

SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

SAE J786a

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Superseding J786 MAR78

Brake System Road Test Code—Truck, Bus, and Combination of Vehicles

1. **Scope**—This SAE Recommended Practice establishes a uniform procedure for the level road test of the brake systems of new trucks, buses, and combination of vehicles designed for roadway use and falling in the following classifications:

Light trucks and buses: 6001–10,000 lb (2700–4500 kg) gvwr

Truck and bus: Over 10,000 lb (4500 kg) gvwr

Combination of vehicles (towing vehicle over 10,000 lb (4500 kg) gvwr)

- 1.1 **Purpose**—The purpose of this practice is to establish a uniform test procedure to determine capabilities with regard to:

- 1.1.1 Service brake system deceleration in feet per second per second (fpsps) versus input as affected by vehicle speed, brake temperature, water exposure, and usage.
- 1.1.2 Emergency brake system stopping ability.
- 1.1.3 Lining characteristics and life.
- 1.1.4 Drum and rotor characteristics and life.
- 1.1.5 Effectiveness distribution for vehicles in combinations.

2. References

- 2.1 **Applicable Publication**—The following publication forms a part of this specification to the extent specified herein. Unless otherwise indicated, the latest version of SAE publications shall apply.

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

SAE J656g—Automotive Brake Definitions and Nomenclature

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3. *Instrumentation*

- 3.1 Application pressure gage.
- 3.2 Reserve pressure gage (when applicable).
- 3.3 Line pressure or pedal force gage.
- 3.4 Pedal travel gage (manual and assistor hydraulic systems only).
- 3.5 Decelerometer.
- 3.6 Stopmeter (fifth wheel or equivalent distance measuring device).
- 3.7 Pyrometer.
- 3.8 Stop counter.
- 3.9 Tachometer (optional).
- 3.10 Speedometer.
- 3.11 Thermometer (for ambient).
- 3.12 Stop watch.

4. *Test Preparations*

- 4.1 **Shoe and Lining Assembly**—Attach and finish friction material to vehicle manufacturer's specifications.

Measure overall thickness of lining and shoe rim or plate at fixed reference points. Use a minimum of three readings on each side of drum brake shoes and one at each corner of disc brake shoes to establish lining wear.

- 4.2 **Thermocouples**—Install the plug type of thermocouple shown in Figure 1 in each brake. Thermocouple shall be located in approximate center of the more heavily loaded shoe, one per brake.

- 4.3 **Brake Drum or Rotor and Hub Assembly**—New drums or rotors are recommended for each test, with surface finish in accordance with manufacturer's specifications, and careful attention to insure uniform surface finish from test to test. Radial and lateral runouts are to be held to vehicle manufacturer's specifications, checked, and recorded. Make and record the necessary measurements for wear determination.

- 4.4 **Brake Assembly**—Brakes shall be prepared in accordance with vehicle manufacturer's specifications with special attention to required load characteristics on all brake springs. Adjust brakes to vehicle manufacturer's specifications.

- 4.5 **Load to Specified Test gvw**—Load to vehicle manufacturer's rated gvw, unless otherwise specified. For performance tests, the term "empty" means driver, observer, and required instrumentation with all ballast or payload removed.

- 4.6 **Emergency Brake System**—The emergency brake system may consist of either: (a) that portion of the service brake system which remains operative in the event of a single hydraulic or air component failure except for parts common to a divided system, or (b) an auxiliary brake system, whichever is applicable.

If desired, appropriate valves and piping may be installed to facilitate the introduction and cancellation of simulated failures in those service brake systems in which a partial service system constitutes the emergency system. The installation must be such that fluid or air is released freely to atmospheric pressure from the point of simulated failure.

- 4.7 For those vehicles which are equipped with power (air or hydraulic) or power assisted brake actuation, the reserve pressure is not to exceed the vehicle manufacturer's recommended cut-out pressure.

