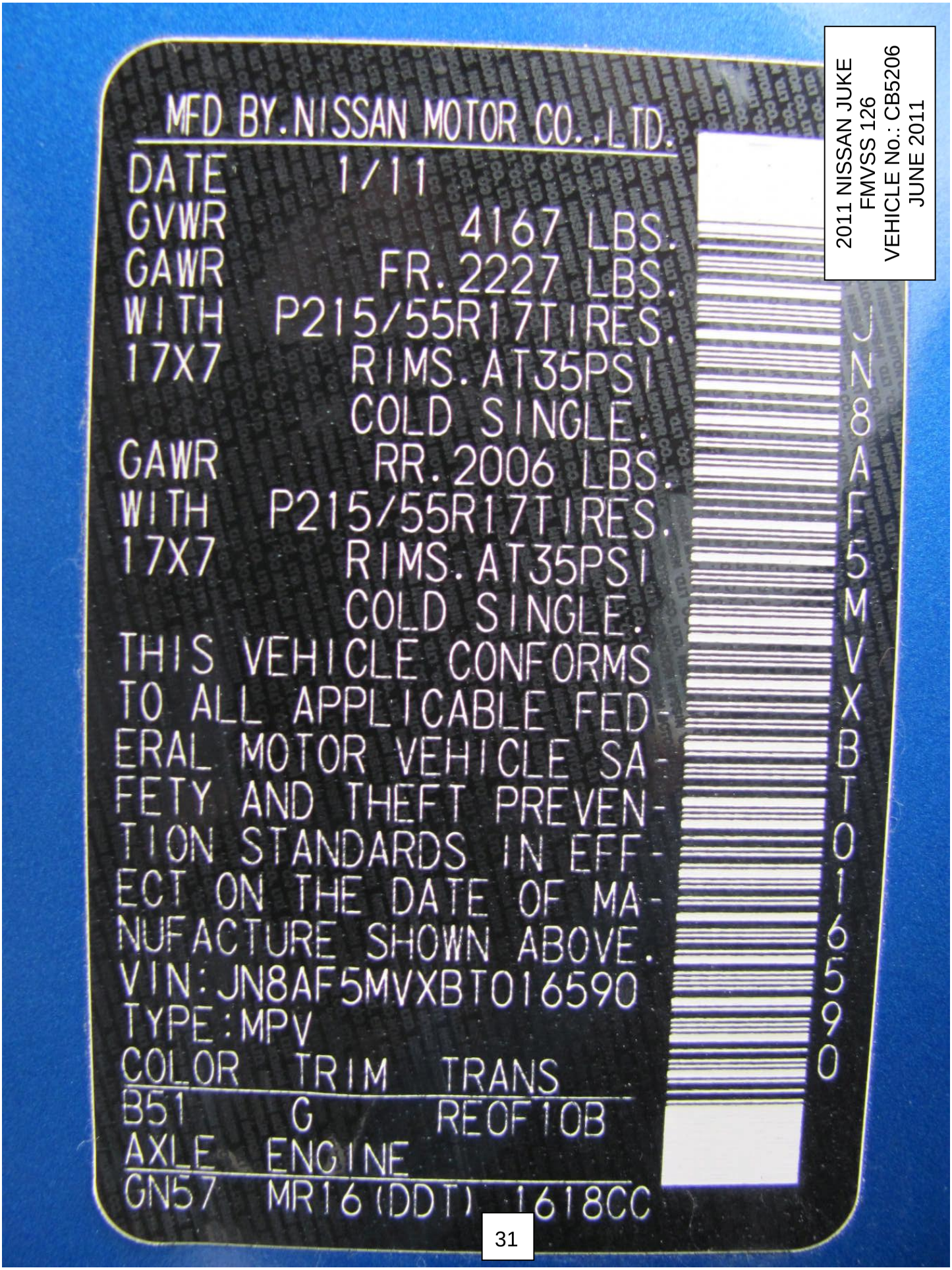
2011 NISSAN JUKE
FMVSS 126
VEHICLE No.: CB5206
JUNE 2011

5.2 ¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



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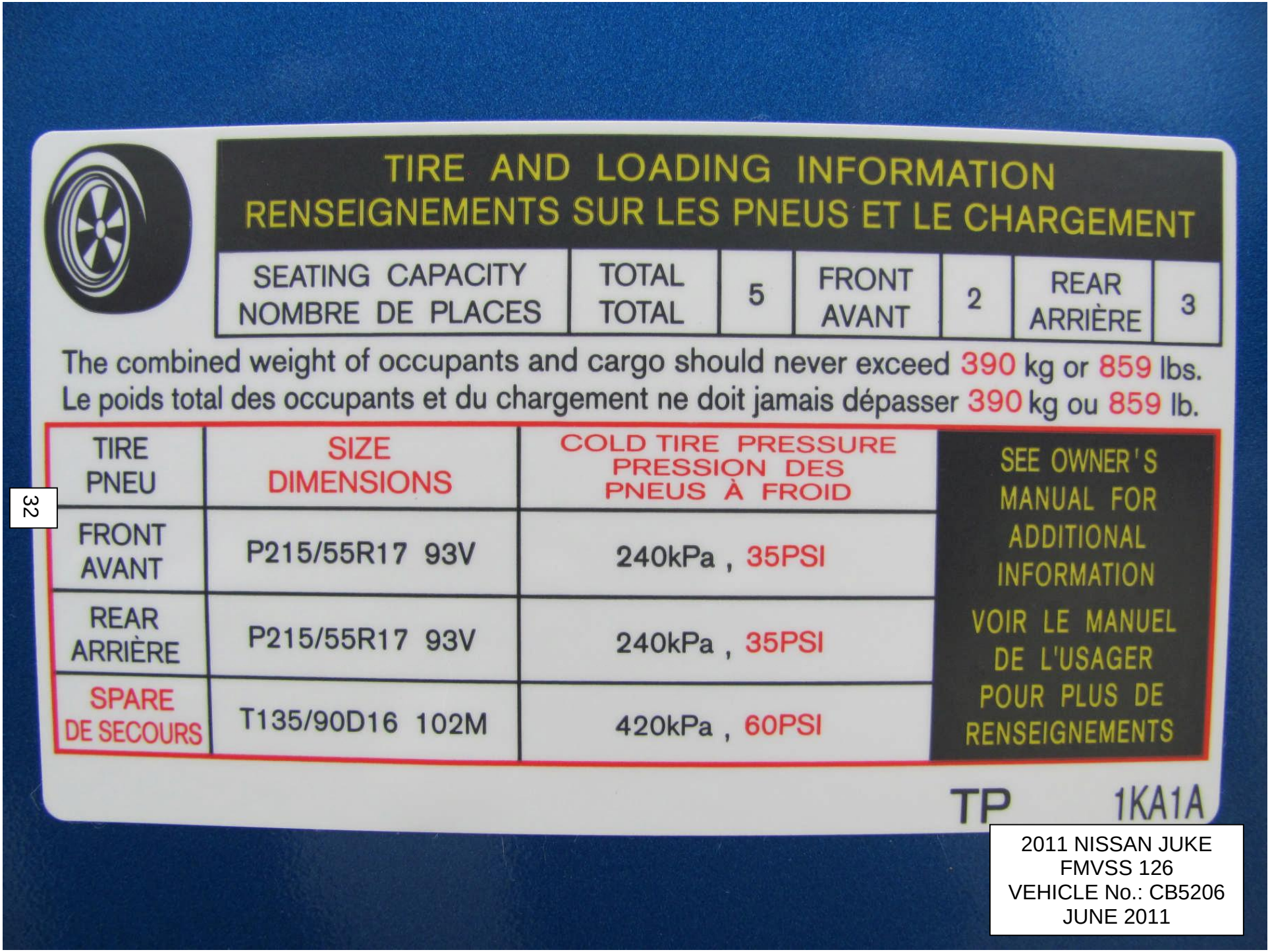
JUNE 2011

5.3 VEHICLE CERTIFICATION LABEL



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5.4 TIRE AND LOADING INFORMATION LABEL

2011 JUKE S AWD CVT

The Bold Urban Sport Cross

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
1.6 Liter Direct Injection Gasoline (DIG™) Turbocharged 4-Cylinder Engine
188 Horsepower & 177 lb.-ft. Torque
Continuously Variable Transmission (CVT) with Sport Mode
Torque Vectoring All-Wheel Drive (AWD)
Vehicle-Speed-Sensitive Electric Power Steering
Independent Front Strut Suspension
Multi-Link Independent Rear Suspension
Front and Rear Stabilizer Bars
Vented Front Disc Brakes
Solid Rear Disc Brakes
17" Aluminum Alloy Wheels
P215/55R17 V-Rated All-Season Tires
11.8 Gallon Fuel Tank Capacity

SAFETY AND SECURITY
Nissan Advanced Air Bag System (AABS)
Front Seat-Mounted Side-Impact Supplemental Air Bags
Roof-Mounted Curtain Side-Impact Supplemental Air Bags for Outboard Occupant Head Protection
Front Seat Belts w/ Pretensioners, Load Limiters & Adjustable Upper Anchors
Front-Seat Active Head Restraints
3-Point Seat Belts with ALR/ELR (Driver ELR Only)
Lower Anchors and Tethers for CHildren (LATCH)
Child Safety Rear Door Locks
Energy-Absorbing Steering Column
Zone Body Construction with Front and Rear Crumple Zones and Reinforced Passenger Compartment
4-Wheel Anti-Lock Braking System (ABS)
Vehicle Dynamic Control (VDC) with Traction Control System (TCS)
Tire Pressure Monitoring System (TPMS)
Electronic Brake-force Distribution (EBD) & Brake Assist (BA)
Vehicle Security System (VSS)
Nissan Vehicle Immobilizer System

COMFORT & CONVENIENCE
6-Way Manual Driver Seat
4-Way Manual Front Passenger Seat
60/40 Fold-Flat Second Row Seats
Cloth Seat Trim
Tilt Steering Column
Cruise Control w/Steering Wheel Controls
Steering Wheel Audio Controls
6-Speaker AM/FM/CD Audio System with Auxiliary Audio Input and MP3 CD Playback Capability
Interface System for iPod®
Bluetooth® Hands-Free Phone System with Steering Wheel Controls
Drive Computer with Outside Temperature Display
Air Conditioning
Remote Keyless Entry with Integrated Key
Power Windows with Driver Window One-Touch Auto Up/Down and Auto Reverse Feature
Power Door Locks with Auto Locking Feature
Dual Overhead Map Lights
Cargo Area Light
Dual Front and Rear Beverage Holders
12 Volt DC Power Outlet

EXTERIOR FEATURES
Halogen Headlights w/Automatic Off Feature
Manual Folding Power Outside Mirrors
Body-Colored Front Door Handles
Black "Hidden" Rear Door Handles

Manufacturer's Suggested Retail Base Price:	$20,480.00
Options Included by Manufacturer	
SPLASH GUARDS	120.00
CARPETED FLOOR MATS AND CARGO MAT	170.00
REAR ROOF SPOILER	390.00
Destination Charges:	760.00
Total*	**$21,920.00**

***Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.**

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EPA Fuel Economy Estimates

CITY MPG **25**
Expected range for most drivers **20** to **30** MPG

Estimated Annual Fuel Cost
$1,776
based on 15,000 miles at $3.20 per gallon

Combined Fuel Economy
This Vehicle 27
19 — 34
All **STATION WAGONS**
SMALL STATION WAGONS

HIGHWAY MPG **30**
Expected range for most drivers **24** to **36** MPG

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

GOVERNMENT SAFETY RATINGS

Frontal Crash	Driver	**Not Rated**
	Passenger	**Not Rated**

Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

Side Crash	Front seat	**Not Rated**
	Rear seat	**Not Rated**

Star ratings based on the risk of injury in a side impact.

