INFORMATION REDACTED PURSUANT TOTHE FREEDOM
OF INFORMATION ACT (FOIA), 5 U.S.C.552(B)(6)

PE16-003

FORD

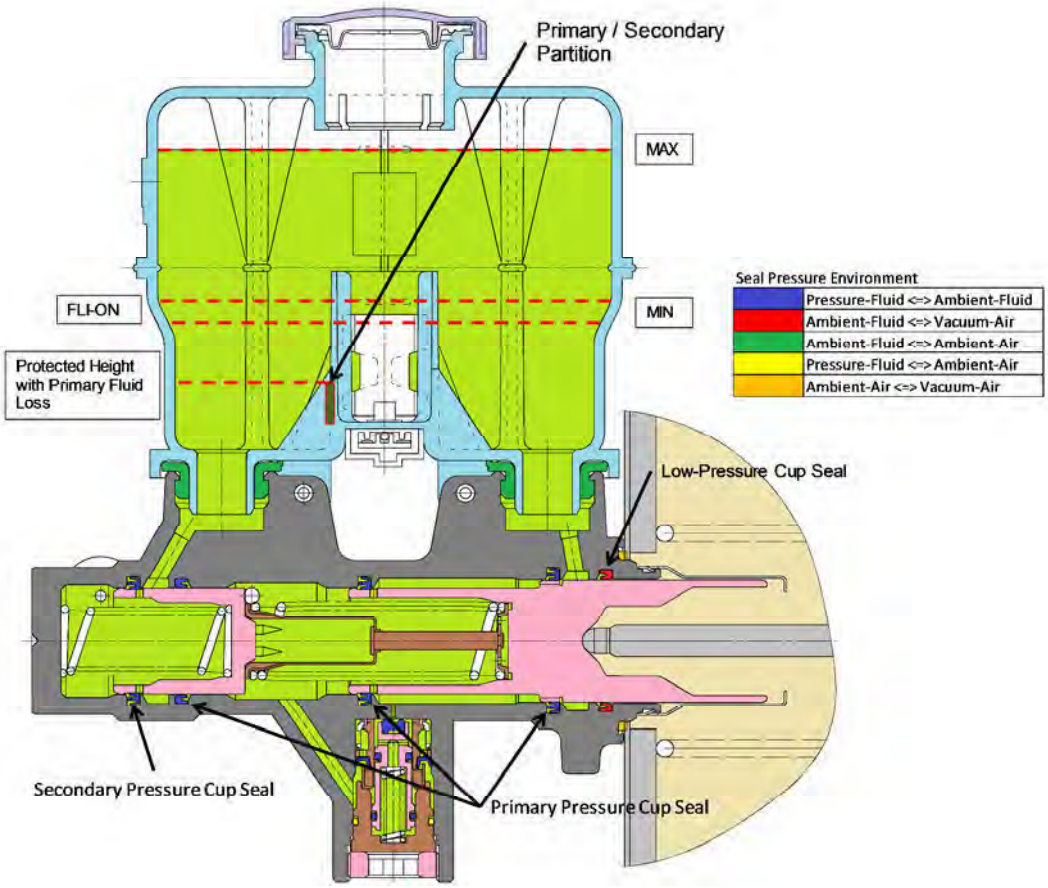
4-20-2015

APPENDIX K

PE16-003
April 20, 2016

Request 11

a.



b. The effect of the alleged defect on the primary circuit is that while vacuum is present in the brake booster, the fluid in the primary circuit can be drawn into the booster. All fluid from the reservoir primary chamber would be drawn in, and a portion of the fluid in the master cylinder primary circuit would be drawn in. There is no effect on the secondary circuit. The partition in the reservoir holds a reserve of fluid for the secondary circuit in the case of complete emptying of the primary circuit. The secondary circuit in the master cylinder is sealed from the primary circuit and remains full of brake fluid.

c. The amount of brake fluid leakage required for each circuit to go from a nominally full brake fluid reservoir is:
   (1) Illuminate the warning lamp for low fluid level: 400-455 cc
   (2) Empty the reservoir to a level that results in loss of the affected circuits: 520-600 cc

d. Based on testing of returned parts, the highest leak rate from the primary circuit into the booster with engine running is 43.5 cc/min with 715 mm-hg vacuum in the booster.

The leak rate with engine off will vary. Immediately after engine shutdown, the booster vacuum will be identical to that with the engine running therefore the leak rate will momentarily be the same as with the engine running. As the vacuum in the booster depletes to zero due to the leak past the master cylinder seal, the fluid leak rate will reduce to a drip, driven only by the pressure head of the remaining fluid in the master cylinder reservoir. With the reservoir at its lowest level, the drip rate of a returned part was measured to be 0.08 cc/min at 0 mm-hg.

e. Variables & assumptions that affect leak rates are as follows
   1) Seal roll
      a) A rolled seal results in a higher leak rate than other causes of leak into booster
      b) Leak rates will be at the maximum when the engine is running; testing was conducted without stroking the master cylinder piston since reports do not describe the gradual change in pedal feel that would be experienced if the pedal was being applied repeatedly
      c) Leak rates will be at a minimum when booster vacuum is depleted and primary chamber brake fluid is mostly depleted
      d) Maximum leak rate was established by measuring the leak rate of returned parts and selecting the highest leak rate of that population
   2) Contamination
      a) While contamination can result in a leak into the booster, it is typically found at low time in service, and produces a lower leak rate than a rolled seal
   3) Arc length of the rolled position of the seal
      a) Based on tear down analysis the arc length varies. Higher arc length of seal roll will result in higher leak rate
      b) The part chosen for tear down analysis from the returned parts has the highest leak rate
   4) Vacuum level
      a) Leak rate will be maximum when booster vacuum is highest
   5) Fluid viscosity
      a) Viscosity will be higher at lower temperatures and will result in a lower leak rate
      b) Viscosity will be lower at higher temperatures and will result in a higher leak rate

f. A request was initiated to acquire the parts. All returned parts from the field were evaluated by the supplier.

g. A request was implemented from 8/28/2015 through 12/30/2015 to acquire the parts. A new request was implemented from 3/23//2016 through 12/31/2016 to acquire additional parts for analysis. A vehicle log is attached.

Master Cylinder / Brake Booster

Engineering Part Number			Service Part Number		
Prefix	Base	Suffix	Prefix	Base	Suffix
DL34	2C156	BA	DL3Z	2140	A
EL34	2C156	BB	EL3Z	2140	B/C
DL34	2005	AB	DL3Z	2005	D

Service Part Sales for DL3Z-2140-A (Master Cylinder)

Current Stock Level

697

Service Part Sales for EL3Z-2140-B/C (Master Cylinder)

Current Stock Level

782

Service Part Sales for DL3Z-2005-D (Brake Booster)

Current Stock Level

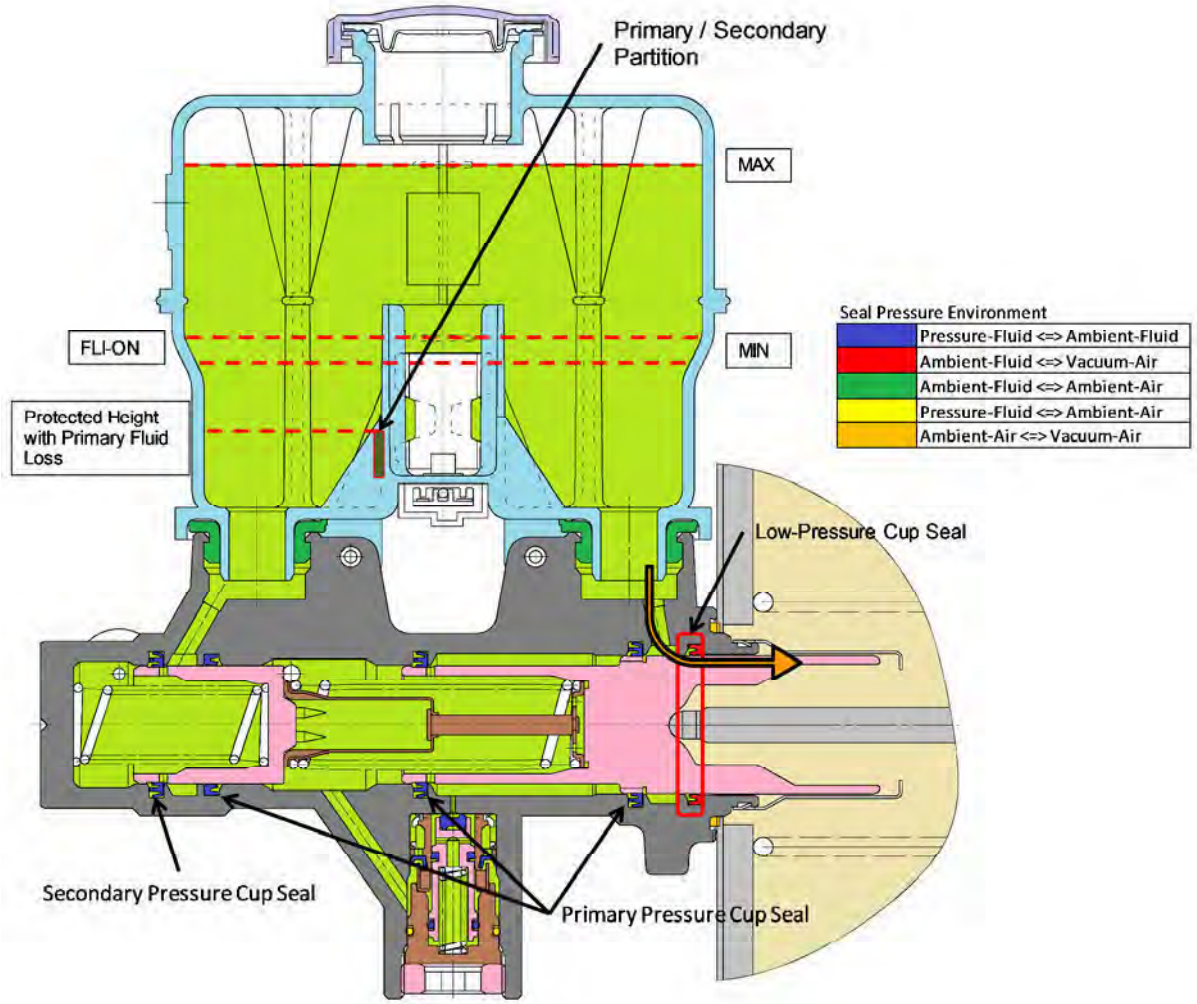
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h. See chart in (g) above for current stock levels of subject service parts. Ford is aware of limited periods of time when the subject parts were on backorder, but we are unable to identify specific dates and times at this point.

i. The Brake Warning Indicator feature warns the driver, only if the ignition is in the run position, that the parking brake is engaged, or the brake fluid level is low, or there is no electrical continuity to the Brake Fluid Switch (if provided), by lighting an indicator on the instrument panel. The Brake Warning indicator is immediately turned off if the ignition is turned out of the run position. The Brake Warning indicator is also immediately turned off if the parking brake is disengaged and the brake fluid level is not low and there is electrical continuity to the Brake Fluid Switch (if provided). If the brake fluid level was low and the Brake Warning Indicator feature has the Brake Warning indicator illuminated, the indicator will be turned off when the brake fluid level maintains a normal, not low, fluid level for a stable period of time.

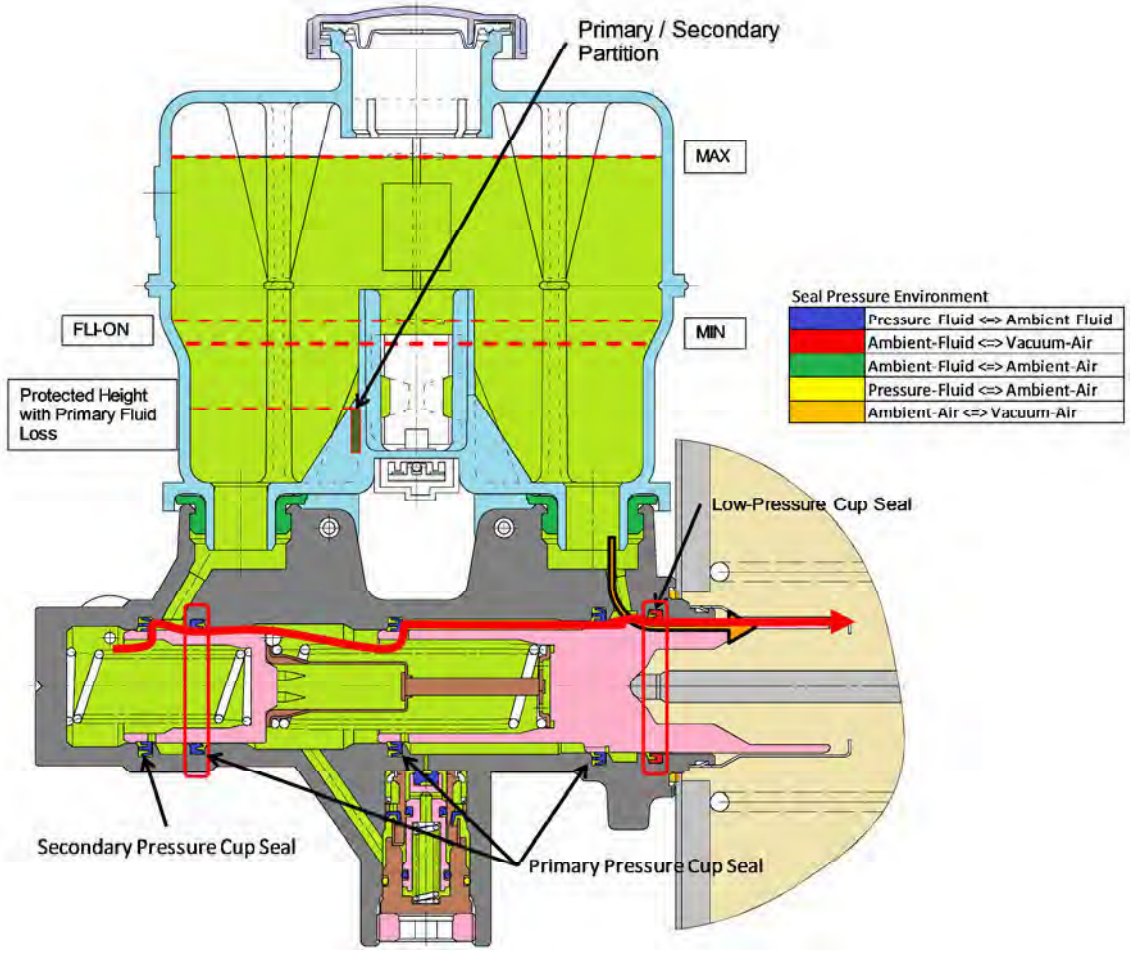
j. The leaking rear seal on returned parts performs no function in generation of wheel-end brake pressure. Therefore there is no initial effect on brake system performance after a leak is initiated. In the highest leak rate scenario, the Brake Fluid Low warning message will appear in the instrument cluster approximately five minutes after leak initiation, accompanied by a chime. The red brake light will also illuminate. Brake performance is unchanged at this point. After approximately 5 more minutes the brake fluid level in the primary (front brake) circuit will reduce to a level where air can be introduced into it. The air in the primary circuit will slowly increase and pedal travel will increase accordingly. After several minutes air in the front circuit renders it ineffective at generating brake pressure. In this condition the primary piston contacts the secondary (rear circuit) piston in the master cylinder when the pedal is applied,

and rear brake pressure continues to be generated without change. Note that under normal conditions the fluid pressure in the primary circuit is what moves the secondary piston. With rear brakes only, pedal travel is longer than normal, brake pedal efforts are higher but rear braking ability is retained and meets all requirements of FMVSS 135.



Primary Circuit Leak Into Booster

In order for the rear (secondary) circuit to leak brake fluid into the booster, both the subject seal and an additional seal would have to be compromised at the same time. This condition is unlikely and has not been observed in any of the 12 returned master cylinders that were evaluated for function of the secondary circuit. However if the secondary circuit also was depleted of brake fluid the pedal would travel its full stroke when applied and little to no brake pressure would be generated in either circuit.



Secondary Circuit Leak Into Booster

k. No impact to brake booster performance as all the components of the brake booster are compatible with brake fluid.

l. FMVSS 135 report is attached.

m. See attached schematics. The 3.5L GTDI uses an engine-driven vacuum pump for brake vacuum. It can generate 15% - 25% higher vacuum than the peer vehicles which use intake manifold plus aspirator-boosted vacuum for the brake booster. The higher vacuum may play a role in the elevated occurrence rate of reports on vehicles equipped with the 3.5L GTDI engine. However a direct link is not established at this time.

n. The major differences between the Subject vehicles and Peer vehicles are as follows:
   (1) Engines
      (a) Subject vehicle: 3.5L GTDI
      (b) Peer vehicles: 5.0L, 3.7L & 6.2L
   (2) Booster vacuum levels generated
   (3) Vacuum systems
   (4) Vacuum source
      (a) Subject vehicle: Engine driven mechanical vacuum pump
      (b) Peer vehicles: Intake manifold and aspirator

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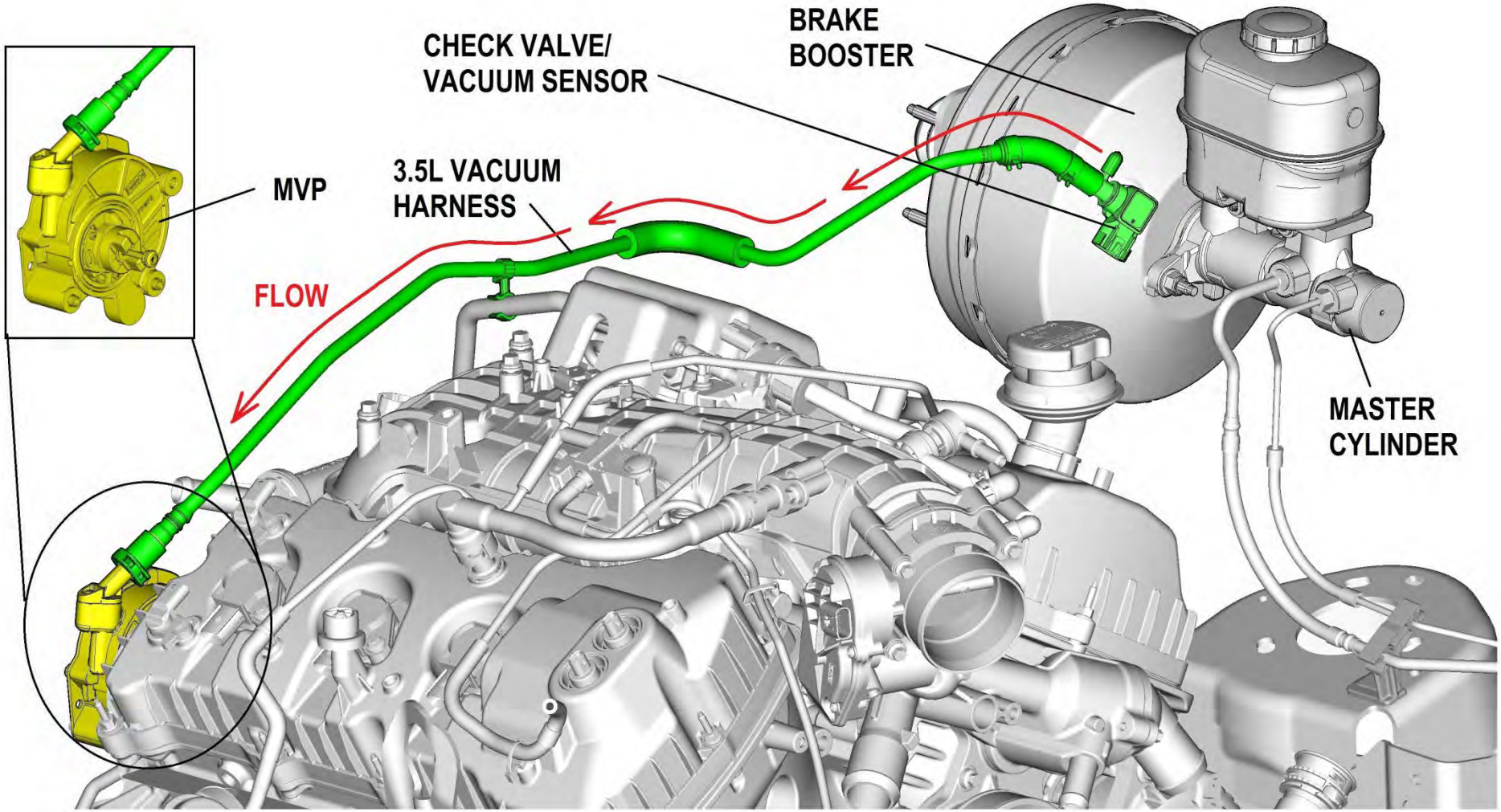
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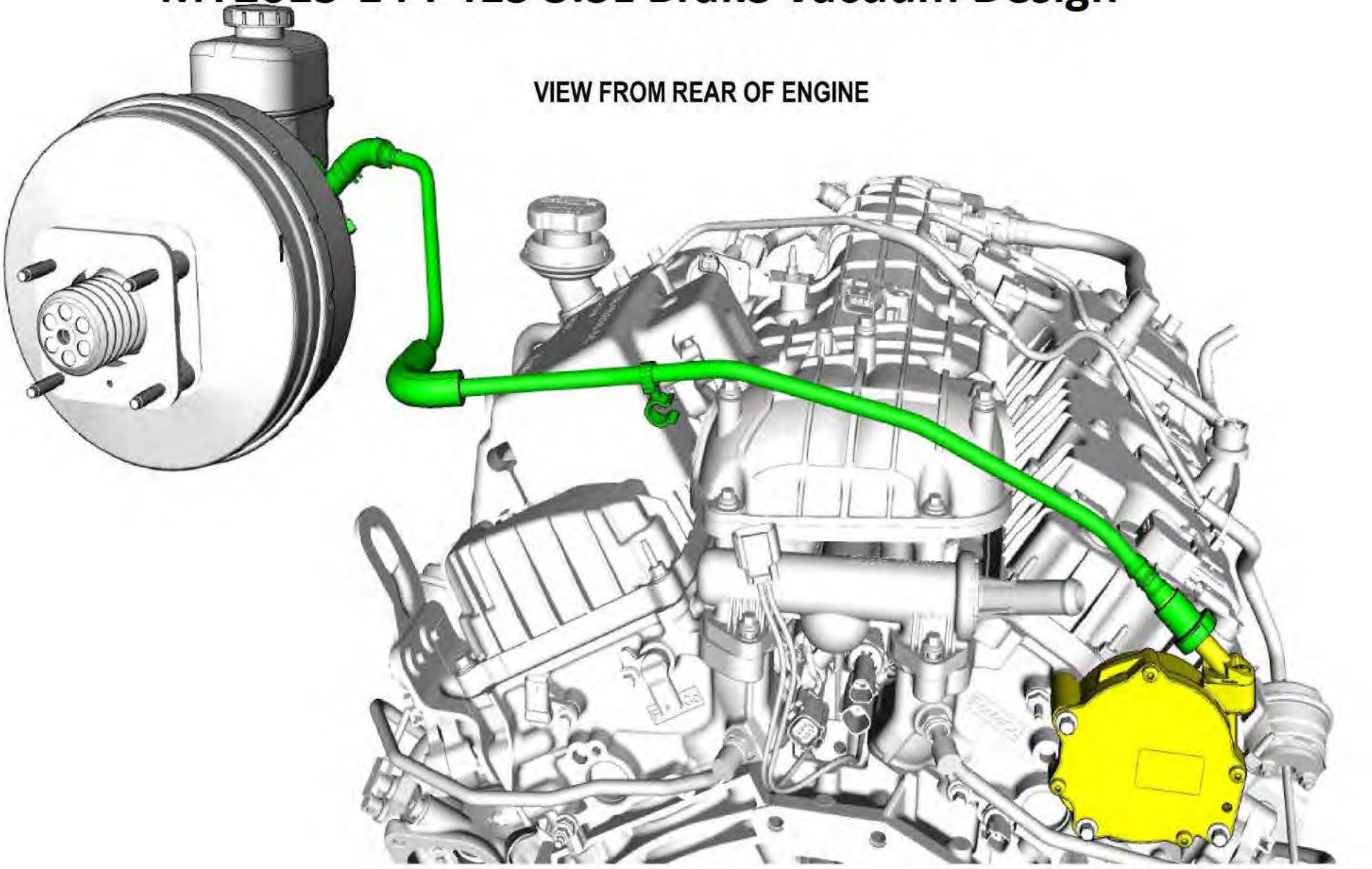
APPENDIX K