5. Test Procedure

5.1 First Measurements—See paragraph 4.

5.2 General Test Notes

- 5.2.1 Effectiveness, 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 of coefficient of surface friction) that is free from loose materials.
- 5.2.2 During all phases of this procedure, any unusual performance or noise characteristics are to be noted and recorded.
- 5.2.3 Temperature readings are defined as "initial," meaning 0.2–0.1 mile (0.3–0.2 km) before stop, brake off, and "final," meaning as soon as possible after stop, brake on.
- 5.2.4 Note any uncontrollable braking action causing the vehicle to swerve or pull out of a 12 ft (3.7 m) wide roadway lane.
- 5.2.5 Decelerations used refer to values at which the decelerometer reading is held approximately constant during the stop by varying the pedal force or application pressure.
- 5.2.6 The term "baseline" is defined as the average of initial and final pedal forces or application pressures of all check stops or applications prior to heat fade or water recovery tests.
- 5.2.7 EFFECTIVENESS (CURVE) TEST NOTES—All effectiveness tests are to be conducted at suitable increments of application pressure or pedal force to define clearly the deceleration versus application pressure or pedal force curve from brake engagement to wheel slide or maximum available application pressure. Three stops are permitted, if necessary to establish ability to achieve performance requirement. Record application pressure or pedal force, deceleration (ft/s^2 or m/s^2), and stopping distance (feet or meters).¹ Record pedal travel on manual and assistor type systems.

A "Spot Effectiveness Test" is an abbreviated curve based on only two or three preselected application pressures or pedal forces.

A "Cold Curve" is defined as 200 °F (93.3 °C) initial brake temperature before each stop, average temperature of brakes on hottest axle.

A "Hot Curve" is defined as 300 °F (149 °C) initial brake temperature before each stop, average temperature of brakes on hottest axle.

All stops are made without engine retardation.

5.3 Preburnish Check—Make 10 stops from 20 mph (32 km/h) at a minimum deceleration of 14 ft/s^2 (4.3 m/s^2) and 1.0 mile (1.6 km) intervals.

1. System application and braking distance as defined by SAE J656g (September, 1973).

5.4 Preburnish Effectiveness—Conduct cold curves under the following conditions:**TABLE 1—**

Light trucks and buses	20 and 60 mph (32 and 97 km/h) loaded
Truck, bus, and combination of vehicles	20 mph (32 km/h) loaded 20 and 50 mph (32 and 80 km/h) or maximum attainable under 50 mph (80.5 km/h) loaded

5.5 Burnish—Make at least 200 brake snubs, not less than 50 in a series, from 40 to 20 mph (64 to 32 km/h) at 10 ft/s² (3 m/s²) in normal gear range.

Accelerate to 40 mph at moderate acceleration after each snub and drive 40 mph (64 km/h) between snubs.

At every 25th application (minimum), make a full stop from 40 mph (64 km/h), recording all required data on application pressure or pedal force, pedal travel, initial and final brake temperatures.

Application intervals:

TABLE 2—

Light trucks and buses	1.0 mile (1.6 km)
Truck, bus, and combination of vehicles	1.5 miles (2.4 km)

5.6 First Effectiveness Test—(See paragraph 5.2.) Adjust brakes to specifications. Conduct cold curves under the following conditions:**TABLE 3—**

Light trucks and buses	20 mph (32 km/h) empty and loaded 60 mph (97 km/h) empty and loaded
Truck, bus, and combination of vehicles	20 mph (32 km/h) loaded 50 mph (80 km/h) or maximum attainable under 50 mph (80 km/h) loaded

NOTE—Emergency system effectiveness tests (paragraph 5.7) may be interspersed in the above tests to minimize vehicle loading and unloading.

5.7 Emergency System Effectiveness Test**5.7.1 NOTE**—Three stops are permitted, if necessary to establish ability to achieve performance requirement.

- 5.7.2 Make cold spot check stops with each partial (emergency) brake system or with the auxiliary system, as may be applicable, as follows:

TABLE 4—

Light trucks and buses	20 mph (32 km/h) empty and loaded
	60 mph (97 km/h) empty and loaded
Truck, bus, and combination of vehicles	20 mph (32 km/h) loaded
	50 mph (80 km/h) or maximum attainable under
	50 mph (80 km/h) loaded

Record stopping distance, deceleration, application pressure, and pedal force.