Rollover **Not Rated**
Star ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★), with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA).

www.safercar.gov or 1-888-327-4236

This Vehicle qualifies for Nissan's
Security+Plus Vehicle Protection Plan
The only service agreement backed by Nissan!
Ask your dealer for details, or call 1-800-NISSAN-1 for more information

DELIVERY

VEHICLE COLORS:
EXT: ELECTRIC BLUE
INT: BLACK

FINAL ASSEMBLY POINT:
LOS ANGELES

TRANSPORT METHOD:
TRUCK

DEALER:
ED MARTIN NISSAN
802 N SHADELAND AVE
INDIANAPOLIS IN
46219

VIN: JN8AF5MVXBT016590
EMS: 50 STATE EMISSIONS
MDL: 20211-016590 B51-G
OPT: E-B92C03L92R92

20110205025216AS3202

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VEHICLE No.: CB5206
JUNE 2011

5.5 WINDOW STICKER - MONRONEY LABEL

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2011 NISSAN JUKE
FMVSS 126
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JUNE 2011

5.6 ESC MALFUNCTION TELLTALE

5.7 ESC OFF TELLTALE

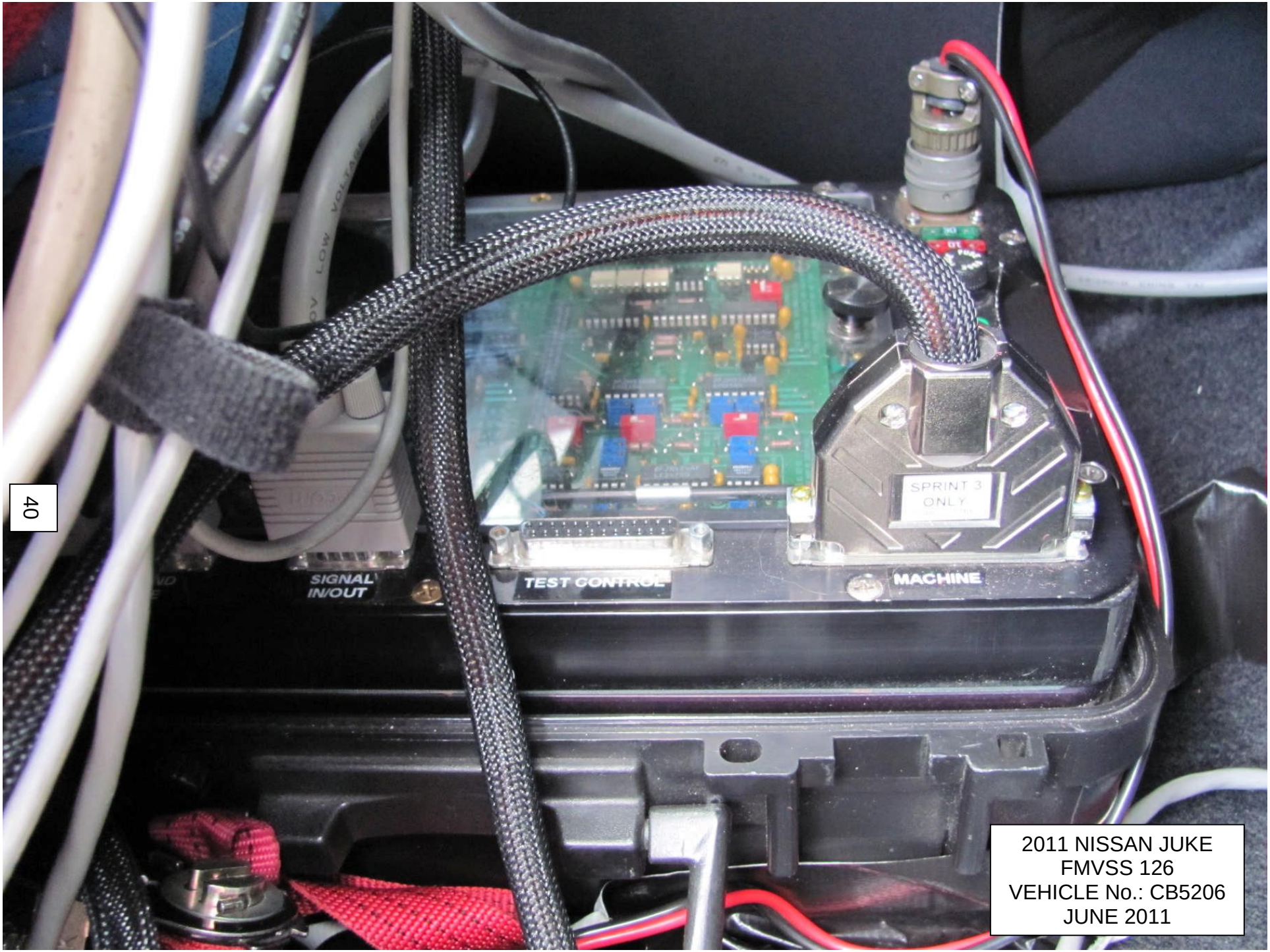
2011 NISSAN JUKE
FMVSS 126
VEHICLE No.: CB5206
JUNE 2011

5.8 ESC OFF CONTROL

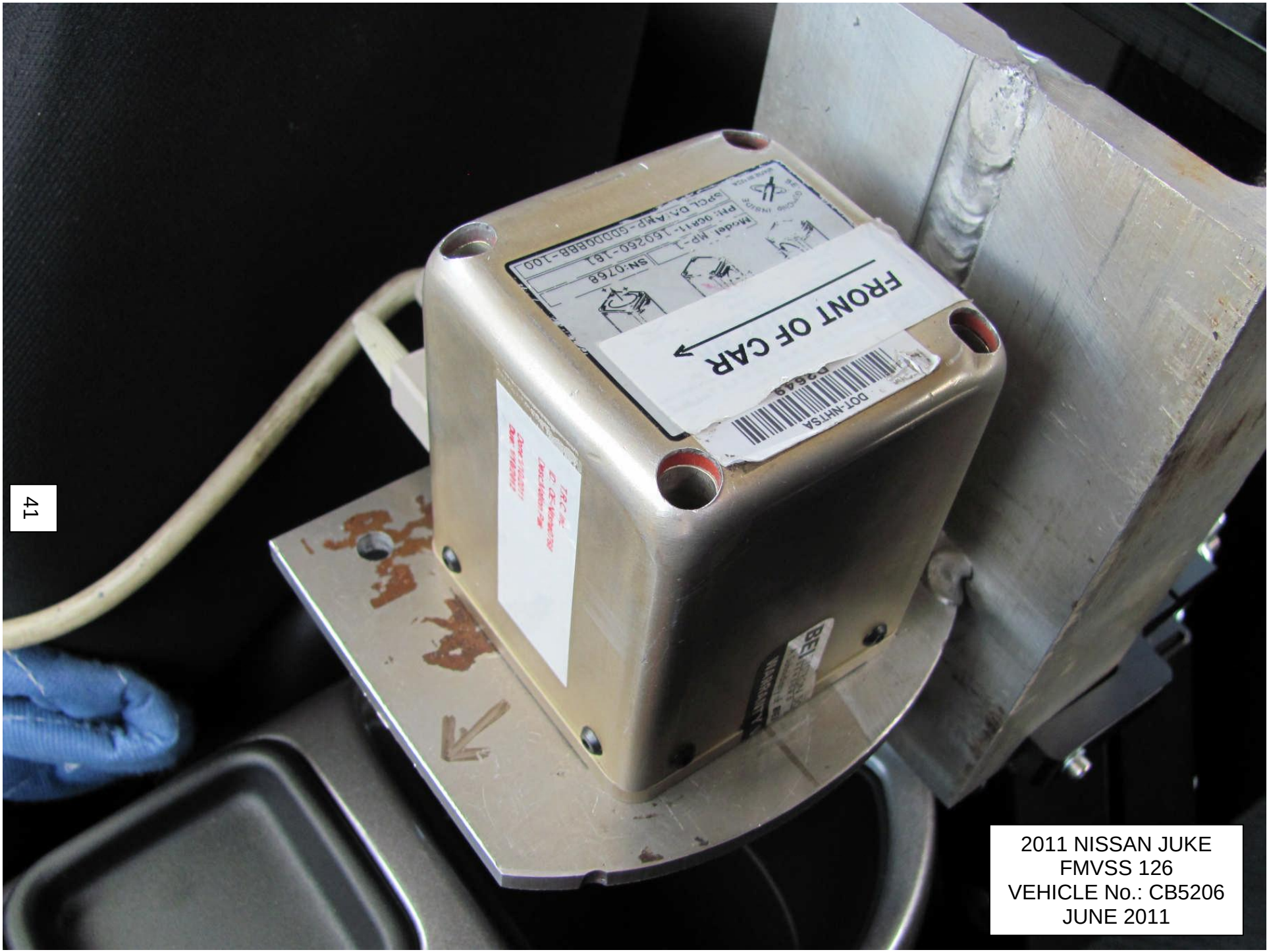
5.9 ¾ FRONT VIEW - TEST VEHICLE INSTRUMENTED

