122-TRC-11-003

SAFETY COMPLIANCE TESTING FOR FMVSS 122
Motorcycle Brake Systems

Suzuki Motor Corporation
2011 Suzuki GSX-R600 Motorcycle
NHTSA No. CB1202

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

Final Report Completed: November 10, 2011

FINAL REPORT

Prepared Under Contract No.: DTNH22-06-C-00033

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

Prepared for the Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-06-C-00033.

Prepared By _____

Approved By _____

Approval Date: 11/10/11

Final Report Acceptance By OVSC:

_____ 11/10/11

Contract Technical Manager, Office of Vehicle Safety Compliance

11/10/11

Acceptance Date

1. REPORT NUMBER: 122-TRC-11-003	2. GOVERNMENT ACCESSION NO.:	3. RECIPIENTS CATALOG NO.:	
4. TITLE AND SUBTITLE: Final report of FMVSS 122 Compliance Testing of a 2011 Suzuki GSX-R600, Motorcycle, NHTSA No. CB1202		5. REPORT DATE: November 10, 2011	
		6. PERFORMING ORGANIZATION CODE: TRC 20060110 / 2206	
7. AUTHOR(S): Project Manager: ALAN IDA Project Engineer: MICHAEL BILBEE		8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-122-014	
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Transportation Research Center Inc. 10820 State Route 347 East Liberty, Ohio 43319		10. WORK UNIT NUMBER:	
		11. CONTRACT OR GRANT NO.: DTNH22-06-C-00033	
12. SPONSORING AGENCY NAME AND ADDRESS: U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 1200 New Jersey Avenue S.E. West Wing 4th Floor Washington, DC 20590		13. TYPE OF REPORT AND PERIOD COVERED: Final test report Tested: 9/15/11 to 11/8/11	
		14. SPONSORING AGENCY CODE: NVS-221	
15. SUPPLEMENTARY NOTES:			
16. ABSTRACT: Compliance tests were conducted on the subject 2011 Suzuki GSX-R600, Motorcycle, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-122-02 for the determination of FMVSS 122 compliance. Test failures identified were as follows: None			
17. KEY WORDS: Compliance Testing Safety Engineering FMVSS 122		18. DISTRIBUTION STATEMENT: Copies of this report are available from: NHTSA Technical Information Services NPO-411 1200 New Jersey Ave, S.E. Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833	
19. SECURITY CLASSIF. (OF THIS REPORT): Unclassified	20. SECURITY CLASSIF. (OF THIS PAGE). Unclassified	21. NO. OF PAGES: 60	22.

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1.0 INTRODUCTION

Tests were conducted on a 2011 Suzuki GSX-R600 Motorcycle, manufactured by Suzuki Motor Corporation to determine compliance with FMVSS 122 "Motorcycle Brake Systems." All tests were conducted in accordance with the U.S. D.O.T., NHTSA Laboratory Procedure TP 122-02 and/or the corresponding TRC Inc. Test Procedure that was submitted to NHTSA for their approval. The Test Procedure was clearly described in the submitted document and has not been repeated in this report. This vehicle meets the definition of a motorcycle.

All stops were performed manually.

All tests were conducted by TRC Inc. personnel using the following TRC facilities:

Skid Pad
Instrumentation Check
Maximum Speed Test
First Effectiveness Test
Partial Service Brake System Test
Brake Burnish
Second Effectiveness Test
Re-burnish
Final Effectiveness Test

7.5-mile Oval Test Track
Fade and Recovery Test

Vehicle Dynamics Area
Water Recovery Test

Average PFC during the test period was 1.03 (Skid Pad) and 0.97 (VDA) utilizing the ASTM E1337 w/E1336 tire method.

This vehicle met the requirements of FMVSS 122.

DATA SHEET 1 (1 of 2)

VEHICLE INFORMATION

VEHICLE:	2011 Suzuki GSX-R600	DATE:	9/15/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi		
ODOMETER START:	3 mi.	ODOMETER FINISH:	197 mi.		

Date of Manufacture: 02/11

General Description:

Manufacturer	**Suzuki Motor Corporation**
Make & Model	**Suzuki GSXR600**
VIN	**JS1GN7FA8B2101779**
Engine Type	**Gasoline, 4-Stroke, Four Piston, Liquid Cooled**
Engine Displacement	**36.5 in.^{3} (599 cc)**
Fuel Delivery	**Fuel Injected**
Transmission	**6-speed manual**
Final Drive	**Chain**
Wheelbase	**55.0 in.**

Tires:

	Front	Rear
Manufacturer	**Bridgestone**	**Bridgestone**
Type	**Battlax BT016F AA**	**Battlax BT016R AA**
Size	**120/70ZR17 M/C**	**180/55ZR17 M/C**
DOT Number	**ENY0 VDM0711**	**ENAS DFD0511**
Pressure (cold)	**36 psi**	**42 psi**
Rim Label Information	**J 17M/C x MT3.50 DOT**	**J 17M/C x MT5.50 DOT**

Weights:

	Front		Rear		Total
	Mass (lb.)	**% of Total**	**Mass (lb.)**	**% of Total**	**Mass (lb.)**
Test Rider					**168.00**
Curb Weight (UVW)	**217.5**	**52.3**	**198.0**	**47.7**	**415.5**
Test Weight (UVW + rider + instrumentation)	**288.0**	**46.8**	**327.5**	**53.2**	**615.5**
GVWR (label)					**835.0**
GAWR (label)	**305.0**	**36.5**	**530.0**	**63.5**	**835.0**

FMVSS 122 - DATA SHEET 1 (2 of 2)

Brakes:

	Front	Rear
Actuation Method: mechanical, hydraulic, electric	**Hydraulic**	**Hydraulic**
System Type: Individual control, Combined Brake System, Split-Service	**Individual Control**	**Individual Control**
Control	**Hand Lever**	**Foot Pedal**
Caliper Type	**Floating, Double-sided, 4 pistons**	**Floating, Single-sided, 1 piston**
Number of Calipers	**2**	**1**
No. of Caliper Pistons	**4 pistons x 2 calipers**	**1**
Caliper Piston Diameters	**1.255 in. x 4 pistons per caliper**	**1.183 in. x 1 piston**
Rotor –Type/Number	**Cross-drilled / 2 rotors**	**Cross-drilled / 1 rotor**
Rotor Diameter	**L: 12.208 in. R: 12.210 in.**	**8.665 in.**
Rotor Thickness/Min. Allowable Thickness	**0.20 in. (5.00 mm) / 4.5 mm**	**0.20 in. (5.00 mm) / 4.5 mm**
Swept Area	**39.55 + 39.65 in.^{2} = 79.2 in.^{2}**	**28.5 in.^{2}**
Brake Pad Identification Numbers	**Brembo BRM118BHG**	**Nissin TT2172HH**

DATA SHEET 2 (1 of 2)
MOTYORCYCLE BRAKE TEST SUMMARY

VEH.: 2011 Suzuki GSX-R600 VEH. NHTSA NO.: CB1202; LABORATORY: TRC Inc.

TEST SUMMARY	SPEED (mi/h)	STOP. DIST. (ft) Actual	STOP. DIST. (ft) Corrected	FRONT MAX. BRAKE LEVER FORCE (lb.)	REAR MAX. BRAKE LEVER FORCE (lb.)	NUMBER OF TESTS	PASS/ FAIL
Instrumentation Check	29.9	122.5	123.5	7.0	14.7	6	N/A
Speed Determination	120.0 (avg.)						N/A
1st Effectiveness Test @ 30 mi/h (Service Brake System)	29.5	39.6	41.1	18.6	37.6	6	P
1st Effectiveness Test @ 60 mi/h (Service Brake System)	59.4	162.7	166.0	16.8	29.9	6	P
1st Effectiveness Test @ 30 mi/h (Partial) Hand Lever Only – Front Subsystem	30.0	43.9	43.9	17.6	N/A	6	P
1st Effectiveness Test @ 30.0 mi/h (Partial) Foot Pedal Only – Rear Subsystem	29.9	80.9	81.3	N/A	62.5	6	P
1st Effectiveness Test @ 60 mi/h (Partial) Hand Lever Only – Front Subsystem	59.5	168.7	171.7	21.4	N/A	6	P
1st Effectiveness Test @ 60 mi/h (Partial) Foot Pedal Only – Rear Subsystem	59.6	298.4	302.7	N/A	66.2	6	P
Burnish Procedure	30.0					200	N/A
2nd Effectiveness Test@ 30 mi/h (Service brake System)	30.0	40.6	40.6	19.6	39.1	6	P
2nd Effectiveness Test@ 60 mi/h (Service brake System)	59.9	159.6	160.2	18.8	33.3	6	P
2nd Effectiveness Test@ 80 mi/h (Service brake System)	79.7	289.9	292.0	15.0	28.5	4	P
2nd Effectiveness Test@ 115 mi/h (Service brake System)	112.1	524.6	552.6	14.0	27.1	4	P
Fade and Recovery (Baseline)	30.1 (avg.)	119.6 (avg.)	119.0 (avg.)	6.9 (avg.)	13.7 (avg.)	3	N/A
Fade and Recovery (Fade Test)	60.2 (avg.)	222.9 (avg.)	221.5 (avg.)	10.1 (avg.)	20.5 (avg.)	10	N/A
Fade and Recovery (Recovery- 5th stop)	29.9	113.5	114.4	6.2	15.4	5	P
Re-burnish Procedure	30.0					35	N/A
Final Effect. Test @ 30 mi/h (Service Brake System)	29.8	39.6	40.1	22.7	32.2	6	P

DATA SHEET 2 (2 of 2)
MOTORCYCLE BRAKE TEST SUMMARY

TEST SUMMARY	SPEED (mph)	STOP. DIST. (ft) Actual	STOP. DIST. (ft) Corrected	FRONT MAX. BRAKE LEVER FORCE (Pounds)	REAR MAX. BRAKE LEVER FORCE (Pounds)	NUMBER OF TESTS	PASS/ FAIL
Final Effect. Test @ 60 mi/h (Service Brake System)	59.3	163.1	166.9	15.9	25.4	6	P
Final Effect. Test @ 80 mi/h (Service Brake System)	79.5	288.6	292.2	16.0	22.0	4	P
Final Effect. Test @ 115 mi/h (Service Brake System)	114.9	559.5	560.6	14.0	17.5	4	P
Final Effect. Test – Split Service Brake Systems (Partial Service Brake System) SUBSYSTEM #1 @ 48.3 km/h	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Final Effect. Test – Split Service Brake Systems (Partial Service Brake System) SUBSYSTEM #1 @ 96.6 km/h	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Final Effect. Test – Split Service Brake Systems (Partial Service Brake System) SUBSYSTEM #2 @ 48.3 km/h	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Final Effect. Test – Split Service Brake Systems (Partial Service Brake System) SUBSYSTEM #2 @ 96.6 km/h	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Parking Brake Test –**3-wheeled** motorcycles only	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wet Recovery (Baseline – Average Maximum Forces)	30.1 (avg.)	122.7 (avg.)	121.5 (avg.)	5.8 (avg.)	10.8 (avg.)	3	N/A
Wet Recovery (Recovery – 5th Stop)	29.8	115.9	117.4	6.7	13.7	5	P
Final Inspection (Durability)							P
Equipment Requirements							P

FMVSS 122 - DATA SHEET 3
INSTRUMENTATION CHECK (S7.2)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/24/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	58
ODOMETER START:	10 mi.	ODOMETER FINISH:	12 mi	WIND VELOCITY (MPH):	10

REQUIREMENTS: Check instrumentation by making not more than 10 stops from 30 mi/h at a deceleration of not more than 10 ft/s^2, record results, repeat if necessary.

