

122-TRC-10-004

**SAFETY COMPLIANCE TESTING FOR FMVSS 122
Motorcycle Brake Systems**

China Qingqi Group Inc.
2008 Zap Xebra, Motorcycle
NHTSA No. C81001

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



Final Report Completed: November 8, 2010

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.

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Prepared By 

Approved By 

Approval Date: 11/8/10

Final Report Acceptance By OVSC:


Contract Technical Manager, Office of
Vehicle Safety Compliance

11/15/10
Acceptance Date

1. REPORT NUMBER: 122-TRC-10-004	2. GOVERNMENT ACCESSION NO.:	3. RECIPIENTS CATALOG NO.:	
4. TITLE AND SUBTITLE: Final report of FMVSS 122 Compliance Testing of a 2008 Zap Xebra Three Wheel, Motorcycle, NHTSA No. C81001		5. REPORT DATE: November 8, 2010	
		6. PERFORMING ORGANIZATION CODE: TRC 20060110 / 8222	
7. AUTHOR(S): Project Manager: ALAN IDA Project Engineer: RANDALL A. LANDES		8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-122-012	
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 4 th Floor Washington, DC 20590		13. TYPE OF REPORT AND PERIOD COVERED: Final test report Tested: 9/11/08 to 11/26/08	
		14. SPONSORING AGENCY CODE: NVS-221	
15. SUPPLEMENTARY NOTES:			
16. ABSTRACT: Compliance tests were conducted on the subject 2008 Zap Xebra, Three Wheel, 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: S5.1.2.1 <i>Master Cylinder Reservoir</i> – The vehicle did not have a separate reservoir for each brake circuit with each reservoir filler opening having its own cover, seal, and cover retention device (non-compliance noted after test completion thus no Laboratory Notice of Test Failure provided to NHTSA). S5.1.2.2 <i>Reservoir Labeling</i> – The vehicle label did not include the required wording. S5.2.1 <i>Service Brake System – first (preburnish) effectiveness</i> – The vehicle did not stop within the allowable distance at 30 mph. S5.3 <i>Service Brake System – second effectiveness</i> – The vehicle did not stop within the allowable distance at 30 mph.			
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: lis@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: 27	22. PRICE:

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1.0 INTRODUCTION

Tests were conducted on a 2008 Zap Xebra,,Three Wheel Motorcycle, manufactured by China Qingqi Group Inc., 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.

All stops were performed manually.

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

- Skid Pad
- Instrumentation Check Test
- First Effectiveness Test
- Brake Burnish
- Second Effectiveness Test

Average PFC during the test period was 1.01 (Skid Pad) utilizing the ASTM E1337 w/E1336 tire method.

This vehicle did not meet the requirements of FMVSS 122. Due to multiple failures, NHTSA COTR instructed TRC to discontinue testing after the 2nd Effectiveness Test.

DATA SHEET 1 (1 of 2)

VEHICLE INFORMATION

VEHICLE:	2008 Zap Xebra	DATE:	10/03/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi		
ODOMETER START:	85 km.	ODOMETER FINISH:	356 km. (at test halted point)		

Date of Manufacture: 02/2008

General Description:

Manufacturer	China Qinqi Group Inc.
Make & Model	Zap Xebra
VIN	LAEMA24668G200113
Engine Type	Electric
Engine Displacement	Not Applicable
Fuel Delivery	Rechargeable Battery Pack - 72V System
Transmission	None – direct drive
Final Drive	NA
Wheelbase	84.100 in.

Tires:

	<u>Front</u>	<u>Rear (x2)</u>
Manufacturer	Runway	Runway
Type	Enduro LT	Enduro LT
Size	145R12C	145R12C
DOT Number	5W88 3006	5W88 2806 & 2906
Pressure (cold)	36 psi	36 psi
Rim Label Information	GJ 2007 12, 4.00 X 12	GJ 2007 12, 4.00 X 12

Weights:

	<u>Front</u>		<u>Rear</u>		<u>Total</u>
	Mass (lb.)	% of Total	Mass (lb.)	% of Total	Mass (lb.)
Test Rider					160.0
Curb Weight (UVW)	633.5	34.0	1219.0	66.0	1852.5
Test Weight (UVW + rider + instrumentation)	733.5	35.7	1318.5	64.3	2052.0
GVWR (label)					2459.0
GAWR (label)	871.0	35.0	1630.0	65.0	2501.0

FMVSS 122 - DATA SHEET 1 (2 of 2)

Brakes:

	<u>Front</u>	<u>Rear (x2)</u>
Actuation Method: mechanical, hydraulic, electric	Hydraulic	Hydraulic
System Type: Individual control, Combined Brake System, Split-Service	Split-Service	Split- Service
Control	Foot Pedal	Foot Pedal
Caliper Type	Floating	Floating
Number of Calipers	1	1
No. of Caliper Pistons	1	1
Caliper Piston Diameters	2.004 in.	2.001 in.
Rotor –Type/Number	Solid / 1	Solid / 1
Rotor Diameter	8.42 in.	8.34 in.
Rotor Thickness/Min. Allowable Thickness	0.393 in. / NA	0.383 in. / NA
Swept Area	58.522 in. ²	55.685 in. ²
Brake Pad Identification Numbers	SA1ZH1SHUN	SA1ZH1SHUN

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

VEH.: 2008 Zap Xebra

VEH. NHTSA NO.: C81001; LABORATORY: TRC Inc.

