

Submitted for recognition as an American National Standard

**BRAKE SYSTEM ROAD TEST CODE—PASSENGER CAR
AND LIGHT-DUTY TRUCK-TRAILER COMBINATIONS**

Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

This SAE Recommended Practice, in conjunction with SAE J135⁽¹⁾ is intended for use primarily by:

- a. Tow vehicle manufacturers' testing with unbraked trailers to determine the maximum unbraked trailer weight which can be towed.
- b. Tow vehicle manufacturers' testing with braked trailers to evaluate tow vehicle braking performance for vehicle combinations.
- c. Trailer or brake system suppliers to evaluate trailer brake and actuation system performance.

This procedure assumes a tow vehicle complying with existing applicable legal requirements. It is recommended that tow vehicles incorporate that manufacturer's trailering package. Tow vehicle manufacturer's recommendations regarding hitch type shall be followed. Trailer loading shall be in accordance with trailer manufacturer's recommendations except as modified in this procedure. Tires shall be inflated to vehicle manufacturer's recommendations.

1. Scope—This SAE Recommended Practice establishes a uniform procedure for the level road test of the brake systems of all combinations of new multipurpose passenger vehicles, new light-duty trucks up to and including 4500 lb (10 000 lb), and new passenger cars when coupled with new trailers (braked or unbraked).

1.1 Purpose—The purpose of the test code is to establish a uniform test procedure to determine capabilities with regard to:

1.1.1 Deceleration versus input, as affected by vehicle speed, brake temperature, and usage.

1.1.2 Brake system integrity within the limits of this test.

1.1.3 Stopping ability during:

1.1.3.1 Emergency (partial brake) conditions.

1.1.3.2 Inoperative power assist conditions.

1. For passenger cars only. Light truck requirements to be determined.

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2. *References*

2.1 Applicable Publications—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J135—Service Brake System Performance Requirements—Passenger Car-Trailer Combinations
SAE J843—Brake System Road Test Code—Passenger Car

3. *Instrumentation*

3.1 Tow vehicle line pressure and/or pedal force gage.

3.2 Decelerometer (U-tube or equivalent).

3.3 Direct reading temperature instrument.

3.4 Speedometer (calibrated vehicle unit or fifth wheel type).

3.5 Tire pressure gage.

3.6 Odometer (calibrated).

3.7 Thermometer—ambient (or ambient-sensitive thermocouple).

3.8 Stopmeter (fifth wheel, distance only).

3.9 Voltmeter and ammeter (where applicable).

3.10 Stop watch.

3.11 Trailer line pressure gage (where applicable).

3.12 Optional instrumentation.

3.12.1 Pedal travel gage.

3.12.2 Stop counter.

3.12.3 Strain gage ball or equivalent and required equipment to record fore and aft loads imposed on the tow vehicle.

4. *Installation Details*

4.1 Friction Material Preparation—Attach and finish friction material per vehicle manufacturer's specifications.

4.2 Thermocouples—Install thermocouples in each tow vehicle and trailer brake per current SAE J843d.

4.3 Brake Drum (or Rotor) and Hub Assembly—New drums (or rotors) recommended for each complete test (Section 5). Surface finish and dimensional characteristics including runout of rubbing surface to be in accordance with manufacturer's specifications.

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4.4 Brake Assembly

- 4.4.1 TOW VEHICLE—Brakes to be prepared in accordance with manufacturer's specifications. New springs and linings recommended on all brakes for each complete test (Section 5). Adjust brakes to manufacturer's specifications.
- 4.4.2 TRAILER—Applicable only when evaluating trailers or combination brake systems. For all other tests, trailers should be unbraked. Brakes are to be prepared in accordance with manufacturer's specifications. New springs, linings, magnets, and armatures where applicable are recommended on all brakes for each complete test (Section 5). Adjust brakes to manufacturer's specifications.

