

BLOCK BN4 P-417

PREMIUM FORMULA FOR TRANSIT BUSES AND TRUCKS.

1.-GENERAL DESCRIPTION.

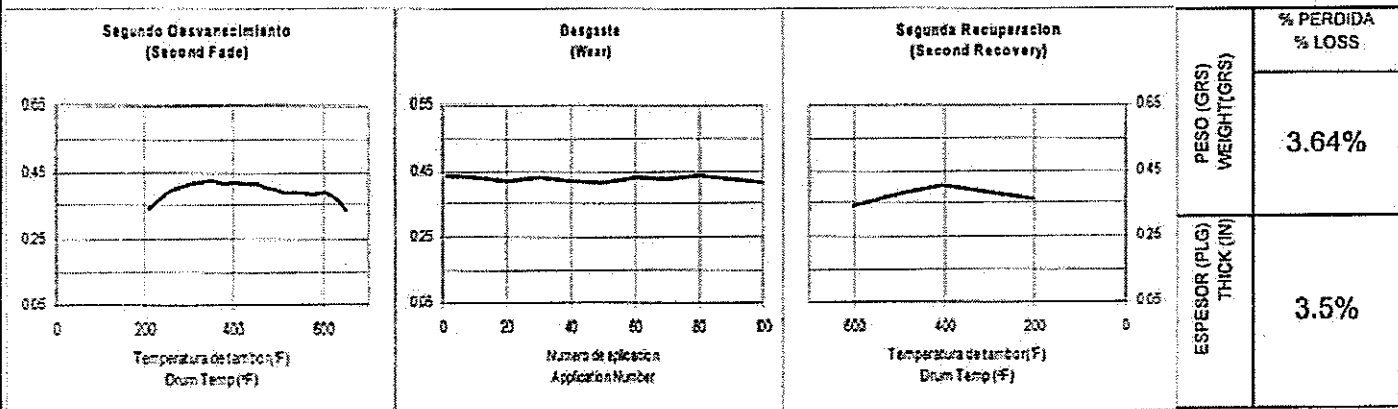
THIS IS AN ASBESTOS FREE FRICTION MATERIAL DARK GRAY IN COLOR, IT'S MAIN RAW MATERIALS ARE: MINERAL, GLASS, AND ARAMIDE FIBERS, MODIFIED PHENOLIC RESINS, BRASS PARTICLES AND SYNTHETIC MATERIALS TO IMPROVE FRICTION AND REDUCE WEAR.

2.-APPLICATIONS.

THIS FORMULA HAS BEEN DEVELOPED SPECIALLY FOR URBAN APPLICATIONS, TO RESIST HIGH OPERATIONAL TEMPERATURES AND CONTINUOUS STOPS, TYPICAL REQUIRED FOR THIS APPLICATIONS, IT'S LONG LIFE AND HIGH PERFORMANCE MAKES SUITABLE. TO USE IN TRANSIT BUSES AND TRUCKS.

3.-TECHNICAL INFORMATION.

| TENSILE STRENGTH | COMPRESSIBILITY MAXIMUM 200 °C | SHEAR STRENGTH | SPECIFIC GRAVITY | GOGAN HARDNESS | SPECIFIC HEAT | EDGE CODE MARKING |
|--------------------|--------------------------------|--------------------|------------------|-----------------------|---------------|-------------------|
| Kp/cm ² | % | Kp/cm ² | | 1500 Kg. 1.905 cm. | Cal/gr °C | |
| N/A | 1.00 | 209 | 1.92 | 17.0 | 0.15 | NORMAL F |
| | | | 2.10 | 42.0 | | HOT F |



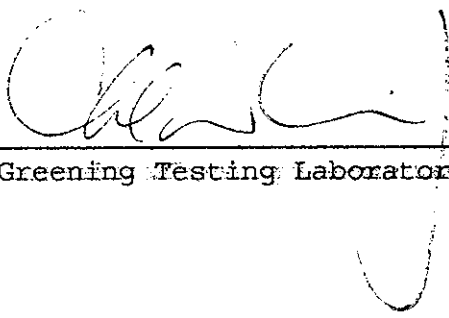
Handwritten signature and date: 16/06/2006

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FMVSS 121D DYNAMOMETER TEST

Client Fritec S.A. de C.V.
Brake Rockwell 'W'
Lining Code BN4-4592-A
Test No. M02-101-06
Date 06 January 2000

Signature


_____ for Greening Testing Laboratories, Inc.

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Prepared By: RLS

Date: 06JA00



FMVSS 121D DYNAMOMETER TEST

| | |
|--------------------------|---------------------------------------|
| Test No. | M02-101-06 |
| Brake | Rockwell 'W' Brake |
| Lining Code | BN4-4592-A |
| Brake Configuration | 'S' cam |
| FMSI No. | 4592 |
| Size | 14½ x 10 inches (nominal) |
| Effective Radius | not applicable |
| Air Chamber | Type 30 |
| Slack Adjuster Length | 7.0 inches |
| Adjustment | automatic |
| Drum Part No. | Webb 64115C |
| Drum Mass | not available |
| Axle Load (GAWR) | 25 000 lb |
| Static Loaded Radius | 20.3 inches |
| Test Inertia | 1 108.4 slug ft ² |
| Simulated Wheel Load | 12 472 lb |
| Wheel Rotation | with cam |
| Test Fixture | 8901.223 |
| Control Thermocouple | Leading Shoe A, recessed 0.040 inches |
| Date Test Parts Received | 17 December 1999 |
| Test Date(s) | 05 - 06 January 2000 |
| Reference | Mr. Bernardo Ramis |