TEST SUMMARY	SPEED (mi/h)	STOP. DIST. (ft) Actual	STOP. DIST. (ft) Corrected	MAX. BRAKE PEDAL FORCE (lb.)	REAR MAX. BRAKE LEVER FORCE (lb.)	NUMBER OF TESTS	PASS/ FAIL
Instrumentation Check	30.7	141.7	135.6	4.5	NA	6	N/A
Speed Determination	37.6 (avg.)						N/A
1 st Effectiveness Test @ 30 mi/h (Service Brake System)	29.9	55.84	55.88	75.3	NA	20	F
1 st Effectiveness Test @ 60 mi/h (Service Brake System)	NA	NA	NA	NA	NA	NA	NA
1 st Effectiveness Test @ 30 mi/h (Partial) Hand Lever Only – Front Subsystem	NA	NA	NA	NA	NA	NA	NA
1 st Effectiveness Test @ 30.0 mi/h (Partial) Foot Pedal Only – Rear Subsystem	NA	NA	NA	NA	NA	NA	NA
1 st Effectiveness Test @ 60 mi/h (Partial) Hand Lever Only – Front Subsystem	NA	NA	NA	NA	NA	NA	NA
1 st Effectiveness Test @ 60 mi/h (Partial) Foot Pedal Only – Rear Subsystem	NA	NA	NA	NA	NA	NA	NA
Burnish Procedure	30.0					200	N/A
2 nd Effectiveness Test@ 30 mi/h (Service brake System)	29.9	51.34	51.55	73.5	NA	14	F
2 nd Effectiveness Test@ 60 mi/h (Service brake System)	NA	NA	NA	NA	NA	NA	NA
2 nd Effectiveness Test@ 80 mi/h (Service brake System)	NA	NA	NA	NA	NA	NA	NA
2 nd Effectiveness Test@ 115 mi/h (Service brake System)	NA	NA	NA	NA	NA	NA	NA
Fade and Recovery (Baseline)	NA	NA	NA	NA	NA	NA	NA
Fade and Recovery (Fade Test)	NA	NA	NA	NA	NA	NA	NA
Fade and Recovery (Recovery- 5 th stop)	NA	NA	NA	NA	NA	NA	NA
Reburnish Procedure	NA					NA	N/A
Final Effect. Test @ 30 mi/h (Service Brake System)	NA	NA	NA	NA	NA	NA	NA

Note: Due to multiple failures, NHTSA COTR instructed TRC to discontinue testing after the 2nd Effectiveness Test.

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

VEHICLE:	2008 Zap Xebra	DATE:	11/05/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi	AMBIENT TEMP. °F:	70
ODOMETER START:	92 km	ODOMETER FINISH:	95 km	WIND VELOCITY (MPH):	3

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

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Brake Pedal Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft/s/s)		Wheel Lockup	Stay In Lane
		Front	Rear			M a x	A v g	M a x	A v g	M a x	A v g		
1	30.97	102	119	162.65	152.62	32.6	28.6	NA	NA	32.5	7.0	No	Yes
2	30.93	135	145	158.47	149.08	30.5	24.5	NA	NA	28.0	7.0	No	Yes
3	30.63	119	150	142.19	136.40	33.1	28.4	NA	NA	25.0	7.5	No	Yes
4	30.37	135	165	147.40	143.83	30.1	26.0	NA	NA	21.1	7.3	No	Yes
5	30.66	144	170	141.68	135.65	30.4	27.2	NA	NA	22.7	7.5	No	Yes
6	30.47	145	175	147.11	142.61	29.2	25.2	NA	NA	28.3	7.1	No	Yes

REMARKS: None

DRIVER: Karen Easterday

RECORDED BY: Karen Easterday DATE: 11-05-08

APPROVED BY: R, Landes

DATA SHEET 4

VEHICLE:	2008 Zap Xebra	DATE:	11/06/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi	AMBIENT TEMP. °F:	54
ODOMETER START:	99 km	ODOMETER FINISH:	102 km	WIND VELOCITY (MPH):	6

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	37.677
Run No. 2	North	37.538

Average = 37.608 mi/h

REMARKS: None

DRIVER: Karen Easterday

RECORDED BY: Karen Easterday DATE: 11-06-08

APPROVED BY: R, Landes

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

VEHICLE:	2008 Zap Xebra	DATE:	11/06 & 10/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi	AMBIENT TEMP. °F:	57
ODOMETER START:	102 km	ODOMETER FINISH:	125 km	WIND VELOCITY (MPH):	10

TEST CONDITIONS:

Test Speed	30 mi/h	60 mi/h - NA
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	Foot Pedal	Foot Pedal