4.5 Tow Vehicle Test Weight

4.5.1 PASSENGER CARS

- 4.5.1.1 *Passenger Car (Rated for less than four passengers)*—Test loading shall be curb weight plus 135 kg (300 lb) min including driver, observer, test equipment, and ballast, if necessary. Tongue load is additional, which may cause vehicle to exceed GVWR and/or GAWR.
- 4.5.1.2 *Passenger Car (Rated for four or more passengers)*—Test loading shall be curb weight plus 270 kg (600 lb) min including driver, observer, test equipment, and tongue load, which may cause vehicle to exceed GVWR and/or GAWR.

4.5.2 LIGHT TRUCKS AND MULTIPURPOSE PASSENGER VEHICLES

- 4.5.2.1 *Light Truck and Multipurpose Passenger Vehicles (Ballasted)*—The ballasted condition shall be the tow vehicle including driver, observer, test equipment, tongue weight, and ballast, if required to reach tow vehicle GVWR, plus trailer to equal GCWR; or, if evaluating performance with an unbraked trailer, ballast to reach the lesser of GVWR or GCWR with the maximum weight unbraked trailer recommended by the tow vehicle manufacturer. When adding ballast, distribute to attain, or approach as nearly as possible the gross axle weight rating (GAWR) on the axle on which the weight, prior to the addition of ballast, is proportionately nearest the rated capacity. Do not exceed GAWR on any axle.
- 4.5.2.2 *Light Truck and Multipurpose Passenger Vehicles (Unballasted)*—When the weight of the ballast added to the tow vehicle in 4.5.2.1 exceeds 450 kg (1000 lb), unballasted checks shall be run per 5.5 and 5.6 of this procedure. The unballasted condition shall be the tow vehicle at curb weight plus driver, observer, test equipment, plus tongue load. When the trailer is being evaluated, maintain trailer GVWR.

4.6 Trailer Test Weight—For purpose of testing, trailer manufacturer's gross weight rating (trailer GVWR) shall be maintained throughout the full test procedure. For purpose of testing, in order to achieve reproducible results, a static-tongue load of 10% gross trailer weight rating shall be used except for fifth wheel trailers. This may cause trailer axle loading in excess of manufacturer's ratings. Fifth wheel trailers shall follow manufacturer's recommendations.

- 4.6.1 The tow vehicle manufacturer's maximum recommended gross trailer weight shall be maintained when the tow vehicle is being evaluated except when 4.5.2.1 is applicable.
- 4.6.2 The trailer manufacturer's gross trailer weight rating (trailer GVWR) shall be maintained when the trailer is being evaluated.

4.7 Weight Distributing Hitch Adjustment—When a weight distributing hitch is used, the hitch shall be adjusted as follows:

The hitch ball height on the tow vehicle prior to hook-up, at curb weight, shall be set so that the trailer is level.

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Check the height from hitch to ground on the tow vehicle. Connect trailer and adjust the hitch so that the hitch point checked is as high as but not more than an inch higher than before the trailer was connected.

5. Test Procedure

5.1 Test Notes

- 5.1.1 Effectiveness, stopping distance, fade, and recovery test stops shall be conducted on a substantially level (not to exceed a $\pm 1\%$ grade), dry, smooth, hard-surfaced roadway of Portland cement concrete (or other surface with equivalent coefficient of surface friction) that is free from loose materials.
- 5.1.2 During all phases of this procedure, any unusual performance such as wrap-up or noise characteristics are to be noted and recorded. Also note, at the appropriate stops, which wheel or wheels of the tow vehicle or trailer skidded. Note any uncontrollable braking action causing either of the vehicles to pull or swerve out of a 3.7 m (12 ft) wide roadway lane.
- 5.1.3 Initial brake temperature is considered to be the average temperature of brakes on the hottest axle with brakes off 0.3 km (0.2 mile) before stop.
- 5.1.4 If brakes require warming to a prescribed temperature, use burnish procedure and shorten interval if necessary.
- 5.1.5 Because variations in ambient temperature have a significant effect on test results, fade and recovery tests must be conducted within a range of ambient temperature of 4.4 °C to 32.2 °C (40 °C to 90 °F).
- 5.1.6 Decelerations used in the various fade, recovery, or warm-up procedures refer to values at which the decelerometer is held approximately constant during the stop by varying the input pressure.
- 5.1.7 Deceleration and line pressure (pedal force) readings shall not be taken below 8 km/h (5 mph).
- 5.1.8 Vehicles with manual transmissions should be declutched below 10 mph when stops are made in normal driving gear.
- 5.2 Preburnish Check**—In order to allow for a general check of instrumentation, brakes, and vehicle function, the following stops are to be run: 10 stops, 48 to 0 km/h (30 to 0 mph), 3 m/s² (10 fpsps), 1.6 km (1 mile) interval, 64 km/h (40 mph) cooling speed in normal driving gear. Record tow vehicle line pressure (pedal force) and trailer brake input.