Drawings

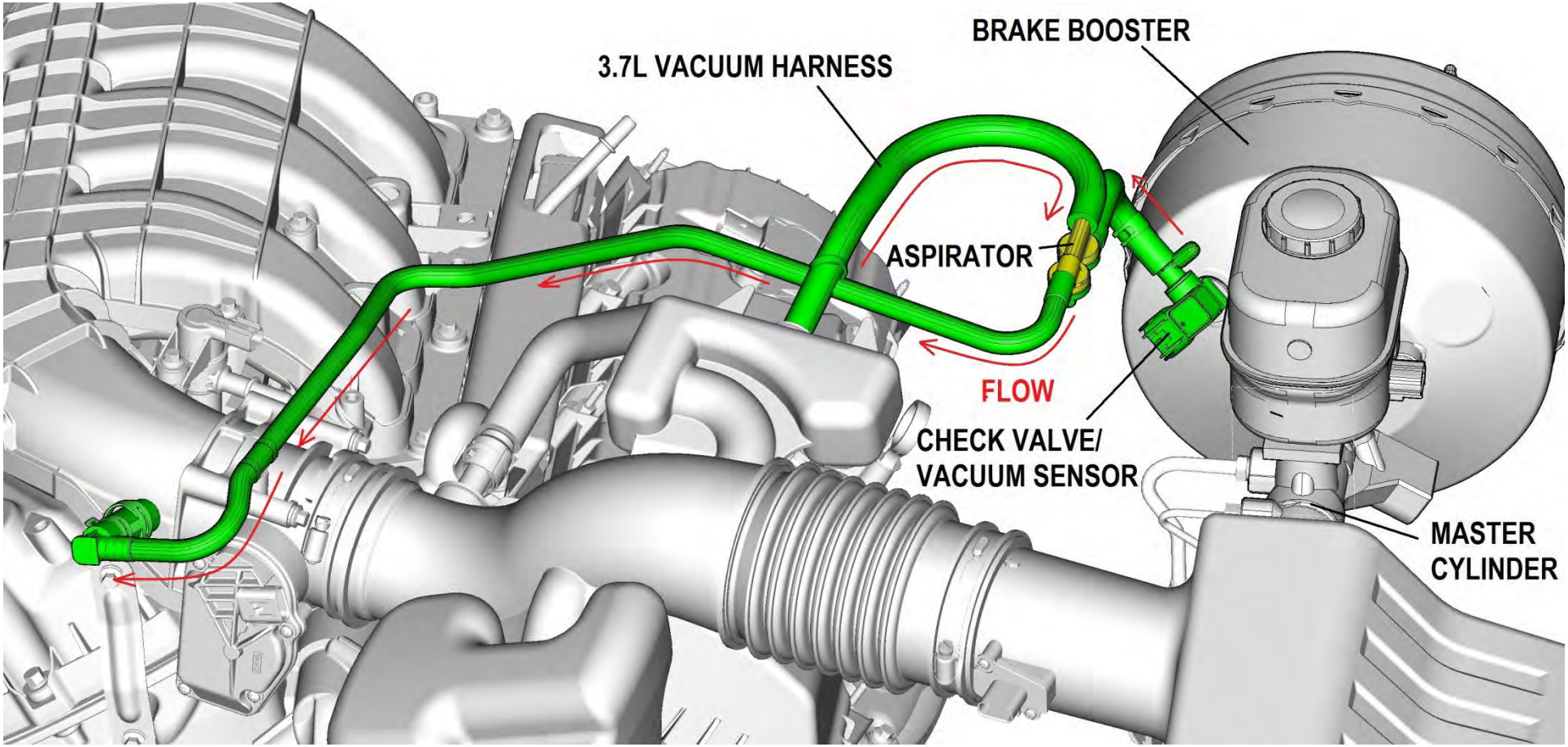
MY2013-14 P415 3.5L Brake Vacuum Design



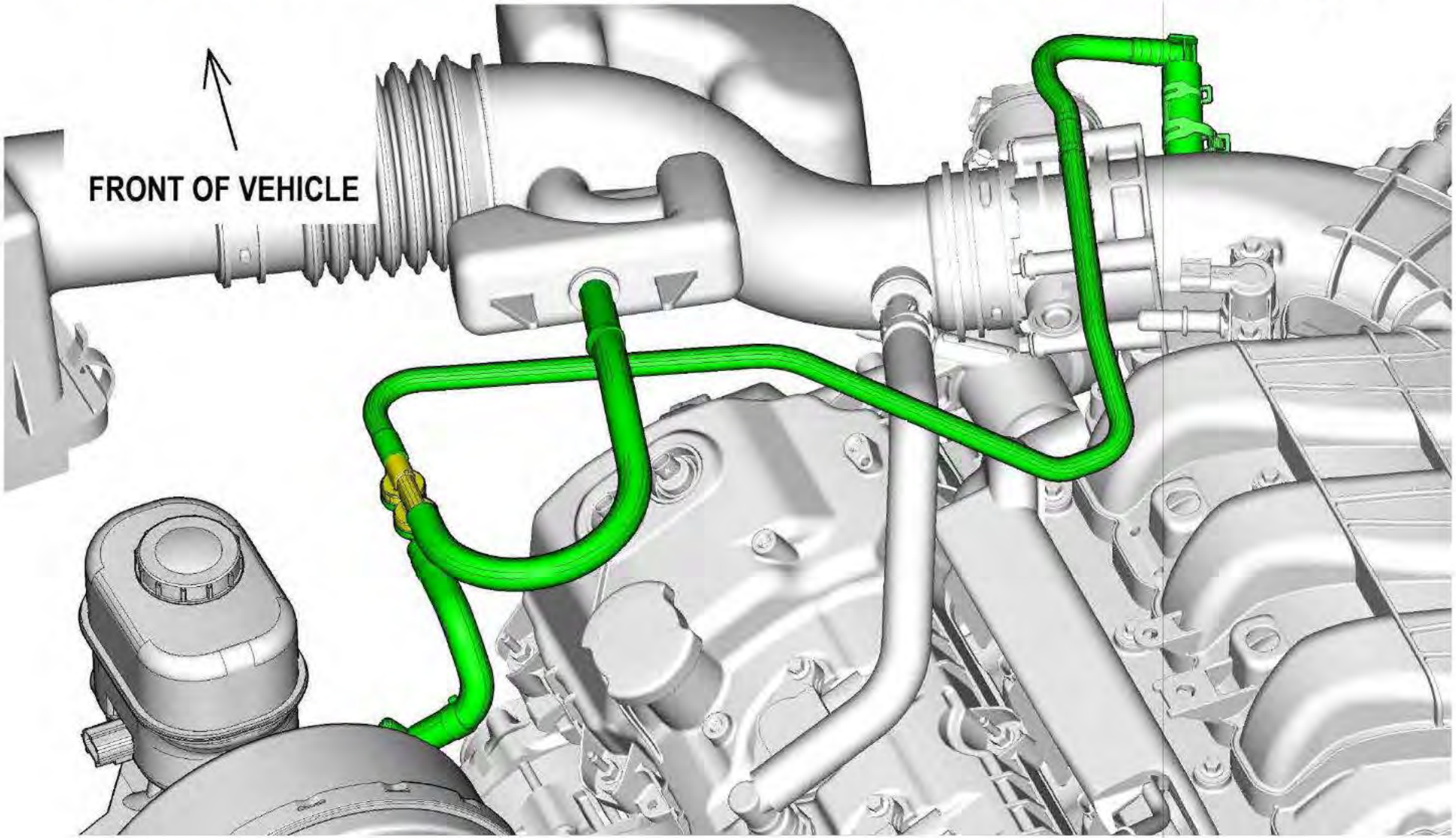
MY2013-14 P415 3.5L Brake Vacuum Design



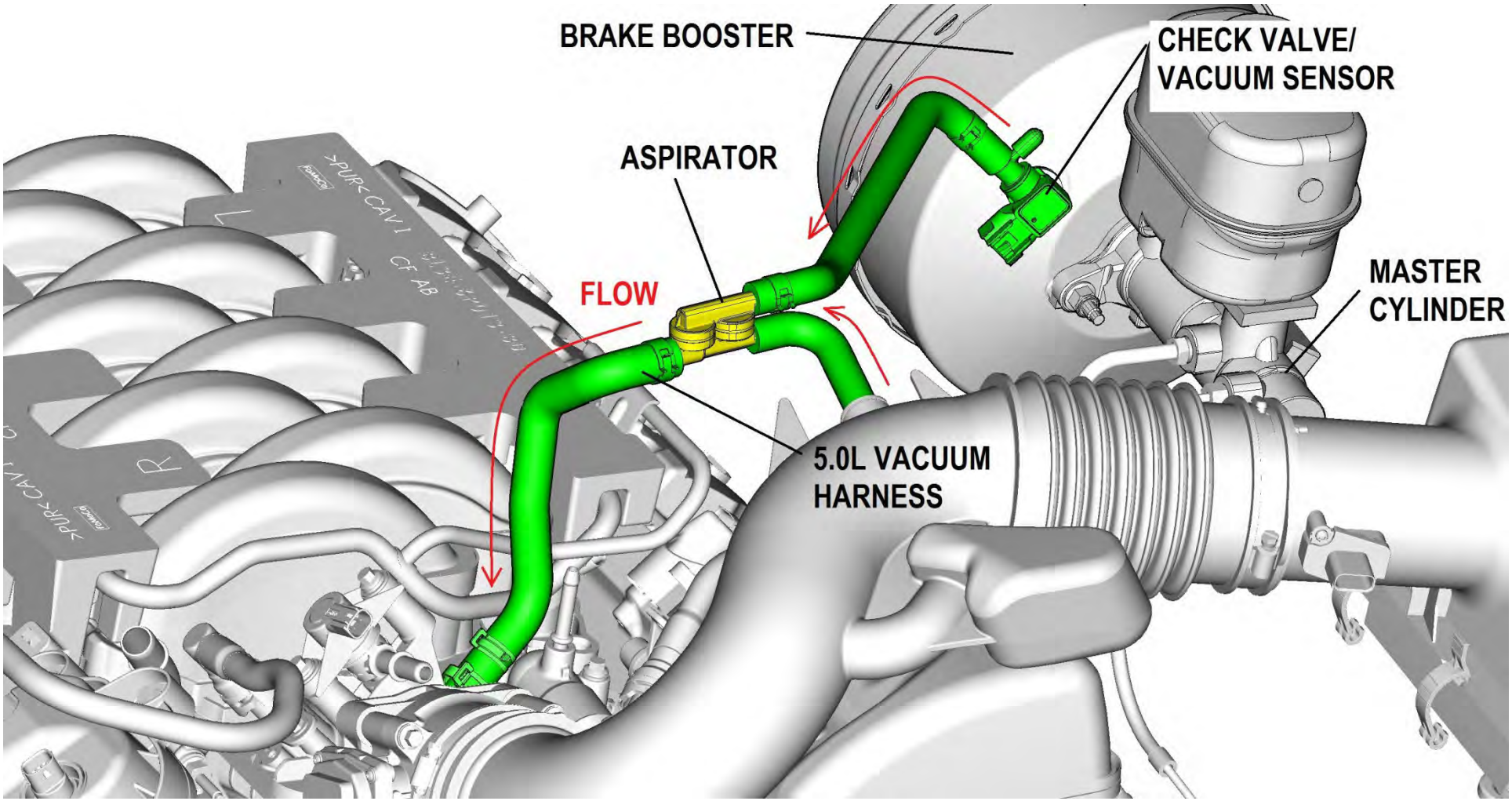
MY2013-14 P415 3.7L Brake Vacuum Design



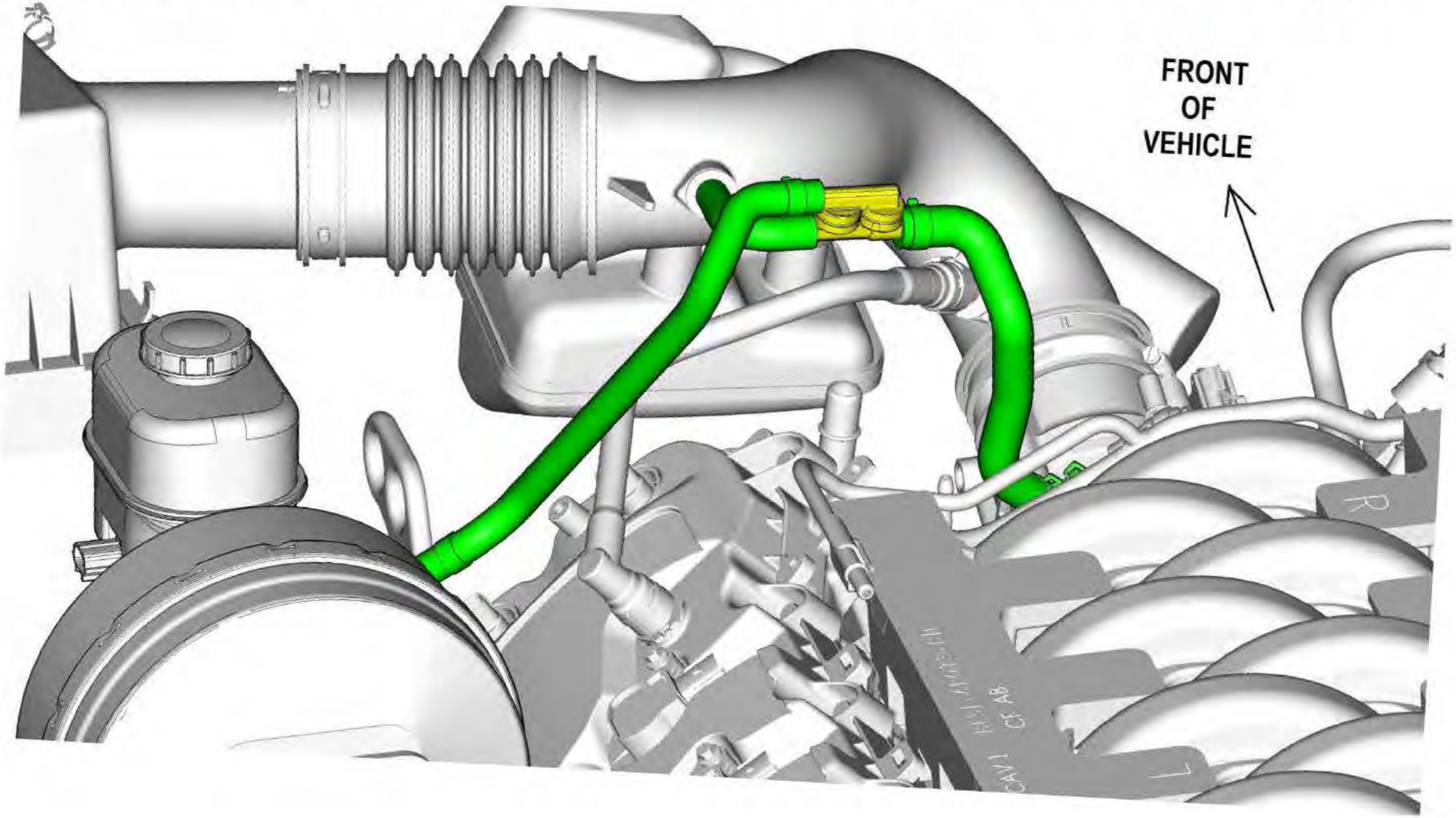
MY2013-14 P415 3.7L Brake Vacuum Design



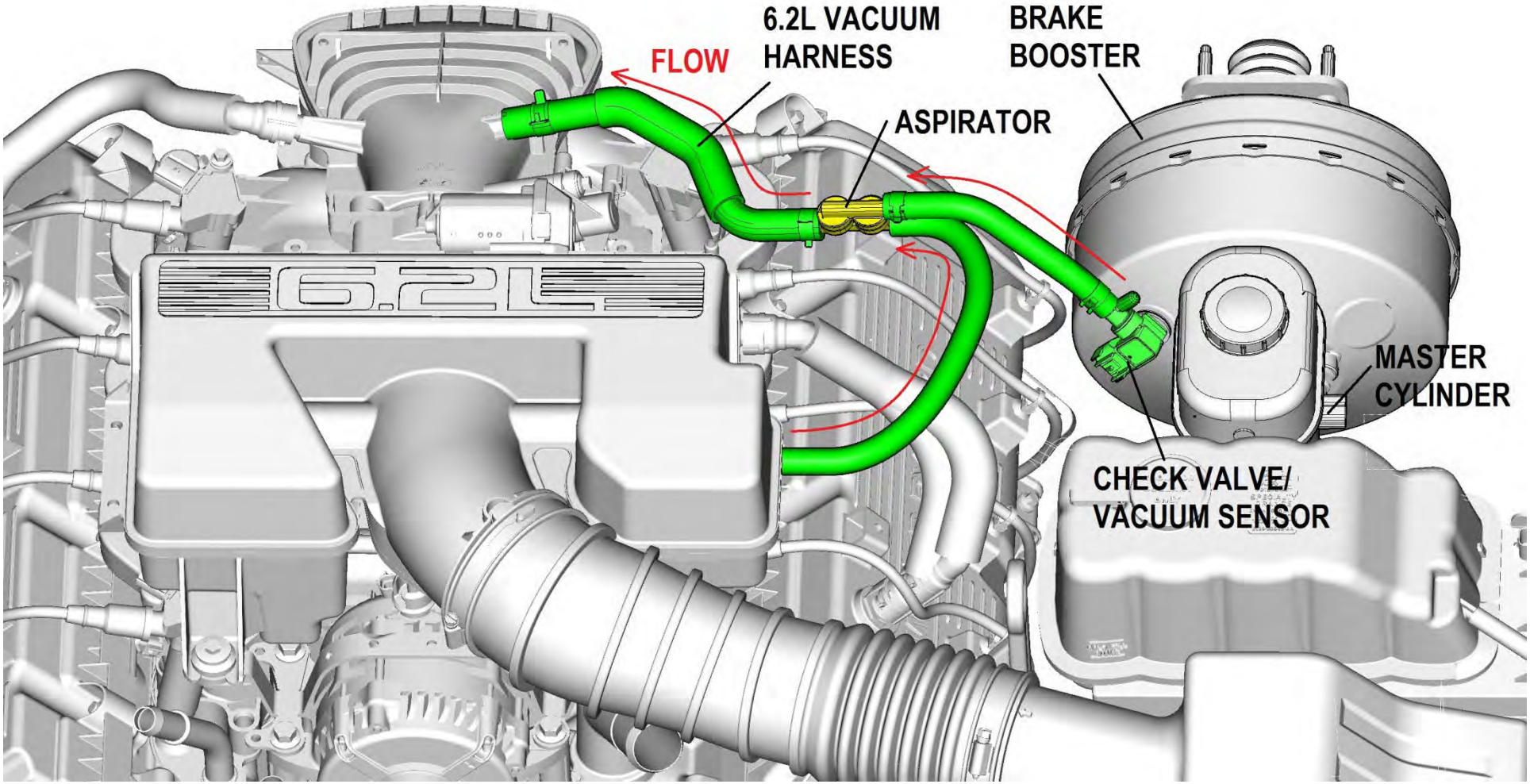
MY2013-14 P415 5.0L Brake Vacuum Design



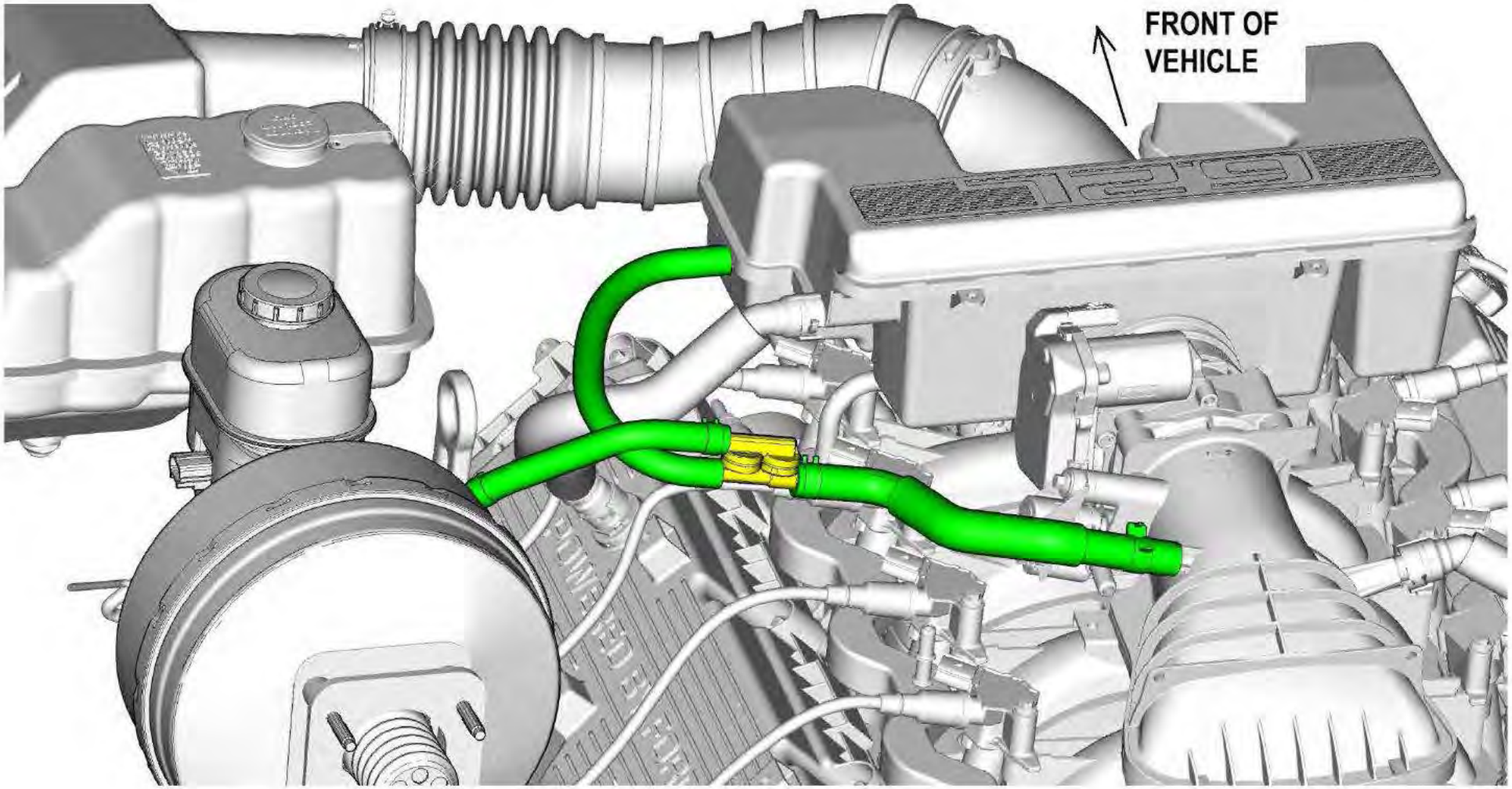
MY2013-14 P415 5.0L Brake Vacuum Design



MY2013-14 P415 6.2L Brake Vacuum Design



MY2013-14 P415 6.2L Brake Vacuum Design



PE16-003

FORD

4-20-2015

APPENDIX K



FMVSS 135

Conducted On A 2013 Ford F150 LD (black)