30 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Brake Pedal Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane - Dir.
		Front	Rear (avg.)			M a x	A v g	M a x	A v g	M a x	A v g		
1	30.40	101	135	67.58	65.82	74.1	55.9	NA	NA	28.6	15.5	No	Yes-S
2	30.17	115	146	67.64	66.88	58.4	55.2	NA	NA	NA	15.3	No	Yes-S
3	30.34	112	139	68.55	67.02	68.1	60.5	NA	NA	32.1	15.5	No	Yes-S
4	29.99	118	144	55.84	55.88	75.3	60.4	NA	NA	36.2	17.7	No	Yes-S
5	29.58	118	143	73.79	75.04	89.1	48.0	NA	NA	39.1	12.8	RRX-In.	Yes-S
6	29.48	119	142	76.80	79.54	55.1	47.5	NA	NA	29.5	13.5	No	Yes-S
7	29.66	106	138	57.53	58.86	81.1	59.1	NA	NA	31.3	17.4	RRX-In.	Yes-N
8	29.89	112	143	61.54	62.00	101.6	57.8	NA	NA	42.6	15.0	No	Yes-N
9	29.55	114	141	64.69	66.67	63.9	53.5	NA	NA	27.2	16.1	No	Yes-N
10	30.13	104	128	58.41	57.91	74.2	62.1	NA	NA	30.9	18.4	No	Yes-N
11	30.04	102	130	58.59	58.43	76.6	62.4	NA	NA	31.4	18.4	No	Yes-N
12	30.32	112	143	62.67	61.36	92.2	88.6	NA	NA	41.4	17.2	RRX-In.	Yes-N
13	30.26	103	138	68.53	67.36	119.8	48.7	NA	NA	37.4	13.9	No	Yes-N
14	30.19	114	138	63.69	62.89	74.9	53.5	NA	NA	33.5	16.7	No	Yes-N
15	30.67	116	141	59.25	56.69	91.0	63.1	NA	NA	39.4	18.7	No	Yes-N
16	29.56	150	138	58.17	59.91	74.0	54.1	NA	NA	32.8	17.6	No	Yes-N
17	29.75	136	137	55.45	56.38	76.0	61.0	NA	NA	36.2	18.8	No	Yes-N
18	30.05	124	137	57.55	57.36	85.8	61.2	NA	NA	42.9	18.6	No	Yes-N
19	30.25	119	138	63.76	62.71	77.7	57.4	NA	NA	33.7	17.5	No	Yes-N
20	30.76	122	140	60.04	57.11	77.6	57.1	NA	NA	33.4	18.1	No	Yes-N

REMARKS: K. Easterday driver stops 1 thru 12, A. Ida driver stops 13 thru 20. Stops 1 thru 6: 11/06/08, the remainder performed on 11/10/08. Data Sheet 6 not required.

DRIVER: Karen Easterday and Alan Ida

RECORDED BY: Karen Easterday and Alan Ida DATE: 11-06 & 10-08

APPROVED BY: R. Landes

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

VEHICLE:	2008 Zap Xebra	DATE:	11/06/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi	AMBIENT TEMP. °F:	23 Initial
ODOMETER START:	107 km	ODOMETER FINISH:	343 km	WIND VELOCITY (MPH):	15 Initial

TEST CONDITIONS:

Test Speed	30 mi/h
Initial Brake Temperature (IBT)	130°F to 150°F
Runs Required	200
Deceleration Rate	12 ft/s/s
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	NA
Brakes Utilized	Foot Pedal

BURNISH

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)				Brake Pedal Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane - Dir.
		Front	Rear (avg.)			M a x	A v g	M a x	A v g	M a x	A v g		
1	NA	NA	NA			NA		NA		NA	NA	No	Yes
25	29.85	104	164			35.7		NA		23.7	8.5	No	Yes
50	30.55	123	163			25.1		NA		22.6	8.8	No	Yes
75	30.26	128	168			40.1		NA		NA	9.9	No	Yes
100	29.78	126	165			33.6		NA		20.1	8.8	No	Yes
125	28.17	95	136			39.4		NA		25.4	9.3	No	Yes
150	30.56	93	127			25.2		NA		27.6	8.8	No	Yes
175	29.75	97	133			36.3		NA		26.3	8.5	No	Yes
200	29.82	102	139			30.7		NA		36.5	9.2	No	Yes

Note:

REMARKS: Due to restricted range and constant recharging and weather issues, the burnish took many days.

DRIVER: Karen Easterday

RECORDED BY: Karen Easterday

DATE: 11/06 - 25/08

APPROVED BY: R. Landes

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

VEHICLE:	2008 Zap Xebra	DATE:	11/26/08	NHTSA NUMBER:	C81001
TIRE PRESSURE (FRONT):	36 psi	TIRE PRESSURE (REAR):	36 psi	AMBIENT TEMP. °F:	37
ODOMETER START:	346 km	ODOMETER FINISH:	354 km	WIND VELOCITY (MPH):	12

TEST CONDITIONS:

Test Speed	30 mi/h	60 mi/h - NA
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	Foot Pedal	Foot Pedal