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft/s^2)		Wheel Lockup	Stay In Lane
		Front	**Rear**			**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**		
1	30.3	135	132	144.3	141.4	6.2	4.8	18.5	10.8	9.8	6.6	No	Yes
2	30.1	139	137	141.4	140.2	6.9	5.4	14.1	9.6	10.2	6.9	No	Yes
3	29.9	147	145	118.9	119.6	7.7	5.5	20.9	12.6	10.4	8.0	No	Yes
4	29.9	150	150	122.5	123.5	7.0	4.5	14.7	10.5	11.1	7.4	No	Yes
5	29.4	147	150	119.9	124.5	6.9	5.0	14.3	9.7	11.5	7.7	No	Yes
6	29.6	145	147	130.3	133.7	6.0	5.1	12.7	8.4	9.4	7.2	No	Yes

REMARKS: _____
DRIVER: **Alan Ida**
RECORDED BY: **Alan Ida** **DATE:** **10-24-11**
APPROVED BY: **Ken Webster**

DATA SHEET 4

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/24/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	58
ODOMETER START:	14 mi	ODOMETER FINISH:	17 mi	WIND VELOCITY (MPH):	14

MAXIMUM SPEED

MOTORCYCLE MAXIMUM SPEED DETERMINATION — Measure the speed that the motorcycle will attain in a distance of 1 mile from a standing start, but do not exceed 120 mi/h. If the speed is less than 60 mi/h, tests specified to commence at that speed shall be run at the multiple of 5 mi/h that is 4 mi/h to 8 mi/h less than the maximum speed measured.

TEST CONDITIONS:

Test Speed	Maximum speed attainable in 1mi. from a standing start on a level surface.
Initial Brake Temperature (IBT)	N/A
Runs Required	Two runs shall be made in opposite directions.

	DIRECTION	SPEED (mi/h)
Run No. 1	South	120.0
Run No. 2	North	120.0

Average = 120.0 mi/h

REMARKS: _____

DRIVER: Alan Ida

RECORDED BY: Alan Ida **DATE:** 10-24-11

APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 5
FIRST (PREBURNISHED) EFFECTIVENESS TEST (S7.3.1)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/25/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	50
ODOMETER START:	33 mi	ODOMETER FINISH:	37 mi	WIND VELOCITY (MPH):	4

TEST CONDITIONS:

Test Speed	30 mi/h	60 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F
Runs Required	6	6
Maximum Stop Distance Allowed	54 ft.	216 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lb. Foot Pedal Force ≤ 90 lb.	Hand Lever Force ≤ 55 lb. Foot Pedal Force ≤ 90 lb.
Wheel Lockup	No	No
Brakes Utilized	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal

30 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.5	139	144	39.6	41.1	18.6	13.7	37.6	23.2	32.8	23.9	NO	YES
2	30.0	139	145	41.6	41.8	24.3	15.0	42.0	26.4	29.4	24.4	NO	YES
3	29.8	141	145	41.3	41.9	20.9	13.2	42.6	23.6	30.6	23.6	NO	YES
4	29.8	142	147	42.4	42.9	23.8	14.6	33.3	20.3	34.4	24.3	NO	YES
5	30.0	137	139	45.0	45.1	18.5	12.9	33.0	20.4	28.3	22.4	NO	YES
6	29.7	149	150	43.5	44.4	18.6	12.8	32.7	20.3	29.0	23.0	NO	YES

60 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.2	139	141	164.7	169.2	16.1	12.1	39.1	25.4	28.4	23.6	NO	YES
2	59.4	142	147	162.7	166.0	16.8	13.1	29.9	23.3	30.1	24.4	NO	YES
3	59.5	138	142	164.0	166.7	19.5	13.5	32.8	24.3	32.2	24.6	NO	YES
4	59.8	140	141	177.8	178.8	14.8	10.8	34.0	23.4	26.3	20.5	NO	YES
5	59.8	142	143	174.0	175.1	16.7	12.6	31.9	22.0	29.5	22.9	NO	YES
6	59.6	140	145	167.4	169.9	18.1	14.5	28.6	20.6	30.4	23.9	NO	YES

REMARKS: _____
DRIVER: **Alan Ida**
RECORDED BY: **Alan Ida** **DATE:** **10-25-11**
APPROVED BY: **Ken Webster**

FMVSS 122 - DATA SHEET 6 (1 of 2)
PARTIAL (PREBURNISHED) SERVICE BRAKE SYSTEM TEST (7.3.2)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/25/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	57
ODOMETER START:	37 mi	ODOMETER FINISH:	57 mi	WIND VELOCITY (MPH):	13

REQUIREMENTS FOR A MOTORCYCLE WITH TWO INDEPENDENTLY ACTIVATED SERVICE BRAKE SUBSYSTEMS.

TEST CONDITIONS: Subsystem 1

Test Speed	30 mi/h	60 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F
Runs Required	6	6
Maximum Stop Distance Allowed	121 ft.	484 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No	No
Brakes Utilized	**Front - Hand Lever**	**Front - Hand Lever**

TEST CONDITIONS: Subsystem 2

Test Speed	30 mi/h	60 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F
Runs Required	6	6
Maximum Stop Distance Allowed	121 ft.	484 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No	No
Brakes Utilized	**Rear – Foot Pedal**	**Rear – Foot Pedal**

30 mi/h DATA — **Brake Subsystem 1**, Describe: Front Only (Hand Lever)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	30.5	145		46.8	45.4	19.2	15.3			29.5	22.9	NO	YES
2	29.8	142		46.2	46.7	20.6	15.3			30.8	22.4	NO	YES
3	30.1	135		44.9	44.6	18.1	14.5			31.5	23.3	NO	YES
4	30.0	139		43.9	43.9	17.6	14.1			30.6	23.4	NO	YES
5	29.7	144		45.0	46.0	17.6	14.6			29.1	22.6	NO	YES
6	29.9	146		48.2	48.6	17.0	14.2			27.7	21.3	NO	YES

FMVSS 122 - DATA SHEET 6 (2 of 2)

60 mi/h DATA —— **Brake Subsystem 1**, Describe: Front Only (Hand Lever)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lb.)		Rear Brake Lever Force (lb.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.8	145		173.0	174.4	19.4	16.5			29.6	23.8	NO	YES
2	59.6	139		175.2	177.8	19.7	16.2			28.9	23.3	NO	YES
3	59.5	140		168.7	171.7	21.4	17.3			32.0	23.7	NO	YES
4	58.9	142		169.3	175.5	20.1	17.0			31.0	23.4	NO	YES
5	59.4	141		170.2	173.8	20.3	17.0			32.5	23.7	NO	YES
6	59.4	139		173.5	176.7	22.1	16.5			30.1	23.1	NO	YES

30 mi/h DATA — **Brake Subsystem 2**, Describe: Rear Only (Foot Pedal)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lb.)		Rear Brake Lever Force (lb.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.9		145	88.9	89.3			52.4	44.0	14.6	11.6	NO	YES
2	30.0		146	83.8	83.8			53.8	44.8	15.1	11.7	NO	YES
3	29.9		147	80.9	81.3			62.5	48.5	14.7	12.1	NO	YES
4	30.1		145	83.4	82.8			60.5	48.8	14.4	11.8	NO	YES
5	29.7		146	79.7	81.4			50.1	41.7	15.2	11.6	NO	YES
6	30.0		139	84.5	84.7			56.9	44.9	14.3	11.8	NO	YES

60 mi/h DATA —— **Brake Subsystem 2**, Describe: Rear Only (Foot Pedal)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.0		143	302.0	311.9			62.2	45.4	16.0	11.2	NO	YES
2	59.4		140	306.5	312.8			62.5	45.3	15.3	12.0	NO	YES
3	59.1		137	311.6	320.7			56.7	42.0	15.2	11.7	NO	YES
4	59.8		136	327.7	329.7			53.1	41.8	14.1	11.4	NO	YES
5	59.5		137	304.6	309.3			52.3	42.5	15.1	12.0	NO	YES
6	59.6		138	298.4	302.7			66.2	44.3	15.8	12.2	NO	YES

REMARKS: _____

DRIVER: Alan Ida

RECORDED BY: Alan Ida **DATE: 10-25-11**

APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 7
BURNISH PROCEDURE (S7.4)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/25/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	66
ODOMETER START:	62 mi	ODOMETER FINISH:	103 mi	WIND VELOCITY (MPH):	15

TEST CONDITIONS:

Test Speed	30 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
Runs Required	200
Deceleration Rate	12 ft/s^2
Actuation Forces	Hand Lever and foot pedal force limits do not apply during this procedure.
Cooling Speed	Accelerate at maximum rate to 30 mi/h immediately and maintain that speed until making the next stop
Stop Interval	The braking interval shall be either the distance necessary to reduce the brake temperature to between 130°F and 150°F or 1 mile, whichever comes first.
Post Burnish Adjustments	After burnishing adjust the brakes in accordance with the manufacturer's recommendation.
Wheel Lockup	
Brakes Utilized	Hand Lever and Foot Pedal

BURNISH

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)				Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.5	143	142			7.4		19.0		13.2	8.7	NO	YES
25	29.9	147	146			7.2		11.5		11.9	9.3	NO	YES
50	30.1	142	145			7.1		12.5		12.5	9.2	NO	YES
75	30.0	145	147			6.9		12.4		13.1	9.2	NO	YES
100	30.1	148	143			6.9		10.2		13.1	9.6	NO	YES
125	30.1	141	140			7.1		11.0		12.9	9.1	NO	YES
150	29.8	146	144			6.9		11.8		12.9	9.3	NO	YES
175	29.9	148	144			7.3		10.9		13.4	9.6	NO	YES
200	30.2	144	140			7.8		14.0		13.4	9.8	NO	YES

REMARKS: _____

DRIVER: **Alan Ida**
RECORDED BY: **Alan Ida** **DATE:** **10-25-11**
APPROVED BY: **Ken Webster**

FMVSS 122 - DATA SHEET 8 (1 of 2)
SECOND EFFECTIVENESS TEST (S7.5)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	10/25/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	43
ODOMETER START:	105 mi	ODOMETER FINISH:	133 mi	WIND VELOCITY (MPH):	6

TEST CONDITIONS:

Test Speed	30 mi/h	60 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F
Runs Required	6	6
Maximum Stop Distance Allowed	43 ft.	185 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No	No
Brakes Utilized	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal

TEST CONDITIONS:

Test Speed	80 mi/h	115 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F
Runs Required	6	6
Maximum Stop Distance Allowed	345 ft.	791 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No	No
Brakes Utilized	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal

30 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	30.0	142	138	40.5	40.6	19.6	13.7	39.1	26.1	34.8	25.1	NO	YES
2	30.0	138	132	42.4	42.4	22.0	14.2	33.4	26.8	35.9	24.4	NO	YES
3	30.0	137	141	42.9	42.9	16.6	12.4	38.2	21.1	33.0	23.0	NO	YES
4	30.0	135	131	43.4	43.5	18.4	12.6	35.3	21.9	30.6	23.2	NO	YES
5	29.8	134	134	42.1	42.6	15.9	12.5	30.3	18.2	33.3	23.9	NO	YES
6	29.9	135	133	42.3	42.7	20.0	14.1	25.1	20.0	32.5	24.0	NO	YES

FMVSS 122 - DATA SHEET 8 (2 of 2)

60 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.5	142	143	157.5	160.5	21.8	15.0	31.2	22.1	32.4	25.1	NO	YES
2	59.9	140	141	159.6	160.2	18.8	13.3	33.3	24.4	31.9	24.2	NO	YES
3	59.8	143	143	179.3	180.6	15.4	11.9	28.0	21.9	28.6	22.8	NO	YES
4	60.1	139	144	165.3	164.6	19.2	13.7	29.9	22.4	32.2	24.7	NO	YES
5	59.7	143	145	179.4	181.2	20.5	14.6	23.1	18.7	31.7	23.3	NO	YES
6	59.1	139	145	167.3	172.7	17.7	12.4	28.9	22.9	31.4	23.7	NO	YES

80 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lb.)		Rear Brake Lever Force (lb.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	79.7	147	143	289.9	292.0	15.0	10.5	28.5	19.2	30.1	23.4	NO	YES
2	79.1	133	137	288.0	294.4	18.5	11.6	29.1	22.5	27.3	23.3	NO	YES
3	79.0	129	136	269.7	276.3	19.3	11.4	25.2	18.6	34.2	25.0	NO	YES
4	79.2	131	139	289.1	295.0	15.3	9.5	31.2	22.9	31.3	23.2	NO	YES