NOTE—Assuming instrumentation, brakes, and vehicle are functioning satisfactorily, proceed immediately with First Effectiveness Test.

5.3 First (Preburnish) Effectiveness Test

—Initial brake temperature, 93.3 °C (200 °F) before each application.

- 5.3.1 STOP SPEED—48 and 97 km/h (30 and 60 mph) (full stops in neutral).
- 5.3.1.1 *Increments*—Curve to be defined to point of loss of lateral control or 4.9 m/s² (16 fpsps) by adequate number of points (wheel slide permitted).
- 5.3.1.2 *Record*—Deceleration, tow vehicle line pressure (pedal force), trailer brake input, and method of brake application (that is, machine or manual). When using manual method, full stops are to be made at each deceleration level and maximum line pressure (pedal force) recorded. Optional—Record fore and aft load at ball.

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5.4 Burnish

5.4.1 STOP SPEED—64 to 0 km/h (40 to 0 mph).

5.4.2 STOP DECELERATION—3.7 m/s² (12 fpsps) (in normal gear).

5.4.3 STOP INTERVAL—As required to achieve 121 °C (250 °F) initial brake temperature⁽²⁾ or a maximum of 1.6 km (1 mile).

NOTE—The 1.6 km (1 mile) maximum must be observed even though the initial temperature exceeds 121 °C (250 °F).

5.4.4 COOLING SPEED—64 km/h (40 mph) (moderate acceleration to cooling speed).

5.4.5 STOPS REQUIRED—200. Record tow vehicle line pressure (pedal force), trailer brake input, and brake temperature for stops 1, 20, and each successive 20th stop.

5.4.6 OPTIONAL—Record fore and aft load at ball.

5.4.7 AFTER BURNISH CYCLE

- a. Inspect and adjust trailer brakes.
- b. Inspect and adjust towing vehicle brakes.
- c. Record any operations performed.

5.5 **Second Effectiveness Test**—Repeat 5.3. Also, if tow vehicle additional payload capacity (ballast) with trailer coupled exceeds 450 kg (1000 lb), repeat this test in the unballasted condition (4.5.2.2). In this case, leave tow vehicle unballasted for the next test sequence.

5.6 Emergency System Test

5.6.1 INITIAL BRAKE TEMPERATURE—65.6 °C (150 °F) before each stop.

5.6.2 PROCEDURE—With one subsystem of the tow vehicle brake system open to atmosphere, determine the shortest stopping distances (a) with 667 N (150 lb) maximum allowable pedal force and, if no more than one wheel slides, (b) with 890 N (200 lb) maximum allowable pedal force. Stops are to be made in normal driving gear from 97 km/h (60 mph) without any portion of the vehicles leaving a 3.7 m (12 ft) lane. Repeat the procedure for each other subsystem of the tow vehicle brake system open to atmosphere. Three stops are to be made at each test condition and the average of the three recorded in the summary sheet.

5.6.3 RECORD—Pedal forces (maximum) and stopping for each failure mode. If first portion of this test was run at the unballasted condition (4.5.2.2) following 5.5, reballast to 4.5.2.1 and repeat this section.