Front Linings: FM4531 Orangeburg
Rear Linings: Nisshinbo N715HV

Link Test Number: 503464

October-2012

Test Number: [redacted]

Directory of Contents

Section A. Test Summary and Specifications

I. General/Contact Information
II. Engineering Summary
III. Engineering Request
IV. Vehicle Build Sheet
V. Ford Build Sheet
VI. Instrumentation Setup

Section B. Detailed Data Pages

I. Tabular / Graphical Data
II. Final Inspection

Link Engineering Company

North America Vehicle Test Operations
401 Southfield Rd
Dearborn, MI 48120

Phone: (313) 625-4000

Test Procedure: FMVSS 135
Sequence: CETP 06.00-R-801-US

Customer [redacted]
Ford

Test Number: 503464
Test Date: October-12

Vehicle Number: [redacted]
VIN: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford F150 LD (black)

Test Purpose: FMVSS 135

Test Comments: *PB sections not required
*Initial floor checks – Temperature were not recorded due to T/C channels were off during evaluation
*Hydraulic Circuit Failure (Fronts Only) – HBA was active for these stops

Alberto Pacheco 11/15/2012
Primary Test Engineer: Pacheco, Alberto Date

Nathaniel Paul 11/15/2012
Alternate Test Engineer: Paul, Nate Date

This test report shall not be reproduced, except in full, without the written approval of LINK

Test Summary - [redacted]

FMVSS 135 Test On A 2013 Ford F150 LD (black) (P415 - N715HV)

Objective:

To determine vehicle compliance to FMVSS 135 standards by conducting an FMVSS135 test on a 2013 Ford F150 LD (black) with FM4531 Orangeburg front linings and Nisshinbo N715HV rear linings for Ford/[redacted]

Procedure:

Federal Motor Vehicle Safety Standard No. 135 (Sec. 571.135) published March 01, 1999 for a multi-purpose passenger vehicle or truck with a GVWR less than 3,500 kg (7,716 lbs).

Equipment Used:

The vehicle was instrumented with the following: 3802DAS, pedal force , pedal travel, longitudinal decelerometer, booster vacuum transducer, speed - high speed GPS, two pressure transducers - 1 per circuit , wheel speed sensors for failed ABS sections - wheel speeds VIA CAN, failed systems valves (1 for each circuit), thermocouples set at 0.080" in each outpad, ambient thermocouple, digital input.

Results:

Below is a tabulated listing of the performance achieved as a percentage of the published minimum Federal requirements:

FMVSS 135 Conducted on a 2013 Ford F150 LD (black) P415 - N715HV For Ford/[redacted], Test #[redacted] Front Linings FM4531 Orangeburg Rear Linings Nisshinbo N715HV	Federal Requirement	Performance Attained	**Percentage of Pass Federal** (less than zero indicates failure)
5.5 - ABS failure and brake warning indicator lights on during the applies for S7.8 - Failed Antilock	YES	YES	**Pass**
5.5 - Low brake fluid warning indicator light on during the applies for S7.10 - Hydraulic Circuit Failure	YES	YES	**Pass**
7.5 - Cold Effectiveness at GVW	70.0 m	46.7 m	33.3%
7.5 - Cold Effectiveness at LLVW	70.0 m	45.4 m	35.2%
7.6 - High Speed Effectiveness at GVW	121.1 m	77.1 m	36.3%
7.6 - High Speed Effectiveness at LLVW	121.1 m	72.2 m	40.4%
7.7 - Stops with Engine Off	70.0 m	49.1 m	29.9%
7.8 - Failed Antilock & EBD at GVW	85.0 m	57.3 m	32.6%
7.8 - Failed Antilock & EBD at LLVW	85.0 m	55.6 m	34.6%
7.10 - Hydraulic Circuit Failure (Front Only) LLVW	168.0 m	53.0 m	68.5%
7.10 - Hydraulic Circuit Failure (Rear Only) LLVW	168.0 m	112.7 m	32.9%
7.10 - Hydraulic Circuit Failure (Front Only) GVW	168.0 m	69.1 m	58.9%
7.10 - Hydraulic Circuit Failure (Rear Only) GVW	168.0 m	112.3 m	33.2%
7.11 - Inoperative Brake Power Unit (Failed Booster)	168.0 m	97.5 m	42.0%
7.14 - Hot Performance (req. #1)	72.0 m	49.2 m	31.6%
7.14 - Hot Performance (req. #2)	89.0 m	49.2 m	44.7%
7.16 - Recovery Performance	63.1 m	46.5 m	26.4%
All stops during the test were stable, able to be controlled by the driver and remained with a 3.5m lane.	YES	YES	**Pass**

Comments:

***PB sections not required**

***Initial floor checks – Temperature were not recorded due to T/C channels were off during evaluation**

***Hydraulic Circuit Failure (Fronts Only) – HBA was active for these stops**

Engineering Test Request

Instructions: The requesting Engineer completes this form and submits it to the Operations Manager for approval and instrumentation request. This form is to be retained in the Vehicle Log Book.

Test Number [redacted] Customer/Company: [redacted] / Ford
Date: 10/29/2012 Link Engineer: Pacheco, Alberto
Model Year: 2013 Vehicle Model: F150 LD (black) Platform: P415 - N715HV

Objective

To determine vehicle compliance to FMVSS 135 standards by conducting an FMVSS135 test.

Instrumentation Needed:	**Weather Requirements**
1) 3802DAS	Ambient; 0-40°C
2) Pedal force & Park Brake Pedal Force	Surface Temperature: N/A
3) Pedal travel	Wind Velocity: < 11.2 mph
4) Longitudinal decelerometer	Precipitation: Not Allowed
5) Booster vacuum transducer	
6) Speed - HIGH SPEED GPS	
7) Two (2) Pressure transducers - 1 per circuit	
8) Wheel Speed Sensors for Failed ABS Sections - Wheel Speeds VIA CAN	
9) Failed systems valves (1 for each circuit)	
10) Thermocouples set at 0.080" in each outpad	
11) Ambient thermocouple	
12) Digital Input	
13) Heads Up Display	

Build specifics:

Estimated Build Start Date: 10/29/2012 Estimated End Date: 11/7/2012
Available Parts Date: 10/29/2012 Vehicle Max Speed: 99 mph
Overtime availability: No [ ] Yes [x]
If yes, describe availability:
Additional comments:

FRONT PADS - New (Link) FM4531 (Orangeburg)
REAR PADS - New (Link) - N715HV
ROTORS - F & R: New (Link) magni coated
CALIPERS - F & R: On Vehicle (production)

Pre/Post Test Measurements:

No measurements needed.
Perform final visual inspection.

Test Sequence/Procedural Comments:

Intrument - Burnish - Run Full FMVSS 135 procedure (NO NEED TO RUN THE PB SECTIONS) - See Log Sheet

Photographs Required:

None

Notes/Comments:

Floor Check Requirements: w/Booster < 75 mm at 200N & w/o Booster < 22 mm at 200N. Hydraulic Split: Front/Rear. Record the booster serial number

Build Sheet

Test Number:	[redacted]	Vehicle Number:	[redacted]
Test Description:	FMVSS 135		
Customer:	[redacted]		
Company:	Ford		
Primary Test Engineer:	Pacheco, Alberto		
Alternate Test Engineer:	Paul, Nate		

Initials	
Tech 1:	SD
Tech 2:	WW
Tech 3:	KT

Vehicle Specifications

Model Year:	2013	Engine:	3 5L	Tire Size:	P275/65R18 A/S OWL.
Make:	Ford	Trans:	6R	Tire make:	Pirelli
Model:	F150 LD (black)	Drive Type:	4X4	Tire Model:	Scorpion ATR
Platform:	P415 - N715HV	Axle Ratio:	3.73	Wheel Type:	Alum
License Plate:	[redacted]	VIN:	1FTFW1ET9DKD[redacted]	Wheel Size:	18X7.5"
				Vmax:	99 mph

Test Specifications

Test Procedure:	FMVSS 135		Procedure #:	CETP 06.00-R-801-US		Rev Date:	3/1/99
Start Date:	10/29/2012		Start Odo:	7,370	mi	Test CG:	N/A mm
End Date:	11/7/2012		End Odo:	7,790	mi	LLVW CG:	N/A mm
Tire Rolling Radius:	407.4	mm	Wheel Base:	157"	CC	GVW CG:	N/A mm

Vehicle Weight (as tested)

All weights in lbs.

Curb Weight:	3433	Front	2573	Rear	6006	Total	57%	Front
Target LLVW Weight:	3537	Front	2596	Rear	6133	Total	58%	Front
Actual LLVW Weight:	3570	Front	2658	Rear	6228	Total	57%	Front
Target GVW Weight:	3777	Front	3923	Rear	7700	Total	49%	Front
Actual GVW Weight:	3779	Front	3919	Rear	7698	Total	49%	Front
Comments/Instructions	Includes driver and instrumentation (loading LLHF and GVWP)							

Torque Specs & Tire Pressure	Fronts		Initial	Inspector		Rears		Initial	Inspector
Caliper to bracket:	35	Nm	SD	WW	31-33	Nm		SD	WW
Caliper bracket to knuckle:	245	Nm	SD	WW	150-200	Nm		SD	WW
Hub to Knuckle:	N/A	Nm	N/A	N/A	150-200	Nm		SD	WW
Lug nut torque:	200	Nm	SD	WW	200	Nm		SD	WW
Banjo Bolt:	35	Nm	SD	WW	35	Nm		SD	WW
Bleeder Screw:	10	Nm	SD	WW	10	Nm		SD	WW
Tire pressure:	35	psi	SD	WW	35	psi		SD	WW
4x2 Spindle Nut	N/A	Nm	N/A	N/A	N/A	Nm		N/A	N/A
Axle flange mounting bolt	N/A	Nm	N/A	N/A					
Parking brake cage	N/A	Nm	N/A	N/A					
Comments/Instructions			None						

Balance System

Combo Valve: N/A Height Sensing: N/A Anti-Lock: 4-chennel ABS

Test Timing

Parts Available: 10/29/2012 Data Needed By: 11/7/2012 Test Parts Disposition Ref: Leave on vehicle

Post Test Vehicle / Parts Disposition

Replace Modified Vehicle Parts (Y/N): Modified Replacement Parts List:

* Unless notified otherwise al vehicles will be returned to as received condition.

Floor Check Requirements

No Boost Units determine With Boost Units.

@ 200 N: No Boost	Pedal Travel:	< 22 mm	Line Pressure:	N/A
@ 200 N: With Boost	Pedal Travel:	< 75 mm	Line Pressure:	N/A

LINK

Build Sheet

Test Number: [redacted]

Vehicle Number: [redacted]

Front System

Type:	Vented 34mm wide	
LF Rotor Serial #:	N/A	
RF Rotor Serial #:	N/A	
Rotor Part #:	CL34-1125-DA	
Drum Part #:	N/A	
Rotor Material:	Iron	
Rotor Diameter:	350	mm
Drum Diameter:	N/A	mm
# of Pistons/Wheel:	2	
Piston Diameter	54	mm
Noise Treat/Insulator.:	IB / OB: Rubor RPNS	
LF Caliper Part #:	AL34-2B121-AF	
LF Caliper Serial #:	As-Received	
RF Caliper Part #:	AL34-2B120-AF	
RF Caliper Serial #:	As-Received	
Caliper Material:	Iron	
Chamfer/Type:	C-chamfer	
Friction Code:	FM4531 Orangeburg	
Effective Rotor Radius:	N/A	
# of Pads/Wheel:	2	
Batch #:	220421 / 9406 / 9802	
Right Inboard Serial:	N/A	
Left Inboard Serial:	N/A	
Right Outboard Serial:	N/A	
Left Outboard Serial:	N/A	
Inner Usable:	12	mm
Outer Usable:	12	mm

Rear System

Type:	Vented 25mm wide	
LR Rotor/Drum Serial #:	N/A	
RR Rotor/Drum Serial #:	N/A	
Rotor Part #:	CL34-2C026-AD	
Drum Part #:	N/A	
Rotor/Drum Material:	Iron	
Rotor Diameter:	348	mm
Drum Diameter:	N/A	mm
# of Pistons/Wheel:	1	
Piston/Whl Cylinder Diameter	54	mm
Noise Treat/Insulator.:	REX13011bonded w/10mm D cut + M77grease + RPN501211 cover w/10mm ID cut.	
LR Caliper Part #:	CL34-2K328-AC	
LR Caliper Serial #:	3	
RR Caliper Part #:	CL34-2K327-AC	
RR Caliper Serial #:	15	
Caliper Material:	Iron	
Chamfer/Type:	Chamfered	
Friction Code:	Nisshinbo N715HV	
Effective Rotor Radius:	N/A	
# of Pads/Wheel:	2	
Batch #:	36208310	
Right Inboard Serial:	6	
Left Inboard Serial:	5	
Right Outboard Serial:	5	
Left Outboard Serial:	6	
Inner Usable:	10.5	mm
Outer Usable:	10.5	mm

Apply System

Brake Series:	Disc/Disc	Boost Gain:	N/A	Master Cyl PN:	N/A
Booster Type:	Dual Dia	Boost Cut-in:	N/A	Master Cyl SN:	N/A
Booster Size:	9.5x9.5 in	Boost Jump-In:	N/A	Bore Dia:	1 3/8"- 1-1/8"
Booster Part Number:	AL34-2005-AC			Stroke:	N/A
Booster Serial:	N/A			Frt-Port Disp:	N/A in³
Apply Rad:	N/A mm			Rear-Port Disp:	N/A in³
Pedal Ratio:	3.5			Brake Fluid Type:	DOT3

Data Distribution Email List

All emails will receive the data results electronically

ssalata@ford.com

Comments

Also refer to the Engineering Request for any possible additional test information

FRONT PADS - New (Link) FM4531 (Orangeburg)
REAR PADS - New (Link) - N715HV
ROTORS - F & R New (Link) magni coated
CALIPERS - F & R On Vehicle (production)

Test Request and Build Sheet

Vehicle Number: [redacted]
Request Engineer: Stephen Salata

Vehicle Specifications

Model Year:	2013	Engine:	3.5L	Tire make:	tbd
Make:	Ford	Trans:	6R	Front Tire Size:	P275/65R18 A/S OWL.
Model:	F150 LD (black)	Drive Type:	4X4	Rear Tire Size:	P275/65R18 A/S OWL.
System configuration:	P415 - N715HV	Axle Ratio:	3.73	Tire Model:	tbd
License Plate:	[redacted]	Engine Calibration:	PP	Wheel Type:	Alum
Wheel Base:	157" CC	ABS Calibration:	PP	Front Wheel Size:	18X7 5"
VIN:	1FTFW1ET9DKD[redacted]	Regen Calibration:	n/a	Rear Wheel Size:	18X7 5"
Prototype Level:	2013 PP	Fuel Type:	Reg	Tire Rolling Radius (F/R):	tbd
		Vmax:	99 MPH	Tire pressure (F/R):	see door sticker

Test Specifications

Test Procedure:	FMVSS135	Procedure #:	CETP 06.00-R-801-US	Rev Date:	3/1/99
Parts Available By:	10/29/2012	Data Needed By:	11/7/2012	Test Parts Disposition:	Leave on vehicle

Vehicle Weight

All weights in lbs.

Target 2 Pass Weight:	3537	Front	2596	Rear	6133	Total	58	% Front
Target BFTM Weight:		Front		Rear		Total		% Front
Target GVW Weight:	3777	Front	3923	Rear	7700	Total	49	% Front
Target Gross Combined Weight:		Front		Rear		Trailer		Total
						Tongue		

Additional Instructions: Includes driver and instrumentation (loading LLHF and GVWP)

Front System

Part = test part type (New, Used, On-Veh)

		Part
Rotor Material:	Iron	
Rotor Type:	Vented 34m wide	
Rotor Diameter:	350 mm	
Rotor Manufacturer:	TRW	
Rotor Part #:	CL34-1125-DA	New
Caliper Material:	Iron	
Caliper Type:	sliding	
Effective Radius:	n/a	
Caliper Manufacturer:	TRW	
Left Caliper Part #:	AL34-2B121-AF	On-veh
Right Caliper Part #:	AL34-2B120-AF	On-veh
# of Pistons x Diameter:	2 54mm	
Piston Material:	steel	
Lining Material:	FM4531 Orangeburg	
Lining Type:	NAO	
Lining Manufacturer:	Federal Mogul	
Lining Part #:	BL34-2001-AD	New
Inboard Lining Shim type:	Rubor RPNS	
Outboard Lining Shim type:	Rubor RPNS	
Lining shape:	C-chamfer	
Inner Useable:	12 mm	
Outer Useable:	12 mm	
Lining Batch #:	inspect and record	
Right Inboard Serial:	inspect and record	
Left Inboard Serial:	inspect and record	
Right Outboard Serial:	inspect and record	
Left Outboard Serial:	inspect and record	

Rear System

Part = test part type (New, Used, On-Veh)

		Part
Type:	Disc	
Rotor/Drum Material:	Iron	
Rotor/Drum Type:	Vented 25mm wide	
Rotor/Drum Diameter:	348 mm	
Rotor/Drum Manufacturer:	TRW	
Rotor/Drum Part #:	CL34-2C026-AD	New
Caliper Material:	Iron	
Caliper Type:	sliding	
Effective Radius:	n/a	
Caliper Manufacturer:	TRW	
Left Caliper Part #:	CL34-2K328-AC	On-veh
Right Caliper Part #:	CL34-2K327-AC	On-veh
# of Pistons x Diameter:	1 54mm	
Piston Material:	Steel	
Wheel Cylinder Diameter:	n/a	
Drum Cage Diameter:	n/a	
Lining Material:	Nishimbo N715HV	
Lining Type:	NAO	
Lining Manufacturer:	Nisshinbo	
Lining Part #:	CL34-2M007-N715HV	New
Inboard Lining Shim type:	REX13011bonded w/10mm ID cut + M77grease + RPN501211 cover w/10mm ID cut.	
Outboard Lining Shim type:	RPNL17901	
Lining shape:	Chamfered	
Inner Usable:	10 5 mm	
Outer Usable:	10 5 mm	
Lining Batch #:	inspect and record	
Right Inboard Serial:	inspect and record	
Left Inboard Serial:	inspect and record	
Right Outboard Serial:	inspect and record	
Left Outboard Serial:	inspect and record	

Apply System

Booster Type:	Dual Dia	Pedal Type:	Fixed	Brake Fluid Type:	DOT3
Booster Size:	9 5x9.5 in	Pedal Ratio:	3.5	MC Bore Dia:	1 3/8"- 1-1/8"
Booster Manufacturer:	Conti	Pedal Mnfr:		MC Stroke:	
Booster Part #:	AL34-2005-AC On-veh	Pedal Part #:	On-veh	MC Mnfr:	Hitachi
Booster Gain:	tbd			MC Part #:	On-veh
Booster Cut-in:	tbd			Hydraulic Split:	Frt/Rr
Booster Jump-In:	tbd				
Booster Serial:	inspect and record			Supplemental Vacuum:	

Parking Brake

Park Brake Apply Method:	see CETP	Park Brake Lining Material (if different then service):	On-veh
Park Brake Eff. Ratio:	see CETP	Park Brake Lining Burnish Method (if req'd):	
		D H cage diameter:	205 54 mm

Test Request and Build Sheet

Vehicle Number: [redacted]
Request Engineer: Stephen Salata

Torque Specifications	Front		Rear		
Caliper housing to bracket:	35	N-M	31-33	N-M	(Guide Pin Bolt)
Caliper bracket to knuckle:	245	N-M	150-200	N-M	(Anch to Adptr)
Banjo Bolt:	35	N-M	35	N-M	
Bleeder Screw:	10	N-M	10	N-M	
Hub to Knuckle:	NA		150-200	N-M	(Adpt to axle flange)