5.10 ¾ REAR VIEW - TEST VEHICLE INSTRUMENTED

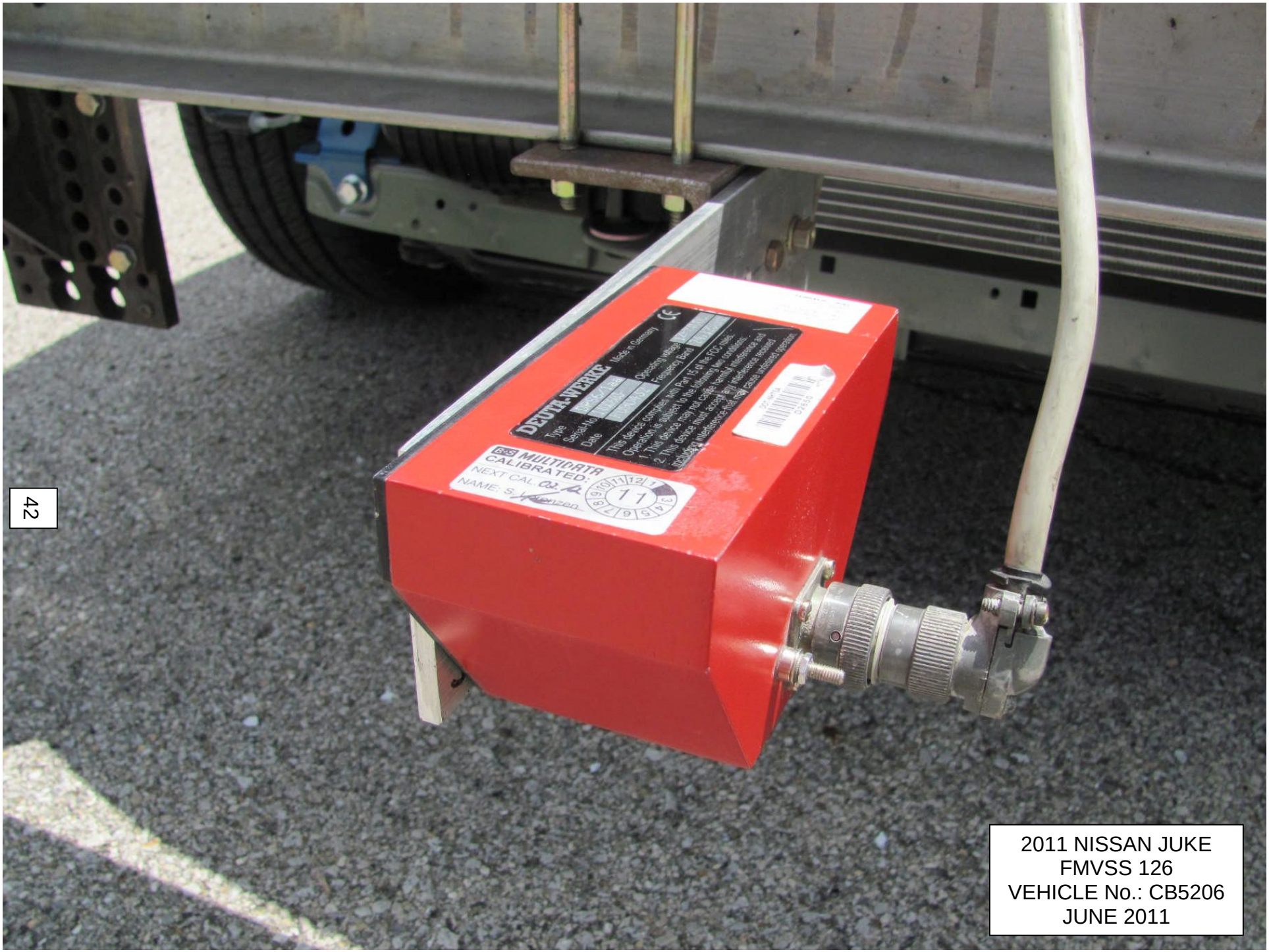
5.11 STEERING WHEEL CONTROLLER AND DATA ACQUISITION SYSTEM



5.12 STEERING CONTROLLER BATTERY BOX



5.13 INERTIA MEASUREMENT UNIT



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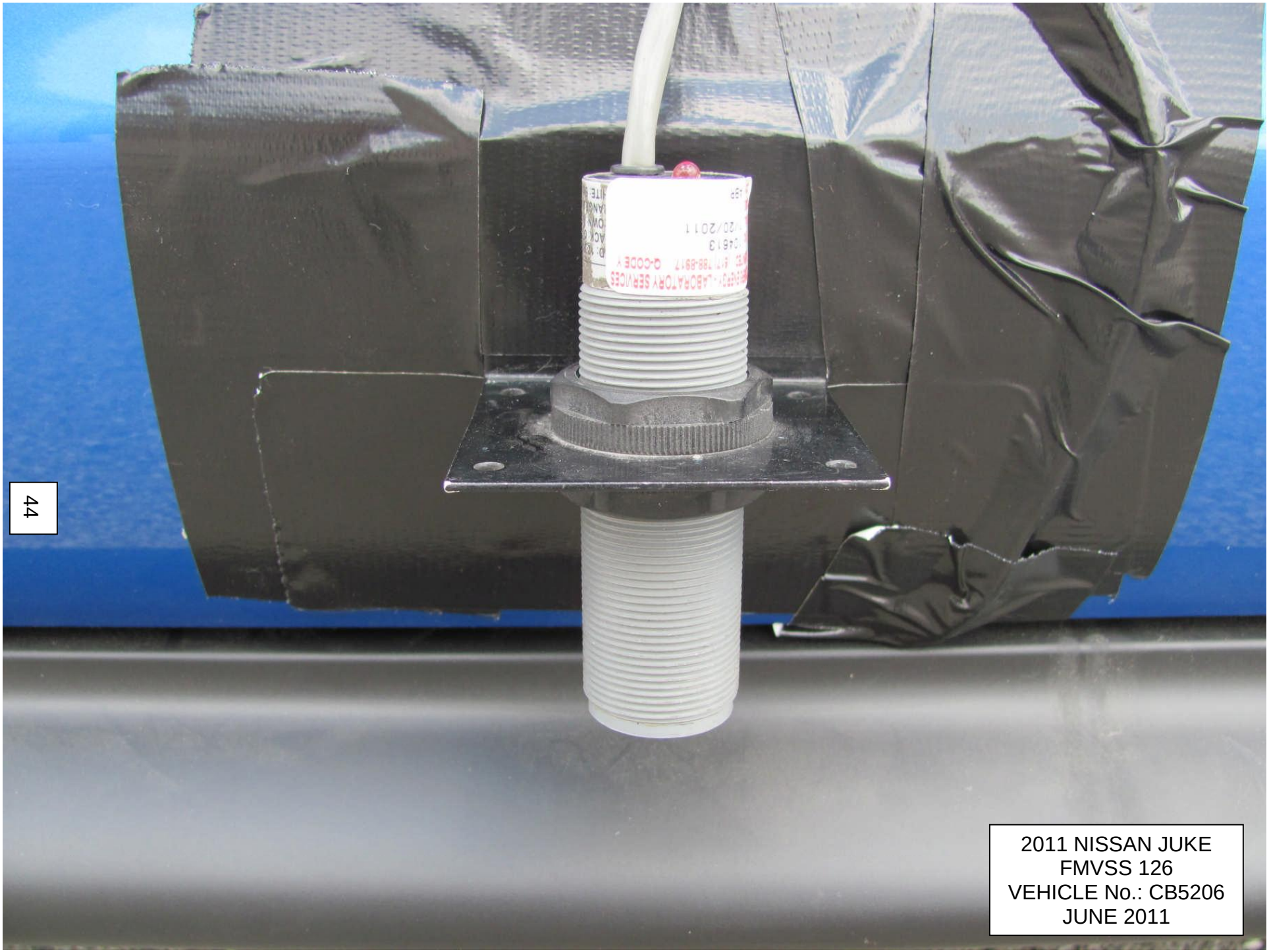
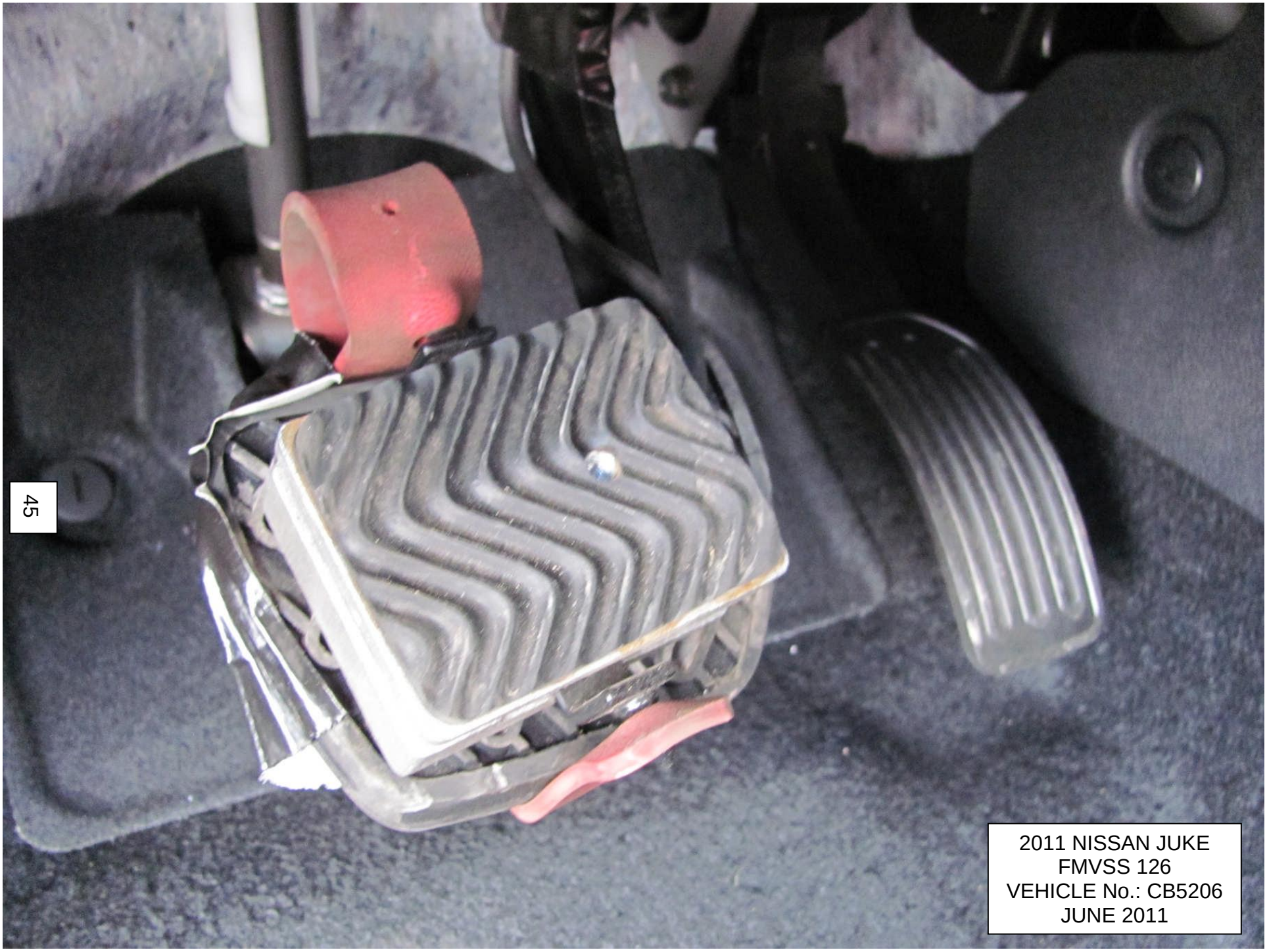
5.14 VEHICLE SPEED SENSOR