30 mi/h DATA —

Stop No.	Test Speed (mi/h)	Initial Brake Temp. (°F)		Actual Stopping Distance (ft.)	Corrected Stopping Distance (ft.)	Brake Pedal Force (lbs.)		Rear Brake Lever Force (lbs.)		Vehicle Decel. (ft./s/s)		Wheel Lockup	Stay In Lane
		Front	Rear (avg.)			M a x	A v g	M a x	A v g	M a x	A v g		
1	30.28	108	129	56.36	55.32	83.8	48.7	NA	NA	32.6	17.2	Yes	Yes-S
2	29.84	114	131	59.31	59.94	67.6	63.4	NA	NA	29.2	16.3	No	Yes-S
3	29.99	121	140	61.15	61.19	60.8	56.1	NA	NA	33.0	16.7	No	Yes-N
4	29.24	113	134	59.61	62.75	61.6	42.7	NA	NA	30.1	16.8	No	Yes-N
5	28.78	116	136	58.35	63.40	51.1	30.4	NA	NA	29.3	16.4	No	Yes-N
6	29.23	113	140	50.76	53.47	69.4	45.6	NA	NA	39.5	18.7	No	Yes-N
7	30.26	114	142	59.98	58.27	77.3	54.8	NA	NA	38.1	18.2	Yes	Yes-N
8	30.34	115	141	59.29	58.00	72.5	48.9	NA	NA	35.5	18.7	No	Yes-N
9	29.53	116	141	55.96	57.76	71.6	49.6	NA	NA	42.4	17.9	No	Yes-N
10	29.82	110	136	57.21	57.90	69.5	55.3	NA	NA	33.9	18.5	No	Yes-N
11	30.40	115	139	54.02	52.61	68.2	55.5	NA	NA	41.6	19.3	No	Yes-N
12	30.03	113	139	58.40	58.28	77.1	49.2	NA	NA	42.9	16.8	Yes	Yes-N
13	29.91	112	136	56.32	56.66	74.0	57.0	NA	NA	35.2	18.7	No	Yes-N
14	29.94	111	140	51.34	51.55	73.5	57.9	NA	NA	35.3	19.4	No	Yes-N

REMARKS: Karen Easterday performed stops 1 thru 6, Alan Ida performed stops 7 thru 14.
 DRIVER: Karen Easterday and Alan Ida
 RECORDED BY: Karen Easterday and Alan Ida DATE: 11-26-08
 APPROVED BY: R, Landes

APPENDIX A

INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2008 Zap Xebra

NHTSA NO: C81001

Date: 10/03/08

INSTRUMENT	IDENTIFICATION/SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System – VBOX 3	030904	11-10-07	11-10-08
Software – Racelogic VBOX Tools	V1.8.2, Build 0014	N/A	N/A
Hand Lever Force Transducer – Vishay Micromasurement, 350 Ohm, ¼ in.	NA - Custom	Per Test	Per Test
Hand Lever Force Amplification – Honeywell	954487	Per Test	Per Test
Pedal Force Transducer – Datron	44226	4/28/08	4/28/09
Accelerometer – Ammco U-Tube (Visual)	DEC-1	08-14-08	08-14-09
Accelerometer – GPS based within VBOX3	030904	11-10-07	11-10-08
Fifth Wheel – GPS based within VBOX3	030904	11-10-07	11-10-08
Wind Velocity/Direction Gauge – Davis Model 6410	050608N22	07-11-08	07-12-09
Ambient Temperature Gauge – Davis Model 6150C	050608N02	07-11-08	07-12-09
VBOX3	NA	11-10-07	11-10-08
Tire Pressure Gauge – WIKA	AG-101	09-15-08	12-15-08
Vehicle Weight – Toledo/Mettler Scales JAGXTREME 3000, (Bldg. 70)	SN 5225831-5JC	08-06-08	11-06-08

QUALITY ASSURANCE Randy Landes

Comments:

APPENDIX B
TEST VEHICLE PHOTOGRAPHS



2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

Left Front 3/4 View



2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

Right Rear 3/4 View

MANUFACTURED BY: CHINA QINGQI GROUP INC.
GVWR: 1137 KG (2459 LB)

DATE: 02/2008

TYPE: MOTORCYCLE
COLD INFL. PRESS.
KPA (PSI)

	GAWR	TIRE	RIM	
FRONT	396 KG (871 LB)	145R12C	4.00BX12	250 (36)
REAR	741 KG (1630 LB)	145R12C	4.00BX12	250 (36)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS) IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

V.I.N.: LAEMA24668G200113

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

Vehicle Certification Label

DOT 400BX12  2007 12

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

FMVSS 120 Wheel Information Label (Typical Front and Rear)