TOP SPEED 115 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	112.1	132	138	524.6	552.6	14.0	10.2	27.1	19.0	33.7	24.7	NO	YES
2	113.7	131	138	563.3	576.7	17.1	9.9	29.7	18.2	30.7	24.1	NO	YES
3	113.9	129	138	565.5	576.0	11.9	8.6	26.4	18.3	32.4	23.5	NO	YES
4	114.2	134	138	564.2	572.6	15.6	11.1	22.5	15.3	30.3	24.6	NO	YES

REMARKS:

DRIVER: Alan Ida
RECORDED BY: Alan Ida **DATE: 10-25-11**
APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 9 (1 of 3)
FADE AND RECOVERY TEST (S7.6)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	11/1/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	48
ODOMETER START:	133 mi	ODOMETER FINISH:	146 mi	WIND VELOCITY (MPH):	6

TEST CONDITIONS: Baseline

Test Speed	30 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
Runs Required	3
Deceleration Rate	10 to 11 ft/s^2
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

30 mi/h DATA — Fade and Recovery Baseline Data (S7.6.1)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.9	146	149	116.0	116.9	6.7	5.4	16.0	11.2	11.6	8.7	NO	YES
2	30.1	138	145	115.3	114.9	7.7	5.8	13.0	8.5	11.5	8.9	NO	YES
3	30.3	138	141	127.5	125.3	6.3	5.0	12.2	8.7	11.5	8.0	NO	YES
Average Max. Actuation Forces (to be used in computing 5th recovery stop actuation force limits)						6.9		13.7					

TEST CONDITIONS: Fade

Test Speed	60 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
IBT – Subsequent Stops	Temps. Occurring at distance intervals.
Number of Stops	10
Deceleration Rate	14 – 17 ft/s/s
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Stop Interval	2112 ft.
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

DATA SHEET 9 (2 of 3)

60 mi/h DATA — Fade Stops (S7.6.2)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.3	141	147	208.8	213.7	11.4	8.5	21.8	15.5	24.7	18.3	NO	YES
2	59.9	182	175	216.7	217.5	10.2	7.5	25.9	16.5	25.8	17.4	NO	YES
3	61.9	206	213	286.4	269.0	9.3	6.3	17.7	11.7	19.8	13.2	NO	YES
4	59.1	204	2237	230.1	237.0	9.7	7.3	23.0	15.3	21.4	15.9	NO	YES
5	60.1	197	228	218.6	218.2	10.2	7.7	21.2	15.5	22.7	17.2	NO	YES
6	59.3	218	249	212.2	217.4	8.3	6.4	20.3	14.5	22.4	17.9	NO	YES
7	61.7	221	259	218.8	206.9	11.0	8.7	17.0	12.6	22.7	18.6	NO	YES
8	60.0	253	262	199.5	199.9	11.7	8.4	19.4	14.2	25.6	19.5	NO	YES
9	60.8	261	268	212.8	207.1	9.6	8.2	21.1	14.9	24.2	18.2	NO	YES
10	59.5	267	285	225.3	228.9	9.3	6.8	17.4	13.1	22.1	16.9	NO	YES

TEST CONDITIONS: Recovery

Test Speed	30 mi/h
First Stop Initial Brake Temperature (IBT)	Temperature achieved at completion of fade stop procedure
IBT – Subsequent Stops	Temps. Occurring at distance intervals.
Number of Stops	5
Deceleration Rate	10 to 11 ft/s^2
Maximum Allowable Brake Actuation Forces for Stops 1 through 4	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Maximum Allowable Brake Actuation Forces for Stop 5	See Recovery Stop Actuation Force Limit computation Table Below
Stop Interval	1 mile
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

REQUIREMENT: for the fifth recovery stop shall be within plus 20 pounds and minus 10 pounds of the baseline check average force, but not less than 0 pounds.

5th Recovery Stop Actuation Force Limit Computations (S5.4.3)			
Service Brake 1 (Front Brake)		Service Brake 2 (Rear Brake)	
Lower Limit – Average Max. Force (6.9 lbs.) minus 10 lbs.	Upper Limit – Average Max. Force (6.9 lbs.) Plus 20 lbs.	Lower Limit – Average Max. Force (13.7 lbs.) minus 10 lbs.	Upper Limit – Average Max. Force (13.7 lbs.) Plus 20 lbs.
0.0	26.9	3.7	33.7

DATA SHEET 9 (3 of 3)

30 mi/h Recovery Stop Data (S7.6.3) —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	30.6	157	213	119.9	114.9	6.8	5.2	14.1	9.5	11.9	8.8	NO	YES
2	30.6	100	148	115.5	11.3	6.1	4.8	15.9	10.8	11.9	8.7	NO	YES
3	30.2	80	126	107.5	105.9	6.0	4.6	15.5	10.2	12.5	9.0	NO	YES
4	29.5	77	115	117.8	121.6	7.9	5.8	11.2	6.9	16.2	8.4	NO	YES
5	29.9	76	107	113.5	114.4	6.2	5.2	15.4	10.1	12.0	8.9	NO	YES

REMARKS:

DRIVER: Alan Ida
RECORDED BY: Alan Ida **DATE:** 11-1-11
APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 10

REBURNISH PROCEDURE (S7.7)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	11/1/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	56
ODOMETER START:	154 mi	ODOMETER FINISH:	163 mi	WIND VELOCITY (MPH):	10

TEST CONDITIONS:

Test Speed	30 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
Runs Required	35
Deceleration Rate	12 ft./s^2
Actuation Forces	Hand Lever and foot pedal force limits do not apply during this procedure.
Cooling Speed	Accelerate at maximum rate to 30 mph immediately and maintain that speed until making the next stop
Stop Interval	The braking interval shall be either the distance necessary to reduce the brake temperature to between 130°F and 150°F or 1 mile, whichever comes first.
Post Burnish Adjustments	After burnishing adjust the brakes in accordance with the manufacturer's recommendation.
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)				Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (fpsps)		Wheel Lockup	Stay In Lane
		Front	Rear			Max		Max		Max			
1	30.2	140	140			6.2		12.4		11.1		NO	YES
5	30.3	148	138			6.6		10.4		13.1		NO	YES
10	29.7	133	136			6.2		10.9		12.9		NO	YES
15	29.9	149	138			6.2		10.4		10.7		NO	YES
20	29.9	149	133			6.2		11.4		11.9		NO	YES
25	30.2	145	146			6.0		12.5		11.1		NO	YES
30	29.9	144	139			6.3		12.0		11.4		NO	YES
35	30.0	142	134			6.0		11.4		12.2		NO	YES

REMARKS: _____

DRIVER: Alan Ida

RECORDED BY: Alan Ida **DATE:** 11-1-11

APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 11 (1 of 2)
FINAL EFFECTIVENESS TEST (S7.8.1)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	11/1/11 & 11/2/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	57 & 60
ODOMETER START:	163 mi	ODOMETER FINISH:	192 mi	WIND VELOCITY (MPH):	12 & 12

TEST CONDITIONS:

Test Speed	30 mi/h	60 mi/h	80 mi/h	115 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F	130°F to 150°F	130°F to 150°F	130°F to 150°F
Runs Required	6	6	4	4
Maximum Stop Distance Allowed	43 ft.	185 ft.	345 ft.	791 ft.
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No	No	No	No
Brakes Utilized	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal	Hand Lever and Foot Pedal

30 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	30.1	138	140	45.8	45.4	16.3	10.9	39.1	24.4	29.7	21.8	NO	YES
2	29.8	137	132	39.6	40.1	22.7	14.6	32.2	21.0	35.6	25.8	NO	YES
3	29.9	139	135	40.1	40.4	19.9	14.0	31.5	22.0	34.2	25.1	NO	YES
4	30.1	136	134	45.1	44.7	15.3	10.1	32.8	20.3	30.4	21.1	NO	YES
5	29.7	138	131	43.9	44.8	13.1	10.5	32.3	22.0	28.1	22.5	NO	YES
6	29.6	145	137	44.7	45.9	17.0	9.9	28.9	18.5	30.9	21.6	NO	YES

DATA SHEET 11 (2 of 2)

60 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	59.9	139	140	171.1	171.8	16.8	12.0	29.0	18.7	29.8	23.2	NO	YES
2	59.3	136	143	163.1	166.9	15.9	11.6	25.4	19.0	28.6	23.8	NO	YES
3	59.6	142	142	170.9	173.5	14.9	11.7	28.4	21.2	29.6	23.5	NO	YES
4	59.9	137	145	166.6	167.2	13.3	10.3	26.8	19.6	28.2	22.4	NO	YES
5	60.2	143	141	177.4	176.3	14.6	11.3	22.9	16.8	26.7	22.3	NO	YES
6	59.9	135	145	174.9	175.6	14.2	10.6	25.8	19.8	29.4	22.0	NO	YES

80 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	79.4	137	137	292.5	297.3	17.9	10.3	23.3	16.4	31.6	23.1	NO	YES
2	79.7	136	139	295.4	297.6	13.2	9.2	23.9	15.5	31.4	22.9	NO	YES
3	79.5	134	138	288.6	292.2	16.0	11.9	22.0	14.8	29.5	23.8	NO	YES
4	79.7	143	141	301.3	303.5	15.1	10.9	22.0	15.7	27.8	23.0	NO	YES

HIGH SPEED 115 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	114.1	131	139	568.9	578.1	13.6	9.9	21.7	15.1	28.8	24.3	NO	YES
2	114.9	128	135	559.5	560.6	14.0	10.2	17.5	12.3	29.8	25.1	NO	YES
3	115.6	131	139	607.1	600.9	12.4	8.5	22.7	14.8	28.2	23.6	NO	YES
4	114.8	136	138	586.2	588.2	16.7	10.0	17.4	12.8	29.8	24.4	NO	YES

REMARKS: _____

DRIVER: Alan Ida

RECORDED BY: Alan Ida **DATE:** 11-1-11 & 11-2-11

APPROVED BY: Ken Webster

FMVSS 122 - DATA SHEET 12 (1 of 2)

WATER FADE AND RECOVERY TEST (S7.10.1) & (S7.10.2)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	11/2/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	63
ODOMETER START:	194 mi	ODOMETER FINISH:	196 mi	WIND VELOCITY (MPH):	12

TEST CONDITIONS: Baseline Stops

Test Speed	30 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
Runs Required	3
Deceleration Rate	10 to 11 ft./s^2
Maximum Allowable Brake Actuation Forces	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

30 mi/h DATA — Baseline Data (S7.10.1)

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.9	133	137	121.9	122.4	5.8	4.7	11.5	8.0	10.5	8.3	NO	YES
2	30.5	148	146	131.9	128.0	5.8	4.5	10.9	7.9	10.4	8.0	NO	YES
3	30.0	150	145	114.4	114.1	5.8	4.8	10.1	7.6	11.6	8.8	NO	YES
<u>Average Max.</u> Actuation Forces (to be used in computing 5th recovery stop actuation force limits)						5.8		10.8					

Immerse rear brake in water fully released for 2 minutes followed by immersion of the front brake in water fully released for 2 minutes.

Immediately after completion of the wetting, accelerate to initial test speed without applying the brakes. Upon reaching the initial test speed, immediately conduct the wet brake recovery stops.

DATA SHEET 12 (2 of 2)

TEST CONDITIONS: Wet Brake Recovery Stops

Test Speed	30 mi/h
First Stop Initial Brake Temperature (IBT)	Temperature achieved at completion of brake wetting.
IBT – Subsequent Stops	Temps. Occurring at end of each stop.
Number of Stops	5
Deceleration Rate	10 to 11 ft./s^2
Maximum Allowable Brake Actuation Forces for Stops 1 through 4	Hand Lever Force ≤ 55 lbs. Foot Pedal Force ≤ 90 lbs.
Maximum Allowable Brake Actuation Forces for **Stop 5**	See Recovery Stop Actuation Force Limit computation Table Below
Stop Interval	Distance sufficient to accelerate to initial test speed.
Wheel Lockup	No
Brakes Utilized	Hand Lever and Foot Pedal

REQUIREMENT: for the **5th** recovery stop shall be within plus 20 pounds and minus 10 pounds of the baseline check average force, but not less than 0 pounds.