5.15 BODY ROLL SENSOR (DRIVER SIDE)



5.16 BODY ROLL SENSOR (PASSENGER SIDE)

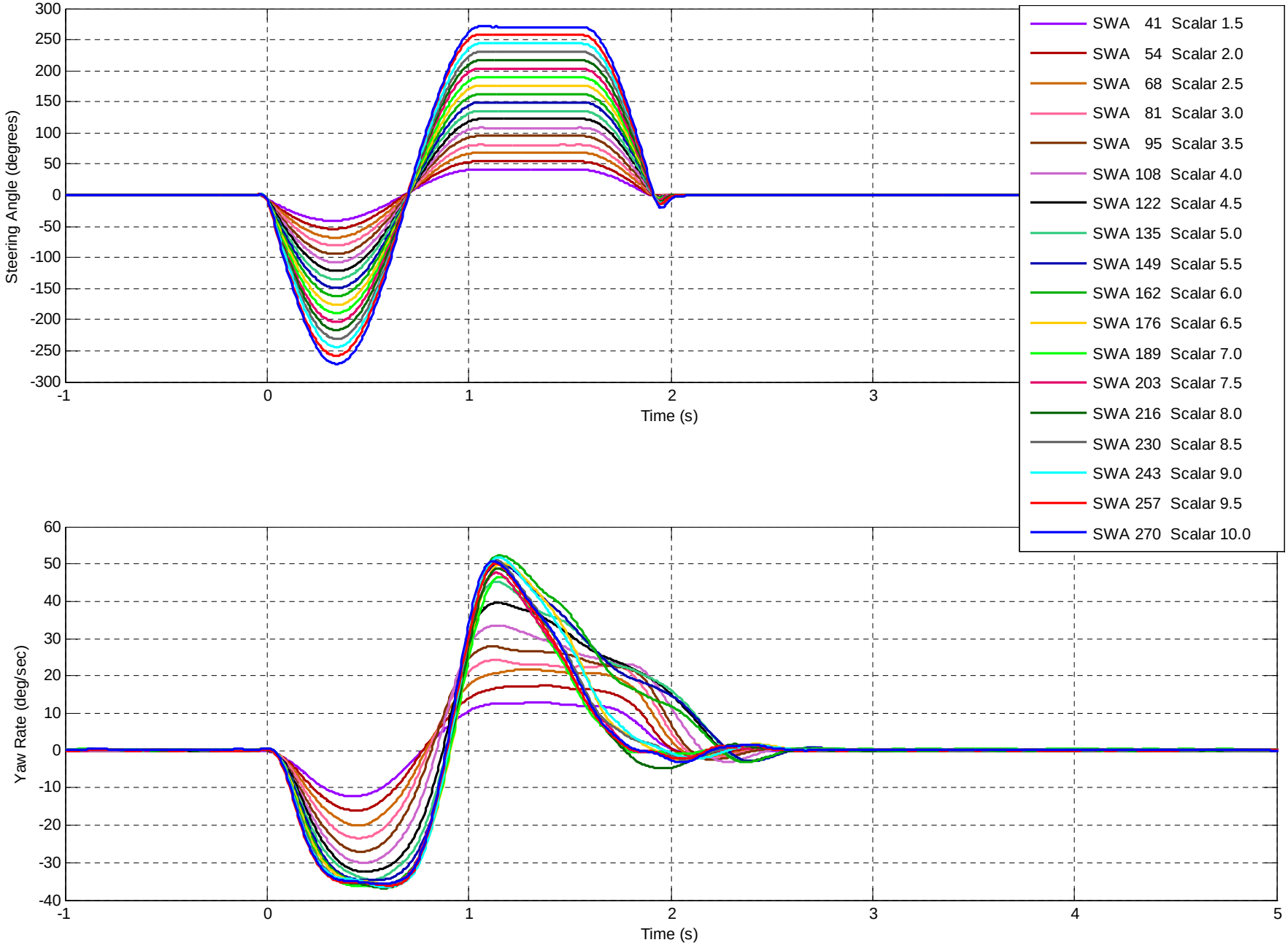


5.17 BRAKE PEDAL FORCE TRANSDUCER

6.0 DATA PLOTS

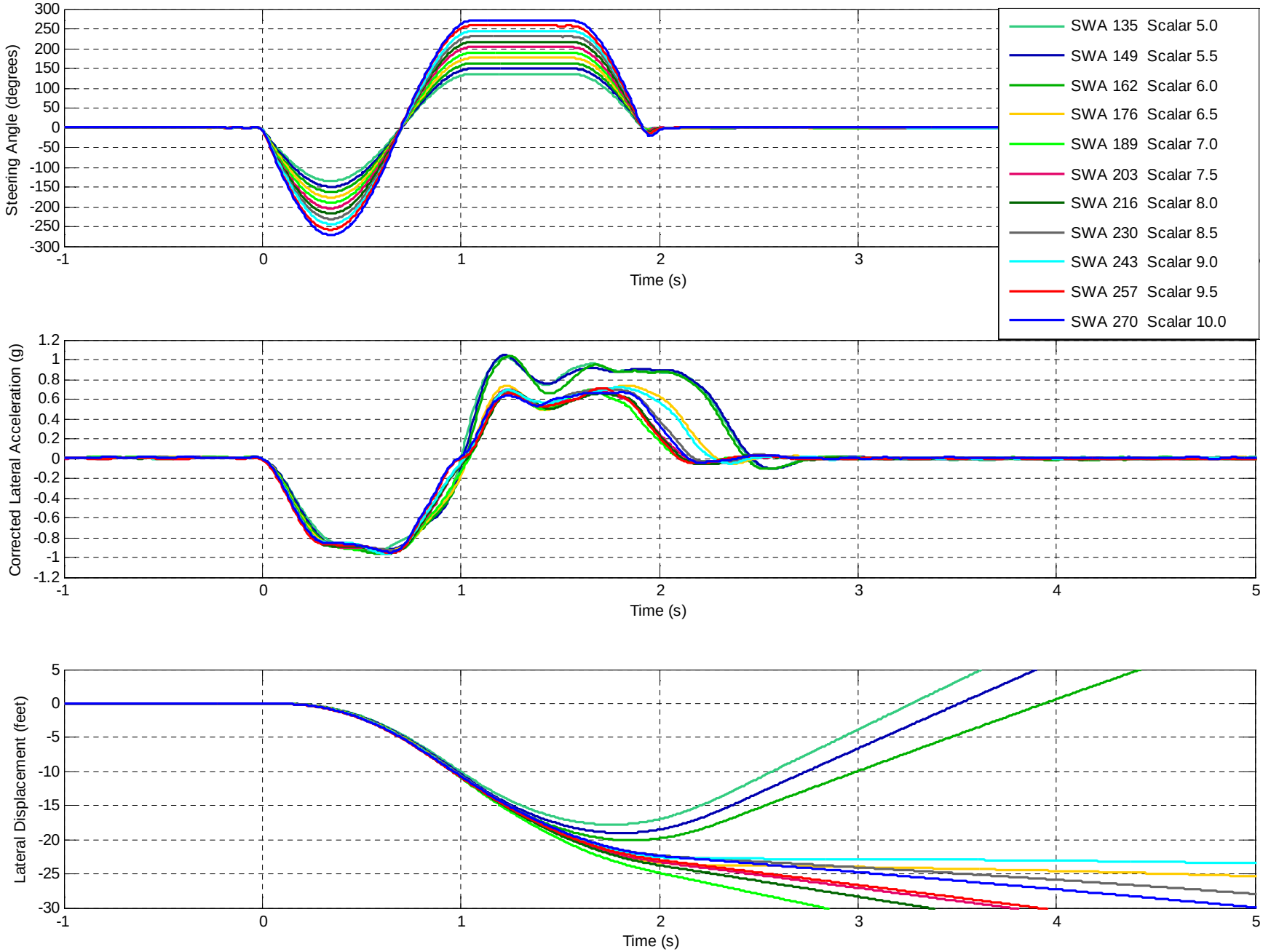
6.0 2011 NISSAN JUKE DATA PLOTS

Figure 1. Steering Angle and Yaw Rate Time History, Counter-Clockwise Initial Steer Tests