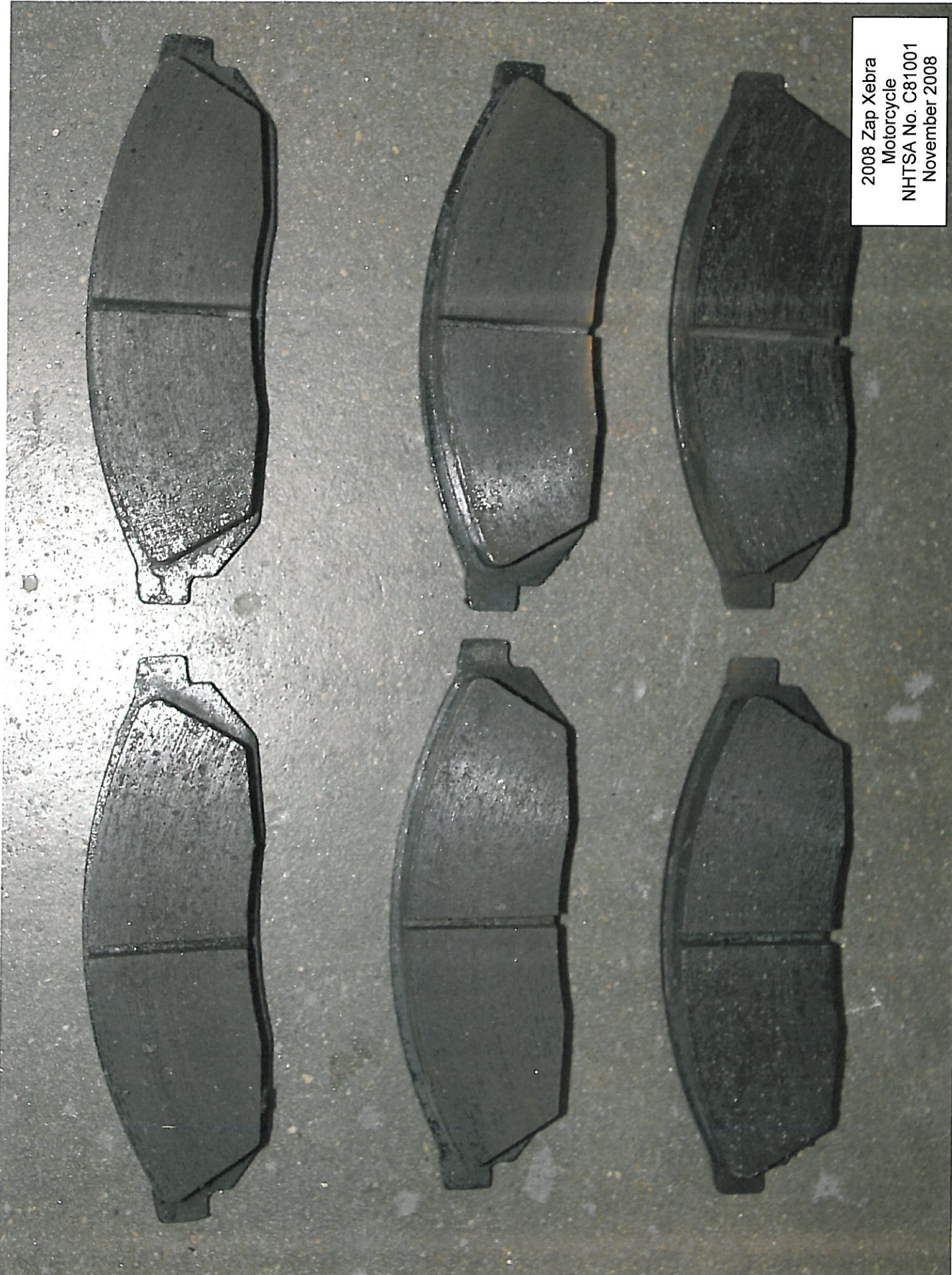
2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008



Master Cylinder Label (Reservoir Cover)