Miscellaneous					
Brake lines to MC:	tbd		Parking brake cage nut:	tbd	
MC to Booster:	tbd		Lug nut torque:	tbd	
Pedal to Booster:	tbd		4x2 Spindle Nut:	N/A	
MC lines to HCU:	tbd		Axle flange mounting bolts:	tbd	
Other lines to HCU:	tbd				

Floor Check Requirements				
@ 500 N No Boost:	Pedal Travel:		Frt. Line Pressure:	
@ 500 N With Boost:	Pedal Travel:		Frt. Line Pressure:	

Data Distribution Email List — All emails will receive the data results electronically

ssalata@ford.com

Comments

FRONT PADS - New (Link) FM4531 (Orangeburg)
REAR PADS - New (Link) - N715HV
ROTORS - F & R: New (Link) magni coated
CALIPERS - F & R: On Vehicle (production)

Brake Requirement(s) associated with this CETP: GR-0462

[redacted] - 2013 Ford F150 LD (black)

Logging Parameters

DAS: DAS 3802S
Serial Number: [redacted]
Cal bration Date: 8/16/2013

Instrumentation

Sensor Type	*Calibration Date*	*Serial Number*
Decelerometer 3867-DC	4/6/2013	14356-4
GPS Speed Box	NCR	36
Pedal Force Transducer BPC-ASK	4/10/2013	151672A
Pressure Transducer TJE/0743	11/16/2012	915593
Pressure Transducer TJE/0743	12/14/2012	1160525
String Potentiometer LX-PA-20	NCR	40040220
Vacuum Transducer Z/0743-03ZG	4/17/2013	1321144
CAN to USB CANUSB	NCR	H021
Q-Term	NCR	21858-23

Measurement of Uncertainty Available Upon Request

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Printed Date: 11/09/12

Initial Floor Checks

Link Section: 100 -- Initial Floorchecks With Booster

Stop #	Date	Initial Booster Vacuum (in*hg)	Booster Vacuum At 500 N (in*hg)	Front Axle Pressure At 500 N (bar)	Rear Axle Pressure At 500 N (bar)	Pedal Travel At 500 N (mm)
1	10/31/2012	28 2	28 2	122 1	121 3	107 6
2	10/31/2012	24 6	24 7	107 7	107 1	98 0
3	10/31/2012	26 5	26 5	114 7	114 1	102 1

Stop #	Initial LF Temp (°C)	Initial RF Temp (°C)	Initial LR Temp (°C)	Initial RR Temp (°C)
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A

Link Section: 101 -- Initial Floorchecks Without Booster

Stop #	Date	Initial Booster Vacuum (in*hg)	Booster Vacuum At 500 N (in*hg)	Front Axle Pressure At 500 N (bar)	Rear Axle Pressure At 500 N (bar)	Pedal Travel At 500 N (mm)
1	10/31/2012	0 2	0 2	14 3	14 4	36 3
2	10/31/2012	0 2	0 2	14 0	14 2	36 1
3	10/31/2012	0 2	0 2	14 3	14 5	36 4

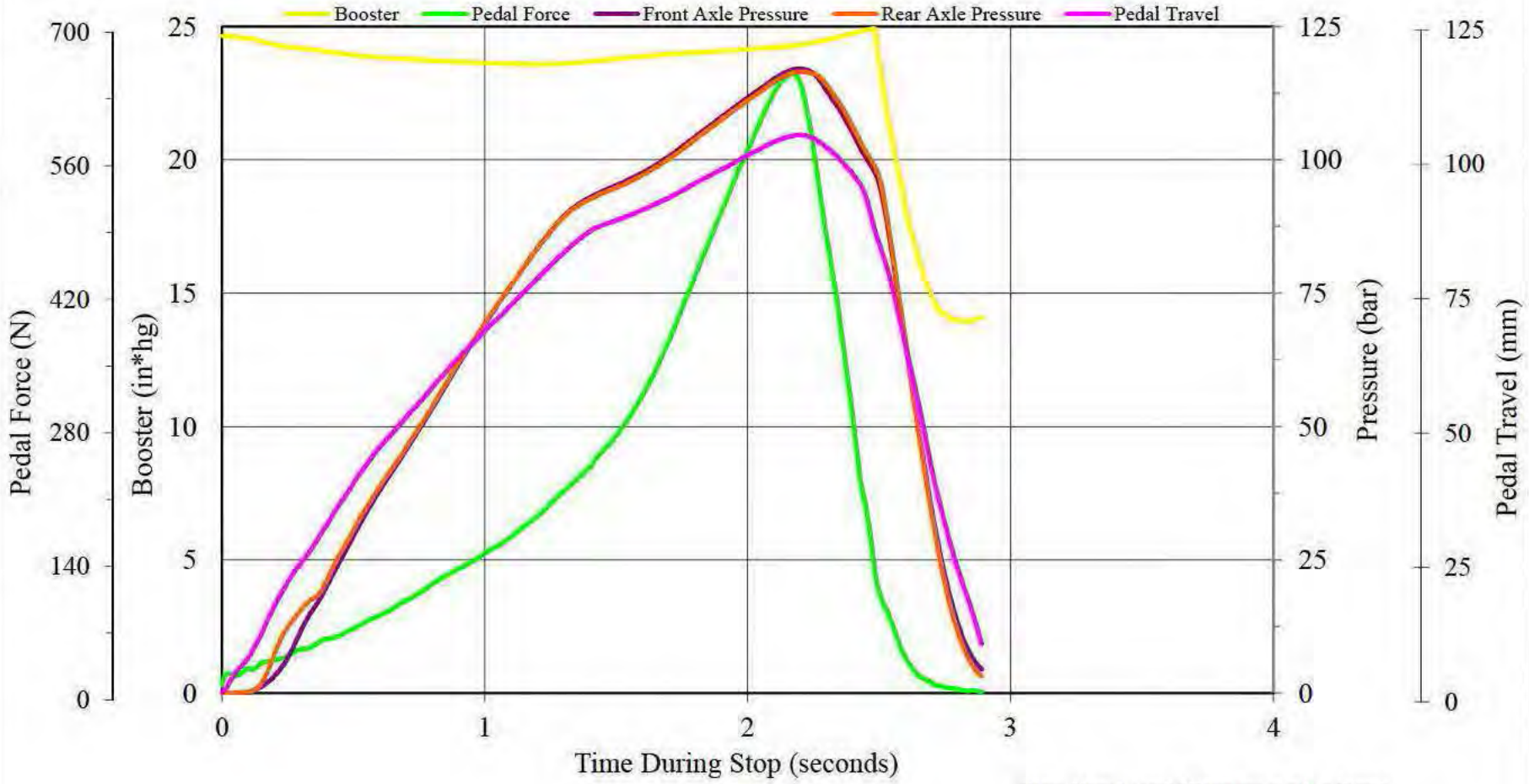
Stop #	Initial LF Temp (°C)	Initial RF Temp (°C)	Initial LR Temp (°C)	Initial RR Temp (°C)
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A

Note: Temperatures were not recorded due to T/C channels were off during the evaluation.

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Initial Floorchecks With Booster



Stop Number: 2 (Representative Stop)

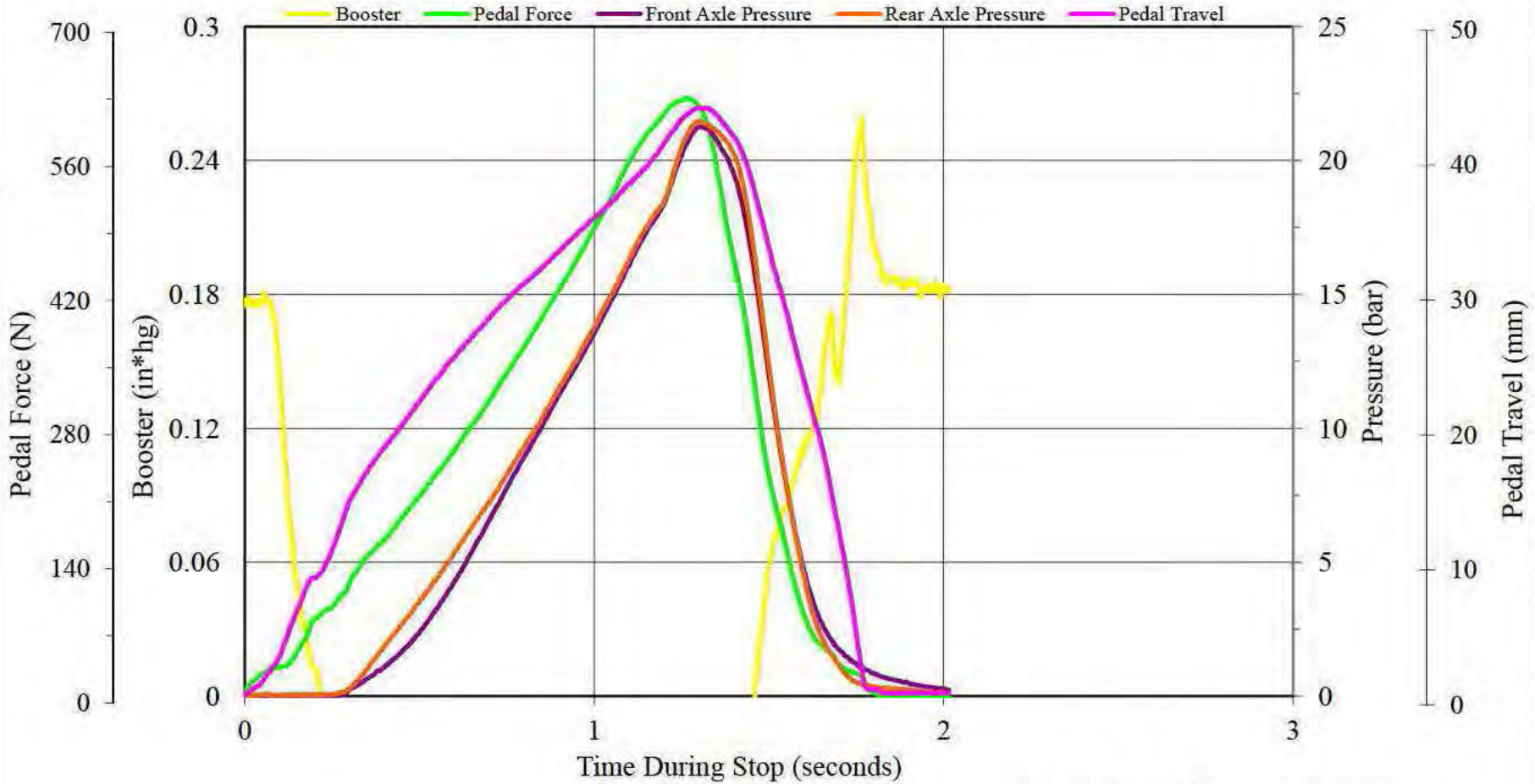
Link West Section: 100

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DK[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	10/31/12	Rear Lining Edge Code:	Nisshinbo N715HV

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Initial Floorchecks Without Booster



Stop Number: 2 (Representative Stop)

Link West Section: 101

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKI[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	10/31/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/03/2012
Printed Date: 11/09/12

FMVSS135 Section 7.5 Cold Effectiveness at GVW
Ideal Initial Test Speed: 100 kph

Link Section: 310 -- Cold Effectiveness GVWR

FMVSS135 Performance Requirement: 70 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 6	47 2	**46.7**	494 7	356 8	433 7	1 04	**1.00**	Smooth, Stable, Valid Stop
2	100 5	49 5	**49.0**	493 2	265 8	404 3	1 05	**0.97**	Smooth, Stable, Valid Stop
3	100 4	48 7	**48.3**	500 6	294 7	419 6	1 07	**0.99**	Exceeds Max Pedal Force
4	100 5	52 1	**51.6**	476 7	199 0	386 4	1 07	**0.97**	Smooth, Stable, Valid Stop
5	100 3	49 0	**48.7**	495 5	343 4	414 1	1 06	**0.98**	Smooth, Stable, Valid Stop
6	100 5	48 5	**48.0**	443 3	300 8	387 1	1 06	**0.98**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	116 9	113 2	28 8	28 3
2	119 2	114 0	28 7	28 2
3	119 4	114 2	28 8	28 3
4	119 7	112 9	28 7	28 2
5	120 4	114 6	28 8	28 2
6	118 6	113 7	28 9	28 3

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	124 6	121 9	120 5	108 3
2	122 6	121 1	114 3	104 4
3	132 7	123 8	113 2	102 0
4	127 5	116 0	114 0	94 2
5	131 6	121 4	109 7	94 5
6	126 7	118 8	111 2	94 0

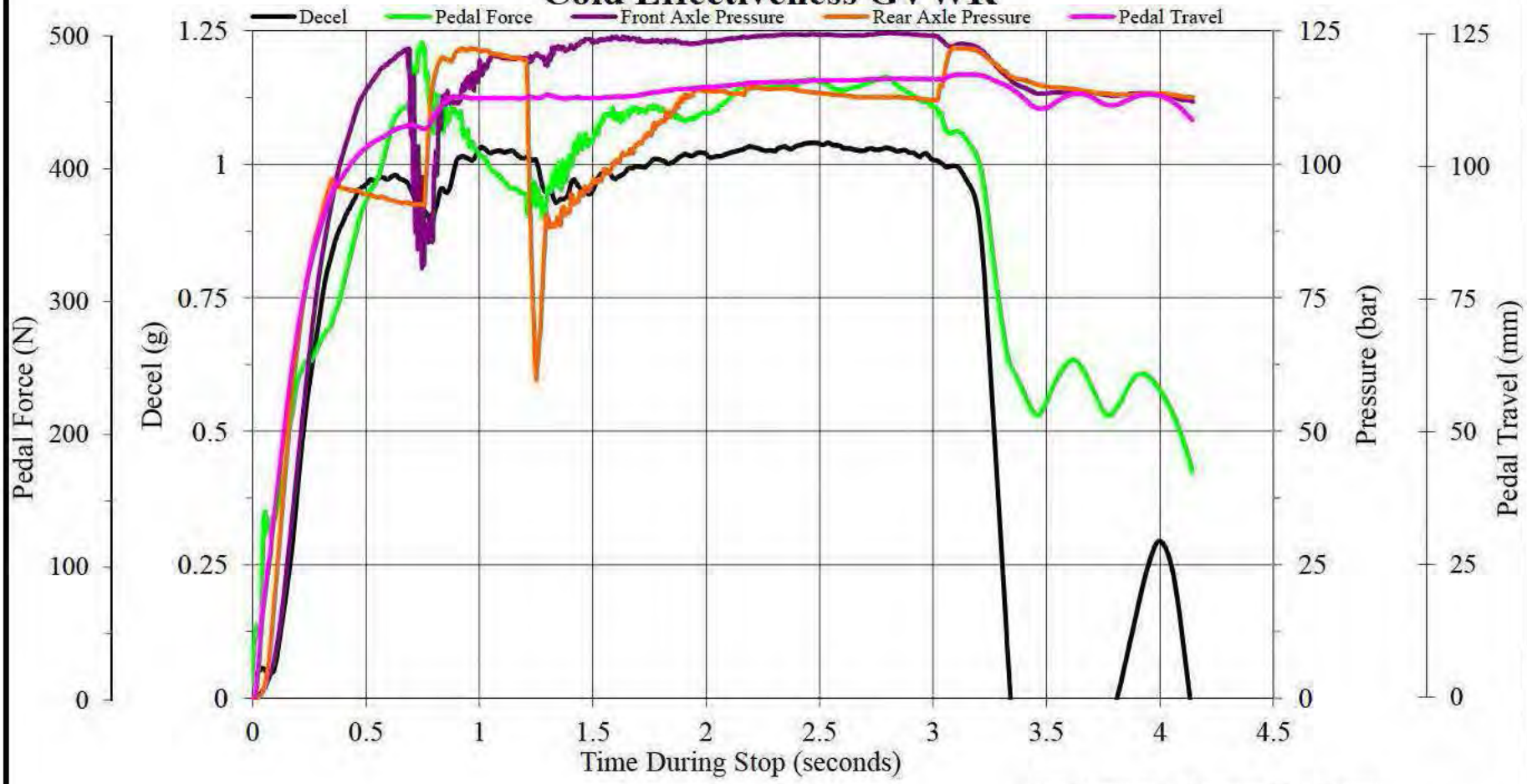
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	70 0	75 6	38 9	46 7	73 3	80 0	42 8	52 8
2	88 3	91 1	46 7	50 0	91 7	94 4	50 0	55 6
3	74 4	84 4	37 2	45 0	77 2	88 3	40 0	50 6
4	85 6	90 6	43 9	48 3	88 9	94 4	46 7	53 3
5	95 0	97 8	47 2	52 2	97 8	101 1	50 0	58 3
6	89 4	97 8	43 9	53 3	92 2	101 1	46 7	58 9

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 9 8 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Cold Effectiveness GVWR



Stop Number: 1 (Shortest Valid Stop)
J299 Corrected Stop Distance : 46.7 m

Link Section: 310

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/03/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/03/2012
Printed Date: 11/09/12

FMVSS135 Section 7.5 Cold Effectiveness at LLVW
Ideal Initial Test Speed: 100 kph

Link Section: 315 -- Cold Effectiveness LLVW

FMVSS135 Performance Requirement: 70 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 4	45 7	**45.4**	479 1	347 1	425 9	1 08	**1.03**	Smooth, Stable, Valid Stop
2	100 5	46 4	**46.0**	476 7	317 8	412 1	1 13	**1.04**	Smooth, Stable, Valid Stop
3	100 5	45 8	**45.3**	483 0	310 1	428 4	1 10	**1.03**	Smooth, Stable, Valid Stop
4	100 4	46 7	**46.3**	484 9	263 5	408 2	1 13	**1.03**	Smooth, Stable, Valid Stop
5	100 3	46 9	**46.6**	478 7	238 3	410 6	1 10	**1.02**	Smooth, Stable, Valid Stop
6	100 3	46 2	**45.9**	531 8	353 1	463 7	1 09	**1.01**	Exceeds Max Pedal Force

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	113 8	108 6	28 8	28 3
2	115 4	108 1	28 9	28 4
3	113 7	107 6	28 8	28 3
4	116 5	107 6	28 9	28 4
5	114 1	108 8	28 9	28 4
6	117 2	109 6	28 9	28 4

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	117 7	100 0	92 1	57 2
2	117 5	107 4	90 2	54 2
3	116 7	102 7	88 3	54 9
4	117 1	109 4	89 2	57 5
5	114 9	94 9	88 2	56 7
6	119 3	95 5	86 1	55 6

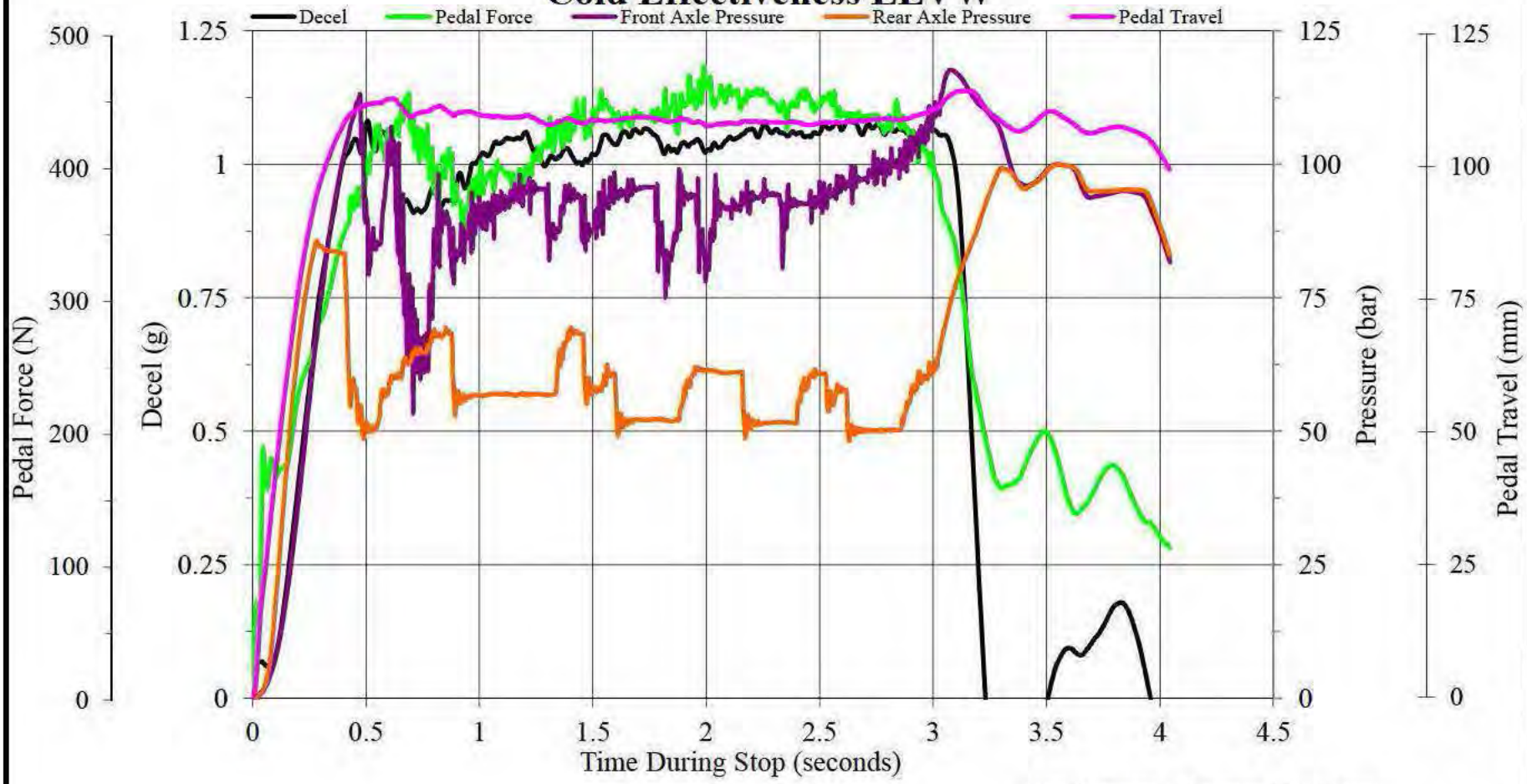
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	76 7	78 9	45 6	48 3	79 4	82 8	46 7	51 1
2	92 8	97 2	50 6	54 4	96 1	100 6	52 2	57 8
3	96 1	96 7	48 9	50 0	98 9	100 0	51 1	53 3
4	91 1	96 1	45 0	47 8	94 4	99 4	46 7	51 7
5	92 8	97 2	45 0	47 2	96 1	100 6	46 7	50 6
6	78 3	88 3	36 1	41 7	82 2	91 7	38 3	45 0