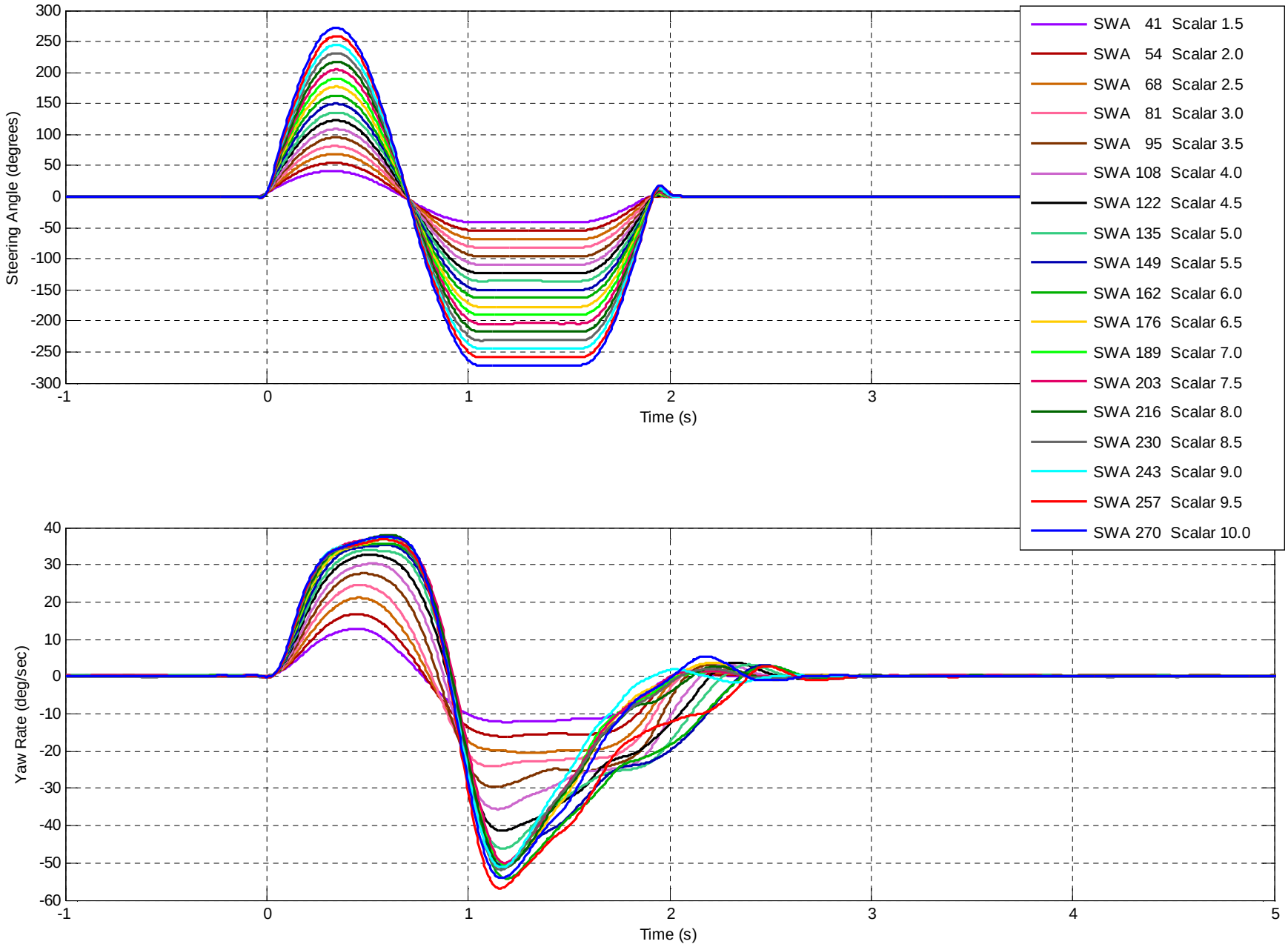
6.0 2011 NISSAN JUKE DATA PLOTS…continued

Figure 2. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Counter-Clockwise Initial Steer Tests



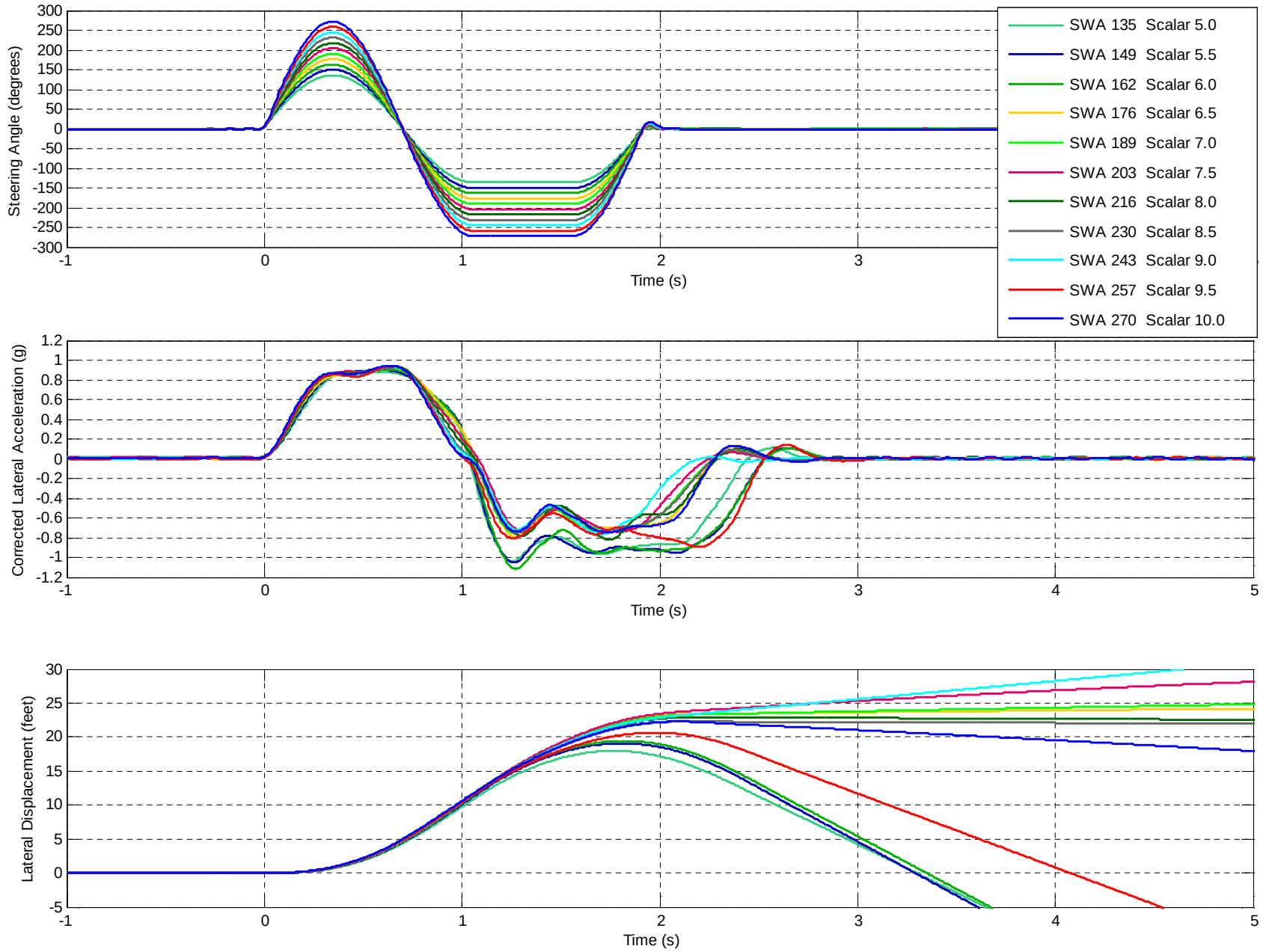
6.0 2011 NISSAN JUKE DATA PLOTS…continued

Figure 3. Steering Angle and Yaw Rate Time History, Clockwise Initial Steer Tests



6.0 2011 NISSAN JUKE DATA PLOTS…continued

Figure 4. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Clockwise Initial Steer Tests



7.0 OTHER DOCUMENTATION

7.1 OWNER'S MANUAL PAGES
7.2 VEHICLE ARRIVAL CONDITION REPORT
7.3 VEHICLE COMPLETION CONDITION REPORT
7.4 SINE WITH DWELL TEST RESULTS
7.5 SLOWLY INCREASING STEER TEST RESULTS
7.6 INERTIAL SENSING SYSTEM LOCATION COORDINATES

7.1 OWNER'S MANUAL PAGES

WARNING/INDICATOR LIGHTS AND AUDIBLE REMINDERS

All-Wheel Drive (AWD) warning light (AWD model)*	Low fuel warning light	Cruise indicator light*
Anti-lock Braking System (ABS) warning light	Low tire pressure warning light	Front passenger air bag status light
	Low washer fluid warning light*	Engine start operation indicator light*
Brake warning light	P position selecting warning light*	High beam indicator light
	Seat belt warning light	Malfunction Indicator Light (MIL)
Charge warning light	Supplemental air bag warning light	Security indicator light
Door open warning light	Vehicle Dynamic Control (VDC) warning light	Low beam indicator light
Electric power steering warning light	All-Wheel Drive (AWD) indicator light (AWD model)*	Turn signal/hazard indicator lights
Engine oil pressure warning light	All-Wheel Drive (AWD)-V indicator light (AWD model)*	Vehicle Dynamic Control (VDC) off indicator light
Intelligent Key system warning light*	Continuously Variable Transmission (CVT) indicator light*	*: if so equipped

CHECKING BULBS

With all doors closed, apply the parking brake and place the ignition switch in the ON position without starting the engine. The following lights will come on:

, , or , , , , PS, .

The following lights come on briefly and then go off (if so equipped):

, ABS or , , , , , , CVT

If any light does not come on, it may indicate a burned-out bulb or an open circuit in the electrical system. Have the system checked by a NISSAN dealer.

WARNING LIGHTS

AWD All-Wheel Drive (AWD) warning light (AWD model)

When the ignition switch is in the "ON" position, the All-Wheel Drive (AWD) warning light will illuminate. It will turn off soon after the engine is started.

If the AWD system malfunctions or the revolution or radius of the front and the rear wheel differs, the AWD warning light will either remain illuminated or blink. (See "ALL-WHEEL DRIVE (AWD)" in the "5. Starting and driving" section.)

ABS or Anti-lock Braking System (ABS) warning light

When the ignition switch is in the ON position, the Anti-lock Braking System (ABS) warning light illuminates and then turns off. This indicates the ABS is operational.

If the ABS warning light illuminates while the engine is running, or while driving, it may indicate the ABS is not functioning properly. Have the system checked by a NISSAN dealer.

If an ABS malfunction occurs, the anti-lock function is turned off. The brake system then operates normally, but without anti-lock assistance. (See "BRAKE SYSTEM" in the "5. Starting and driving" section.)

BRAKE or Brake warning light

This light functions for both the parking brake and the foot brake systems.

Parking brake indicator:

When the ignition switch is in the ON position, the light illuminates when the parking brake is applied.

Low brake fluid warning light:

When the ignition switch is in the ON position, the light warns of a low brake fluid level. If the light illuminates while the engine is running with the parking brake not applied, stop the vehicle and perform the following:

1. Check the brake fluid level. If brake fluid is necessary, add fluid and have the system checked by a NISSAN dealer. (See "BRAKE AND CLUTCH FLUID" in the "8. Maintenance and do-it-yourself" section.)
2. If the brake fluid level is correct, have the warning system checked by a NISSAN dealer.

Anti-lock Braking System (ABS) warning indicator:

When the parking brake is released and the brake fluid level is sufficient, if both the brake warning light and the Anti-lock Braking System (ABS) warning light illuminate, it may indicate the ABS is not functioning properly. Have the brake system checked, and if necessary repaired, by a NISSAN dealer promptly. (See "Anti-lock Braking System (ABS) warning light" earlier in this section.)