- 5.8 **Brake Effectiveness Distribution for Vehicles in Combinations**—Make one warmup stop from 40 mph (64 km/h) with all brakes in operation at intermediate application pressure from the service brake valve (42 psi (290 kPa) for air brake vehicles used in interchange). Next, make three stops from 20 mph (32 km/h) at the same application pressure at 1/2 mile (0.8 km) intervals recording the deceleration obtained under each of the following conditions:

- All tractor and trailer brakes in use.
- Tractor brakes only in use.
- Trailer brakes only in use.

NOTE—Brake effectiveness balance is accomplished when the ratio of deceleration of each vehicle in the combination to the deceleration of the combination is the same as the ratio of the weight of each vehicle to the total weight of the combination.

- 5.9 **Initial Fade and Recovery Tests**—(Not applicable to combinations of vehicles.)

NOTE—All applications during baseline, fade, and recovery tests are made without engine retardation.

Record initial and final application pressures or pedal forces for all stops or snubs. Recording of initial temperatures on each application is recommended.

On the final stop of the fade test, record stopping distance and initial and final brake temperatures in addition to initial and final application pressures or pedal forces. Record final deceleration or any stop or snub where stated deceleration is not maintained.

- 5.10 **Second Measurement (Optional)**—Measure all linings (drum side only for drum brakes), minimizing the disturbance of dust accumulation.

- 5.11 **Operational Test (Routine)**—Make 2000 applications at 1.0 mile (1.6 km) intervals in normal gear range, alternating 7 and 11 ft/s² (2.1 and 3.4 m/s²) decelerations. When starting cold, and at every 25th application, make a full stop from the scheduled speed at 10 ft/s² (3 m/s²), recording application pressure, pedal travel, and temperature data. Run not less than 50 snubs in one series without a cooling period. Accelerate to scheduled speed at moderate acceleration after each snub and drive scheduled speed between snubs.

TABLE 5—

	Scheduled Speed, mph (km/h)	Application, mph (km/h)
Light trucks and buses	45 (72)	45-20 (72-32)
Truck, bus, and combination of vehicles	40 (64)	40-20 (64-32)

5.12 Second Effectiveness Test—(See paragraph 5.2.)

Repeat paragraph 5.6.

Add hot curves (optional).

5.13 Second Fade and Recovery Test—(Not applicable to combination of vehicles.)

Conduct same as paragraph 5.9, except:

TABLE 6—

	No. of Fade Applications	Min. No. of Recovery Applications
Light trucks and buses	10	10
Trucks and buses	20	15

5.14 Third Measurement—Obtain complete lining and drum or rotor measurements, minimizing the disturbance of dust accumulation.**5.15 Water Recovery Test**

5.15.1 **CHECK STOPS (DRY BRAKES)**—Make three stops from 20 mph (32 km/h) at a constant 10 ft/s² (3 m/s²). Record initial and final pedal force or application pressures for each stop. All brakes must be 150 °F (65.6 °C) initial temperature, or less, prior to these stops.

5.15.2 Wet brakes thoroughly for 2 min. Brakes must be released during wetting.

5.15.3 Start recovery stops not more than 1 min after wetting brakes.

5.15.4 Make 15 stops from 20 mph (32 km/h) at 1/4 mile (0.4 km) intervals and at a constant 10 ft/s² (3 m/s²). Record both initial and final application pressures or pedal forces for each stop. If 10 ft/s² (3 m/s²) cannot be attained, record deceleration and application pressures or pedal force.

6. Report Forms

General Data Sheet, Figure 2.

Performance Summary Sheet No. 2, Figure 3.

Wear Summary Sheet, Figure 4.

Preparation and Measurement Data for Drum Brakes Summary Sheet, Figure 5.

Preparation and Measurement Data for Disc Brakes Summary Sheet, Figure 6.

Preburnish Check Summary Sheet, Figure 7.

Effectiveness Test Summary Sheet, Figure 8.

Burnish Summary Sheet, Figure 9.