5th Recovery Stop Actuation Force Limit Computations (S5.4.3)			
Service Brake 1 (Front Brake)		Service Brake 2 (Rear Brake)	
Lower Limit – Average Max. Force (5.8 lbs.) minus 10 lbs	Upper Limit – Average Max. Force (5.8 lbs.) Plus 20 lbs.	Lower Limit – Average Max. Force (10.8 lbs.) minus 10 lbs.	Upper Limit – Average Max. Force (10.8 lbs.) Plus 20 lbs.
0.0 lbs.	25.8 lbs.	0.8 lbs.	30.8 lbs.

30 mi/h Recovery Stop Data (S10.2) —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Front Brake Lever Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			Max	Avg	Max	Avg	Max	Avg		
1	29.8	58	59	101.6	102.9	7.9	6.1	15.2	11.2	12.4	9.7	NO	YES
2	29.7	79	67	97.9	99.6	7.7	5.6	13.0	9.6	12.1	9.8	NO	YES
3	29.9	96	74	107.6	108.5	7.2	5.6	11.4	8.8	11.7	9.2	NO	YES
4	29.6	112	78	105.5	108.1	6.7	4.8	11.1	9.1	14.6	9.1	NO	YES
5	29.8	116	80	115.9	117.4	6.7	5.3	13.7	9.4	11.6	8.8	NO	YES

REMARKS: _____

DRIVER: **Alan Ida**

RECORDED BY: **Alan Ida** **DATE:** **11-2-11**

APPROVED BY: **Ken Webster**

FMVSS 122 - DATA SHEET 13

FINAL INSPECTION – DURABILITY (S5.8/S7.11)

VEHICLE:	2011 Suzuki GSX-R600	DATE:	11/7/11	NHTSA NUMBER:	CB1202
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	42 psi	AMBIENT TEMP. °F:	NA
ODOMETER START:	197 mi	ODOMETER FINISH:	197 mi	WIND VELOCITY (MPH):	NA

Upon completion of all tests, perform the following:

Requirement – brake system disassembled	PASS/FAIL
Inspect the entire brake system for detachment or fracture of any component	P
Inspect the brake linings for detachment from the shoe or pad.	P
Inspect the wheel cylinder, master cylinder, brake hoses and axle seals for fluid or lubricant leakage	P

REMARKS: _____

RECORDED BY: Derek Bevis **DATE:** 11-7-11

APPROVED BY: Ken Webster

FMVSS 122 –DATA SHEET 14 (1 of 2)

FINAL INSPECTION – EQUIPMENT REQUIREMENTS (S5.1)

BRAKE SYSTEM INSPECTION REQUIREMENTS	TEST VEHICLE COMPLIANCE	DATA	
		YES	NO
S5.1 - Motorcycle shall have either a split service brake system or two independently actuated service brake systems.	Motorcycle has split service brake system?		X
	Motorcycle has two independently actuated service brake systems?	X	
S5.1.1 - Failure of any component in a mechanical service brake system shall not result in a loss of braking ability in the other service brake system on the vehicle.	If vehicle has a mechanical service brake system, would component failure result in loss of braking in other service brake system?	N/A	N/A
S5.1.2 - Leakage failure in hydraulic service brake system shall not result in a loss of braking ability in other service brake system on the vehicle.	If vehicle has hydraulic service brake system, would leakage failure in one service brake system result in a loss of braking ability in other service brake system?		X
S5.1.2.1 - Each master cylinder shall have a separate reservoir for each brake circuit, with each reservoir filler opening having its own cover, seal, and cover retention device. Each reservoir shall have a minimum capacity equivalent to one and one-half times the total fluid displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoir move from a new lining, fully retracted position to a fully worn, fully applied position. Where adjustment is a factor, the worst condition of adjustment shall be used for this measurement.	Vehicle meets master cylinder reservoir requirements? Attach annotated calculations for each reservoir capacity. (Data Sheet 17 & Appendix A)	X	
S5.1.2.2 - Each motorcycle shall have a brake fluid warning statement that reads as follows, in letters at least 2.38 mm high: **Warning: clean filler cap before removing. Use only ---fluid from a sealed container.** (Inserting the recommended type of brake fluid as specified in 49 CFR 571.116, e.g., DOT 3.) The lettering shall be: (A) Permanently affixed, engraved, or embossed (B) Located so as to be visible by direct view, either on or within 4 inches of the brake-fluid reservoir filler plug or cap (C) Of a color that contrasts with its background, if it is not engraved or embossed	Vehicle meets master cylinder warning statement requirements?	X	
	Recommended brake fluid type: ____DOT4___		

(Continued on next page)

DATA SHEET 14 (2 of 2)

BRAKE SYSTEM INSPECTION REQUIREMENTS	TEST VEHICLE COMPLIANCE	DATA	
		YES	NO
S5.1.3 - (A) Each motorcycle equipped with a **split service brake system** shall have one or more electrically operated service brake system failure indicator lamps that is mounted in front of and in clear view of the driver, and that is activated — (1) In the event of pressure failure in any part of the service brake system, other than a structural failure of either a brake master cylinder body in a split integral body type master cylinder system or a service brake system failure indicator body, before or upon application of not more than 20 lb of pedal force upon the service brake. (2) Without the application of pedal force, when the level of brake fluid in a master cylinder reservoir drops to less than the recommended safe level specified by the manufacturer or to less than one-half the fluid reservoir capacity, whichever is greater. (B) All failure indicator lamps shall be activated when the ignition switch is turned from the "off" to the "on" or to the "start" position. (C) Except for the momentary activation required by S5.1.3.1(b), each indicator lamp once activated, shall remain activated as long as the condition exists, whenever the ignition switch is in the "on" position. An indicator lamp activated when the ignition is turned to the "start" position will be deactivated upon return of the switch to the "on" position unless a failure exists in the service brake system. (D) Each indicator lamp shall have a red lens with the legend "Brake Failure" on or adjacent to it in letters not less than three thirty-seconds of an inch high that shall be legible to the driver in daylight when lighted.	Does vehicle have a brake system failure indicator lamp? Number of brake system failure indicator lamps: _____ Does failure indicator lamp conform to operational and physical requirements?	 N/A	 N/A
S5.1.4 - Each three-wheeled motorcycle shall be equipped with a parking brake of a friction type with a solely mechanical means to retain engagement.	If a three-wheeled motorcycle, is it equipped with a parking brake?	N/A	N/A
S5.1.5 - The brake system shall be installed so that the lining thickness of the drum brake shoes may be visually inspected, either directly or by use of a mirror without removing the drums, and so that disc brake friction lining may be visually inspected without removing the pads.	Can the drum brake lining thickness and disc brake lining thickness be inspected without removal of drum or disc brake pads? Is a mirror required?	X 	 X

REMARKS: _____
RECORDED BY: Derek Bevis **DATE:** 11-7-11
APPROVED BY: Ken Webster

DATA SHEET 15

CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS

BRAKE		LINING		
LOCATION	**TYPE**	**DESCRIPTION**	**MINIMUM THICKNESS**	**THICKNESS TO FULLY WORN (1) in.****
Front Brake	Drum	Leading	Pretest 0.146 (L) / 0.145 in. (R)	0.04
		Primary	Post Test 0.144 (L) / 0.141 in. (R)	
		Inboard - X	□Δ 0.002 in. (L) / 0.004 in. (R)	
	Disc - X	Trailing	Pretest 0.146 (L) / 0.145 in. (R)	0.04
		Secondary	Post Test 0.144 (L) / 0.142 in. (R)	
		Outboard - X	□Δ 0.002 in. (L) / 0.003 in. (R)	
LINING CLEARANCE:	Diametral (2) – N/A	Inboard - 0 in.	Outboard - 0 in.	
WHEEL CYLINDER DIAMETER (3) – N/A		CALIPER PISTON DIAMETER (3) - 1.26 in. (x4 pistons) x 2 calipers		
SHOE CAGE DIAMETER (4) N/A ; CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C.: N/A				
Rear Brake	Drum	Leading	Pretest 0.171 in.	0.04
		Primary	Post Test 0.171 in.	
		Inboard - X	Δ□ 0.000 in.	
	Disc - X	Trailing	Pretest 0.173 in.	0.04
		Secondary	Post Test 0.170 in.	
		Outboard - X	□Δ 0.003 in.	
LINING CLEARANCE:	Diametral (2) – N/A	Inboard – 0 in.	Outboard – 0 in.	
WHEEL CYLINDER DIAMETER (3) – N/A		CALIPER PISTON DIAMETER (3) – 1.18 in. (X1 piston)		
SHOE CAGE DIAMETER (4) – N/A		CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C.: N/A		
SUBSYSTEM 1 CONSISTS OF:	Left Front and Right Front - X			
SUBSYSTEM 2 CONSISTS OF:	Rear – X			
(1) MFRS RECOMMENDATIONS – None. REAR - TOP OF RIVET HEADS - NA FRONT - 1/32 INCH - NA				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE - NA				
(3) MFRS DATA - NA				
(4) RESET POSITION - NA				

Comments: No manufacturer's data available.

**Per Standard's Engineer, utilized 1 mm (0.040 in.) as default.
See Appendix A for calculations.

DATA SHEET 16

VEHICLE ARRIVAL CONDITION REPORT

CONTRACT NO. DTNH22-06-C-0033 DATE: 9/2/11

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2011 / Suzuki / GSX-R600 / Motorcycle

MANUFACTURE DATE: 02/11 NHTSA NO.: CB1202

BODY COLOR: Blue / White VIN: JS1GN7FA8B2101779

ODOMETER READING: 3 mi GVWR: 380 KG

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: 122

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 STORAGE COMPARTMENT 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:

RECORDED BY: Alan Ida DATE: 9-2-11
APPROVED BY: Ken Webster DATE: 11-10-11

DATA SHEET 17

VEHICLE COMPLETION CONDITION REPORT

CONTRACT NO. DTNH22-06-C-0033 DATE: 11/7/11

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2011 / Suzuki / GSX-R600 / Motorcycle

MANUFACTURE DATE: 02/11 NHTSA NO.: CB1202

BODY COLOR: Blue / White VIN: JS1GN7FA8B2101779

ODOMETER READING: 197 miles GVWR: 380 KG

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: 122

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 STORAGE COMPARTMENT 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:

RECORDED BY: Alan Ida DATE: 11-7-11
APPROVED BY: Ken Webster DATE: 11-10-11

APPENDIX A

DETERMINATION OF MASTER CYLINDER MINIMUM VOLUME REQUIREMENTS

The procedure followed for determining the minimum volume requirements is outlined below and used in conjunction with Data Sheet 17.

SYSTEM DESCRIPTIONS:

Front Calipers: Two four-piston, double sided caliper with 1.260 inch pistons. The caliper pistons are served by the front master cylinder.

Rear Caliper: Single one-piston, single sided caliper with 1.181 inch piston. The caliper piston is served by the rear master cylinder.

Front Master Cylinder: Hand lever with integral reservoir. Serves eight pistons of the two front calipers. Reservoir capacity is **52.0 mL.**

Rear Master Cylinder: Foot pedal with integral reservoir. Serves one piston of the rear caliper. Reservoir capacity is **13.0 mL.**

DISC BRAKES
VOLUME REQUIREMENT CALCULATION:

Volume Required, $V_v = [(\Delta t_i + \Delta t_{ic}) \times [\pi(D^2)]/4] + [(\Delta t_o + \Delta t_{oc}) \times [\pi(D^2)]/4] \times 1.5$, where –

V_v =	Volume required per wheel
Δt =	Change in thickness (average)
i =	Inboard
o =	Outboard
c =	Clearance
D_1 =	Caliper cylinder diameter
D_2 =	Caliper cylinder diameter

FRONT REQUIREMENTS:

$\Delta t_i = 0.106$ in.

$\Delta t_o = 0.105$ in.

$\Delta t_{ic} = 0.000$ in.

$\Delta t_{oc} = 0.000$ in.

D = 1.255 in.

V_{Front} = [(0.106) x [[π(1.255²)]/4 x 1 piston]] + [(0.106) x [[π(1.1255²)]/4 x 1 piston]] + [(0.105) x [[π(1.255²)]/4 x 1 piston]] + [(0.105) x [[π(1.255²)]/4 x 1 piston]] x 2 calipers x 1.5
= [[0.131 $in.^3$] + [0.131 $in.^3$] + [0.130 $in.^3$] + [0.130 $in.^3$]] x 2 calipers x 1.5
= [0.522 $in.^3$] x 2 calipers x 1.5
= 1.566 $in.^3$
= **25.7 mL**

APPENDIX A

DETERMINATION OF MASTER CYLINDER MINIMUM VOLUME REQUIREMENTS CONTINUED

REAR REQUIREMENTS:

$\Delta t_i = 0.131$ in.