⚠ WARNING

- **Your brake system may not be working properly if the warning light is on. Driving could be dangerous. If you judge it to be safe, drive carefully to the nearest service station for repairs. Otherwise, have your vehicle towed because driving it could be dangerous.**
- **Pressing the brake pedal with the engine stopped and/or low brake fluid level may increase your stopping distance and braking will require greater pedal effort as well as pedal travel.**
- **If the brake fluid level is below the**

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minimum or MIN mark on the brake fluid reservoir, do not drive until the brake system has been checked at a NISSAN dealer.

Charge warning light

If the light illuminates while the engine is running, it may indicate the charging system is not functioning properly. Turn the engine off and check the alternator belt. If the belt is loose, broken, missing or if the light remains on, see a NISSAN dealer immediately.

⚠ CAUTION

Do not continue driving if the alternator belt is loose, broken or missing.

Door open warning light

This light illuminates when any of the doors and/or lift gate are not closed securely while the ignition switch is in the ON position.

PS Electric power steering warning light

When the ignition switch is in the ON position, the electric power steering warning light illuminates. After starting the engine, the electric power steering warning light turns off. This indicates the electric power steering system is operational.

If the electric power steering warning light illuminates while the engine is running, it may indicate the electric power steering system is not functioning properly and may need servicing. Have the electric power steering system checked by a NISSAN dealer.

When the electric power steering warning light illuminates with the engine running, the power assist to the steering will cease operation but you will still have control of the vehicle. At this time, greater steering efforts are required to operate the steering wheel, especially in sharp turns and at low speeds.

See "ELECTRIC POWER STEERING SYSTEM" in the "5. Starting and driving" section.

Engine oil pressure warning light

This light warns of low engine oil pressure. If the light flickers or illuminates during normal driving, pull off the road in a safe area, stop the engine **immediately** and call a NISSAN dealer or other authorized repair shop.

The engine oil pressure warning light is not designed to indicate a low oil level. Use the dipstick to check the oil level. (See "ENGINE OIL" in the "6. Maintenance and do-it-yourself" section.)

⚠ CAUTION

Running the engine with the engine oil pressure warning light on could cause serious damage to the engine almost immediately. Such damage is not covered by warranty. Turn off the engine as soon as it is safe to do so.

Intelligent Key system warning light (if so equipped)

After the ignition switch is placed in the ON position, this light comes on for about 2 seconds and then turns off.

This light illuminates or blinks as follows:

- The light blinks in yellow when the door is closed with the Intelligent Key left outside the vehicle and the ignition switch in the ACC or ON position. Make sure that the Intelligent Key is inside the vehicle.
- The light blinks in green when the Intelligent Key battery is running out of power. Replace the battery with a new one. (See "KEY BATTERY REPLACEMENT" in the "6. Maintenance and do-it-yourself" section.)

air bag, side air bag, curtain air bag and pretensioner systems need servicing and your vehicle must be taken to your nearest NISSAN dealer.

- The supplemental air bag warning light remains on after approximately 7 seconds.
- The supplemental air bag warning light flashes intermittently.
- The supplemental air bag warning light does not illuminate at all.

Unless checked and repaired, the Supplemental Restraint Systems and/or the pretensioners may not function properly.

For additional information, see "SUPPLEMENTAL RESTRAINT SYSTEM" in the "1. Safety — Seats, seat belts and supplemental restraint system" section.

⚠ WARNING

If the supplemental air bag warning light is on, it could mean that the front air bag, side air bag, curtain air bag and/or pretensioner systems will not operate in an accident. To help avoid injury to yourself or others, have your vehicle checked by a NISSAN dealer as soon as possible.

Vehicle Dynamic Control (VDC) warning light

The light will blink when the Vehicle Dynamic Control (VDC) system is operating, thus alerting the driver that the vehicle is nearing its traction limits. The road surface may be slippery.

INDICATOR LIGHTS

AWD All-Wheel Drive (AWD) indicator light (AWD model)

When the ignition switch is in the "ON" position, the All-Wheel Drive (AWD) indicator light illuminates and then turns off.

When selecting AWD mode while the engine is running, the AWD indicator light illuminates. (See "ALL-WHEEL DRIVE (AWD)" in the "5. Starting and driving" section.)

All-Wheel Drive (AWD-V) indicator light (AWD model)

When selecting AWD-V mode while the engine is running, the AWD-V indicator light illuminates. (See "ALL-WHEEL DRIVE (AWD)" in the "5. Starting and driving" section.)

CVT Continuously Variable Transmission (CVT) indicator light (if so equipped)

When the ignition switch is in the "ON" position, the Continuously Variable Transmission (CVT) indicator light illuminates and then turns off.

CRUISE Cruise indicator light (if so equipped)

Cruise main switch indicator:

This light illuminates when the cruise control main switch is pushed. The light turns off when the main switch is pushed again. When the cruise indicator light illuminates, the cruise control system is operational.

Cruise malfunction:

If the cruise indicator light blinks while the engine is running, it may indicate the cruise control system is not functioning properly. Have the system checked by a NISSAN dealer.

See "CRUISE CONTROL" in the "5. Starting and driving" section.

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dealer. You do not need to have your vehicle towed to the dealer.

⚠ CAUTION

Continued vehicle operation without having the emission control system and/or CVT system checked and repaired as necessary could lead to poor driveability, reduced fuel economy, and possible damage to the emission control system.

Security indicator light

The light blinks when the ignition switch is in the ACC, OFF or LOCK position. This function indicates the security system equipped on the vehicle is operational.

If the security system is malfunctioning, this light will remain on while the ignition switch is in the ON position. For additional information, see "SECURITY SYSTEMS" later in this section.

Low beam indicator light

The light illuminates when the headlight switch is turned to the position.

Turn signal/hazard indicator lights

The light flashes when the turn signal switch lever or hazard switch is turned on.

Vehicle Dynamic Control (VDC) off indicator light

The light illuminates when the Vehicle Dynamic Control (VDC) off switch is pushed to OFF. This indicates that the VDC system is not operating. When the VDC off indicator light and slip indicator light illuminate with the VDC system turned on, this light alerts the driver to the fact that the VDC system's fail-safe mode is operating, for example the VDC system may not be functioning properly. Have the system checked by a NISSAN dealer. If a malfunction occurs in the system, the VDC system function will be canceled but the vehicle is still driveable. For additional information, see "VEHICLE DYNAMIC CONTROL (VDC) SYSTEM" in the "5. Starting and driving" section of this manual.

AUDIBLE REMINDERS

Key reminder chime

Models with Intelligent Key system:

A chime will sound if the driver side door is opened while the ignition switch is pushed to the ACC position.

Make sure the ignition switch is pushed to the OFF position, and take the Intelligent Key with you when leaving the vehicle.

Models without Intelligent Key system:

The key reminder chime sounds if the driver's side door is opened while the key is left in the ignition switch and the ignition switch is in the ACC, OFF or LOCK position. Remove the key and take it with you when leaving the vehicle.

Light reminder chime

The light reminder chime will sound when the driver side door is opened with the light switch in the AUTO, or position, and the ignition switch is in the ACC, OFF or LOCK position.

Turn the light switch off when you leave the vehicle.

Brake pad wear warning

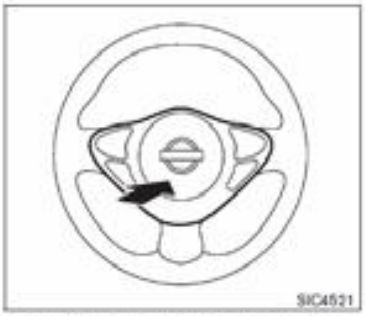
The disc brake pads have audible wear warnings. When a brake pad requires replacement, it will make a high pitched scraping sound when the vehicle is in motion. This scraping sound will first occur only when the brake pedal is depressed. After more wear of the brake pad, the sound will always be heard even if the brake pedal is not depressed. Have the brakes checked as soon as possible if the warning sound is heard.

- **Turn signals do not work when the hazard warning flasher lights are on.**

The flasher can be actuated with the ignition switch in any position.

Some state laws may prohibit the use of the hazard warning flasher switch while driving.

HORN



To sound the horn, push the center pad area of the steering wheel.

⚠ WARNING

Do not disassemble the horn. Doing so could affect proper operation of the supplemental front air bag system. Tampering with the supplemental front air bag system may result in serious personal injury.

VEHICLE DYNAMIC CONTROL (VDC) OFF SWITCH

The vehicle should be driven with the Vehicle Dynamic Control (VDC) system on for most driving conditions.

If the vehicle is stuck in mud or snow, the VDC system reduces the engine output to reduce wheel spin. The engine speed will be reduced even if the accelerator is depressed to the floor. If maximum engine power is needed to free a stuck vehicle, turn the VDC system off.

To turn off the VDC system, push the VDC OFF switch. The indicator will illuminate.

Push the VDC OFF switch again or restart the engine to turn on the system. (See "VEHICLE DYNAMIC CONTROL (VDC) SYSTEM" in the "5. Starting and driving" section.)

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wheel and varies the brake fluid pressure to prevent each wheel from locking and sliding. By preventing each wheel from locking, the system helps the driver maintain steering control and helps to minimize swerving and spinning on slippery surfaces.

Using the system

Depress the brake pedal and hold it down. Depress the brake pedal with firm steady pressure, but do not pump the brakes. The ABS will operate to prevent the wheels from locking up. Steer the vehicle to avoid obstacles.

⚠ WARNING

Do not pump the brake pedal. Doing so may result in increased stopping distances.

Self-test feature

The ABS includes electronic sensors, electric pumps, hydraulic solenoids and a computer. The computer has a built-in diagnostic feature that tests the system each time you start the engine and move the vehicle at a low speed in forward or reverse. When the self-test occurs, you may hear a "clunk" noise and/or feel a pulsation in the brake pedal. This is normal and does not indicate a malfunction. If the computer senses a malfunction, it switches the ABS off and illuminates the ABS warning light on the instrument panel. The brake system then operates normally, but without anti-lock assistance.

If the ABS warning light illuminates during the self-test or while driving, have the vehicle checked by a NISSAN dealer.

Normal operation

The ABS operates at speeds above 3 to 6 MPH (5 to 10 km/h). The speed varies according to road conditions.