Emergency System Effectiveness Summary Sheet, Figure 10.
 Brake Effectiveness Distribution for Vehicle in Combination, Figure 11.
 Fade Test Summary Sheet, Figure 12.
 Recovery Test Summary Sheet, Figure 13.
 Operational Test (Routine), Figure 14.
 Water Recovery Test Summary Sheet, Figure 15.

TABLE 7—INITIAL FADE AND RECOVERY TESTS

	Light Trucks and Buses 6001-10,000 lb (2700-4500 kg) gvw	Truck and Bus over 10,000 lb (4500 kg) gvw
Baseline Check—at 200 °F (93.3 °C)		
Initial temperature:		
Speed, mph (km/h)	30-0 (48-0)	40-20 (64-32)
Deceleration, ft/s ² (m/s ²)	15 (4.6)	10 (3)
No. of applications	3	3
Fade Test—starting at 200 °F (93.3 °C)		
Initial temperature:		
Speed, mph (km/h)	60-0 (97-0)	40-20 (64-32)
Deceleration, ft/s ² (m/s ²)	15 (4.6)	10 (3)
Time cycle (between applications)	1.0 min	30 s ⁽¹⁾
No. of applications	5	10 (tenth stop to be full stop)
Recovery Test		
Speed during test and after last fade stop, mph (km/h)	30 (48)	40 (64)
Deceleration, ft/s ² (m/s ²)	15 (4.6)	10 (3)
Application, mph	30	40-20
Interval during test and after last fade stop, miles (m)	1.5 (2.4)	2.0 (3.2)
No. of applications, min	5	10

1. In the event that the test vehicle is incapable of obtaining this cycle, then a longer time cycle not exceeding 1.0 min should be established and standardized to guarantee uniform temperature results from test to test. The specified 200 °F (93.3 °C) initial temperature, for fade snub 1, is included for the same reason of standardization.