$\Delta t_o = 0.133$ in.

$\Delta t_{ic} = 0.000$ in.

$\Delta t_{oc} = 0.000$ in.

D = 1.183 in.

V_{Rear} = [(0.131) x [[π(1.183²)]/4 x 1 piston]] + [(0.133) x [[π(1.183²)]/4 x 1 piston]] x 1.5
= [0.144 in^3. + 0.146 $in.^3$] x 1.5
= 0.290 $in.^3$ x 1.5
= 0.435 $in.^3$
= **7.1 mL**

APPENDIX B

INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2011 Suzuki GSX-R600 **NHTSA NO: CB1202** **Date: 11/2/11**

INSTRUMENT	IDENTIFICATION/SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System – Racelogic VBOX 3i	018335	5-10-11	5-10-12
Software – Racelogic VBOX Tools	V02.2.2, Build 042	N/A	N/A
Hand Lever Force Transducer – Vishay Micromeasurement, 350 Ohm, ¼ in.	NA - Custom	Per Test	Per Test
Hand Lever Force Amplification – Sensotec P/N: 060-6827-02	1149944: Front 976382: Rear	Per Test	Per Test
Push / Pull Gauge – Imada Digimatic PS232C	173727	7-26-11	7-26-12
Accelerometer – GPS based within VBOX 3i	018335	5-10-11	5-10-12
Fifth Wheel – GPS based within VBOX 3i	018335	5-10-11	5-10-12
Wind Velocity/Direction Gauge – Davis Model 6410	070817N03	5-10-11	5-10-12
Ambient Temperature Gauge – Davis Model 6152	070817N01	5-10-11	5-10-12
Brake Thermocouple Meter – VBOX 3i	018883	Per Test	Per Test
Tire Pressure Gauge – Intercomp 360045	0113SS11051	9-28-11	12-28-11
Vehicle Weight – Toledo/Mettler Scales JAGXTREME 3000, (Bldg. 70)	SN 5225831-5JC	8-11-11	11-11-11

QUALITY ASSURANCE Alan Ida

Comments:

APPENDIX C

TEST VEHICLE PHOTOGRAPHS

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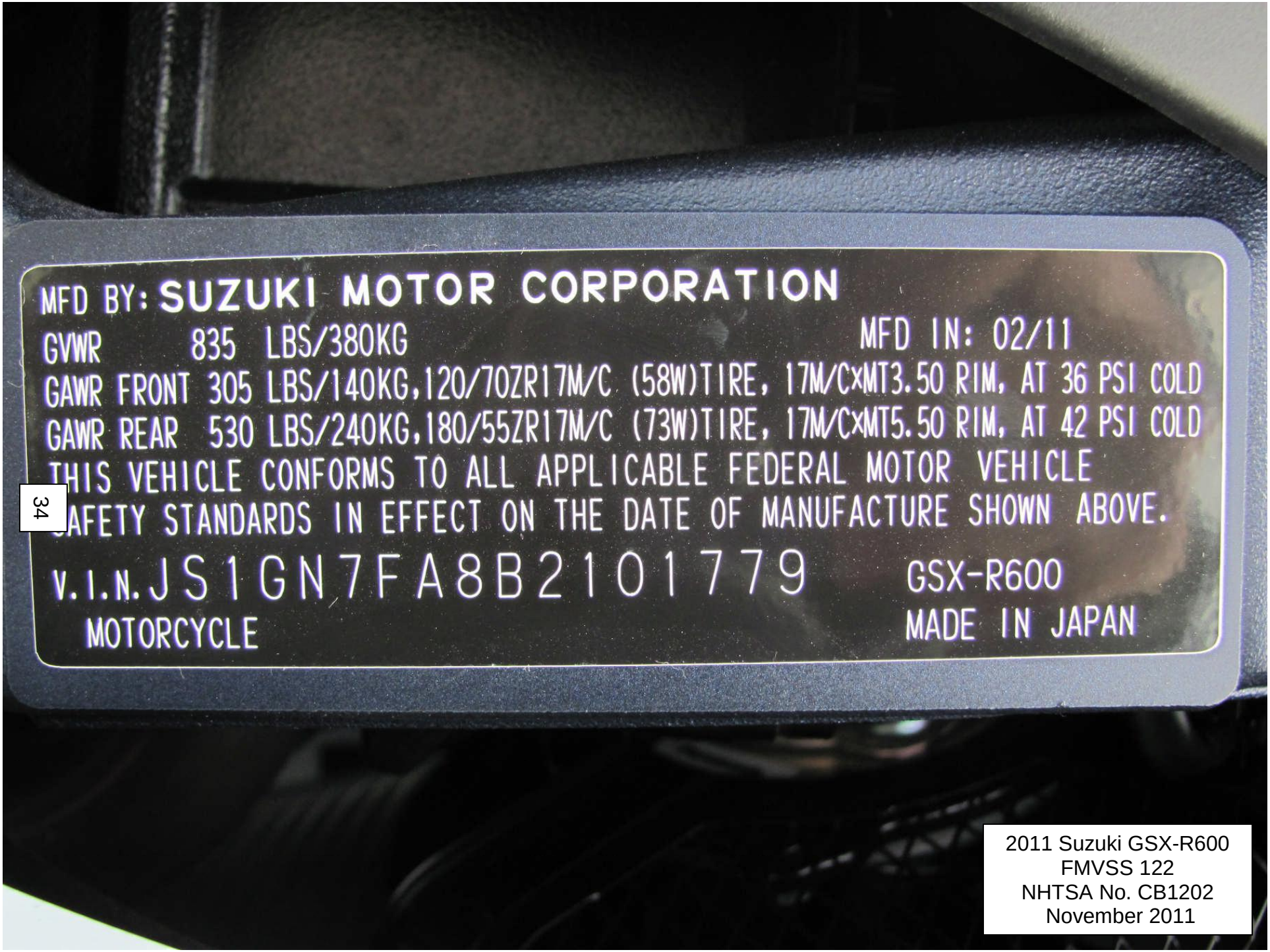
2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Left Front 3/4 View

Right Rear 3/4 View



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2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Vehicle Certification Label

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2011 Suzuki GSX-R600
FMVSS 122
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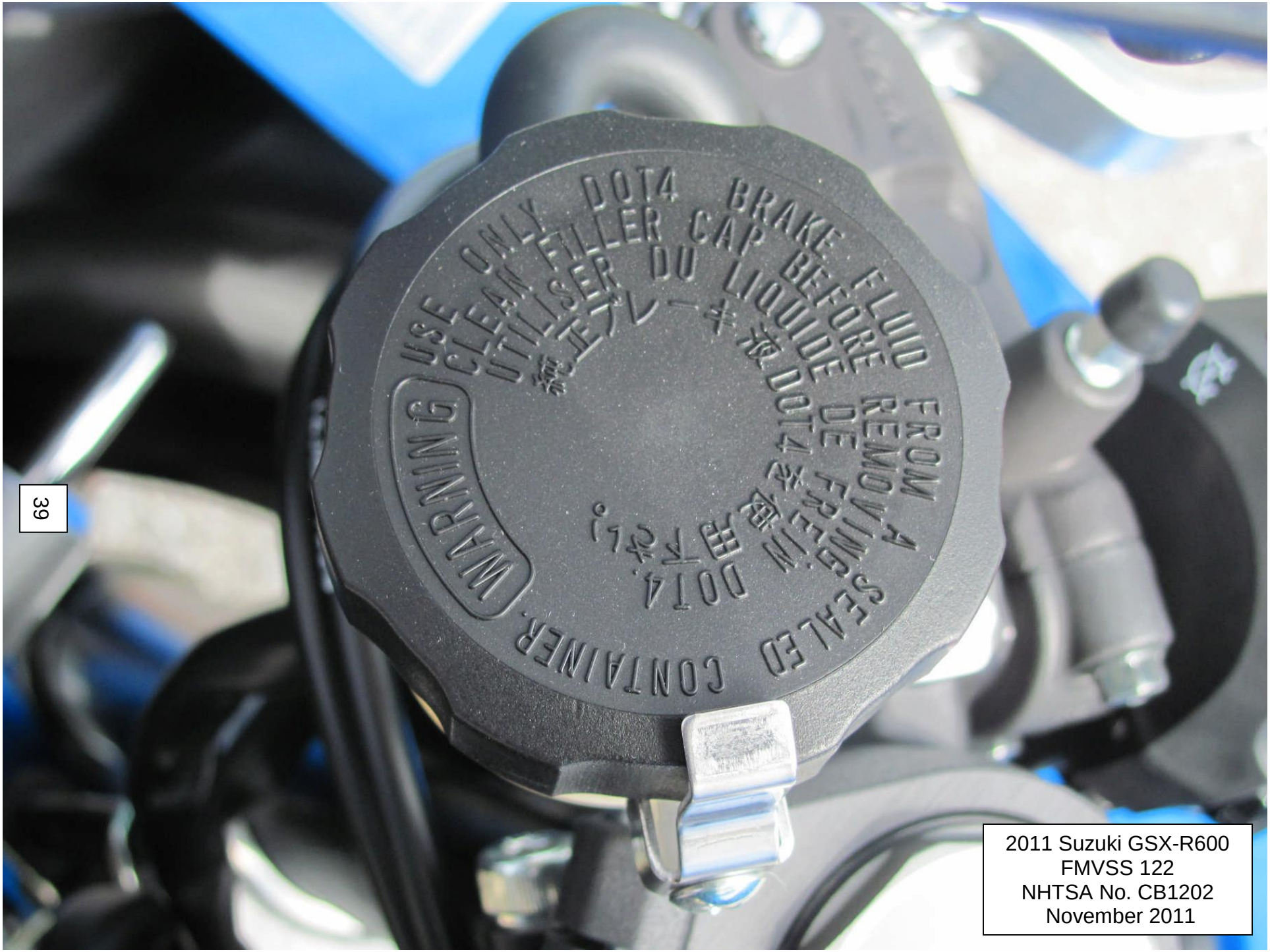
November 2011