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 9 91 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Cold Effectiveness LLVW



Stop Number: 1 (Shortest Valid Stop)
J299 Corrected Stop Distance : 45.4 m

Link Section: 315

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKF[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/03/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/03/2012
Printed Date: 11/09/12

FMVSS135 Section 7.6 High Speed Effectiveness
Ideal initial Test Speed: 127.2kph

Link Section: 320 -- High Speed Effectiveness GVWR

FMVSS135 Performance Requirement: 121.1 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	126 7	77 8	**78.4**	485 5	234 6	428 4	1 03	**0.94**	Smooth, Stable, Valid Stop
2	127 2	75 6	**75.6**	510 3	348 8	436 0	1 05	**0.97**	Exceeds Max Pedal Force
3	127 8	78 5	**77.8**	473 8	253 7	401 0	1 06	**0.98**	Smooth, Stable, Valid Stop
4	127 1	76 9	**77.1**	492 2	261 3	401 1	1 07	**0.97**	Smooth, Stable, Valid Stop
5	126 7	75 7	**76.2**	504 5	308 8	419 1	1 08	**0.98**	Exceeds Max Pedal Force
6	127 2	77 9	**77.9**	488 5	200 8	368 5	1 06	**0.98**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	123 3	118 6	28 9	28 3
2	125 2	120 9	28 8	28 3
3	128 0	121 6	28 8	28 3
4	128 9	122 5	28 9	28 3
5	129 0	123 6	28 9	28 3
6	128 5	123 7	28 9	28 2

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	133 9	117 9	118 8	101 1
2	128 0	121 0	117 0	98 9
3	131 6	124 1	117 1	104 8
4	131 2	123 8	111 9	104 1
5	126 2	123 9	113 4	105 3
6	125 1	124 4	110 7	107 1

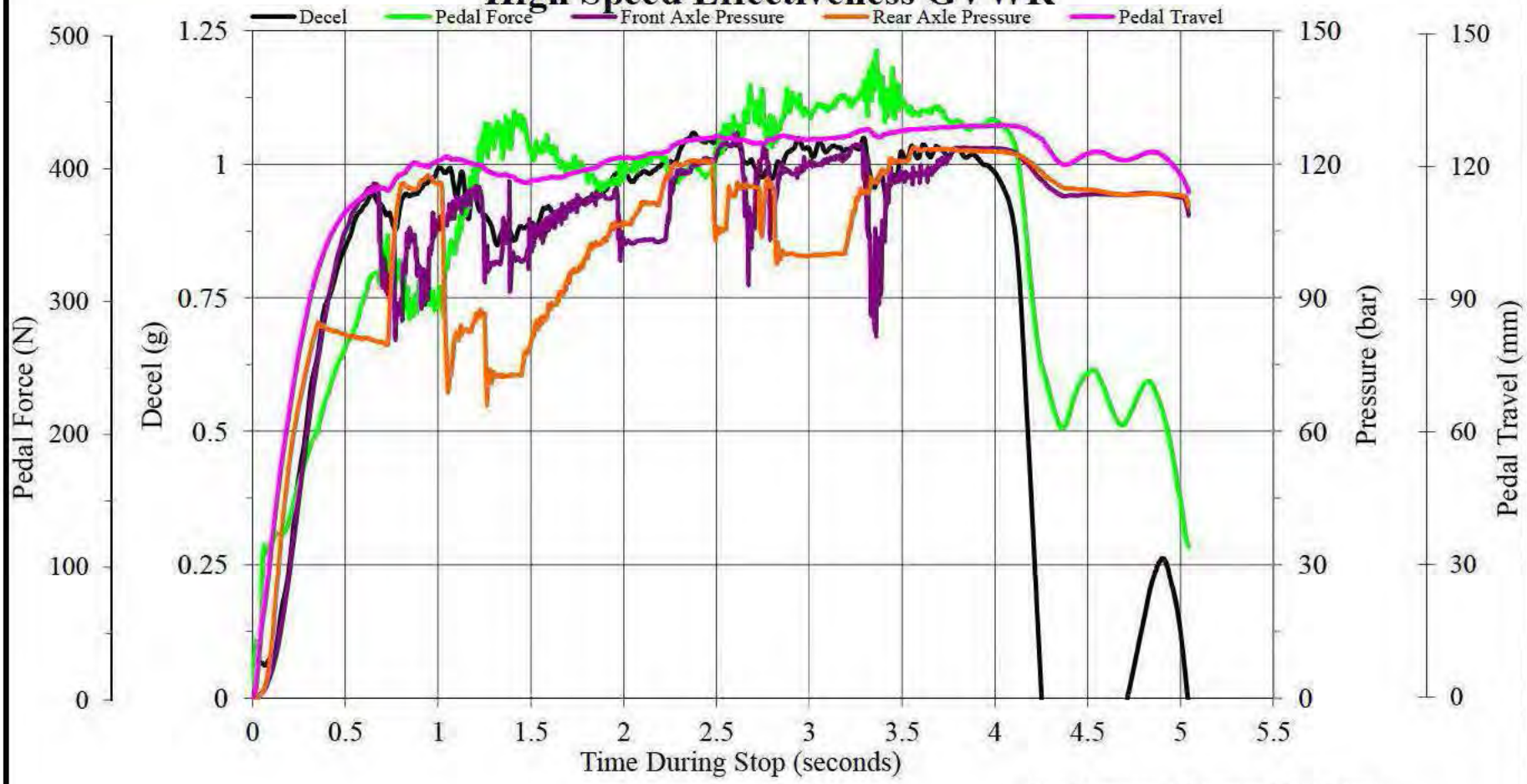
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	89 4	94 4	46 1	50 0	97 2	102 2	53 9	61 1
2	87 8	93 9	46 7	51 1	96 1	101 1	53 9	62 2
3	85 0	95 0	42 2	53 9	93 3	102 2	48 9	64 4
4	92 8	95 0	49 4	49 4	100 0	102 8	56 7	60 0
5	88 9	97 2	44 4	54 4	96 7	104 4	51 7	65 0
6	92 8	88 9	48 9	45 0	100 6	96 7	56 1	56 1

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was -17 78 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

High Speed Effectiveness GVWR



Stop Number: 4 (Shortest Valid Stop)
J299 Corrected Stop Distance : 77.1 m

Link Section: 320

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DK[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/03/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/03/2012
Printed Date: 11/09/12

FMVSS135 Section 7.6 High Speed Effectiveness
Ideal initial Test Speed: 127.2kph

Link Section: 325 -- High Speed Effectiveness LLVW

FMVSS135 Performance Requirement: 121.1 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	127 8	72 9	**72.2**	492 6	295 7	421 5	1 08	**1.02**	Smooth, Stable, Valid Stop
2	127 4	72 9	**72.7**	478 7	285 9	429 2	1 09	**1.03**	Smooth, Stable, Valid Stop
3	126 9	73 3	**73.6**	474 4	263 5	413 3	1 10	**1.02**	Smooth, Stable, Valid Stop
4	127 3	72 0	**71.9**	502 9	298 2	430 2	1 08	**1.02**	Exceeds Max Pedal Force
5	127 2	73 5	**73.5**	465 2	225 6	382 9	1 09	**1.02**	Smooth, Stable, Valid Stop
6	127 2	73 2	**73.2**	483 4	277 1	417 8	1 09	**1.03**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	117 6	109 6	28 8	28 3
2	118 3	110 5	29 0	28 5
3	115 9	108 8	28 9	28 3
4	120 0	109 4	29 0	28 5
5	116 2	108 7	28 9	28 4
6	117 7	110 6	28 9	28 3

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	117 9	104 6	90 6	56 8
2	117 4	101 2	94 9	53 9
3	116 5	98 2	92 9	54 9
4	114 8	114 8	92 1	54 8
5	114 9	106 2	92 9	55 4
6	118 9	96 1	93 4	55 1

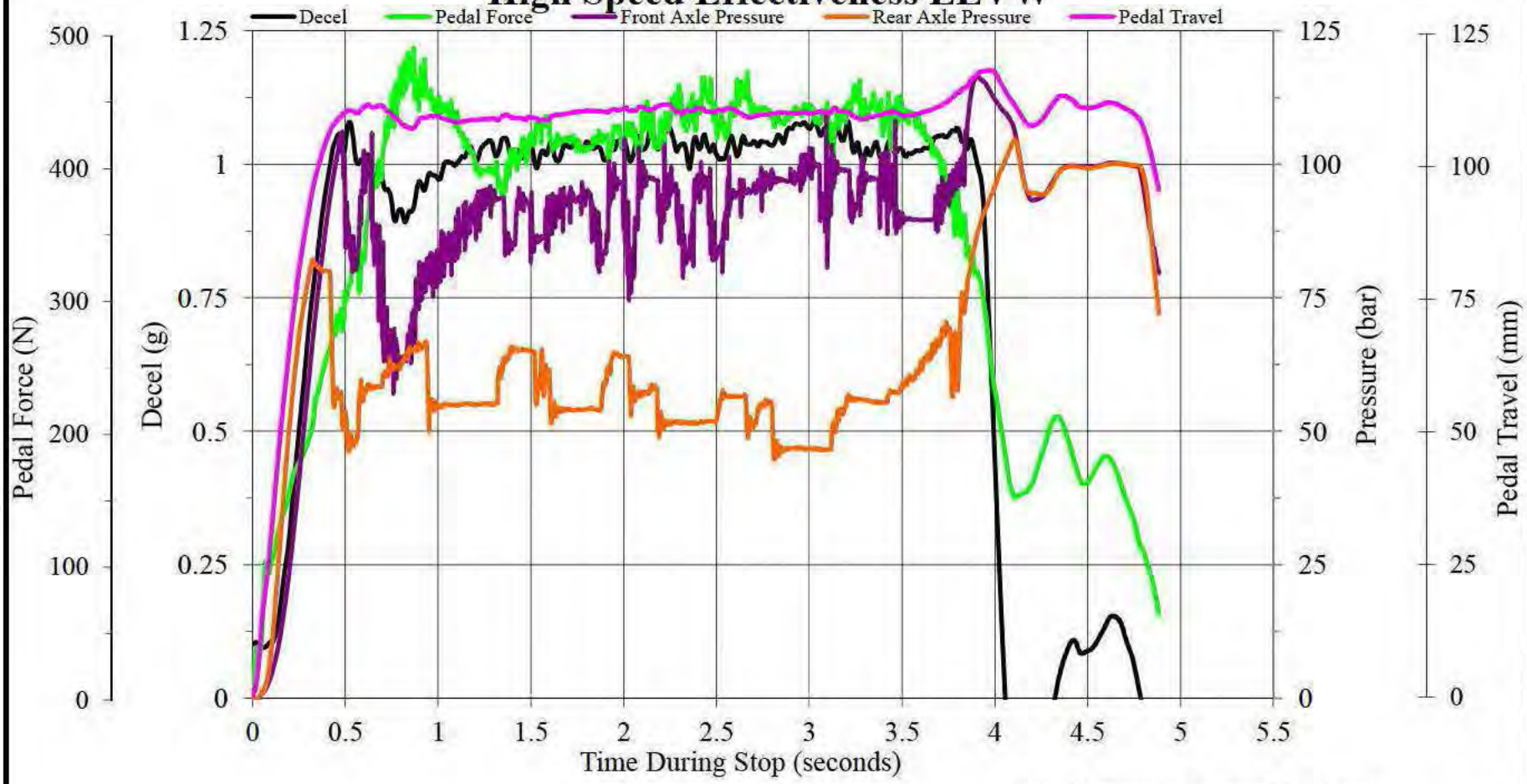
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	88 9	96 7	41 7	46 1	97 8	104 4	46 1	53 3
2	91 7	97 8	43 3	47 8	100 0	105 6	48 3	55 0
3	81 7	92 8	38 3	45 6	90 0	100 0	42 8	52 8
4	86 1	97 8	42 2	48 3	94 4	105 0	47 2	55 6
5	85 0	97 2	39 4	46 1	93 3	104 4	43 9	53 3
6	85 6	97 8	40 0	46 7	93 9	105 0	45 0	54 4

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10 46 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

High Speed Effectiveness LLVW



Stop Number: 1 (Shortest Valid Stop)
J299 Corrected Stop Distance : 72.2 m

Link Section: 325

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKI[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/03/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/03/2012
Printed Date: 11/09/12

FMVSS135 Section 7.7 Stops With Engine Off
Ideal Initial Test Speed: 100 kph

Link Section: 1010 -- Stops With Engine Off GVWR

FMVSS135 Performance Requirement: 70 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 6	49 9	**49.2**	520 1	267 0	416 9	1 09	**0.98**	Exceeds Max Pedal Force
2	100 7	51 3	**50.5**	480 7	241 8	376 9	1 08	**0.96**	Smooth, Stable, Valid Stop
3	100 4	51 0	**50.6**	395 7	189 1	312 3	1 07	**0.97**	Smooth, Stable, Valid Stop
4	100 4	49 5	**49.1**	451 9	266 2	374 6	1 06	**0.98**	Smooth, Stable, Valid Stop
5	100 5	49 8	**49.4**	467 4	240 0	377 9	1 08	**0.98**	Smooth, Stable, Valid Stop
6	100 7	50 2	**49.5**	462 9	214 4	366 8	1 06	**0.96**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	126 8	122 8	29 0	28 2
2	125 1	120 4	28 9	28 1
3	121 9	117 7	28 9	28 2
4	125 1	120 5	28 9	28 1
5	124 7	120 7	29 0	28 2
6	125 4	119 6	28 8	27 9

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	130 7	121 5	106 8	102 8
2	122 1	122 7	99 5	100 1
3	120 4	119 5	102 3	95 5
4	125 4	119 8	99 1	95 5
5	122 5	121 5	103 6	99 0
6	119 4	118 7	100 8	91 6

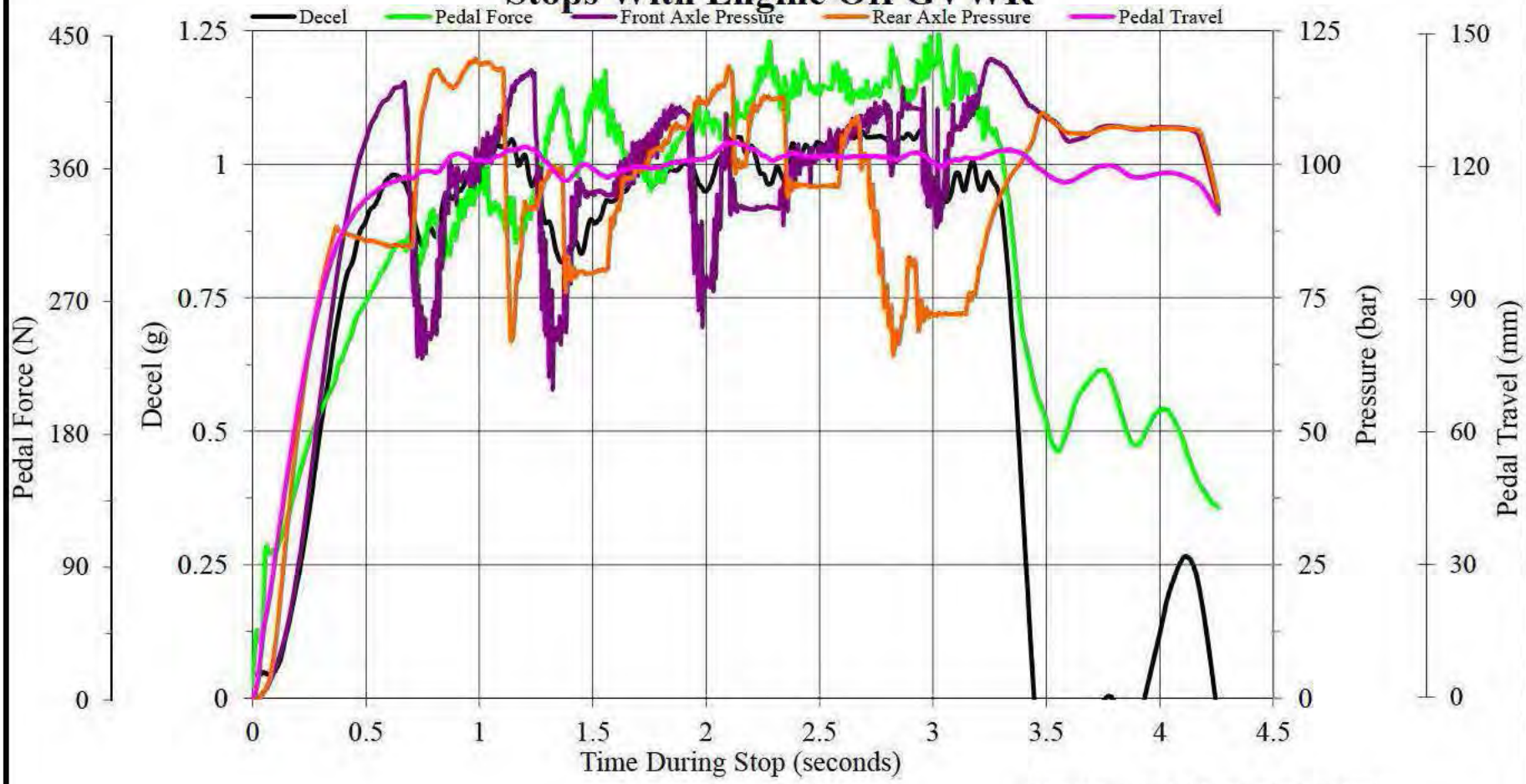
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	86 1	96 1	44 4	51 7	89 4	98 9	47 2	57 2
2	75 0	73 3	39 4	34 4	78 9	76 7	42 8	40 6
3	76 7	81 1	40 6	42 8	81 1	85 6	43 9	48 3
4	93 9	97 8	51 1	51 1	97 2	101 1	53 9	56 1
5	76 7	88 3	38 9	46 1	81 1	92 2	42 2	51 7
6	92 2	97 2	48 3	51 1	97 2	101 7	51 7	56 7

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was -17 78 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Stops With Engine Off GVWR



Stop Number: 4 (Shortest Valid Stop)
J299 Corrected Stop Distance : 49.1 m

Link Section: 1010

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DK[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/03/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.8 Antilock Functional Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1008 -- Failed Antilock & EBD (GVWR)

FMVSS135 Performance Requirement: 85 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 3	63 0	**62.6**	121 5	100 8	112 1	0 80	**0.74**	Smooth, Stable, Valid Stop / ABS+Brake Light On
2	99 8	60 7	**61.0**	133 8	104 1	112 8	0 80	**0.75**	Smooth, Stable, Valid Stop / ABS+Brake Light On
3	100 3	61 6	**61.2**	140 4	100 0	108 4	0 80	**0.74**	Smooth, Stable, Valid Stop / ABS+Brake Light On
4	100 2	63 8	**63.6**	129 3	107 2	115 4	0 79	**0.73**	Smooth, Stable, Valid Stop / ABS+Brake Light On
5	100 2	57 5	**57.3**	168 4	103 7	109 4	0 83	**0.79**	Smooth, Stable, Valid Stop / ABS+Brake Light On
6	100 6	64 9	**64.1**	136 5	102 7	113 0	0 80	**0.73**	Smooth, Stable, Valid Stop / ABS+Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	87 9	86 2	28 9	28 5
2	87 7	86 5	28 8	28 2
3	88 3	86 5	28 8	28 4
4	89 1	87 5	28 9	28 5
5	93 9	89 9	28 9	27 6
6	87 6	85 8	28 9	28 5

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	68 4	68 3	66 3	66 3
2	68 8	70 1	66 6	66 5
3	69 2	69 1	66 7	66 6
4	69 5	69 2	67 5	67 4
5	80 6	81 0	71 3	71 2
6	69 1	68 8	66 7	66 6

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	87 8	99 4	72 8	80 0	95 0	105 0	78 3	87 2
2	87 2	98 3	72 2	77 8	93 9	103 9	77 2	85 0
3	87 8	99 4	71 7	74 4	94 4	105 0	77 2	82 2
4	88 9	99 4	65 0	72 8	96 1	105 6	70 0	80 6
5	87 2	97 8	61 7	68 3	93 3	103 3	66 1	75 6
6	80 6	92 8	58 9	61 7	87 8	98 3	64 4	69 4

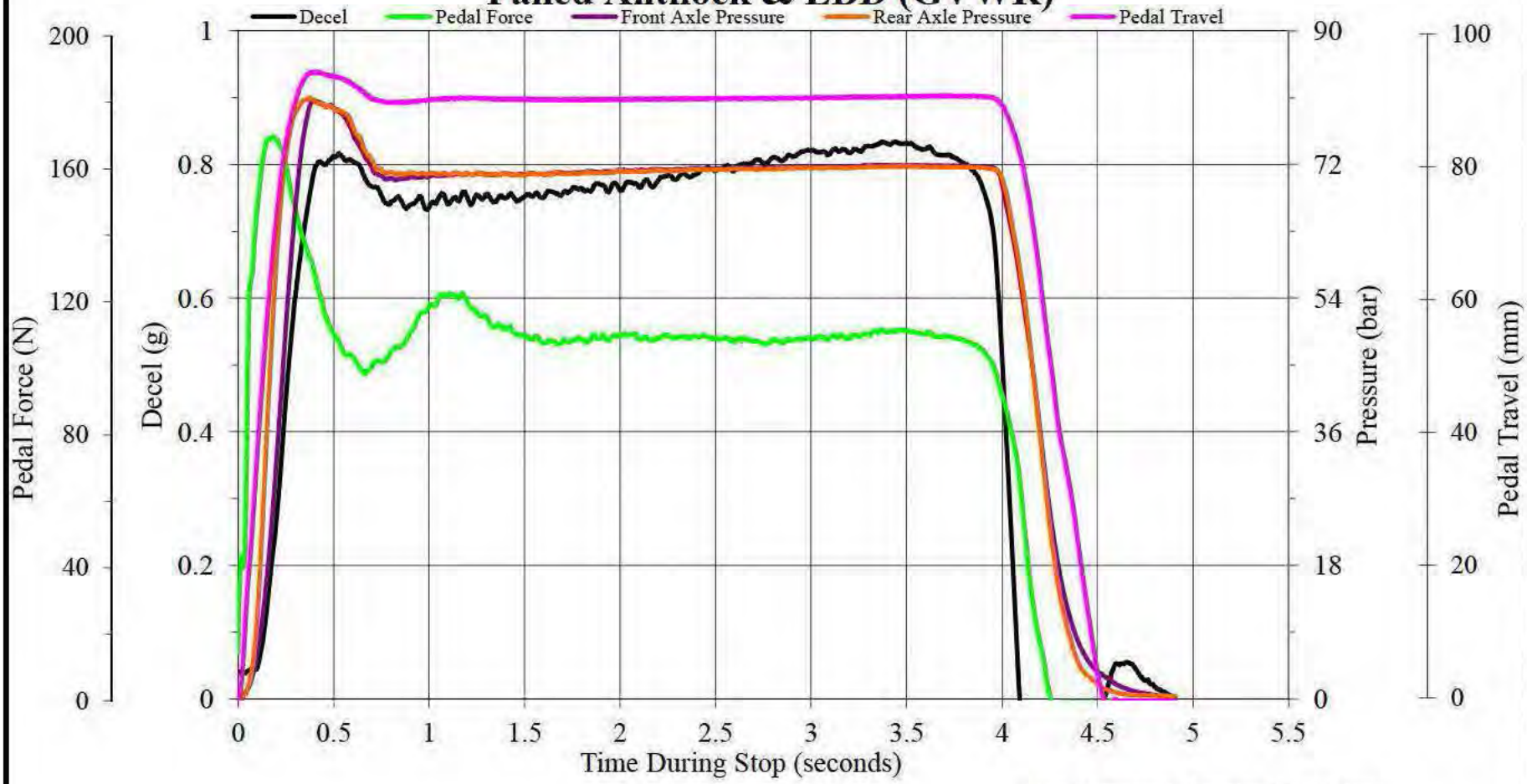
NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10 00 °C