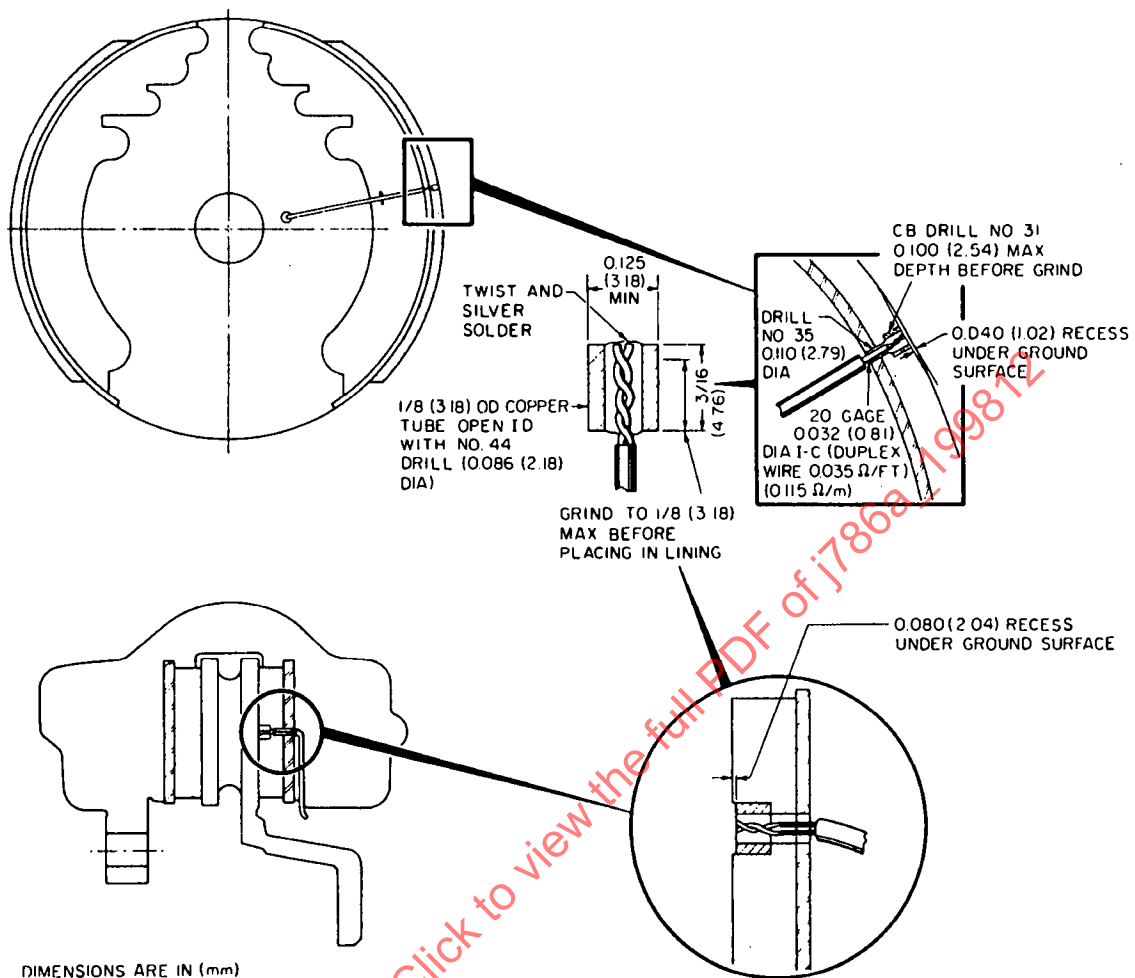


FIGURE 1—TYPICAL PLUG THERMOCOUPLE INSTALLATIONS

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GENERAL DATA AND SUMMARY REPORT FORM

VEHICLE: MAKE _____ MODEL _____ YEAR _____
 ENGINE _____ TRANSMISSION _____ AXLE _____
 WEIGHT - LOADED _____ LB (kg) FRONT _____ LB (kg) REAR _____ LB (kg) TRAILER _____ LB (kg)
 EMPTY _____ LB (kg) FRONT _____ LB (kg) REAR _____ LB (kg) TRAILER _____ LB (kg)
 TIRES - SIZE _____ MAKE _____ MANUFACTURER'S DESIGNATION _____
 GENERAL DATA _____

BRAKES: FRONT - SIZE _____ TYPE _____
 REAR - SIZE _____ TYPE _____
 TRAILER - SIZE _____ TYPE _____
 DRUM (ROTOR) TYPE - FRONT _____ REAR _____ TRAILER _____
 HYDRAULIC BRAKE DATA -
 POWER TYPE _____ MODEL _____ DIA _____ STROKE _____
 MASTER CYL _____ DIA _____ STROKE _____
 PEDAL RATIO _____ AVAIL. TRAVEL _____ PRESSURE AT RUNOUT _____
 AIR BRAKE DATA -
 CHAMBER TYPE AND AREA _____ FRONT _____ REAR _____ TRAILER _____
 SLACK ADJUSTER (LEVER ARM) LENGTH _____
 CAM RADIUS OR WEDGE RATIO _____

TEST INFORMATION - SPECIAL EQUIPMENT

TESTED BY _____ LOCATION _____ DATE _____

TEST PHASE	TEST RESULTS		
PREBURNISH CHECK	FT/S ² (m/s ²) MINIMUM AT _____ LB (N)		
EFFECTIVENESS TEST	PREBURNISH	1ST	2ND
LIGHT TRUCKS AND BUSES	20 MPH (32 km/h) EMPTY	_____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)
	LOADED _____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)
	60 MPH (97 km/h) EMPTY	_____ FT/S ² (m/s ²) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)
	LOADED _____ FT (m) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)
EFFECTIVENESS TEST	PREBURNISH	1ST	2ND
TRUCKS, BUSES, AND COMBINATION OF VEHICLES	20 MPH (32 km/h)	_____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)
	_____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)
	50 MPH (80 km/h) OR MAX ATTAINABLE	_____ FT/S ² (m/s ²) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)
EMERGENCY SYSTEM EFFECTIVENESS TEST	SYSTEM 1	SYSTEM 2	
	20 MPH (32 km/h)		
	EMPTY _____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)	
	LOADED _____ FT (m) _____ LB (N)	_____ FT (m) _____ LB (N)	
TRUCKS AND BUSES	60 MPH (97 km/h)		
	EMPTY _____ FT/S ² (m/s ²) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)	
	LOADED _____ FT/S ² (m/s ²) _____ LB (N)	_____ FT/S ² (m/s ²) _____ LB (N)	