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

Pre-Test Front and Rear Brake Pads

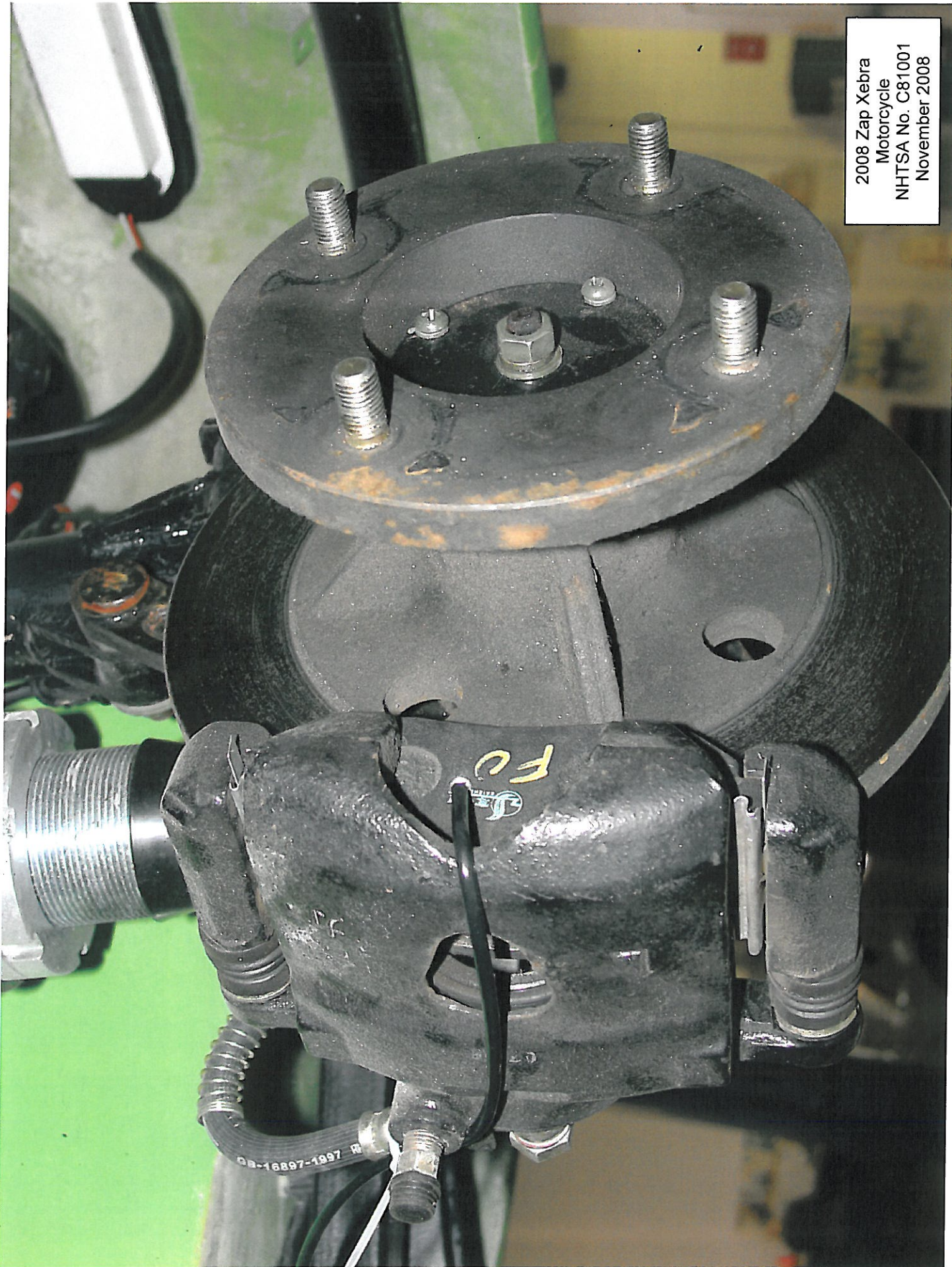




2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008

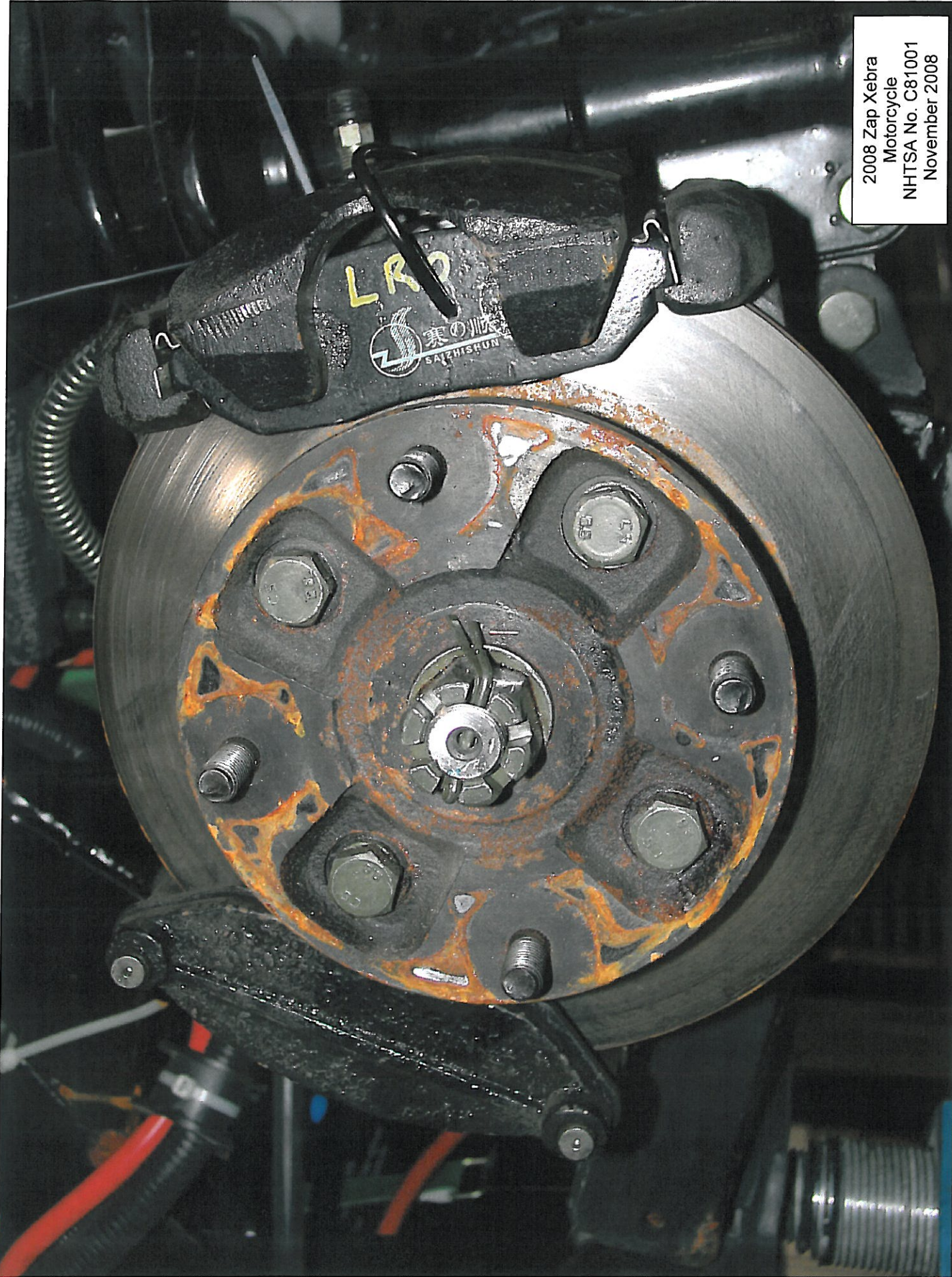
Pre-Test Right Front Pad Installation

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008



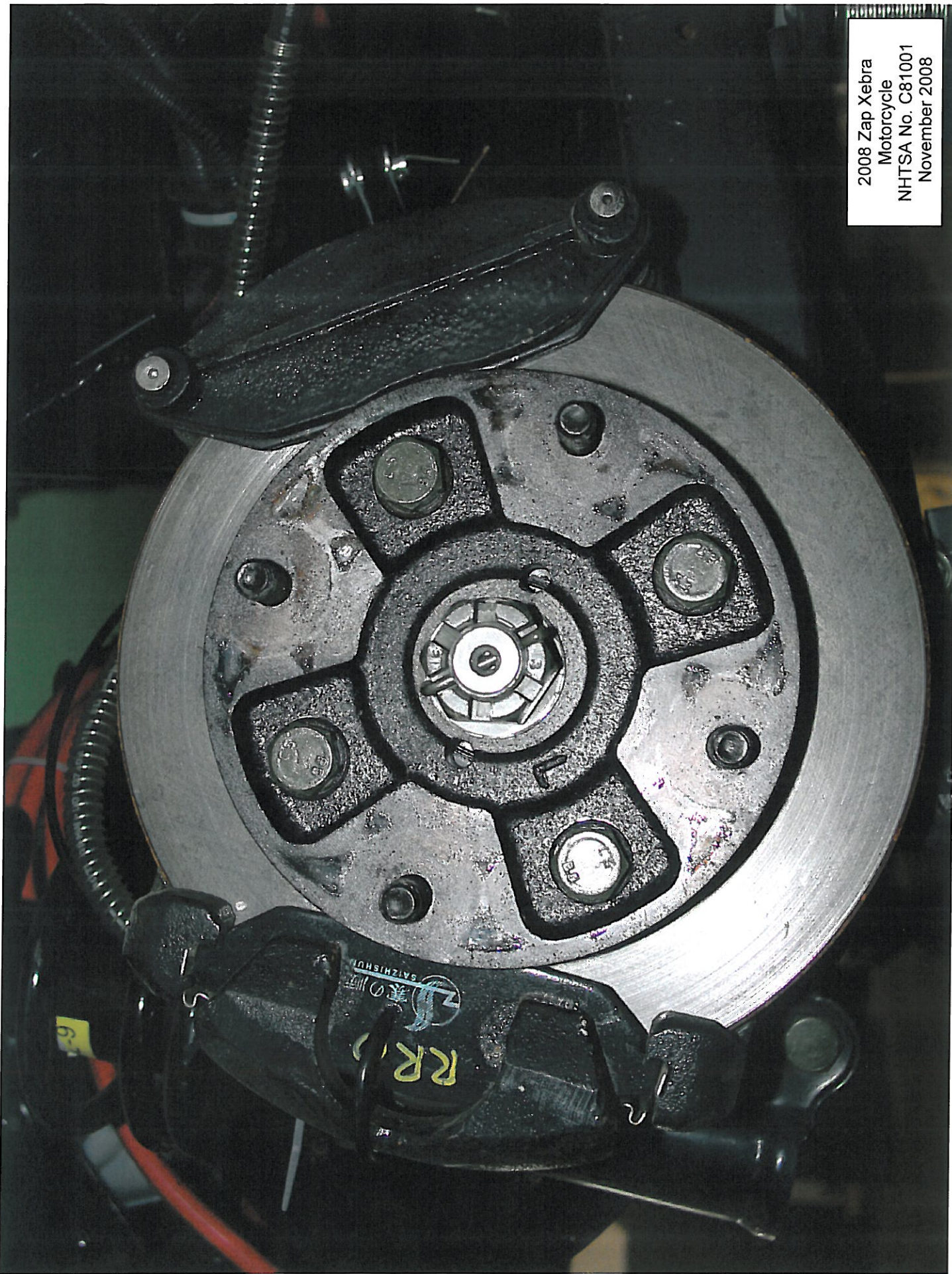
Pre-Test Front Pad Installation

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008



Pre-Test Left Rear Pad Installation

2008 Zap Xebra
Motorcycle
NHTSA No. C81001
November 2008



Pre-Test Right Rear Pad Installation

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

CONTRACTOR'S COMMENTS

The Zap Xebra did not comply with the stopping distance requirements for the both the First and Second Effectiveness tests. Therefore, additional stops were performed with a different driver to verify the vehicle's brake performance. The stopping distances performed with the second driver yielded similar results. Due to multiple failures, NHTSA COTR instructed TRC to discontinue testing after the 2nd Effectiveness Test.