5.7 Inoperative Power System Test

5.7.1 INITIAL BRAKE TEMPERATURE—65.6 °C (150 °F).

5.7.2 PROCEDURE—With the tow vehicle brake system's primary source of power assist inoperative and its reserve depleted, determine the shortest stopping distances (a) with 667 N (150 lb) maximum allowable pedal force and, if no more than one wheel slides, (b) with 890 N (200 lb) maximum allowable force. Stops are to be made in normal driving gear from 97 km/h (60 mph) without leaving a 3.7 m (12 ft) lane. Three stops are to be made at each test condition and the average of the three recorded in the summary sheet.

2. See test notes 5.1.3.

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5.7.3 RECORD—Pedal forces (maximum) and stopping distances.

5.8 First Fade and Recovery Test

5.8.1 BASELINE CHECK STOPS

- a. Initial Brake Temperature—65.6 °C (150 °F) before each stop.
- b. Stops Required—3.
- c. Stop Speed—48 to 0 km/h (30 to 0 mph).
- d. Stop Deceleration—3 m/s² (10 fpsps) (in normal driving gear).
- e. Record—Tow vehicle line pressure (pedal force) and trailer brake input.

5.8.2 FADE

- a. Initial Brake Temperature—65.6 °C (150 °F) before first stop.
- b. Stops Required—10.
- c. Stop Speed—97 to 0 km/h (60 to 0 mph).
- d. Stop Deceleration—4.6 m/s² (15 fpsps) (in normal driving gear) or maximum obtainable at 890 N (200 lb) pedal force (or equivalent line pressure).
- e. Stop Interval—1.2 km (0.8 miles).
- f. Cooling Speed—97 km/h (60 mph).
- g. Acceleration to Cooling Speed—Intermediate at a moderate rate.
- h. Record—Maximum tow vehicle line pressure (pedal force) and deceleration [if 4.6 m/s² (15 fpsps) cannot be held] and trailer brake input. Brake temperatures 0.3 km (0.2 mile) before every stop, all brakes. Ambient air temperature at beginning of run. Total elapsed time from end of the first fade stop to end of last fade top - to maintain a check on driver consistency and car performance.
- i. Optional—Record fore and aft load at ball.

NOTE—Drive 1.6 km at 64 km/h (1 mile at 40 mph) immediately after last fade stop and make first recovery stop.

5.8.3 RECOVERY

- a. Stops Required—12.
- b. Stop Speed—48 to 0 km/h (30 to 0 mph).
- c. Stop Deceleration—3 m/s² (10 fpsps) (in normal driving gear), or maximum obtainable at 890 N (200 lb) pedal force (or equivalent line pressure).
- d. Stop Interval—1.6 km (1 mile).
- e. Cooling Speed—64 km/h (40 mph).
- f. Rate of Acceleration to Cooling Speed—Moderate.
- g. Record—Maximum tow vehicle line pressure (pedal force), deceleration [if 3 m/s² (10 fpsps) cannot be held] and trailer brake input. Initial brake temperatures before every stop, all brakes.
- h. Optional—Record fore and aft load at ball.

5.9 First Effectiveness Spot Check

- a. Initial Brake Temperature—93.3 °C (200 °F) before each stop.
- b. Stops Required—2.
- c. Stop Speed—97 to 0 km/h (60 to 0 mph).
- d. Stop Deceleration—4.6 m/s² (15 fpsps) (in normal driving gear).
- e. Record—Maximum tow vehicle line pressure (pedal force) and trailer brake input.
- f. Optional—Record fore and aft load at ball.