NOTE: ALL 4 WS SENSORS WERE PULLED

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Failed Antilock & EBD (GVWR)



Stop Number: 5 (Shortest Valid Stop)
J299 Corrected Stop Distance : 57.3 m

Link Section: 1008

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DK[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.8 Antilock Functional Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1009 -- Failed Antilock & EBD (LLVW)

FMVSS135 Performance Requirement: 85 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	99 9	55 5	**55.6**	130 5	106 6	118 6	0 84	**0.82**	Smooth, Stable, Valid Stop / ABS+Brake Light On
2	100 2	62 8	**62.6**	112 3	80 5	89 7	0 76	**0.72**	Smooth, Stable, Valid Stop / ABS+Brake Light On
3	100 1	57 8	**57.6**	143 6	4 7	83 9	0 81	**0.77**	RR Wheellock /Pedal Force < 65N / ABS+Brake Light On
4	100 0	61 2	**61.2**	117 6	77 5	83 7	0 77	**0.73**	Smooth, Stable, Valid Stop / ABS+Brake Light On
5	100 2	63 4	**63.2**	105 7	80 1	90 5	0 79	**0.73**	Smooth, Stable, Valid Stop / ABS+Brake Light On
6	100 1	59 0	**58.8**	116 0	75 4	84 5	0 79	**0.75**	Smooth, Stable, Valid Stop / ABS+Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	88 5	87 6	28 9	28 5
2	75 9	74 6	28 8	28 1
3	78 1	76 9	28 8	28 2
4	75 4	75 0	28 8	28 5
5	79 2	75 8	28 9	28 6
6	77 1	74 8	28 7	28 2

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	74 0	73 8	73 0	72 8
2	55 6	57 3	54 2	54 1
3	59 3	63 3	57 1	57 0
4	54 6	57 7	54 2	54 3
5	58 9	58 7	54 2	54 1
6	58 9	59 5	56 0	56 0

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	72 8	71 7	45 6	44 4	78 3	77 2	48 9	49 4
2	86 1	97 8	57 8	61 1	91 7	102 8	61 1	67 2
3	82 2	94 4	51 1	58 9	86 7	98 9	54 4	64 4
4	82 8	92 2	49 4	57 2	87 8	97 2	53 3	62 8
5	83 9	95 0	51 7	57 2	88 9	100 0	55 6	63 3
6	77 2	80 6	44 4	48 3	83 3	86 7	48 3	55 0

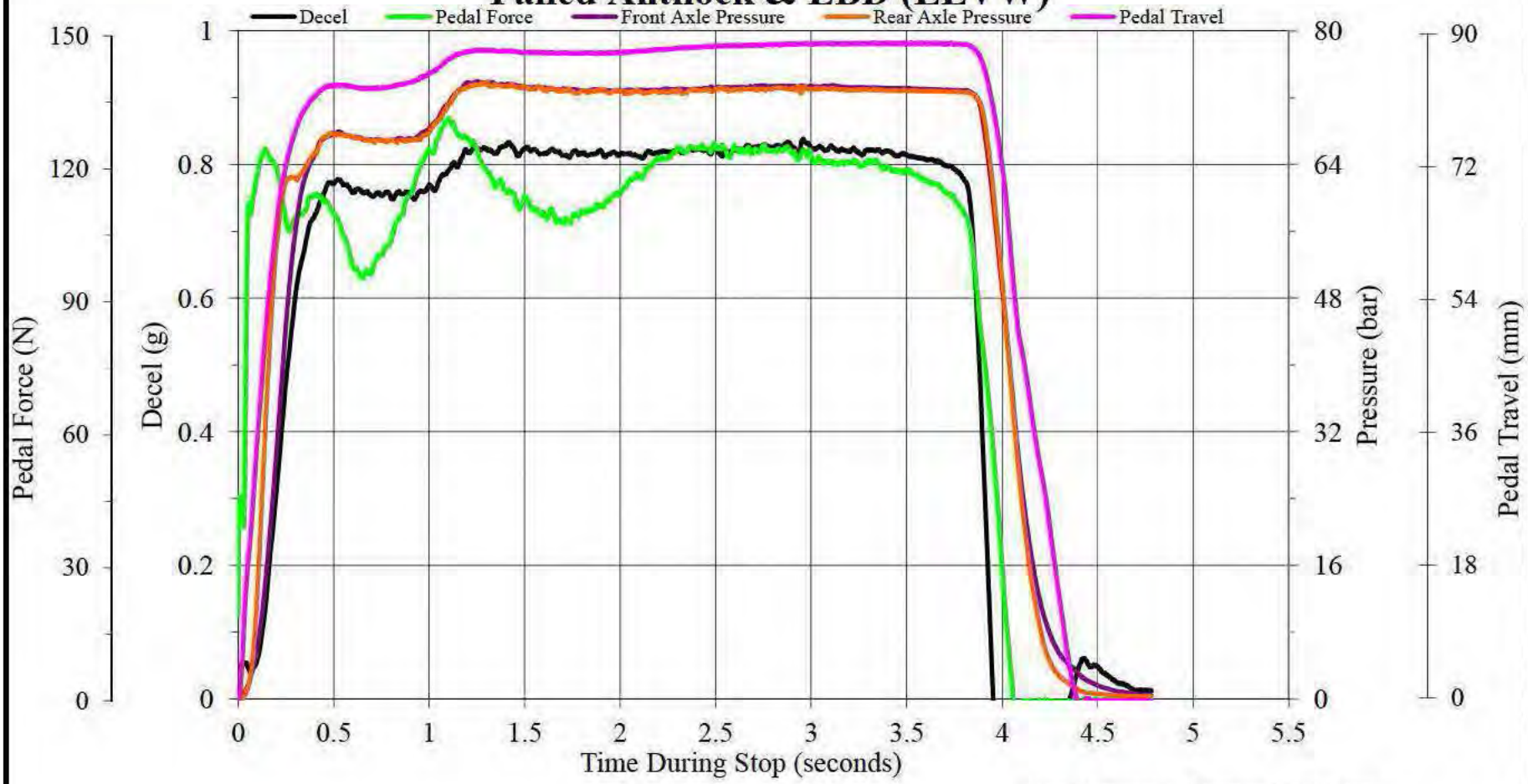
NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 8 98 °C

NOTE: ALL 4 WS SENSORS WERE PULLED

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Failed Antilock & EBD (LLVW)



Stop Number: 1 (Shortest Valid Stop)
J299 Corrected Stop Distance : 55.6 m

Link Section: 1009

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DK[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.10 Hydraulic Circuit Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1000 -- Hydraulic Circuit Failure (Fronts Only)(LLVW)

FMVSS135 Performance Requirement: 168 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 0	53 5	**53.5**	420 9	295 5	382 8	1 05	**0.82**	HBA Was Active / Brake Light On
2	100 1	54 0	**53.9**	448 0	317 8	407 5	1 07	**0.82**	HBA Was Active / Brake Light On
3	100 1	53 1	**53.0**	447 1	304 7	413 5	1 07	**0.83**	HBA Was Active / Brake Light On
4	100 1	53 5	**53.4**	433 2	271 9	397 0	1 07	**0.83**	HBA Was Active / Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	127 0	119 1	28 9	28 4
2	127 7	119 8	28 9	28 4
3	128 5	120 7	28 9	28 4
4	128 0	120 4	28 8	28 4

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	117 4	57 5	83 7	14 3
2	116 6	58 5	80 6	14 5
3	115 5	60 8	81 8	13 4
4	114 8	57 2	81 5	14 8

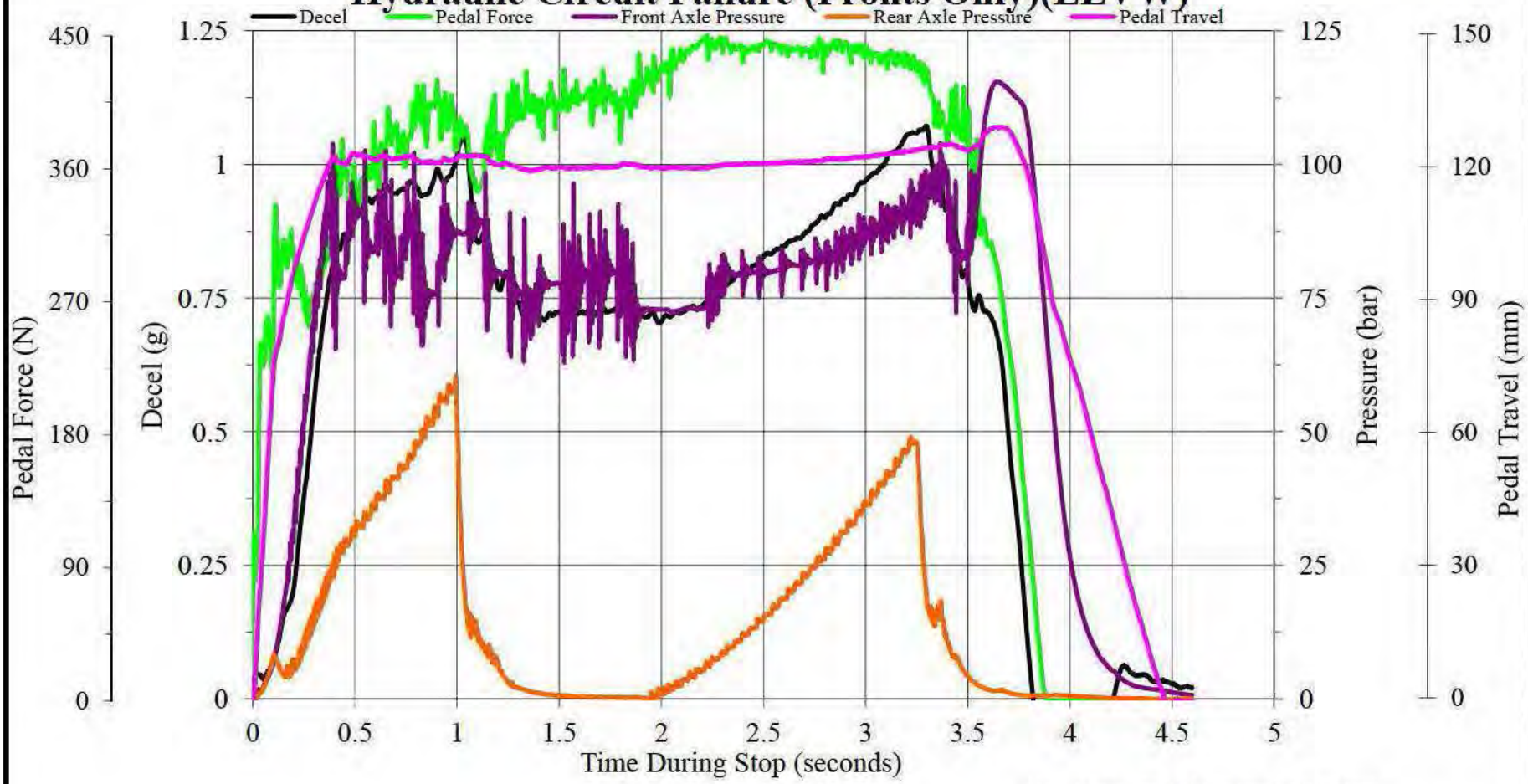
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	67 2	72 8	92 2	105 0	71 7	77 2	92 2	105 6
2	72 2	82 8	103 3	113 3	76 7	86 7	103 3	113 3
3	77 8	88 9	116 1	125 0	82 8	93 3	116 1	125 6
4	76 7	86 1	121 1	124 4	81 7	90 6	121 1	125 0

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 9 44 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Hydraulic Circuit Failure (Fronts Only)(LLVW)



Stop Number: 3 (Shortest Valid Stop)
J299 Corrected Stop Distance : 53.0 m

Link Section: 1000

Driver Comments: HBA Was Active

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.10 Hydraulic Circuit Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1001 -- Hydraulic Circuit Failure (Rears Only)(LLVW)

FMVSS135 Performance Requirement: 168 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	99 8	112 7	**113.3**	482 0	308 6	404 9	0 43	**0.36**	Smooth, Stable, Valid Stop / Brake Light On
2	100 2	116 5	**116.1**	501 2	276 9	414 0	0 44	**0.35**	Max Pedal Force Exceeded / Brake Light On
3	100 1	114 1	**113.8**	516 2	324 8	424 7	0 43	**0.35**	Max Pedal Force Exceeded / Brake Light On
4	99 9	112 5	**112.7**	495 7	289 1	398 5	0 44	**0.36**	Smooth, Stable, Valid Stop / Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	155 0	148 7	28 8	28 5
2	156 2	149 2	28 9	28 5
3	156 4	149 5	28 8	28 4
4	153 9	150 1	28 8	28 5

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	15 5	121 2	0 1	91 4
2	15 4	119 9	0 1	85 4
3	15 7	119 7	0 1	86 5
4	15 1	120 1	0 1	89 3

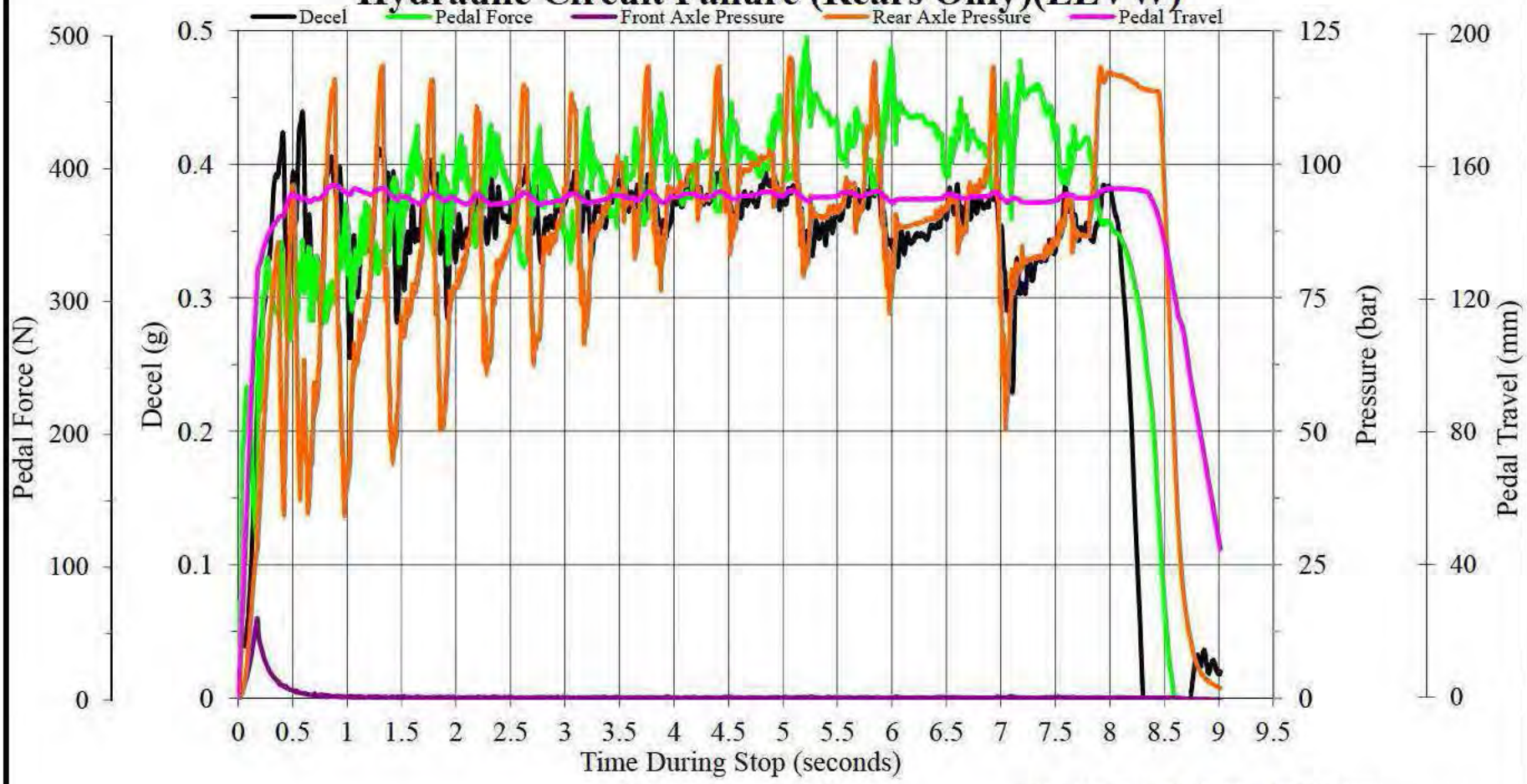
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	88 9	96 1	77 8	88 9	89 4	96 1	98 3	113 9
2	93 9	103 9	88 3	98 3	93 9	103 9	107 8	121 1
3	91 1	99 4	91 7	96 1	91 1	99 4	110 6	120 0
4	92 2	100 6	97 8	97 8	92 2	101 1	116 1	121 1

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 9 17 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Hydraulic Circuit Failure (Rears Only)(LLVW)



Stop Number: 4 (Shortest Valid Stop)
J299 Corrected Stop Distance : 112.7 m

Link Section: 1001

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.10 Hydraulic Circuit Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1002 -- Hydraulic Circuit Failure (Fronts Only)(GVWR)

FMVSS135 Performance Requirement: 168 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 2	57 6	**57.4**	390 4	277 1	352 9	1 01	**0.77**	HBA Was Active / Brake Light On
2	100 1	69 3	**69.1**	462 9	344 1	419 8	0 67	**0.62**	HBA Was Active / Brake Light On
3	100 2	52 0	**51.9**	479 9	317 8	396 2	1 06	**0.88**	HBA Was Active / Brake Light On
4	100 4	52 8	**52.4**	432 2	314 4	387 3	1 08	**1.00**	HBA Was Active / Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	125 6	119 8	28 8	28 4
2	127 8	120 9	28 8	28 4
3	128 7	124 7	28 8	28 3
4	127 1	123 4	28 9	28 4

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	118 0	97 2	89 7	36 4
2	118 9	14 9	90 1	0 1
3	117 9	98 6	97 7	58 8
4	118 4	97 5	101 8	83 8

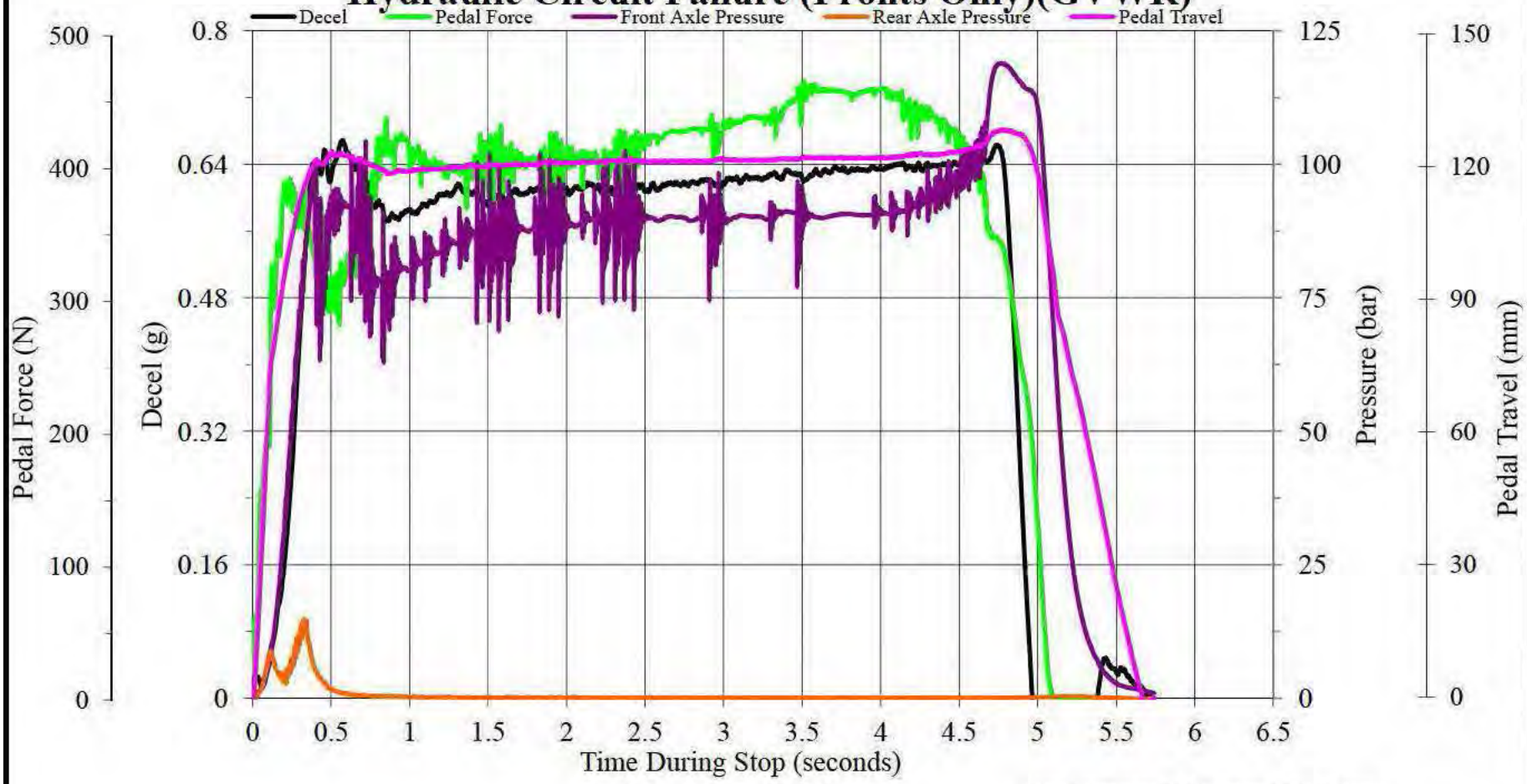
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	63 9	72 2	61 7	67 2	70 6	78 3	63 9	70 6
2	76 7	85 0	102 8	117 8	86 7	94 4	102 8	117 8
3	85 0	93 9	119 4	129 4	90 0	98 9	121 7	132 2
4	71 7	82 2	131 7	140 0	76 1	86 1	133 3	142 2