When the ABS senses that one or more wheels are close to locking up, the actuator rapidly applies and releases hydraulic pressure. This action is similar to pumping the brakes very quickly. You may feel a pulsation in the brake pedal and hear a noise from under the hood or feel a vibration from the actuator when it is operating. This is normal and indicates that the ABS is operating properly. However, the pulsation may indicate that road conditions are hazardous and extra care is required while driving.

VEHICLE DYNAMIC CONTROL (VDC) SYSTEM

The Vehicle Dynamic Control (VDC) system uses various sensors to monitor driver inputs and vehicle motion. Under certain driving conditions, the VDC system helps to perform the following functions.

- Controls brake pressure to reduce wheel slip on one slipping drive wheel so power is transferred to a non slipping drive wheel on the same axle.
- Controls brake pressure and engine output to reduce drive wheel slip based on vehicle speed (traction control function).
- Controls brake pressure at individual wheels and engine output to help the driver maintain control of the vehicle in the following conditions:
  - understeer (vehicle tends to not follow the steered path despite increased steering input)
  - oversteer (vehicle tends to spin due to certain road or driving conditions).

The VDC system can help the driver to maintain control of the vehicle, but it cannot prevent loss of vehicle control in all driving situations.

When the VDC system operates, the VDC warning light in the instrument panel flashes so note the following:

- The road may be slippery or the system may

determine some action is required to help keep the vehicle on the steered path.

- You may feel a pulsation in the brake pedal and hear a noise or vibration from under the hood. This is normal and indicates that the VDC system is working properly.
- Adjust your speed and driving to the road conditions.

If a malfunction occurs in the system, the VDC warning light illuminates in the instrument panel. The VDC system automatically turns off.

The VDC OFF switch is used to turn off the VDC system. The VDC off indicator illuminates to indicate the VDC system is off. When the VDC switch is used to turn off the system, the VDC system still operates to prevent one drive wheel from slipping by transferring power to a non slipping drive wheel. The VDC warning light flashes if this occurs. All other VDC functions are off, and the VDC warning light will not flash. The VDC system is automatically reset to on when the ignition switch is placed in the off position then back to the on position.

See "Vehicle Dynamic Control (VDC) warning light" in the "2. Instruments and controls" section and "Vehicle Dynamic Control (VDC) off indicator light" in the "2. Instruments and controls" section.

The computer has a built-in diagnostic feature that tests the system each time you start the engine and move the vehicle forward or in reverse at a slow speed. When the self-test occurs, you may hear a "clunk" noise and/or feel a pulsation in the brake pedal. This is normal and is not an indication of a malfunction.

⚠ WARNING

- **The VDC system is designed to help improve driving stability but does not prevent accidents due to abrupt steering operation at high speeds or by careless or dangerous driving techniques. Reduce vehicle speed and be especially careful when driving and cornering on slippery surfaces and always drive carefully.**
- **Do not modify the vehicle's suspension. If suspension parts such as shock absorbers, struts, springs, stabilizer bars, bushings and wheels are not NISSAN recommended for your vehicle or are extremely deteriorated, the VDC system may not operate properly. This could adversely affect vehicle handling performance, and the VDC warning light may illuminate.**
- **If brake related parts such as brake pads, rotors and calipers are not NISSAN recommended or are extremely deteriorated, the VDC system may not operate properly and the VDC warning light may illuminate.**
- **If engine control related parts are not NISSAN recommended or are extremely deteriorated, the VDC warning light may illuminate.**
- **When driving on extremely inclined surfaces such as higher banked corners, the VDC system may not operate properly and the VDC warning light may illuminate. Do not drive on these types of roads.**
- **When driving on an unstable surface such as a turntable, ferry, elevator or ramp, the VDC warning light may illuminate. This is not a malfunction. Restart the engine after driving onto a stable surface.**
- **If wheels or tires other than the NISSAN recommended ones are used, the VDC system may not operate properly and the VDC warning light may illuminate.**

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- **The VDC system is not a substitute for winter tires or tire chains on a snow covered road.**

FREEING A FROZEN DOOR LOCK

To prevent a door lock from freezing, apply deicer through the key hole. If the lock becomes frozen, heat the key before inserting it into the key hole or use the remote keyless entry keyfob.

ANTI-FREEZE

In the winter when it is anticipated that the outside temperature will drop below 32°F (0°C), check the anti-freeze to assure proper winter protection. For additional information, see "ENGINE COOLING SYSTEM" in the "8. Maintenance and do-it-yourself" section.

BATTERY

If the battery is not fully charged during extremely cold weather conditions, the battery fluid may freeze and damage the battery. To maintain maximum efficiency, the battery should be checked regularly. For additional information, see "BATTERY" in the "8. Maintenance and do-it-yourself" section.

DRAINING OF COOLANT WATER

If the vehicle is to be left outside without anti-freeze, drain the cooling system, including the engine block. Refill before operating the vehicle. For details, see "ENGINE COOLING SYSTEM" in the "8. Maintenance and do-it-yourself" section.

TIRE EQUIPMENT

SUMMER tires have a tread designed to provide superior performance on dry pavement. However, the performance of these tires will be substantially reduced in snowy and icy conditions. If you operate your vehicle on snowy or icy roads, NISSAN recommends the use of MUD & SNOW or ALL SEASON tires on all four wheels. Consult a NISSAN dealer for the tire type, size, speed rating and availability information.

For additional traction on icy roads, studded tires may be used. However, some U.S. states and Canadian provinces prohibit their use. Check local, state and provincial laws before installing studded tires.

Skid and traction capabilities of studded snow tires, on wet or dry surfaces, may be poorer than that of non-studded snow tires.

Tire chains may be used. For details, see "TIRE CHAINS" in the "8. Maintenance and do-it-yourself" section of this manual.

All-Wheel Drive (AWD) model

If you install snow tires, they must also be the same size, brand, construction and tread pattern on all four wheels.

cle tie down hook or recovery hook.

- **Always pull the cable straight out from the front of the vehicle. Never pull on the vehicle at an angle.**
- **Pulling devices should be routed so they do not touch any part of the suspension, steering, brake or cooling systems.**
- **Pulling devices such as ropes or canvas straps are not recommended for use in vehicle towing or recovery.**

Rocking a stuck vehicle

If your vehicle is stuck in sand, snow, mud, etc., use the following procedure:

1. Turn off the Vehicle Dynamic Control (VDC) system.
2. Make sure the area in front and behind the vehicle is clear of obstructions.
3. Turn the steering wheel right and left to clear an area around the front tires.
4. Slowly rock the vehicle forward and backward.
   - Shift back and forth between R (Reverse) and D (Drive) (Continuously Variable Transmission models) or 1st and R (Reverse) (Manual Transmission models).
   - Apply the accelerator as little as possible to maintain the rocking motion.
   - Release the accelerator pedal before shifting between R and D (Continuously Variable Transmission models) or 1st and R (Manual Transmission models).
   - Do not spin the tires above 35 MPH (55 km/h).
5. If the vehicle cannot be freed after a few tries, contact a professional towing service to remove the vehicle.

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7.2 VEHICLE ARRIVAL CONDITION REPORT

CONTRACT NO. DTNH22-08-D-00097 DATE: 5/19/11

FROM: Germain Nissan

TO: TRC

PURPOSE: (X) Initial Receipt ( ) Received via Transfer ( ) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2011 / Nissan / Juke / MPV

MANUFACTURE DATE: 01/11 NHTSA NO.: CB5206

BODY COLOR: Electric Blue VIN: JN8AF5MVXBT016590

ODOMETER READING: 68 miles GVWR: 1,890 KG

PURCHASE PRICE: $ rented / leased DEALER'S NAME: Germain Nissan, 4300 Morse Road, Columbus, OH 43230

X ALL OPTIONS LISTED ON "WINDOW STICKER" ARE PRESENT ON THE TEST VEHICLE

X TIRES AND WHEEL RIMS ARE NEW AND THE SAME AS LISTED

X THERE ARE NO DENTS OR OTHER INTERIOR OR EXTERIOR FLAWS

X THE VEHICLE HAS BEEN PROPERLY PREPARED AND IS IN RUNNING CONDITION

X THE GLOVE BOX CONTAINS AN OWNER'S MANUAL, WARRANTY DOCUMENT, CONSUMER INFORMATION, AND EXTRA SET OF KEYS

X PROPER FUEL FILLER CAP IS SUPPLIED ON THE TEST VEHICLE

X PLACE VEHICLE IN STORAGE AREA

X INSPECT THE VEHICLE'S INTERIOR AND EXTERIOR, INCLUDING ALL WINDOWS, SEATS, DOORS, ETC., TO CONFIRM THAT EACH SYSTEM IS COMPLETE AND FUNCTIONAL PER THE MANUFACTURER'S SPECIFICATIONS. ANY DAMAGE, MISADJUSTMENT, OR OTHER UNUSUAL CONDITION THAT COULD INFLUENCE THE TEST PROGRAM OR TEST RESULTS SHALL BE RECORDED. REPORT ANY ABNORMAL CONDITION TO THE NHTSA COTR BEFORE BEGINNING ANY TEST

RECORDED BY: Alan Ida DATE: 5-19-11
APPROVED BY: Ken Webster DATE: 6-17-11

7.3 VEHICLE COMPLETION CONDITION REPORT

CONTRACT NO. DTNH22-08-D-00097 DATE: 6/15/11

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2011 / Nissan / Juke / MPV

MANUFACTURE DATE: 01/11 NHTSA NO.: CB5206

BODY COLOR: Electric Blue VIN: JN8AF5MVXBT016590

ODOMETER READING: 133 miles GVWR: 1,890 KG

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: 126, 135

X THERE ARE NO DENTS OR OTHER INTERIOR OR EXTERIOR FLAWS

X THE VEHICLE HAS BEEN PROPERLY MAINTAINED AND IS IN RUNNING CONDITION

X THE GLOVE BOX CONTAINS AN OWNER'S MANUAL, WARRANTY DOCUMENT, CONSUMER INFORMATION, AND EXTRA SET OF KEYS

X PROPER FUEL FILLER CAP IS SUPPLIED ON THE TEST VEHICLE

REMARKS:

Equipment that is no longer on the test vehicle as noted on Vehicle Arrival Condition Report:

None.

Explanation for equipment removal:

N/A

Test Vehicle Condition:

Like new.