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- 5.10 First Reburnish**—Repeat 5.4, except 35 stops required.
- 5.11 Second Fade and Recovery Test**—Repeat 5.8, except 15 fade stops required.
- 5.12 Second Effectiveness Spot Check**—Repeat 5.9.
- 5.13 Second Reburnish**—Repeat 5.10.
- 5.14 Third Effectiveness Test**—Repeat 5.3.
- 5.15 Final Inspection**—Disassemble all brakes, inspect and record all pertinent observations.
- 6. Report Forms**—The recommended report forms listed provide space for the data required for this road test code as well as nonmandatory data.
- 6.1** General Data, Figure 1.
- 6.2** Summary Sheet, Figure 2.
- 6.3** Input Correlation and Preburnish Check Data Sheet, Figure 3.
- 6.4** First (Preburnish) Effectiveness Data Sheet, Figure 4.
- 6.5** Burnish and Inoperative Power System Test Data Sheet, Figure 5.
- 6.6** Emergency System Test Data Sheet, Figure 6.
- 6.7** Second Effectiveness Test Data Sheet, Figure 7.
- 6.8** First Baseline Check and First Fade Test Data Sheet, Figure 8.
- 6.9** First Recovery, First Effectiveness Spot Check and First Reburnish Data Sheet, Figure 9.
- 6.10** Second Baseline Check and Second Fade Test Data Sheet, Figure 10.
- 6.11** Second Recovery, Second Effectiveness Spot Check and Second Reburnish Data Sheet, Figure 11.
- 6.12** Third Effectiveness Test Data Sheet, Figure 12.
- 6.13** Final Inspection Data Sheet, Figure 13.

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TRAILER

Trailer Make _____ Model _____ Year _____
 Number of Axles _____ Number of Brakes _____ Tire Size _____
 Tire Mfg. and Type _____ Tire Pressure _____
 Weight _____ kg (lb) + _____ kg (lb) Ballast = _____ kg (lb) (Uncoupled)
 Tongue Load at Coupling _____ Percent of Total _____ %
 Type of Hitch _____
 Trailer Axle(s) Weight (Coupled):
 Front _____ kg (lb) Rear _____ kg (lb) Total _____ kg (lb)
Brakes
 Size _____ Type _____ Cyl Dia _____
 Lining _____
 Type of Actuation _____

TOWING VEHICLE

Make _____ Model _____ Year _____
 Engine _____ Transmission _____ Axle Ratio _____
 Curb Weight: Front _____ kg (lb) Rear _____ kg (lb) Total _____ kg (lb)
 Test Weight: Front _____ kg (lb) Rear _____ kg (lb) Total _____ kg (lb)
 (Trailer Coupled)
 GVWR or GCWR Weights _____
 Minimum Weights _____
 Tire Mfg _____ Size _____ Pressure: F _____ R _____
Brakes
 Front Size _____ Description Type _____ Cyl Dia _____
 Rear Size _____ Description Type _____ Cyl Dia _____
 Lining Front _____ Rear _____
 Drum (Disc) Type: Front _____ Rear _____
 Master Cyl Dia _____ Stroke _____ Split: Front _____ % Rear _____ %
 Pedal: Pedal Ratio _____ Available Travel _____
 Power Brake: Yes _____ No _____ Type _____
 Hydraulic System Front Metering _____ Rear Proportioning _____ Other _____
 kPa (psi) Split _____ kPa (psi) _____
 Slope _____

TEST INFORMATION

Thermocouple Installation Method _____
 Tested by _____ Location _____
 Date: Test Started _____ Test Completed _____
 Ambient Temperature Range: High _____ °C (°F) Low _____ °C (°F)

FIGURE 1—GENERAL DATA SHEET

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Test No. _____

Test Phase _____

Preburnish Check _____

Effectiveness Tests

48 km/h (30 mph) at 5.2 m/s² (16 ft/s²)

97 km/h (60 mph) at 5.2 m/s² (16 ft/s²)

	Min	Actual	
		2nd	3rd
_____	_____	_____	_____ N (lb) Pedal Force
_____	_____	_____	_____ N (lb) Pedal Force

Emergency System Test

Warning System Actuation Type: Power _____ Manual _____

97 km/h (60 mph) Stopping Distance

	GVWR or GCWR	
Front Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Front Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Rear Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Rear Operating _____	m (ft) _____	_____ N (lb) Pedal Force

	Minimum Tow Vehicle Weight	
Front Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Front Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Rear Operating _____	m (ft) _____	_____ N (lb) Pedal Force
Rear Operating _____	m (ft) _____	_____ N (lb) Pedal Force