PROCEDURE MODIFICATION

The maximum average speed obtained for the Zap Xebra was 37.6 mph. Therefore, only the 30 mph stops were performed for the First and Second Effectiveness tests. Although the vehicle did not comply with the First Effectiveness test, the test continued with a 200-stop brake burnish to verify if there was an improvement in stopping performance for the Second Effectiveness test.

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. They will accommodate speeds of 45 mph with zero side force and 60 mph with .5 g's lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

A test area of 210,000 square feet is situated in the center of the skid pad containing several test pads with varying surface textures. Skid numbers in this area range from 30 (wet) to 80 (dry).

The skid pad is paved with Portland cement. 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 vehicle top speed determination.

APPENDIX D
NOTICE OF POSSIBLE NON-COMPLIANCE

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 122

TEST DATE: 10/03/08

LABORATORY: Transportation Research Center Inc. (TRC)

CONTRACT NO.: DTNH22-06-C-00033 ; DELV. ORDER NO.: Base Year

LABORATORY PROJECT ENGINEER'S NAME: Alan Ida

TEST VEH. MAKE/MODEL: Zap Xebra

VEHICLE NHTSA NO.: C81001 ; VIN: LAEMA24668G200113

VEHICLE MODEL YEAR: 2008 ; BUILD DATE: 02/2008

TEST FAILURE DESCRIPTION: Reservoir label is not correctly worded nor are some of the letters at least the minimum required height.

The reservoir label is adhered to the top on the master cylinder reservoir cap in contrasting colors (black background, primarily white and some green lettering). Letters measuring 0.143 in. high state "DOT" and "DOT-4" and letter measuring 0.078 in. high state: "BRAKE FLIUD".

S122 REQUIREMENT, PARAGRAPH ____ : S5.1.2.2 *Reservoir Labeling*. Each motorcycle shall have a brake fluid warning statement that reads as follows, in letters at least three thirty-seconds of an inch 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.)

Note: 3/32 in. = 0.09375 in.

NOTIFICATION TO NHTSA (COTR): Via email.

DATE: 10/03/08 BY: Alan Ida

REMARKS: Label is somewhat "wrinkled", not flat/smooth on the top of the cap.

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 122

TEST DATE: 11/06/08

LABORATORY: Transportation Research Center Inc. (TRC)

CONTRACT NO.: DTNH22-06-C-00033 ; DELV. ORDER NO.: Base Year

LABORATORY PROJECT ENGINEER'S NAME: Alan Ida

TEST VEH. MAKE/MODEL: Zap Xebra

VEHICLE NHTSA NO.: C81001 ; VIN: LAEMA24668G200113

VEHICLE MODEL YEAR: 2008 ; BUILD DATE: 02/2008

TEST FAILURE DESCRIPTION: For First (Pre-burnished) Effectiveness Test (S7.3.1) and after the standard six attempts and then multiple extra stops by two different drivers, the vehicle did not stop within the maximum allowable distance.

S122 REQUIREMENT, PARAGRAPH ____ : S5.2.1 *Service brake system*. The service brakes shall be capable of stopping the motorcycle from 30 m.p.h. and 60 m.p.h. within stopping distances which do not exceed the stopping distances specified in Column I of Table I (S7.3.1). Note: Column I distance is: 54 ft.

NOTIFICATION TO NHTSA (COTR): Via telephone.

DATE: 11/06/08 BY: Alan Ida

REMARKS: Vehicle attained a maximum speed of 37 mph and therefore, performed only 30 mph effectiveness stops.

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 122

TEST DATE: 11/26/08

LABORATORY: Transportation Research Center Inc. (TRC)

CONTRACT NO.: DTNH22-06-C-00033 ; DELV. ORDER NO.: Base Year

LABORATORY PROJECT ENGINEER'S NAME: Alan Ida

TEST VEH. MAKE/MODEL: Zap Xebra

VEHICLE NHTSA NO.: C81001 ; VIN: LAEMA24668G200113

VEHICLE MODEL YEAR: 2008 ; BUILD DATE: 02/2008

TEST FAILURE DESCRIPTION: For Second Effectiveness Test (S7.5) and after the standard six attempts and then multiple extra stops by two different drivers, the vehicle did not stop within the maximum allowable distance.

S122 REQUIREMENT, PARAGRAPH ____ : S5.3 *Service brake system – second effectiveness.* The service brakes shall be capable of stopping the motorcycle from 30 m.p.h., 60 m.p.h., 80 m.p.h., and the multiple of 5 m.p.h. that is 4 m.p.h. to 8 m.p.h. less that the speed attainable in 1 mile if this speed is 95 m.p.h. or greater, within stopping distances which do not exceed the stopping distances specified in Column III of Table I (S7.5).

Note: Column III distance is: 43 ft.

NOTIFICATION TO NHTSA (COTR): Via telephone.

DATE: 11/26/08 BY: Alan Ida

REMARKS: Vehicle attained a maximum speed of 37 m.p.h. and therefore, performed only 30 m.p.h. effectiveness stops.