FMVSS 120 Wheel (Front) Information Label

FMVSS 120 Tire (Front) Information Label

FMVSS 120 Wheel (Rear) Information Label

FMVSS 120 Tire (Rear) Information Label



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2011 Suzuki GSX-R600
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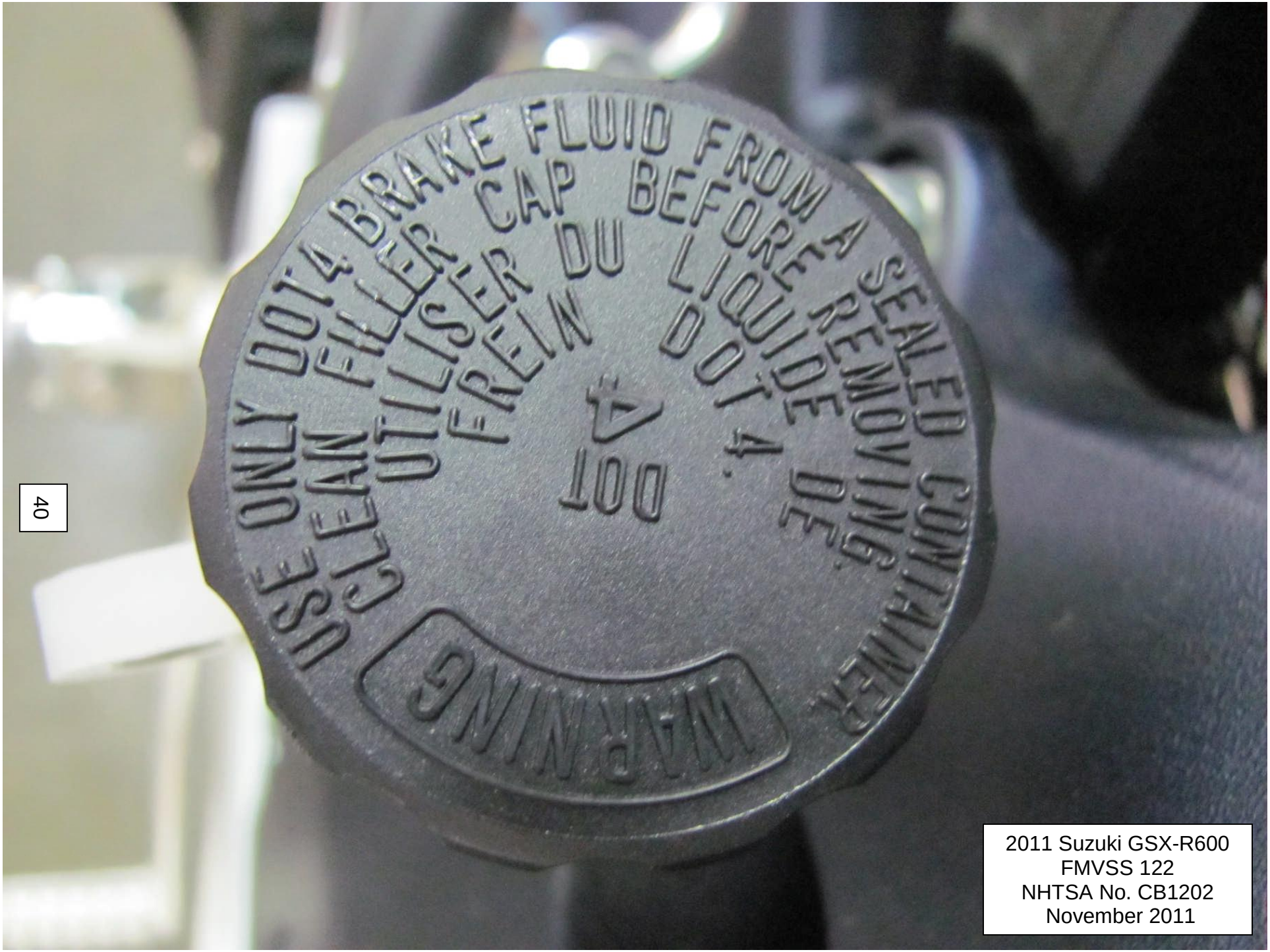
November 2011

Front Master Cylinder Warning Label (Reservoir Cover)



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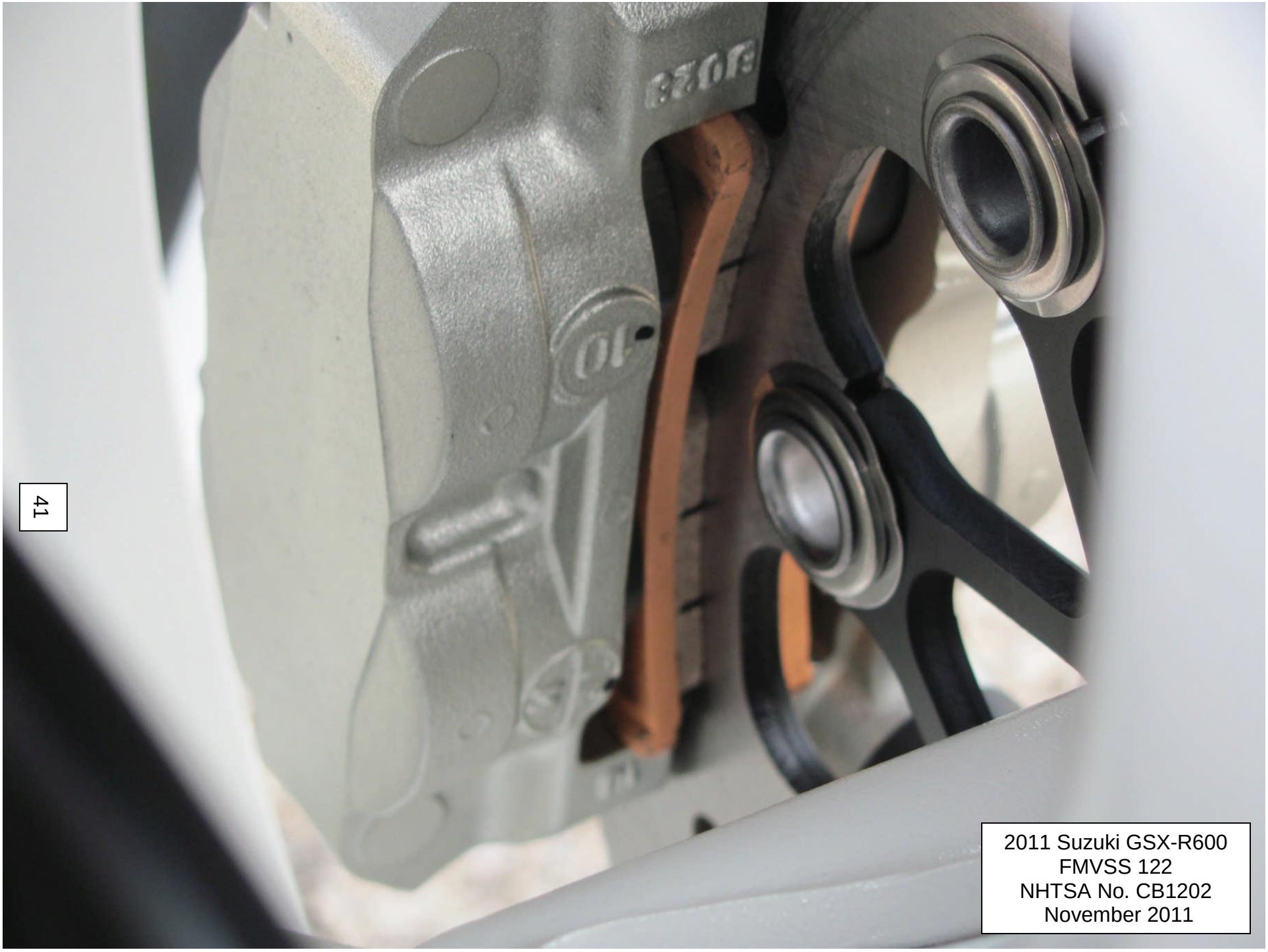
2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Rear Master Cylinder Warning Label (Reservoir Cover)



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2011 Suzuki GSX-R600
FMVSS 122
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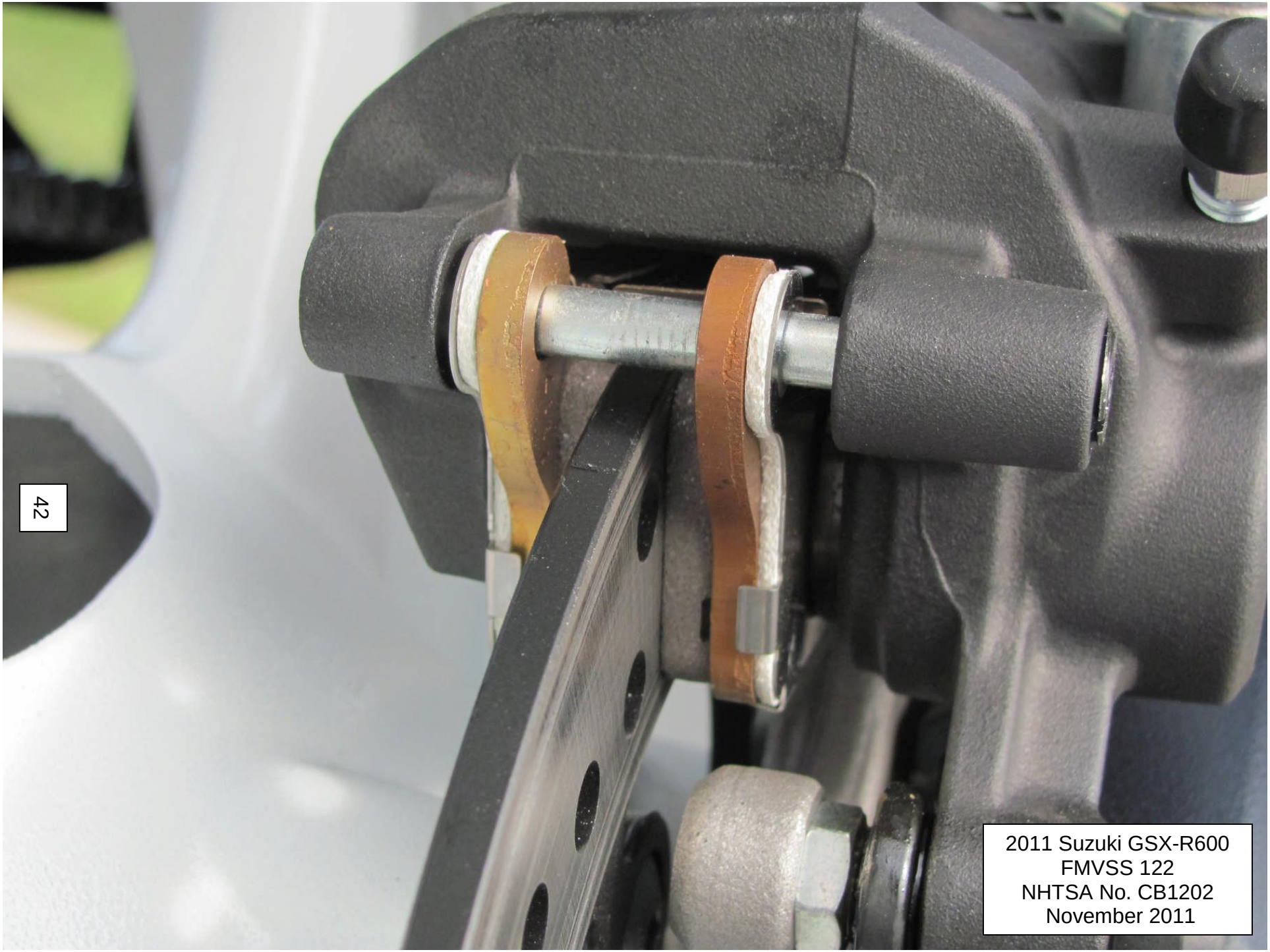
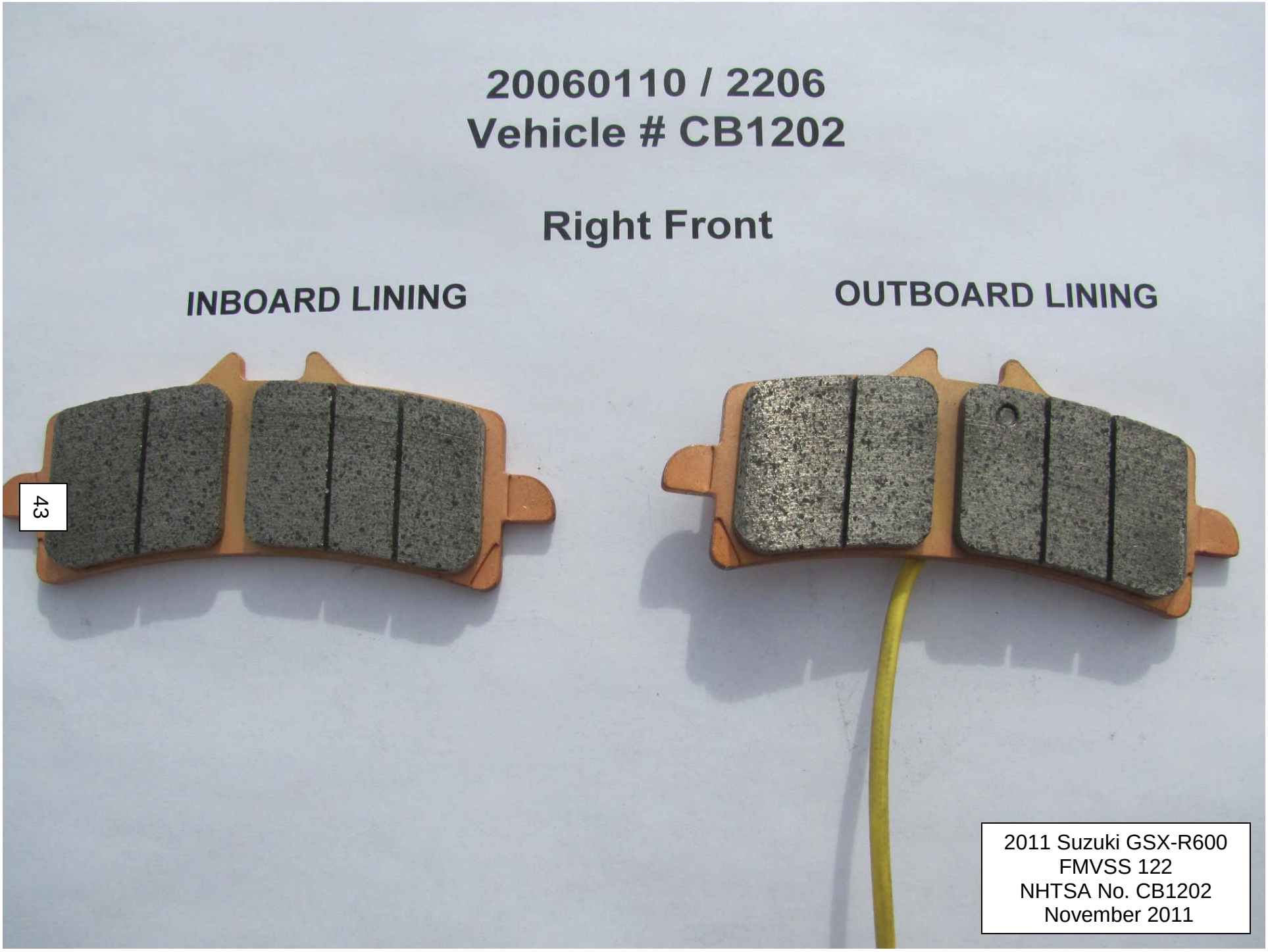
November 2011