FIGURE 2A—GENERAL DATA AND SUMMARY REPORT FORM

TEST PHASE	TEST RESULTS	
EMERGENCY SYSTEM EFFECTIVENESS TEST	SYSTEM 1	SYSTEM 2
COMBINATION OF VEHICLES	20 MPH (32 km/h) _____ FT (m) _____ LB (N) 50 MPH (80 km/h) OR MAX ATTAINABLE _____ FT/S ² (m/s ²) _____ LB (N)	_____ FT (m) _____ LB (N) _____ FT/S ² (m/s ²) _____ LB (N)
BRAKE EFFECTIVENESS DISTRIBUTION FOR AIR BRAKE VEHICLES USED IN COMBINATION IN INTER- CHANGE OPERATIONS	WEIGHT TRACTOR AND TRAILER _____ LB (N) TRACTOR ONLY _____ LB (N) ()% TRAILER ONLY _____ LB (N) ()%	TEST STOP _____ FT/S ² (m/s ²) _____ FT/S ² (m/s ²) ()% _____ FT/S ² (m/s ²) ()%
FADE AND RECOVERY TESTS	INITIAL _____ LB (N) _____ PSI (Pa) _____ LB (N) MAX PF _____ % OF BASELINE	SECOND _____ LB (N) _____ PSI (Pa) _____ LB (N) MAX PF _____ % OF BASELINE
WATER RECOVERY TEST	_____ LB (PSI) (N (Pa)) _____ LB (PSI) (N (Pa))	
STABILITY DURING EFFECTIVENESS TESTS	CONTROLLABLE BRAKING YES _____ NO _____	
FINAL INSPECTION	YES _____ NO _____ YES _____ NO _____ YES _____ NO _____	

COMMENTS: _____

REPORTED BY _____ DATE _____

FIGURE 2B—GENERAL DATA AND SUMMARY REPORT FORM (CONTINUED)

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PERFORMANCE SUMMARY SHEET NO. 2

BURNISH DATA

		TYPICAL TEMPERATURE BALANCE FOR 40 MPH (64 km/h) STOP (HOT)											
	INPUT PRESSURE	PEDAL TRAVEL		TRUCK, BUS, OR TRACTOR						TRAILER			
				LR	RR	LRF	RRF	LRF	RRF	LRR	RRR		
START	_____	_____	INITIAL	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
MAXIMUM	_____	_____	FINAL	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
FINAL	_____	_____		_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

COMMENTS _____

OPERATIONAL TEST (2000 SNUBS _____ TO _____ MPH (km/h), ALTERNATE 7 AND 11 FT/S² (3.4 m/s²),
1.0 MILE (1.6 km) HIGHEST GEAR) TYPICAL _____ MPH (km/h), 10 FT/S² (3 m/s²) IP - PT CHECKS

		COLD		HOT	
TEST MILES (km)		IP	PI	IP	PI
0 (0)	_____	_____	_____	_____	_____
500 (804)	_____	_____	_____	_____	_____
1000 (1609)	_____	_____	_____	_____	_____
1500 (2414)	_____	_____	_____	_____	_____
2000 (3219)	_____	_____	_____	_____	_____

TYPICAL TEMPERATURE BALANCE FOR A _____ MPH (km/h) STOP (HOT)

TEST MILES (km)	TRUCK, BUS, OR TRACTOR						TRAILER			
	LR	RR	LRF	RRF	LRR	RRR	LR	RR	LRF	RRF
0 (0)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
500 (804)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
1000 (1609)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
1500 (2414)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
2000 (3219)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