RECORDED BY: Alan Ida DATE: 6-15-11
APPROVED BY: Ken Webster DATE: 6-17-11

7.4 SINE WITH DWELL TEST RESULTS
2011 Nissan Juke
NHTSA No.: CB5206

Date Created 14-Jun-11

LEFT-TO-RIGHT (INITIAL COUNTER-CLOCKWISE STEER)

File	SWA @ 5deg Ct	MES	Time@5deg	COS	Time@COS	MOS	Time@MOS	YRR1(%)	YR1 (deg/sec)	YRR1 Ct	YRR175(%)	YR175 (deg/sec)
0019	619	50.520	3.087	1000	4.991	755	3.769	0.456	0.058	1200	0.027	0.003
0020	618	50.422	3.080	999	4.990	755	3.769	-0.476	-0.082	1199	0.244	0.042
0021	617	50.186	3.078	1000	4.991	756	3.771	0.366	0.079	1200	0.274	0.059
0022	616	50.263	3.072	999	4.989	755	3.769	0.045	0.011	1199	-0.566	-0.137
0023	616	50.131	3.071	999	4.989	755	3.770	-0.082	-0.023	1199	0.328	0.091
0024	615	50.234	3.068	999	4.988	755	3.769	-0.149	-0.050	1199	-0.209	-0.070
0025	614	50.203	3.065	998	4.985	755	3.766	0.051	0.020	1198	-0.007	-0.003
0026	615	50.432	3.067	999	4.988	755	3.769	0.180	0.081	1199	-0.059	-0.026
0027	614	50.548	3.064	999	4.985	755	3.767	-0.049	-0.024	1199	-0.247	-0.123
0028	615	50.451	3.068	999	4.989	756	3.771	-0.390	-0.203	1199	-0.342	-0.178
0029	615	50.624	3.068	999	4.989	756	3.772	0.115	0.058	1199	-0.085	-0.042
0030	615	50.320	3.067	999	4.987	756	3.770	0.131	0.061	1199	0.241	0.112
0032	615	50.587	3.065	998	4.985	755	3.769	0.472	0.225	1198	0.254	0.121
0033	615	50.509	3.067	999	4.986	755	3.770	0.069	0.034	1199	0.041	0.020
0034	614	50.348	3.064	998	4.982	755	3.767	-0.004	-0.002	1198	-0.096	-0.049
0035	614	50.306	3.064	998	4.983	754	3.765	0.086	0.045	1198	-0.020	-0.010
0036	615	50.371	3.065	998	4.985	755	3.766	0.112	0.056	1198	0.024	0.012
0037	615	50.466	3.068	999	4.986	755	3.770	-0.111	-0.056	1199	-0.024	-0.012

RIGHT-TO-LEFT (INITIAL CLOCKWISE STEER)

0038	619	50.279	3.085	1000	4.990	755	3.768	0.805	-0.099	1200	1.257	-0.155
0039	618	50.272	3.082	1000	4.993	756	3.771	1.141	-0.186	1200	0.944	-0.154
0040	616	50.452	3.074	999	4.989	755	3.768	-0.328	0.068	1199	-0.202	0.042
0041	616	50.384	3.072	999	4.990	755	3.769	-0.110	0.027	1199	-0.011	0.003
0042	615	50.410	3.070	999	4.989	755	3.768	-0.180	0.054	1199	-0.484	0.144
0043	615	50.269	3.070	999	4.990	755	3.770	0.347	-0.124	1199	0.324	-0.116
0044	615	50.452	3.066	999	4.987	755	3.767	-0.277	0.115	1199	-0.311	0.129
0045	615	50.469	3.069	999	4.990	756	3.771	0.347	-0.162	1199	0.278	-0.129
0046	615	50.299	3.067	999	4.988	755	3.769	0.528	-0.270	1199	0.220	-0.112
0047	615	50.441	3.065	999	4.987	755	3.768	0.517	-0.281	1199	0.080	-0.043
0048	615	50.470	3.066	999	4.987	755	3.770	-0.152	0.076	1199	0.017	-0.009
0049	615	50.342	3.067	999	4.988	756	3.771	-0.255	0.128	1199	-0.190	0.096
0050	614	50.624	3.064	998	4.984	755	3.768	0.232	-0.117	1198	0.089	-0.045
0051	614	50.531	3.065	998	4.984	755	3.767	-0.062	0.032	1198	-0.033	0.017
0052	615	50.519	3.068	999	4.987	756	3.770	-0.030	0.015	1199	-0.004	0.002
0053	615	50.341	3.068	999	4.986	756	3.770	-0.151	0.077	1199	-0.050	0.025
0054	614	50.488	3.064	998	4.982	755	3.766	0.380	-0.216	1198	-0.035	0.020
0055	615	50.420	3.066	998	4.984	755	3.769	0.001	0.000	1198	0.036	-0.020

7.4 SINE WITH DWELL TEST RESULTS
2011 Nissan Juke
NHTSA No.: CB5206

Date Created 14-Jun-11

LEFT-TO-RIGHT (INITIAL COUNTER-CLOCKWISE STEER)

File	YRR175 Ct	2nd Yaw Peak(deg/sec)	2nd Yaw Peak Ct	Lat Disp (ft)	Lat. Acc. 1.07s (g)	1st SWA Peak(deg)	1st SWA Peak Ct	2nd SWA Mean(deg)
0019	1350	12.706	867	-4.174	0.405	41.055	684	41.079
0020	1349	17.281	895	-5.373	0.513	54.142	684	54.020
0021	1350	21.688	872	-6.567	0.599	68.068	684	68.066
0022	1349	24.212	842	-7.864	0.668	80.891	684	80.988
0023	1349	27.906	839	-8.849	0.690	94.862	684	95.029
0024	1349	33.545	843	-9.969	0.697	108.106	684	108.337
0025	1348	39.523	842	-10.795	0.662	122.124	683	122.263
0026	1349	45.097	842	-11.289	0.621	135.122	684	135.275
0027	1349	49.890	844	-11.740	0.566	149.274	683	149.308
0028	1349	52.148	846	-11.977	0.494	162.340	684	162.185
0029	1349	49.926	849	-12.019	0.304	176.485	684	176.240
0030	1349	46.311	846	-12.309	0.206	189.492	684	189.274
0032	1348	47.585	842	-12.101	0.280	203.784	684	203.521
0033	1349	48.673	844	-12.132	0.220	216.777	684	216.493
0034	1348	50.865	841	-11.902	0.295	230.876	684	230.440
0035	1348	51.593	844	-12.027	0.268	243.800	683	243.484
0036	1348	50.058	842	-12.082	0.228	258.015	684	257.589
0037	1349	50.382	839	-11.967	0.271	270.856	684	270.379

RIGHT-TO-LEFT (INITIAL CLOCKWISE STEER)

0038	1350	-12.308	857	4.217	-0.386	41.591	683	41.496
0039	1350	-16.322	855	5.412	-0.499	54.599	684	54.576
0040	1349	-20.583	879	6.906	-0.568	68.570	684	68.577
0041	1349	-24.171	840	8.061	-0.616	81.411	684	81.521
0042	1349	-29.788	841	9.059	-0.632	95.380	684	95.591
0043	1349	-35.741	845	9.868	-0.599	108.693	684	108.851
0044	1349	-41.406	849	10.748	-0.484	122.681	684	122.797
0045	1349	-46.530	850	11.046	-0.420	135.800	684	135.724
0046	1349	-51.038	851	11.440	-0.365	149.855	684	149.857
0047	1349	-54.400	854	11.613	-0.318	162.894	684	162.734
0048	1349	-50.357	852	11.754	-0.162	177.005	684	176.905
0049	1349	-50.389	851	11.828	-0.187	189.995	684	189.926
0050	1348	-50.220	850	11.859	-0.138	204.389	683	204.196
0051	1348	-51.524	850	11.826	-0.172	217.351	684	217.195
0052	1349	-51.905	847	11.727	-0.204	231.462	684	231.147
0053	1349	-51.204	848	11.851	-0.172	244.433	684	244.118
0054	1348	-56.894	845	11.748	-0.279	258.577	683	258.190
0055	1348	-54.189	848	11.893	-0.195	271.519	684	271.043

7.5 SLOWLY INCREASING STEER TEST RESULTS
2011 Nissan Juke
NHTSA No.: CB5206

Date Created 14-Jun-11

File	Vehicle	EventPt	DOS	MES [mph]	Mean SPD [mph]	AYcount_3	THETAENCF_3 [degree]	AYCG_CD2_3 [g]	r_squared	ZeroBegin	ZeroEnd
0010	2011 Nissan Juke	704	1	49.965	50.177	1104	-27.059	-0.299	0.999	504	704
0011	2011 Nissan Juke	704	1	49.973	50.085	1107	-27.293	-0.293	0.999	504	704
0012	2011 Nissan Juke	699	1	49.794	50.037	1106	-27.236	-0.290	0.997	499	699
0013	2011 Nissan Juke	702	0	50.195	49.650	1090	26.551	0.299	0.999	502	702
0014	2011 Nissan Juke	703	0	50.043	50.062	1095	26.878	0.300	0.999	503	703
0016	2011 Nissan Juke	702	0	50.083	50.217	1094	26.840	0.300	0.998	502	702
	Averages						27.0	0.297			

Scalars	Steering Angles (deg)
1.5	41
2	54
2.5	68
3	81
3.5	95
4	108
4.5	122
5	135
5.5	149
6	162
6.5	176
7	189
7.5	203
8	216
8.5	230
9	243
9.5	257
10	270

7.6 INERTIA SENSOR MEASUREMENTS
2011 Nissan Juke
NHTSA No.: CB5206

Device : U12-05-08-07108
device version : 2.24
device certification date : 07/30/10
today is : 6/14/2011
units : Millimeters

Label	ActualX	ActualY	ActualZ
C_DEVICEPOS001			
M_PLANE001	1039.177	-525.496	-320.963
M_LINE001	487.903	144.191	-102.407
M_FRONT_AXLE_CENTER	0.000	0.000	0.000
C_COORDSYS001	0.000	0.000	0.000
M_TIRE_CENTER_TREAD	288.094	98.789	-156.127
M_INERTIA_PACK	1491.804	863.376	491.958
M_ROOF	1289.193	875.005	1230.183
M_GROUND	1289.147	-130.967	-319.704

Track Width		1520.825	
Roof Height (relative to ground)			1549.886
Motion Pak - x-distance (mm)	1491.804		
Motion Pak - y-distance (mm)		4.175	
Motion Pak - z-distance (mm)			767.211
Motion Pak - x-distance (inches)	58.732		
Motion Pak - y-distance (inches)		0.164	
Motion Pak - z-distance (inches)			30.205

x-distance (longitudinal) — Point of reference is the front axle centerline. (Positive from front axle toward rear of vehicle.)

y-distance (lateral) — Point of reference is the vehicle centerline. (Positive from the center toward the right.)

z-distance (vertical) — Point of reference is the ground plane. (Positive from the ground up.)