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10 14 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Hydraulic Circuit Failure (Fronts Only)(GVWR)



Stop Number: 2 (Shortest Valid Stop)
J299 Corrected Stop Distance : 69.1 m

Link Section: 1002

Driver Comments: HBA Was Active

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKI[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DK[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.10 Hydraulic Circuit Failure
Ideal Initial Test Speed: 100 kph

Link Section: 1003 -- Hydraulic Circuit Failure (Rears Only)(GVWR)

FMVSS135 Performance Requirement: 168 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 0	112 3	**112.3**	467 8	361 1	439 1	0 39	**0.36**	Smooth, Stable, Valid Stop / Brake Light On
2	100 2	116 7	**116.3**	463 3	361 3	437 1	0 40	**0.35**	Smooth, Stable, Valid Stop / Brake Light On
3	100 4	117 8	**116.8**	487 5	417 0	464 0	0 41	**0.35**	Smooth, Stable, Valid Stop / Brake Light On
4	100 2	112 9	**112.5**	469 3	369 3	442 3	0 40	**0.37**	Smooth, Stable, Valid Stop / Brake Light On

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	153 7	152 7	28 9	28 5
2	154 0	152 9	28 8	28 4
3	154 9	154 1	28 9	28 5
4	155 2	154 7	28 7	28 3

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	15 4	123 7	0 1	121 0
2	15 5	123 3	0 1	120 7
3	15 2	123 7	0 1	121 9
4	16 3	121 9	0 1	120 3

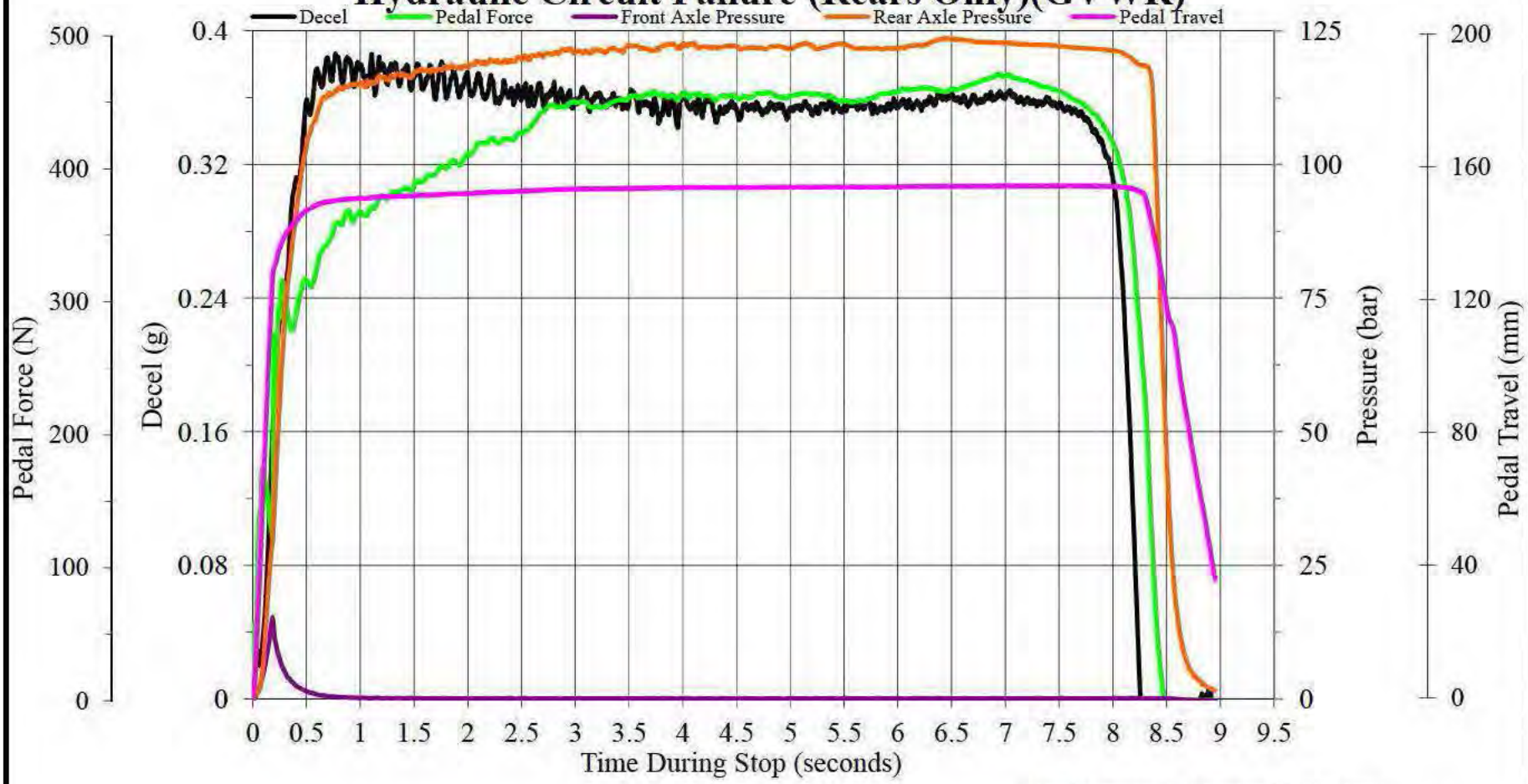
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	94 4	102 2	62 2	67 2	94 4	102 2	89 4	102 8
2	105 6	113 9	82 2	89 4	105 6	113 9	108 9	123 9
3	86 7	97 2	92 2	97 2	87 2	97 2	119 4	131 1
4	80 6	90 0	71 1	76 7	81 1	90 0	97 8	109 4

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10 42 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Hydraulic Circuit Failure (Rears Only)(GVWR)



Stop Number: 1 (Shortest Valid Stop)
J299 Corrected Stop Distance : 112.3 m

Link Section: 1003

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Description: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/05/2012
Printed Date: 11/09/12

FMVSS135 Section 7.11 Brake Power Assist Unit Inoperative
Ideal Initial Test Speed: 100 kph

Link Section: 1007 -- Failed Booster (GVWR)

FMVSS135 Performance Requirement: 168 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Minimum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 2	233 0	**232.2**	502 9	475 0	491 4	0 19	**0.18**	Max Pedal Force Exceeded
2	100 3	227 6	**226.3**	496 3	418 0	487 0	0 20	**0.18**	Corredted Distance > 168 m
3	100 1	111 0	**110.9**	485 9	430 7	472 3	0 45	**0.42**	Smooth, Stable, Valid Stop
4	100 2	115 1	**114.6**	489 6	419 7	474 9	0 44	**0.40**	Smooth, Stable, Valid Stop
5	100 4	98 2	**97.5**	490 0	401 9	466 0	0 57	**0.50**	Smooth, Stable, Valid Stop
6	99 8	112 1	**112.6**	482 6	419 5	463 9	0 44	**0.41**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	45 6	45 2	0 0	0 0
2	44 8	44 3	0 0	0 0
3	60 6	59 9	0 0	0 0
4	59 6	58 3	0 0	0 0
5	65 2	62 9	0 0	0 0
6	59 8	58 6	0 0	0 0

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	14 6	14 8	14 3	14 6
2	14 5	14 9	14 3	14 6
3	35 6	42 7	33 3	39 5
4	34 9	39 6	31 4	36 2
5	48 4	46 1	42 2	41 5
6	34 8	41 0	32 0	37 3

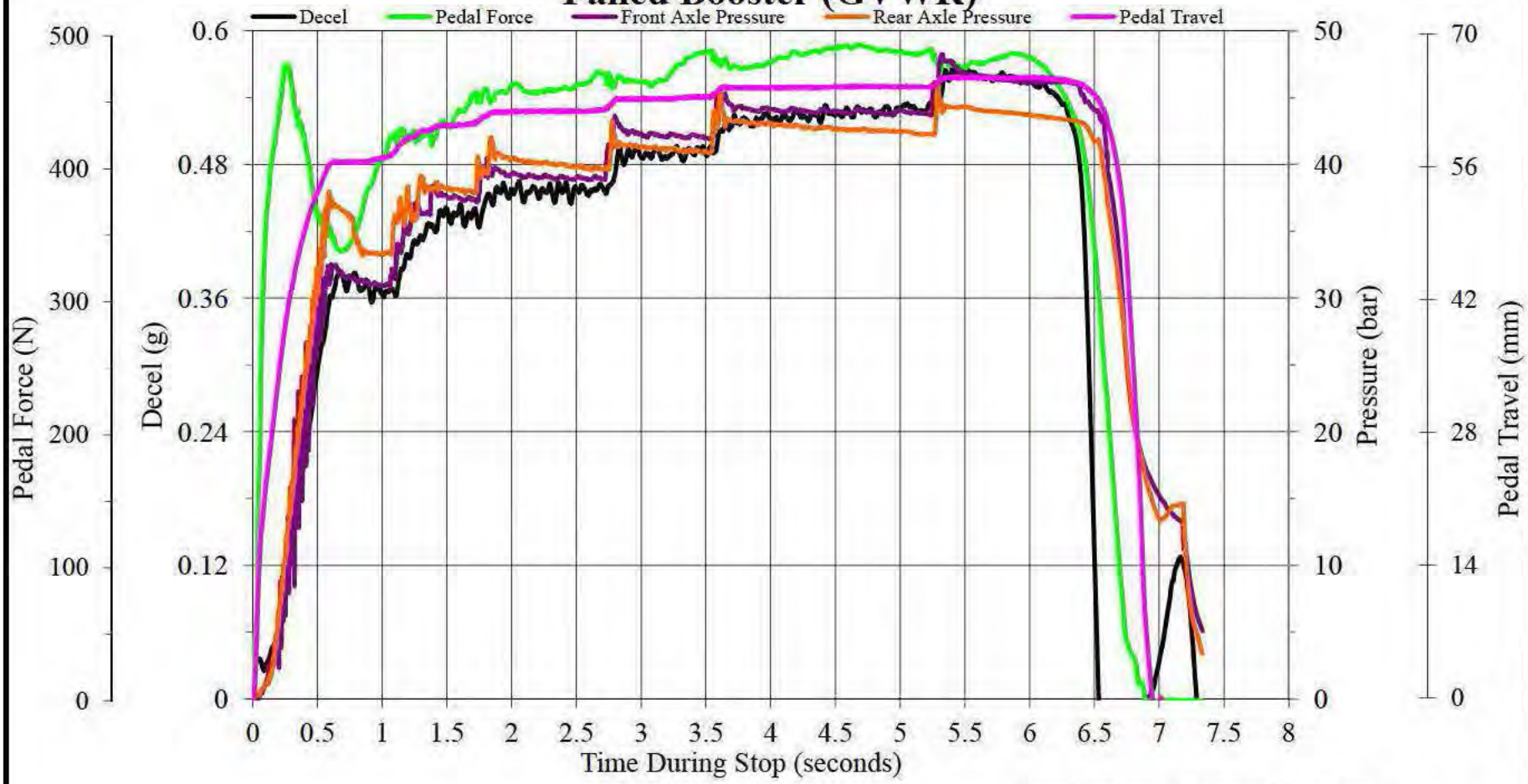
Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	73 9	84 4	55 0	56 7	102 2	106 1	67 2	69 4
2	88 3	97 8	66 7	70 0	116 1	119 4	79 4	85 0
3	80 0	90 6	63 3	70 0	95 6	102 8	73 9	83 3
4	80 6	93 3	67 2	73 3	95 6	106 1	78 3	87 8
5	81 1	94 4	68 9	76 7	92 8	104 4	77 8	88 3
6	83 3	97 2	70 6	79 4	96 7	108 3	80 6	92 8

NOTES:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 9 72 °C

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Failed Booster (GVWR)



Stop Number: 5 (Shortest Valid Stop)
J299 Corrected Stop Distance : 97.5 m

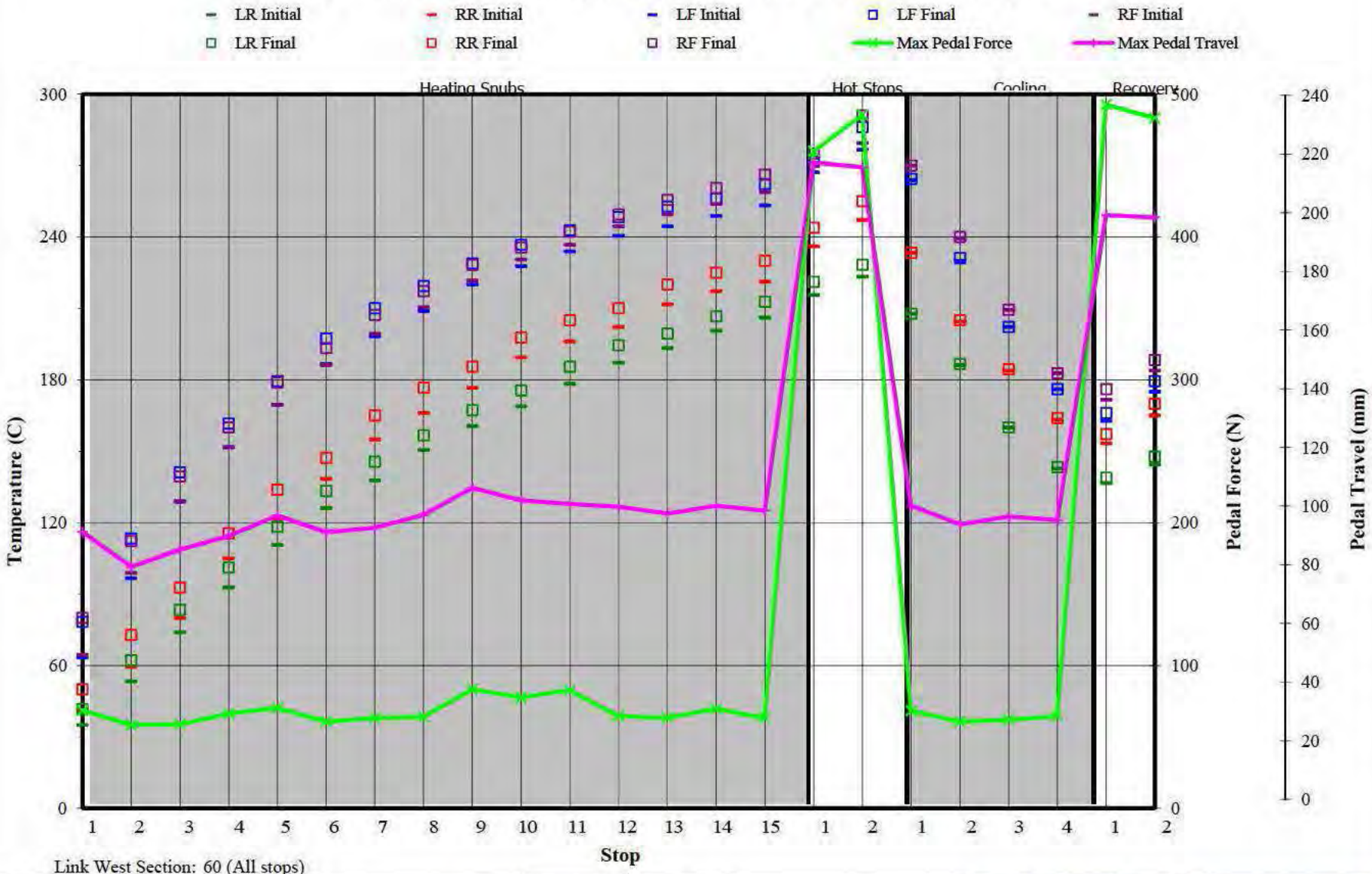
Link Section: 1007

Driver Comments: Smooth, Stable, Valid Stop

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKI[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/05/12	Rear Lining Edge Code:	Nisshinbo N715HV

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

Stop Summary Temperature Plot For Fade Sequence



Link West Section: 60 (All stops)

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/07/12	Rear Lining Edge Code:	Nisshinbo N715HV

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]5
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Printed Date 11/07/12
Printed Date: 11/09/12

FMVSS135 Section 7.13 Heating Snubs
Ideal Initial Test Speed: 120 KPH

Link Section: 60 -- 15 snub Fade

Stop #	Initial Speed At Apply (kph)	Maximum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Cycle Time (sec)	Driver's Subjective Stop Comment
1	119 4	68 5	48 3	0 39	**0.33**	-	Smooth, Stable, Valid Stop
2	121 7	58 4	42 9	0 34	**0.31**	46 06	Smooth, Stable, Valid Stop
3	121 0	58 8	37 0	0 39	**0.33**	45 87	Smooth, Stable, Valid Stop
4	120 3	66 4	43 3	0 39	**0.32**	45 88	Smooth, Stable, Valid Stop
5	122 1	70 5	39 2	0 38	**0.32**	45 84	Smooth, Stable, Valid Stop
6	121 3	60 7	40 3	0 38	**0.32**	46 61	Smooth, Stable, Valid Stop
7	120 4	63 2	42 9	0 39	**0.32**	45 81	Smooth, Stable, Valid Stop
8	121 3	64 0	42 2	0 41	**0.32**	46 10	Smooth, Stable, Valid Stop
9	120 4	83 3	42 8	0 46	**0.33**	45 77	Smooth, Stable, Valid Stop
10	120 3	77 7	50 9	0 38	**0.31**	45 56	Smooth, Stable, Valid Stop
11	121 0	82 8	47 8	0 42	**0.32**	45 75	Smooth, Stable, Valid Stop
12	121 3	64 6	50 4	0 42	**0.33**	45 69	Smooth, Stable, Valid Stop
13	121 3	63 2	47 7	0 39	**0.33**	45 98	Smooth, Stable, Valid Stop
14	121 6	69 7	49 8	0 43	**0.32**	45 54	Smooth, Stable, Valid Stop
15	120 8	63 0	52 1	0 37	**0.32**	46 16	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	58 1	52 8	28 2	27 4	37 3	37 6	29 8	29 9
2	50 7	48 8	28 3	28 0	28 0	28 6	26 5	26 6
3	54 3	50 3	28 3	27 7	32 3	32 5	27 4	27 7
4	57 2	53 6	28 3	27 6	30 5	30 9	26 4	26 6
5	61 5	59 0	28 3	27 7	31 5	34 3	28 4	28 7
6	58 0	55 6	28 3	27 8	30 2	31 0	27 7	27 9
7	58 9	56 2	28 3	27 7	30 2	31 6	27 1	27 2
8	61 6	58 4	28 3	27 7	32 5	32 8	28 8	29 0
9	67 3	59 2	28 2	27 1	39 1	41 6	29 2	29 7
10	64 7	59 0	28 2	27 9	33 6	33 6	28 3	28 3
11	63 9	60 7	28 3	27 6	33 3	34 2	29 5	29 7
12	63 3	59 9	28 2	27 8	33 7	33 9	30 9	31 1
13	61 9	58 3	28 2	27 8	33 5	33 5	30 4	30 5
14	63 5	59 5	28 2	27 5	34 5	35 7	30 7	31 0
15	62 5	58 2	28 2	27 8	33 9	33 9	30 0	30 0

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	63 3	64 4	35 0	41 1	78 3	80 0	41 7	50 0
2	96 7	98 9	53 3	59 4	113 3	112 2	62 2	72 8
3	128 9	128 9	73 9	80 0	141 1	139 4	83 3	92 8
4	151 7	151 7	92 8	105 0	161 7	160 0	101 1	115 6
5	169 4	169 4	110 6	121 7	179 4	178 9	118 3	133 9
6	186 7	186 1	126 1	138 3	197 2	193 3	133 3	147 2
7	198 3	199 4	137 8	155 0	210 0	207 2	145 6	165 0
8	208 9	210 6	150 6	166 1	219 4	217 2	156 7	176 7
9	220 0	221 7	160 6	176 7	228 9	228 3	167 2	185 6
10	227 8	230 6	168 9	189 4	236 7	235 6	175 6	197 8
11	233 9	236 7	178 3	196 1	242 8	242 2	185 6	205 0
12	240 6	244 4	187 2	202 2	248 3	249 4	194 4	210 0
13	244 4	249 4	193 3	211 7	252 8	255 6	199 4	220 0
14	248 9	253 9	200 6	217 2	256 1	260 6	206 7	225 0
15	253 3	258 9	206 1	221 1	262 2	266 1	212 8	230 0

Notes:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 11 07 °

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/07/2012
Printed Date: 11/09/12

FMVSS135 Section 7.14 Hot Performance
Ideal Initial Test Speed: 100 KPH

Link Section: 60 -- Hot performance stops

Stop number 1 must meet the following criteria:
Based on the best distance in sect 310 stop #: 1
Initial Speed of stop: 100 582163
Total Distance of stop: 47 2 m
FMVSS135 performance requirement: 71.96 m

Either stop 1 or 2 must meet the following:
FMVSS135 performance requirement: 89.00 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Average Pedal Force (N)	Pedal Force Check	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 3	49 5	**49.2**	460 0	420 0	OK	0 99	**0.89**	Smooth, Stable, Valid Stop
2	100 1	52 1	**52.0**	485 6	389 4	OK	0 93	**0.83**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	135 6	131 7	28 1	27 5
2	134 6	132 1	27 9	27 4

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	129 3	122 5	117 5	120 7
2	121 2	111 8	118 9	98 9

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	267 2	270 0	215 6	236 1	271 7	275 0	221 1	243 9
2	276 7	279 4	223 3	247 2	286 1	291 1	228 3	255 0

Notes:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 11 11 °

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/07/2012
Printed Date: 11/09/12