Visual Inspection of Front Brake Lining Thickness



Visual Inspection of Rear Brake Lining Thickness



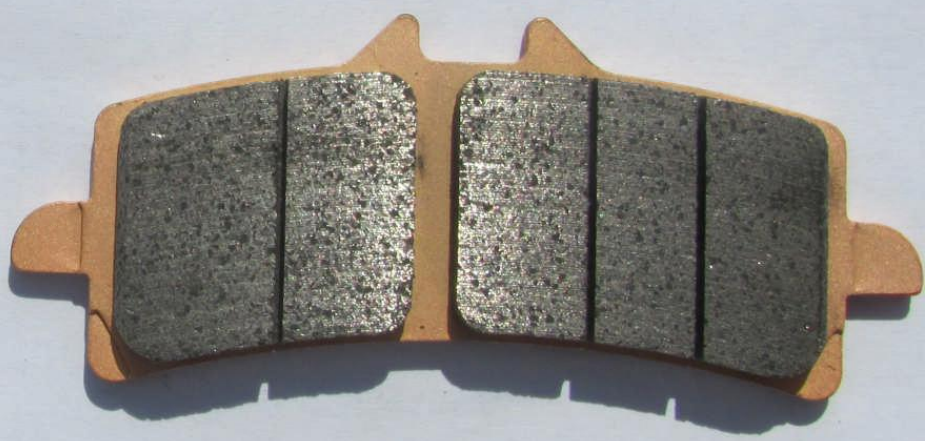
Pre-Test Right Front Pad Condition (Inner and Outer)

20060110 / 2206
Vehicle # CB1202

Left Front

INBOARD LINING

OUTBOARD LINING



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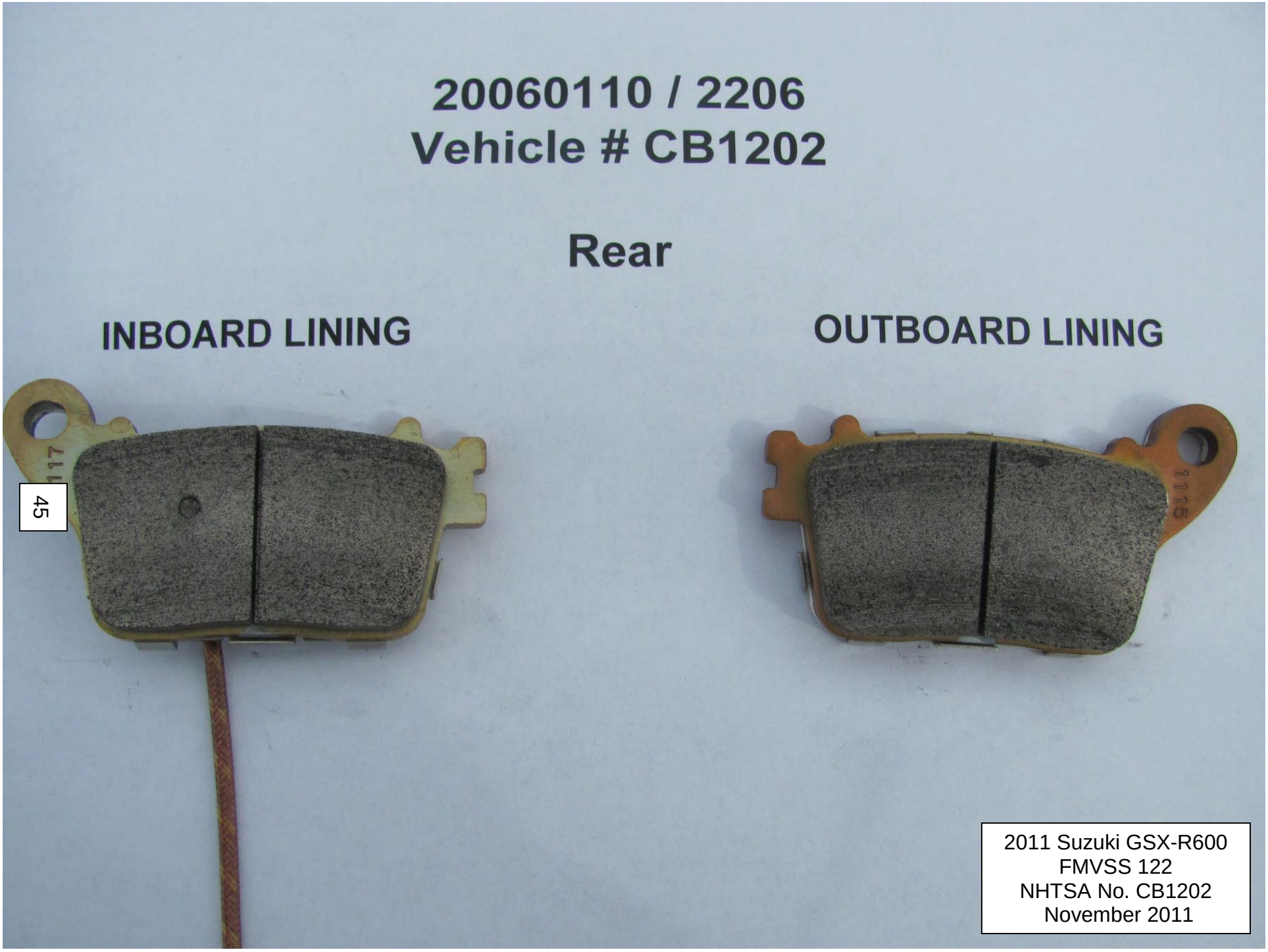
2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Pre-Test Left Front Pad Condition (Inner and Outer)



Pre-Test Rear Pad Condition (Inner and Outer)

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2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Left Front 3/4 View - Instrumented

Right Rear 3/4 View - Instrumented

2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Instrumentation Installed on Vehicle

Instrumentation Installed on Vehicle

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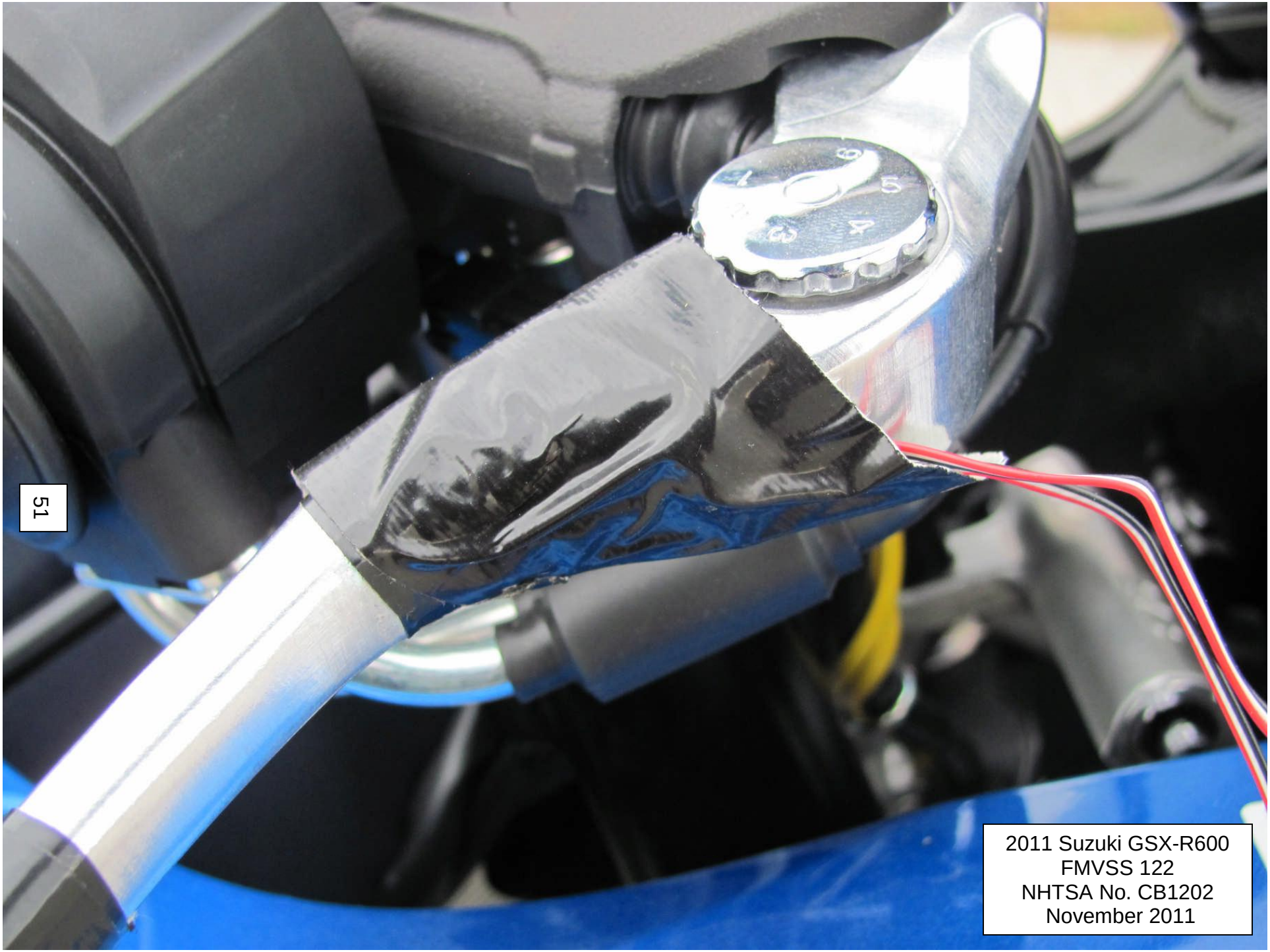
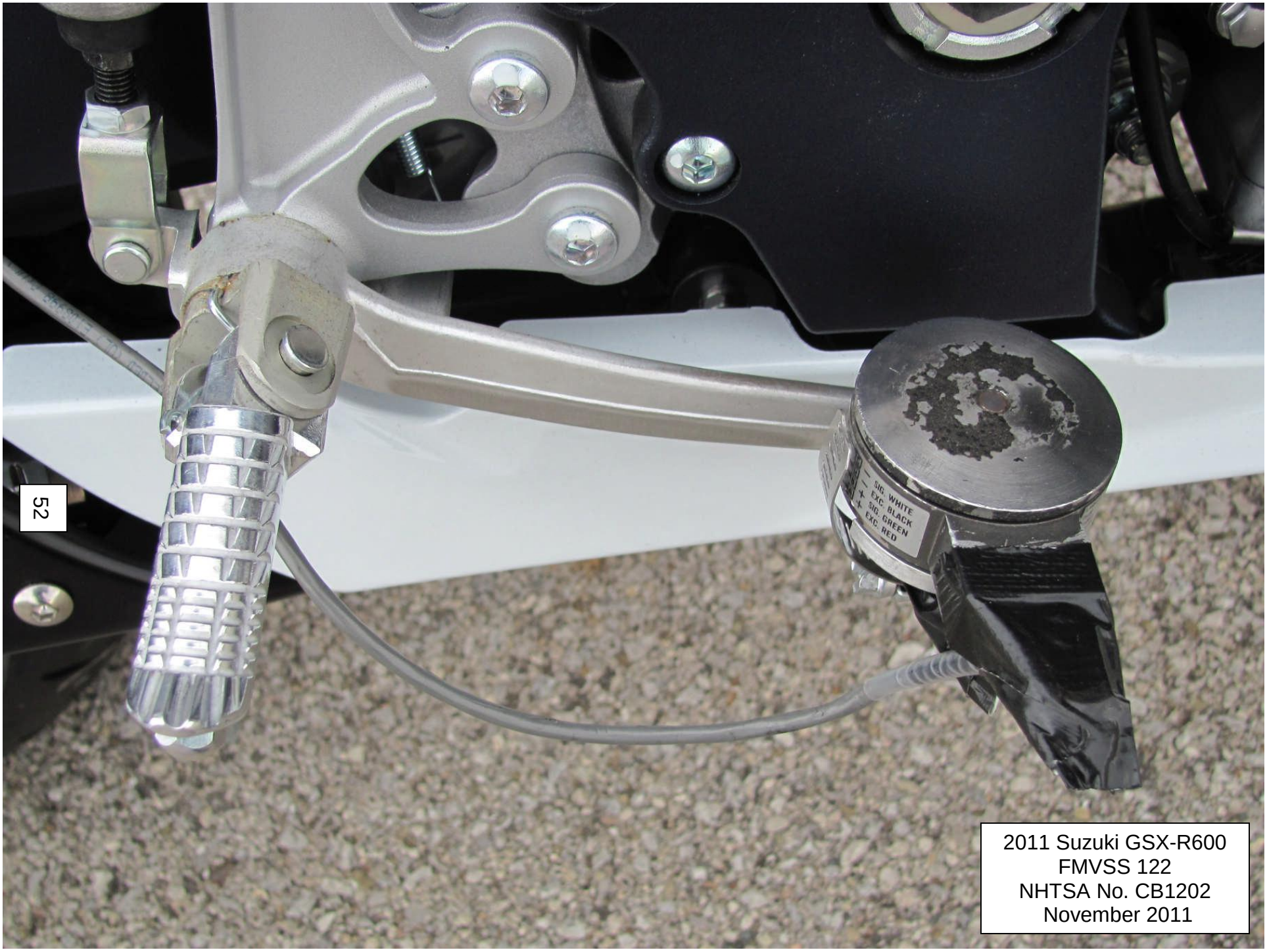
2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Ballast Installed on Vehicle