Inoperative Power System Test

97 km/h (60 mph) Stopping Distance

_____ m (ft) _____ N (lb) Pedal Force

_____ m (ft) _____ N (lb) Pedal Force

First Fade and Recovery Test

Fade Stops 1 to 4

_____ N (lb) Pedal Force (or Min Decel)

Recovery Stops 1 to 5

_____ m/s² (ft/s²) at _____ N (lb) Max Pedal Force

Recovery Stops 6 to 12

_____ N (lb) Max Pedal Force

Second Fade and Recovery Test

Fade Stops 1 to 8

_____ N (lb) Pedal Force (or Min Decel)

Recovery Stops 1 to 5

_____ m/s² (ft/s²) at _____ N (lb) Max Pedal Force

Recovery Stops 6 to 12

_____ N (lb) Max Pedal Force

Stability During

Controllable Braking Through

Effectiveness Tests

5.2 m/s² (16 ft/s²)

Yes _____ No _____

Final Inspection

Lining Integrity Yes _____ No _____

Mechanical Integrity Yes _____ No _____

Hydraulic Integrity Yes _____ No _____

Comments _____

Reported By _____ Date _____

FIGURE 2—SUMMARY SHEET

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Test No. _____ Odometer Finish _____
 Weather Condition _____
 Date _____ Start _____
 Road Condition _____
 Driver _____ Total _____
 Observer _____
 Ambient Temperature: High _____ °C (°F)
 Low _____ °C (°F)

INPUT CORRELATION

Engine Idling in Neutral _____ in kPa (Hg) Vacuum
 (Power Equipped Tow Vehicle Only)

Line Pressure, Pa (PST)	1st Recording	Pedal Force, N (lb)		Average
		2nd Recording	3rd Recording	

PREBURNISH CHECK

48 km/h (30 mph) 3 m/s² (10 ft/s²) in Gear, 1.6 km (1 mile) Interval

Stop No.	Tow Vehicle Input (Line Pressure or Pedal Force)	Trailer Input	Pedal Travel, mm (in)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Final Temperatures After 19th Stop

Tow Vehicle

L.F. _____ °C (°F) R.F. _____ °C (°F)
 L.R. _____ °C (°F) R.R. _____ °C (°F)

Trailer:

L.F. _____ °C (°F) R.F. _____ °C (°F)
 L.R. _____ °C (°F) R.R. _____ °C (°F)

Summary of Performance _____

FIGURE 3—INPUT CORRELATION AND PREBURNISH CHECK DATA SHEET

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Test No. _____ Weather Condition _____
 Date _____ Road and Track Condition _____
 Driver _____ Ambient Temperature: High _____ °C (°F)
 Low _____ °C (°F)
 Observer _____ Method of Application _____
 Odometer: Finish _____ Start _____ Total km (miles) _____

FIRST (PREBURNISH) EFFECTIVENESS TEST

48 km/h (30 mph) in Neutral, 93.3 °C (200 °F) IBT Each Application

Tow Veh. Input LP or PF	Trailer Input	Deceleration m/s ² (ft/s ²)	*Pedal Travel, mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	

97 km/h (60 mph) in Neutral, 93.3 °C (200 °F) IBT Each Application

Tow Veh. Input LP or PF	Trailer Input	Deceleration m/s ² (ft/s ²)	*Pedal Travel, mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	

Summary of Performance _____

*Optional

FIGURE 4—FIRST (PREBURNISH) EFFECTIVENESS TEST DATA SHEET

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Test No. _____ Weather Condition _____
 Date _____ Road and Track Condition _____
 Driver _____ Ambient Temperature: High _____ °C (°F)
 Observer _____ Low _____ °C (°F)
 Odometer: Finish _____ Start _____ Total km (miles) _____

EMERGENCY SYSTEM TEST

97 to 0 km/h (60 to 0 mph) in Gear, 65.6 °C (150 °F) IBT Each Application,
 667 and 890 N (150 and 200 lb) Maximum Pedal Force