FMVSS135 Section 7.15 Brake Cooling Stops
Ideal Initial Test Speed: 50 KPH

Link Section: 60 -- Cooling stops

Stop #	Initial Speed At Apply (kph)	Maximum Pedal Force (N)	Average Pedal Force (N)	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	51.3	68.3	59.4	0 36	**0.32**	Smooth, Stable, Valid Stop
2	52.9	60.7	44.5	0 35	**0.32**	Smooth, Stable, Valid Stop
3	52.6	62.1	39.1	0 38	**0.33**	Smooth, Stable, Valid Stop
4	51.6	64.4	37.1	0.42	**0.36**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	63.5	58.8	28.2	27.8
2	59.6	58.4	28.3	27.7
3	61.3	58.7	28.3	27.4
4	60.5	58.4	28.3	27.5

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	37.4	37.3	33.5	33.4
2	32.2	32.2	28.8	29.2
3	33.2	33.4	27.4	28.0
4	34.1	34.2	28.1	28.9

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)	Maximum LF Temp (◦C)	Maximum RF Temp (◦C)	Maximum LR Temp (◦C)	Maximum RR Temp (◦C)
1	263 9	270.0	207.8	233.3	264.4	270.0	207.8	233.3
2	230.0	239.4	186.1	204.4	231.1	240.0	186.7	205.0
3	202 2	209.4	160.0	183.9	202.2	209.4	160.0	184.4
4	176 1	182.8	142.8	163.3	176.1	182.8	143.3	163.9

Notes:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10.69 C

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Testing Date: 11/07/2012
Printed Date: 11/09/12

FMVSS135 Section 7.16 Recovery Performance
Ideal Initial Test Speed: 100 KPH

Link Section: 60 -- Recovery stops

Stop # 1 or # 2 must meet the following criteria
based on the best distance in sect 310 stop #: 1
Initial Speed of stop: 100 58216
Total Distance of stop: 47 2 m
FMVSS135 performance requirement - lower: 34.82 m
FMVSS135 performance requirement - upper: 63.12 m

Stop #	Initial Speed At Apply (kph)	Actual Measured Distance (m)	**J299 Corrected Distance (m)**	Maximum Pedal Force (N)	Average Pedal Force (N)	Pedal Force Check	Maximum Decel (g)	**Average Decel (g)**	Driver's Subjective Stop Comment
1	100 3	48 4	**48.1**	492 6	400 0	OK	1 06 g	**0.97 g**	Smooth, Stable, Valid Stop
2	100 1	46 6	**46.5**	483 3	407 9	OK	1 07 g	**1.01 g**	Smooth, Stable, Valid Stop

Stop #	Maximum Pedal Travel (mm)	Average Pedal Travel (mm)	Initial Booster Vacuum (in*hg)	Average Booster Vacuum (in*hg)
1	124 6	120 1	28 3	27 8
2	124 1	119 5	28 0	27 5

Stop #	Maximum Front Axle Pressure (bar)	Maximum Rear Axle Pressure (bar)	Average Front Axle Pressure (bar)	Average Rear Axle Pressure (bar)
1	131 3	108 5	107 0	66 9
2	133 4	98 6	104 2	71 6

Stop #	Initial LF Temp (◦C)	Initial LF Temp (◦C)	Initial LF Temp (◦C)	Initial LF Temp (◦C)	Maximum LF Temp (◦C)	Maximum LF Temp (◦C)	Maximum LF Temp (◦C)	Maximum LF Temp (◦C)
1	162 8	171 7	136 7	153 3	166 1	176 1	138 9	157 2
2	175 0	183 9	144 4	165 0	179 4	188 3	147 8	170 0

Notes:
All Averages calculated from apply input to unapply input
Apply is the point in time when the pedal force is greater than 8 N
Corrected distance is calculated using SAE J299 JAN 09
Ambient temperature during the section was 10 56 °C

Test Procedure: **FMVSS 135**
Test Number: [redacted]
Front Lining: FM4531 Orangeburg
Rear Lining: Nisshinbo N715HV

Vehicle #: 1FTFW1ET9DKD[redacted]
Vehicle Desc: 2013 Ford
Vehicle Model: F150 LD (black)
Platform: P415 - N715HV

Printed Date: 11/09/12

Final Floor Checks

Link Section: 104 -- Final Floorchecks With Booster

Stop #	Date	Initial Booster Vacuum (in*hg)	Booster Vacuum At 500 N (in*hg)	Front Axle Pressure At 500 N (bar)	Rear Axle Pressure At 500 N (bar)	Pedal Travel At 500 N (mm)
1	11/7/2012	28 2	28 2	121 6	120 9	123 7
2	11/7/2012	25 9	25 9	113 5	112 9	119 9
3	11/7/2012	25 8	25 9	113 2	112 6	120 5

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)
1	118 3	126 1	94 4	113 3
2	116 7	124 4	92 8	111 7
3	115 0	123 3	91 1	110 0

Link Section: 105 -- Final Floorchecks Without Booster

Stop #	Date	Initial Booster Vacuum (in*hg)	Booster Vacuum At 500 N (in*hg)	Front Axle Pressure At 500 N (bar)	Rear Axle Pressure At 500 N (bar)	Pedal Travel At 500 N (mm)
1	11/7/2012	0 2	0 2	14 8	14 8	42 0
2	11/7/2012	0 2	0 2	14 7	14 8	42 3
3	11/7/2012	0 1	0 2	14 4	14 5	42 1

Stop #	Initial LF Temp (◦C)	Initial RF Temp (◦C)	Initial LR Temp (◦C)	Initial RR Temp (◦C)
1	113 3	121 7	89 4	108 3
2	112 2	120 6	87 8	107 2
3	111 1	118 9	86 7	105 6

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Final Floorchecks With Booster



Stop Number: 2 (Representative Stop)

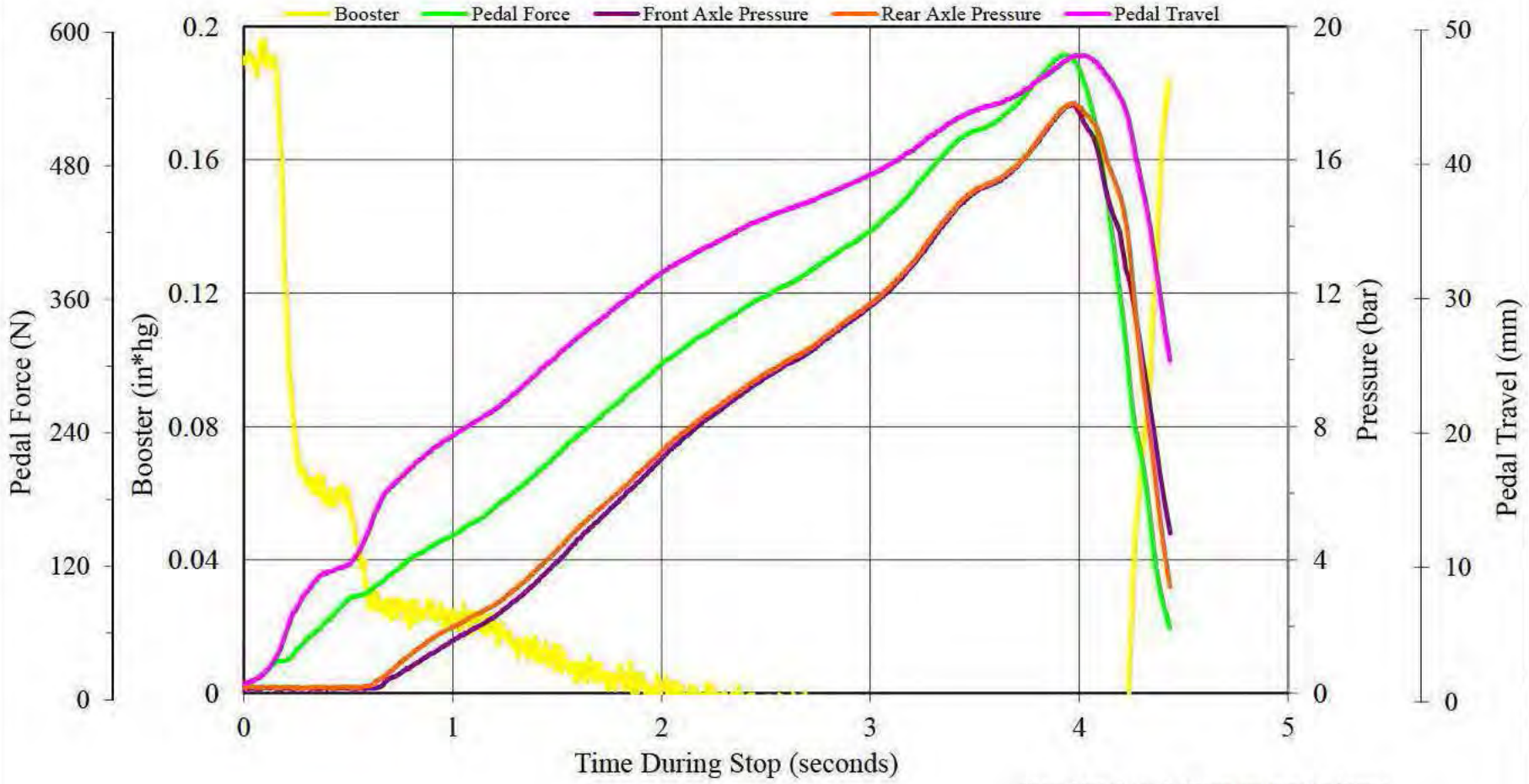
Link West Section: 104

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKD[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/07/12	Rear Lining Edge Code:	Nisshinbo N715HV

Vehicle:	FMVSS 135	Model:
2013 Ford		F150 LD (black)

In-Stop Time History Data

Final Floorchecks Without Booster



Stop Number: 2 (Representative Stop)

Link West Section: 105

Link Test Number:	[redacted]	Front Type	Vented 34mm wide
Customer:	Ford/Stephen Salata	Rear Type	Vented 25mm wide
VIN:	1FTFW1ET9DKI[redacted]	Front Lining Edge Code:	FM4531 Orangeburg
Date Tested:	11/07/12	Rear Lining Edge Code:	Nisshinbo N715HV

Final Inspection

Test: [redacted]
Test Type: FMVSS 135

Vehicle: 2013 Ford F150 LD (black)
Odometer: 7,790 Miles

Final Inspection	PASS	FAIL
1. Test completed without detachment or fracture of any component of the braking systems, such as brake springs, brake shoe or disc pad facing, other than minor cracks. A major crack does not meet the requirement. (A major crack is a crack across the lining with an obvious gap):	X	
2. All mechanical components of the braking systems are intact and functional.	X	
3. Friction facing tearout does not exceed 10% of the lining on any single frictional element.	X	
4. Test completed without any visible brake fluid or lubricant on:		
- the friction surface or the brake	X	
- at the master cylinder	X	
- at the power unit reservoir cover	X	
- at the seal and filler openings	X	

Lining to drum clearance: LH: N/A RH: N/A

0= ZERO OR NONE **L=LIGHT** **M=MODERATE**

* See Final Inspection Standards sheet for examples

PADS OR SHOE APPEARANCE

LEFT FRONT / OUT

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

LEFT FRONT / IN

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

RIGHT FRONT / OUT

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

RIGHT FRONT / IN

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

LEFT REAR/OUT/PRI

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

LEFT REAR/IN/SEC

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

RIGHT REAR/OUT/PRI

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

RIGHT REAR/IN/SEC

Contact %: 100

					Comments
Glaze	0	L	M	H	None
Streaks	0	L	M	H	
Dust	0	L	M	H	
Grooves	0	L	M	H	

DRUM OR ROTOR APPEARANCE

LEFT FRONT ROTOR - INNER

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Dull				

LEFT FRONT ROTOR - OUTER

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Dull				

RIGHT FRONT ROTOR - INNER

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Dull				

RIGHT FRONT ROTOR - OUTER

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Dull				

LEFT REAR ROTOR/DRUM

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Shiny				

RIGHT REAR ROTOR/DRUM

					Comments
Material transfer	0	L	M	H	
Bluing	0	L	M	H	None
Ringing / grooves	0	L	M	H	
Streaks	0	L	M	H	
Finish	Shiny				

INSPECTED BY: Walt W. DATE: 11/9/2012

PE16-003

FORD

4-20-2015

APPENDIX K

Status Summary

Master Cylinder Warranty (Leak into Booster) Return List

0415/16

#	VIN	Repair Date (RO Date)	Sample status
1	1FTMF1CT6EF[redacted]	9/28/2015	disassembled
2	1FTFW1ETXEF[redacted]	9/29/2015	disassembled
3	1FTFW1ETXDK[redacted]	9/5/2015	disassembled
4	1FTFW1ET5DF[redacted]	9/14/2015	disassembled
5	1FTFW1ETXDF[redacted]	9/23/2015	disassembled
6	1FTFW1ET8DF[redacted]	9/23/2015	disassembled
7	1FTFW1ET0EK[redacted]	9/21/2015	disassembled
8	1FTFW1CT6EK[redacted]	8/17/2015	disassembled
9	1FTFX1ET6DK[redacted]	8/5/2015	disassembled
10	1FTFW1ET0DK[redacted]	9/1/2015	disassembled
11	1FTFW1ET4EF[redacted]	9/9/2015	disassembled
12	1FTFW1ET4EF[redacted]	7/22/2015	disassembled
13	1FTFX1EFXDK[redacted]	9/24/2015	disassembled
14	1FTFW1ET8EK[redacted]	9/26/2015	disassembled
15	1FTFWET9DK[redacted]	9/18/2015	disassembled
16	Unkown	Unkown	disassembled
17	1FTFW1CT0EK[redacted]	8/31/2015	disassembled
18	1FTFW1ET2DK[redacted]	9/19/2015	disassembled
19	1FTFW1ET8EK[redacted]	9/29/2015	not Measured
20	1FTFW1CT7DK[redacted]	9/29/2015	not Measured
21	1FTFX1ET6EF[redacted]	10/5/2015	disassembled
22	1FTFW1ET8DF[redacted]	9/9/2015	disassembled
23	1FTFW1CT6DF[redacted]	10/1/2015	disassembled
24	1FTFW1ET8EF[redacted]	9/28/2015	not Measured
25	1FTFW1CTXDF[redacted]	9/8/2015	not Measured

#	VIN	Repair Date (RO Date)	Sample status
26	1FTFW1E[redacted]	9/4/2015	Lost by FEDEX
27	1FTFW1E[redacted]	9/16/2015	Lost by FEDEX
28	1FTFW1E[redacted]	9/28/2015	Lost by FEDEX
29	1FTFX1E[redacted]	9/10/2015	Lost by FEDEX
30	1FTFX1E[redacted]	8/1/2015	disassembled
31	1FTFW1E[redacted]	8/12/2015	disassembled
32	1FTFW1E[redacted]	8/12/2015	disassembled
33	1FTFW1C[redacted]	8/24/2015	disassembled
34	1FTFW1E[redacted]	8/27/2015	not Measured
35	1FTFW1E[redacted]	9/14/2015	disassembled
36	1FTFW1E[redacted]	9/18/2015	disassembled
37	1FTFW1E[redacted]	9/18/2015	disassembled
38	1FTFX1E[redacted]	9/24/2015	disassembled
39	1FTMF1E[redacted]	9/25/2015	disassembled
40	1FTFW1E[redacted]	9/28/2015	not Measured
41	1FTFW1E[redacted]	9/28/2015	disassembled
42	1FTFW1C[redacted]	9/29/2015	not Measured
43	1FTFW1E[redacted]	9/29/2015	disassembled
44	1FTFW1C[redacted]	9/30/2015	not Measured
45	1FTFW1E[redacted]	10/1/2015	disassembled
46	1FTFW1C[redacted]	10/1/2015	disassembled
47	1FTFW1C[redacted]	10/1/2015	disassembled
48	1FTFW1C[redacted]	10/3/2015	not Measured
49	1FTFW1E[redacted]	10/15/2015	disassembled
50	1FTFW1E[redacted]	10/5/2015	disassembled
51	1FTFW1E[redacted]	10/5/2015	disassembled
52	1FTFW1E[redacted]	10/5/2015	disassembled

#	VIN	Repair Date (RO Date)	Sample status
53	1FTFW1ET9DFD	10/5/2015	disassembled
54	1FTFX1ET8DFD	10/5/2015	disassembled
55	1FTFW1ET5DFD	10/5/2015	disassembled
56	1FTFW1ET9DFE	10/7/2015	disassembled
57	1FTNF1ET1EKD	10/8/2015	disassembled
58	1FTFW1CT7DKC	10/8/2015	disassembled
59	1FTFW1ETXEKE	10/9/2015	disassembled
60	1FTFW1ET6EKD	10/10/2015	disassembled
61	1FTFW1CT3DKC	10/12/2015	disassembled
62	1FTFW1ET7DKC	10/12/2015	disassembled
63	1FTFW1ET2EFA	10/12/2015	disassembled
64	1FTFW1CT9EKD	10/12/2015	disassembled
65	1FTFW1ET1EKE	10/12/2015	disassembled
66	1FTFW1CT9DKC	10/12/2015	disassembled
67	1FTMF1CT2EFA	10/13/2015	disassembled
68	1FTFW1ET1DKF	10/14/2015	not Measured
69	1FTFW1ET8EKD	10/15/2015	disassembled
70	1FTFW1ET4DKC	10/16/2015	not Measured
71	1FTFW1CT4DKC	10/16/2015	disassembled
72	1FTFW1CT6EFE	10/16/2015	not Measured
73	1FTFW1ETXEKD	10/19/2015	disassembled
74	1FTFW1ET7DFD	10/19/2015	disassembled
75	1FTFW1CT4EKE	10/19/2015	not Measured
76	1FTFW1CF3EKD	10/26/2015	disassembled
77	1FTFW1CT6EFA	10/20/2015	disassembled
78	1FTFW1ETXDKC	10/21/2015	disassembled
79	1FTFW1CT8DKC	10/22/2015	disassembled

#	VIN	Repair Date (RO Date)	Sample status
80	1FTFW1CT6DK	10/26/2015	not Measured
81	1FTFW1ET7DF	10/26/2015	disassembled
82	1FTFW1CT4DF	11/2/2015	not Measured
83	1FTFW1CT9DK	11/2/2015	not Measured
84	1FTFW1ET1DF	11/4/2015	disassembled
85	1FTFW1ET5DF	11/4/2015	not Measured
86	1FTFW1CT9DF	11/5/2015	disassembled
87	1FTVX1ET4DK	11/5/2015	not Measured
88	1FTFW1ET9EF	11/5/2015	disassembled
89	1FTFW1ET9EF	11/6/2015	disassembled
90	1FTNF1CF8DK	10/16/2015	disassembled
91	1FTFX1ET1EF	11/9/2015	disassembled
92	1FTFX1CTXEF	11/10/2015	disassembled
93	1FTFX1ET1DK	11/11/2015	disassembled
94	1FTFW1CTXDF	11/11/2015	disassembled
95	1FTFW1ET1DK	11/13/2015	disassembled
96	1FTFW1ET0EF	11/13/2015	disassembled
97	1FTFW1ET0DK	11/16/2015	not Measured
98	1FTFX1ET9EK	11/18/2015	disassembled
99	1FTFW1ET2EF	10/27/2015	disassembled
100	1FTFW1ET6EF	10/6/2015	disassembled
101	1FTFW1CT1DK	9/29/2015	disassembled
102	1FTFW1CT2DK	7/27/2015	disassembled
103	1FTFW1ET9EK	10/21/2015	disassembled
104	1FTFW1CT7EF	10/30/2015	disassembled
105	1FTFW1CT9DK	11/9/2015	disassembled
106	1FTFW1CT1EK	11/2/2015	disassembled

#	VIN	Repair Date (RO Date)	Sample status
107	1FTFW1ET0DK	10/27/2015	disassembled
108	1FTFW1CT9EK	10/23/2015	disassembled
109	1FTFW1ET7DF	10/27/2015	disassembled
110	1FTFX1ET2EF	10/23/2015	not Measured
111	1FTFX1ET6DK	10/26/2015	disassembled
112	1FTFW1CT8EK	11/2/2015	disassembled
113	1FTFW1CT5DF	10/20/2015	disassembled
114	1FTFW1CT5EK	10/16/2015	disassembled
115	1FTFW1ET5EK	10/12/2015	disassembled
116	1FTFW1CF4EF	10/19/2015	disassembled
117	1FTFW1CT5EF	10/13/2015	disassembled
118	1FTFW1ET0EF	8/31/2015	not Measured
119	1FTFW1CT0DK	11/9/2015	disassembled
120	1FTFW1ET9DF	9/9/2015	disassembled
121	1FTFW1CT0DK	10/16/2015	disassembled
122	1FTFW1ET1EF	11/2/2015	disassembled
123	1FTFW1CT1DK	11/2/2015	disassembled
124	1FTFX1CT9EK	10/14/2015	disassembled
125	1FTFX1CT4EF	10/28/2015	disassembled
126	1FTFX1ET2EF	11/4/2015	disassembled
127	1FTFW1ET6EK	8/10/2015	disassembled
128	1FTFW1CT7DK	8/26/2015	disassembled
129	1FTFX1CF3DK	10/19/2015	disassembled
130	1FTEW1CM3DF	11/2/2015	disassembled
131	1FTFW1CT0EK	9/28/2015	disassembled
132	1FTFW1ETXDK	12/16/2015	not Measured
133	1FTFW1ET6EF	11/25/2015	disassembled

#	VIN	Repair Date (RO Date)	Sample status
134	1FTFW1CT8DK[redacted]	12/11/2015	disassembled
135	1FTFW1CT4EK[redacted]	12/16/2015	disassembled
136	1FTFW1CT6DF[redacted]	11/30/2015	disassembled
137	1FTFW1CT3DF[redacted]	12/19/2015	disassembled
138	1FTFW1CT5EF[redacted]	11/11/2015	disassembled
139	1FTFW1ET7DK[redacted]	10/30/2015	disassembled
140	1FTFW1CT2FE[redacted]	11/11/2015	disassembled
141	1FTFW1CT2FK[redacted]	11/30/2015	disassembled
142	1FTFW1CT8EK[redacted]	11/30/2015	disassembled
143	1FTFX1EF5EK[redacted]	12/21/2015	not Measured
144	1FTFW1CT7DK[redacted]	11/7/2015	not Measured
145	1FTFW1ET7DK[redacted]	11/30/2015	not Measured
146	1FTFW1CT0EK[redacted]	11/30/2015	not Measured
147	1FTFW1CT0EF[redacted]	12/19/2015	not Measured
148	1FTFW1ET4DF[redacted]	11/18/2015	not Measured
149	1FTFW1ET4EK[redacted]	12/10/2015	not Measured
150	1FTMF1CM2EF[redacted]	11/16/2015	not Measured
151	1FTMF1CM3EK[redacted]	10/14/2015	not Measured