COMMENTS _____

BURNISH

FROM _____ TO _____

OPERATIONAL TEST

0- 500 MILES (0- 804 km) FROM _____ TO _____
500-1000 MILES (804-1609 km) FROM _____ TO _____
1000-1500 MILES (1609-2414 km) FROM _____ TO _____
1500-2000 MILES (2414-3219 km) FROM _____ TO _____

FIGURE 3—PERFORMANCE SUMMARY SHEET

WEAR SUMMARY SHEET

MAXIMUM LINING WEAR DATA (IN THOUSANDS OF AN INCH) (mm)									
2ND MEASUREMENT (OPTIONAL)									
TRUCK, BUS OR TRACTOR						TRAILER			
LF	RF	LR (LRF)	RR (RRF)	LRR	RRR	LRF	RRF	LRR	RRR
/	/	/	/	/	/	/	/	/	/
3RD MEASUREMENT									
/	/	/	/	/	/	/	/	/	/

AVERAGE LINING WEAR DATA (IN THOUSANDS OF AN INCH) (mm)									
2ND MEASUREMENT (OPTIONAL)									
TRUCK, BUS OR TRACTOR						TRAILER			
LF	RF	LR (LRF)	RR (RRF)	LRR	RRR	LRF	RRF	LRR	RRR
/	/	/	/	/	/	/	/	/	/
3RD MEASUREMENT									
/	/	/	/	/	/	/	/	/	/

DRUM WEAR (IN THOUSANDS OF AN INCH) (mm)									
2ND MEASUREMENT									
TRUCK, BUS OR TRACTOR						TRAILER			
LF	RF	LR (LRF)	RR (RRF)	LRR	RRR	LRF	RRF	LRR	RRR
/	/	/	/	/	/	/	/	/	/
3RD MEASUREMENT									
/	/	/	/	/	/	/	/	/	/

FINAL INSPECTION - LINING

TRUCK, BUS, OR TRACTOR

LF _____ RF _____

LR (LRF) _____ RR (RRF) _____

LRR _____ RRR _____

TRAILER

LRF _____ RRF _____

LRR _____ RRR _____

FINAL INSPECTION - DRUMS

TRUCK, BUS OR TRACTOR

LF _____ RF _____

LR (LRF) _____ RR (RRF) _____

LRR _____ RRR _____

TRAILER

LRF _____ RRF _____

LRR _____ RRR _____

OTHER: _____

FIGURE 4—WEAR SUMMARY SHEET

PREPARATION AND MEASUREMENT DATA
FOR
DRUM BRAKES

SHOE LOCATION	DATA POINT	1ST MEASUREMENT	2ND MEASUREMENT (OPTIONAL)		3RD MEASUREMENT	
		DATE	DATE		DATE	
		ODO	ODO		ODO	
		THICKNESS	THICKNESS	WEAR	THICKNESS	WEAR
	DRUM SIDE	1				
		2				
		3				
	BACKING PLATE SIDE	1				
		2				
		3				
	DRUM SIDE	1				
		2				
		3				
	BACKING PLATE SIDE	1				
		2				
		3				

DRUM DATA:

SURFACE FINISH: BEFORE _____ RMS
 AFTER _____ RMS
 DRUM DIAMETER: AFTER _____ IN (mm)
 BEFORE _____ IN (mm)
 WEAR _____ IN (mm)
 RADIAL RUNOUT _____ IN (mm)
 LATERAL RUNOUT _____ IN (mm)

BRAKE ADJUSTMENT:

DIAMETRICAL CLEARANCE _____ IN (mm)

SPRING DATA:

LOAD SPECIFIED _____ MEASURED

SHOE RETURN
 ROLL DOWN
 ADJUSTER

FIGURE 5—PREPARATION AND MEASUREMENT DATA
FOR DRUM BRAKES SUMMARY SHEET

PREPARATION AND MEASUREMENT DATA
FOR
DISC BRAKES

PAD LOCATION	DATA POINT	1ST MEASUREMENT	2ND MEASUREMENT		3RD MEASUREMENT	
		DATE	DATE		DATE	
		ODO	ODO		ODO	
		ORIGINAL THICKNESS	THICKNESS	WEAR	THICKNESS	WEAR
	INNER	1				
		2				
		3				
		4				
	OUTER	1				
		2				
		3				
		4				
	INNER	1				
		2				
		3				
		4				
	OUTER	1				
		2				
		3				
		4				