System Operating	Tow Veh. Input LP or PF	Trailer Input	Stopping Distance m (ft)	Warning Light On		Tow Vehicle Temperature °C (°F)		Trailer Temperature °C (°F)				Remarks
				Yes	No	L	R	L.F.	R.F.	L.R.	R.R.	
Front												
Front												
Front												
Average of Front												
Front												
Front												
Front												
Average of Front												
Rear												
Rear												
Rear												
Average of Rear												
Rear												
Rear												
Rear												
Average of Rear												

GVWR or GCWR

97 to 0 km/h (60 to 0 mph) in Gear, 65.6 °C (150 °F) IBT Each Application,
 667 and 890 N (150 and 200 lb) Maximum Pedal Force

System Operating	Tow Veh. Input LP or PF	Trailer Input	Stopping Distance m (ft)	Warning Light On		Tow Vehicle Temperature °C (°F)		Trailer Temperature °C (°F)				Remarks
				Yes	No	L	R	L.F.	R.F.	L.R.	R.R.	
Front												
Front												
Front												
Average of Front												
Front												
Front												
Front												
Average of Front												
Rear												
Rear												
Rear												
Average of Rear												
Rear												
Rear												
Rear												
Average of Rear												

Minimum Tow Vehicle Weight

Summary of Performance _____

FIGURE 6—EMERGENCY SYSTEM TEST DATA SHEET

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Test No. _____ Weather Condition _____
 Date _____ Road and Track Condition _____
 Driver _____ Ambient Temperature: High _____ °C (°F)
 Observer _____ Low _____ °C (°F)
 Odometer: Finish _____ Start _____ Total km (miles) _____

FIRST BASELINE CHECK

43 km/h (30 mph), 3 m/s² (10 ft/s²) in Gear,
 65.6 °C (150 °F) IBT First Stop

Stop No.	Tow Veh. Input LP or PF	Trailer Input	*Pedal Travel mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	
1												
2												
3												

Start Time _____ Finish Time _____ Lapsed Time _____

FIRST FADE TEST

97 km/h (60 mph), 4.6 m/s² (15 ft/s²) in Gear,
 0.6 km (0.4 mile) interval, 65.6 °C (150 °F) IBT First Stop

Stop No.	Tow Veh. Input LP or PF	Trailer Input	*Pedal Travel mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Summary of Performance _____

*Optional

FIGURE 8—FIRST BASELINE CHECK AND FIRST FADE TEST DATA SHEET

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Test No. _____ Weather Condition _____
 Date _____ Road and Track Condition _____
 Driver _____ Ambient Temperature: High _____ °C (°F)
 Observer _____ Low _____ °C (°F)
 Odometer: Finish _____ Start _____ Total km (miles) _____

FIRST RECOVERY

48 km/h (30 mph), 3 m/s² (10 ft/s²), in Gear,
 1.6 km (1 mile) Interval at 64 km/h (40 mph)

Stop No.	Tow Veh. Input LP or PF	Trailer Input	*Pedal Travel mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Summary of Performance _____

FIRST EFFECTIVENESS SPOT CHECK

97 km/h (60 mph), 4.6 m/s² (15 ft/s²) in Gear, 93.3 °C (200 °F) IBT

Stop No.	Tow Veh. Input LP or PF	Trailer Input	*Pedal Travel mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	
1												
2												

FIRST REBURNISH

64 to 0 km/h (40 to 0 mph), 3.7 m/s² (12 ft/s²) in Gear,
 121 °C (250 °F) IBT Each Stop, But 1.6 km (1 mile) Max Interval

Stop No.	Tow Veh. Input LP or PF	Trailer Input	*Pedal Travel mm (in)	Tow Vehicle Temperature °C (°F)				Trailer Temperature °C (°F)				Remarks
				L.F.	R.F.	L.R.	R.R.	L.F.	R.F.	L.R.	R.R.	
1												
10												
25												
35												

Summary of Performance _____

*Optional

FIGURE 9—FIRST RECOVERY, FIRST EFFECTIVENESS SPOT CHECK, AND FIRST REBURNISH DATA SHEET