Front Brake Lever Strain Gauge



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2011 Suzuki GSX-R600
FMVSS 122
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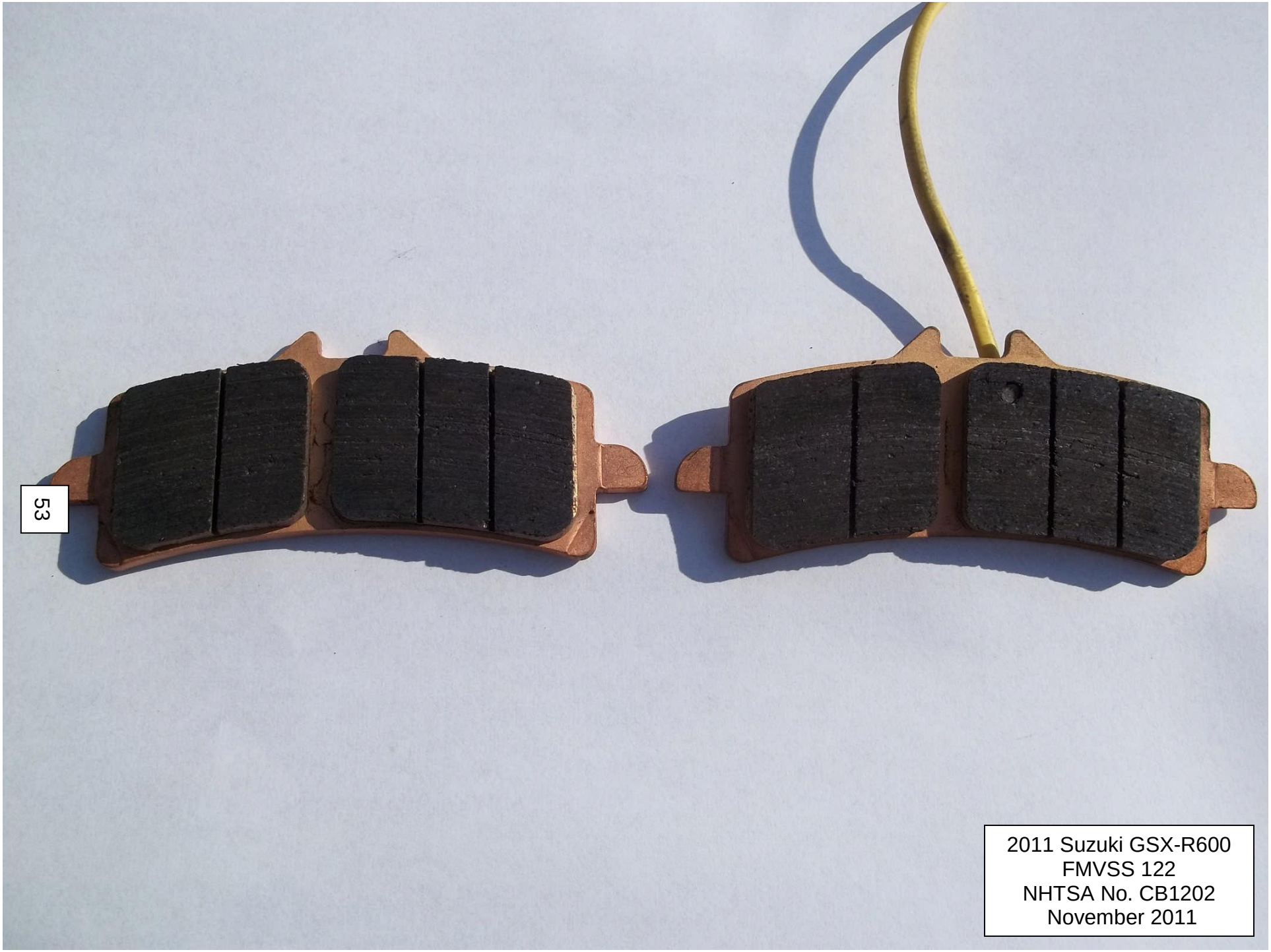
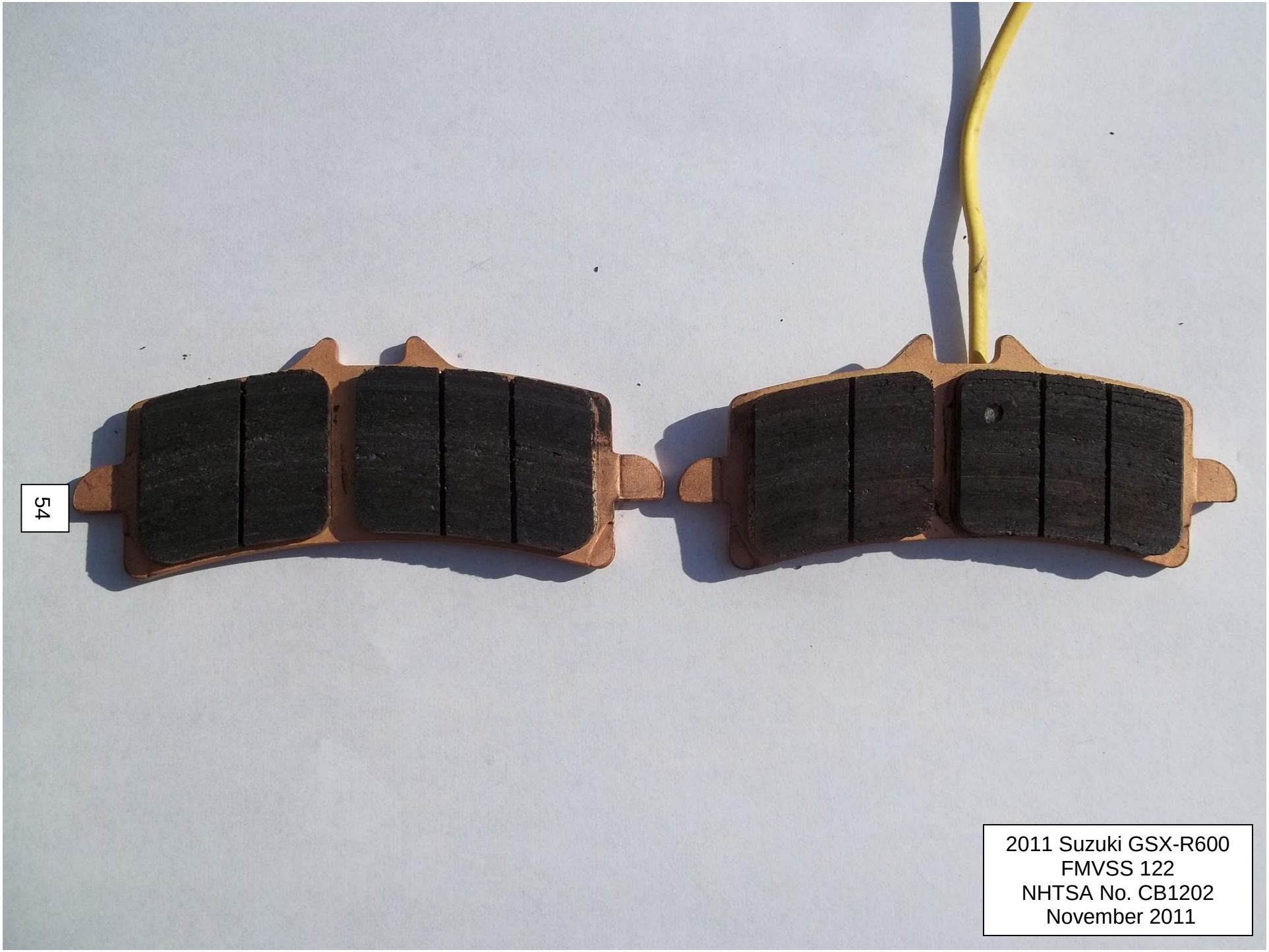
November 2011

Rear Brake Pedal Transducer



Condition, Right Front Brake Pads – Post Test



Condition, Left Front Brake Pads – Post Test

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2011 Suzuki GSX-R600
FMVSS 122
NHTSA No. CB1202
November 2011

Condition, Rear Brake Pads – Post Test

APPENDIX D

CONTRACTOR'S COMMENTS
PROCEDURE MODIFICATION (IF APPLICABLE)
TEST FACILITY

CONTRACTOR'S COMMENTS

TRC SKID PAD

The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

The overall dimensions of the pad are 9,000 feet by 84 feet with loops on the north and south ends. Both turnaround loops have a 309-foot radius and are 16 feet wide with a 25 percent super elevation. The loops can accommodate speeds of 45 mph with zero side force and 60 mph with 0.5g lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

The Skid Pad is constructed of Portland cement and contains a constant grade of 0.5%. The load capacity of the skid pad is 36,000 pounds maximum single axle weight and 48,000 pounds maximum tandem axle weight.

Varying surface textures in the main test area are ideal for testing tire and/or brake system performance on different surfaces as characterized by "skid numbers." The skid pad is also used for acceleration studies, aerodynamics, rolling resistance, noise testing, and top speed determination.

APPENDIX E

NOTICE OF POSSIBLE NON-COMPLIANCE

This vehicle (CB1202) meets the requirements of the FMVSS 122 standard.