ROTOR DATA:

SURFACE FINISH

BEFORE _____ RMS

AFTER _____ RMS

LATERAL RUNOUT _____ IN (mm)

THICKNESS

BEFORE _____

AFTER _____

AVG WEAR _____ IN (mm)

MAX

MIN

FIGURE 6—PREPARATION AND MEASUREMENT DATA FOR
DISC BRAKES SUMMARY SHEET

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PREBURNISH CHECK

20-0 MPH (32-0 km/h)		14 FT/S ² (4.3 m/s ² MINIMUM		1.0 MILE (1.6 km) INTERVALS										
STOP NO.	DECEL- ERATION, FT/S ² (m/s ²)	APPLI- CATION PRESSURE PSI (Pa)	PEDAL FORCE, LB (N)	BRAKE TEMPERATURES, F (C)								REMARKS		
				TRUCK, BUS, OR TRACTOR				TRAILER						
				LF	RF	LR	RR	LRF	RRF	LRR	RRR			
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

TEST COMMENTS: _____

FIGURE 7—PREBURNISH CHECK SUMMARY SHEET

EFFECTIVENESS TEST - MPH (km/h)

TEST WEIGHT: () EMPTY () COLD CURVE - 200 F (93 C) IBT

() LOADED : () HOT CURVE - 300 F (149 C) IBT

NOTE: ALL STOPS WITHOUT ENGINE RETARDATION

[illegible]

FIGURE 8—EFFECTIVENESS TEST SUMMARY SHEET

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BURNISH

200 SNUBS: 40-20 MPH, (64-32 km/h), 10 FT/S² (3 m/s²)
 IN NORMAL GEAR
 EVERY 25TH APPLICATION: 40-0 MPH, (64-0 km/h),
 10 FT/S² (m/s²) IN NORMAL GEAR
 INTERVAL: () 1.0 MILE (1.6 km); () 1.5 MILE (2.4 km)

BRAKE TEMPERATURES

STOP NO.	APPLICATION PRESSURE, PSI (Pa) OR PEDAL FORCE, LB (N)	PEDAL TRAVEL, IN (mm)	BRAKE TEMPERATURES, F (C)												REMARKS
			TRUCK, BUS, OR TRACTOR								TRAILER				
			LF		RF		LR		RR		LRF		RRF		
			LF	RF	LR	RR	LRF	RRF	LRR	RRR					
25															
50															
75															
100															
125															
150															
175															
200															

TEST COMMENTS: _____

FIGURE 9—BURNISH SUMMARY SHEET

SAE J786a Cancelled DEC1998

BRAKE EFFECTIVENESS DISTRIBUTION FOR VEHICLE IN COMBINATION

42 PSI (290 kPa) AT 1/2 MILE (0.8 km) INTERVALS

TEST	STOP NO.	DECEL- ERATION FT/S ² (m/s ²)	APPLI- CATION PRESSURE, PSI (Pa)	BRAKE TEMPERATURES, F (C)												REMARKS
				TRUCK, BUS, OR TRACTOR						TRAILER						
				LF	RF	LR	RR	LRR	RRR	LRF	RRF	LRR	RRR			
40 MPH (64 km/h) WARM-UP	1 REQ'D															
ALL TRACTOR & TRAILER BRAKES	1															
	2															
	3															
	AVG.		FT/S ² (m/s ²)													
TRACTOR BRAKES ONLY IN USE	1															
	2															
	3															
	AVG.		FT/S ² (m/s ²) (%)													
TRAILER BRAKES ONLY IN USE	1															
	2															
	3															
	AVG.		FT/S ² (m/s ²) (%)													

TEST COMMENTS: _____

FIGURE 11—BRAKE EFFECTIVENESS DISTRIBUTION FOR VEHICLE
IN COMBINATION