DATA NOTES

1. All average and sustained pressure and torque values shown in this report are calculated with respect to **DISTANCE**.
2. The data presented in this report has been gathered as follows:
START Threshold, Torque Controlled Stops = 50 lbf·ft torque (during brake apply)
START Threshold, Pressure Controlled Stops = 95% of control level
INITIAL Data values are taken at the point where the control level is achieved.
SUSTAINED Data Interval = Time interval from which the control level is achieved through to the STOP threshold.
END Data values are taken at the point where the STOP threshold is achieved back (minus) 0.1 seconds.
STOP Threshold = 5 r/min, or 15 mi/h (for Brake Power Sequence)

AVERAGE values are reported over the interval between START and STOP Threshold levels. MINIMUM values are only reported during the SUSTAINED Data Interval.

3. Brake Apply Control: Pressure, 250 $\frac{\text{lb}}{\text{in}^2}$
s
4. Cooling Air Temperature = 80 °F
5. Cooling Air Velocity = 25 mi/h
6. For all stops which show "zero" (0) or negative values for some of the computed pressure or torque values:

These stops achieved zero speed but did not achieve the torque level required for the particular stop. Since the START data and STOP data thresholds were satisfied, deceleration rate, distance, time to stop, etc., are accurate values, and can be used for data comparison purposes.

The presentation of "zero" values generally is caused by lack of brake performance, resulting in a "clamp" condition. "Clamp" condition is defined by the brake calling for the maximum pressure the test section allows ("clamp" pressure) and the brake being unable to attain the deceleration rate required in the test section at that maximum pressure.



DATA NOTES - con't

7. The following data headers are used in this test report:

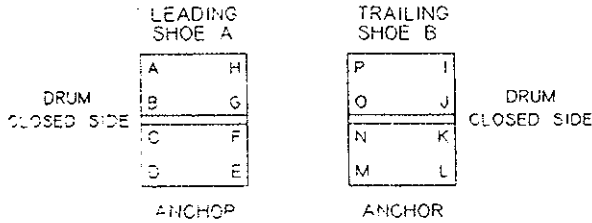
STOP = Stop number
ISPD = Initial speed
FSPD = Final speed
STPT = Stop time
STPD = Stop distance
AVGD = Average deceleration by distance
APRD = Average pressure by distance
INPR = Initial pressure
SPRD = Sustained pressure by distance
EDPR = End pressure
MXPR = Maximum pressure
MNPR = Minimum pressure
ATQD = Average torque by distance
INTQ = Initial torque
SUTD = Sustained torque by distance
EDTQ = End torque
MXTQ = Maximum torque
MNTQ = Minimum torque
INI = Initial rotor/drum temperature
MX1 = Maximum rotor/drum temperature
IN2 = Initial inboard pad/leading shoe temperature
MX2 = Maximum inboard pad/leading shoe temperature
IN3 = Initial outboard pad/trailing shoe temperature
MX3 = Maximum outboard pad/trailing shoe temperature
STRK = Maximum pushrod stroke
RETD = Retardation ratio



BRAKE SHOE THICKNESS
 inches

| | Pre Test | Post Test | Loss |
|---|----------|-----------|---------|
| A | 0.875 | 0.875 | 0.000 |
| B | 0.878 | 0.866 | 0.012 |
| C | 0.883 | 0.870 | 0.013 |
| D | 0.890 | 0.890 | 0.000 |
| E | 0.886 | 0.890 | (0.004) |
| F | 0.883 | 0.863 | 0.020 |
| G | 0.884 | 0.864 | 0.020 |
| H | 0.875 | 0.875 | 0.000 |

Shoe Thickness Measurement Location



Average Thickness Loss 0.008

| | | | |
|---|-------|-------|---------|
| I | 0.878 | 0.878 | 0.000 |
| J | 0.888 | 0.878 | 0.010 |
| K | 0.892 | 0.885 | 0.007 |
| L | 0.885 | 0.888 | (0.003) |
| M | 0.883 | 0.884 | (0.001) |
| N | 0.885 | 0.885 | 0.000 |
| O | 0.884 | 0.879 | 0.005 |
| P | 0.878 | 0.876 | 0.002 |

Average Thickness Loss 0.003

Total Average Loss 0.010

BRAKE SHOE MASS
 kg

| | | | |
|------------------|-------|-------|-------|
| Shoe A, Leading | 9.459 | 9.410 | 0.050 |
| Shoe B, Trailing | 9.474 | 9.442 | 0.032 |
| Total Loss | | | 0.082 |

NOTE: Values in parentheses indicate an increase in thickness or mass.



DRUM DIAMETER
inches

| | OPEN | CENTER | CLOSED |
|------------------------|---------|---------|---------|
| Pre Test | | | |
| Point W to Point Y | 14.503 | 14.501 | 14.501 |
| Point X to Point Z | 14.502 | 14.500 | 14.500 |
| Post Test | | | |
| Point W to Point Y | 14.506 | 14.504 | 14.505 |
| Point X to Point Z | 14.505 | 14.504 | 14.505 |
| Change in Diameter W-Y | (0.003) | (0.003) | (0.004) |
| Change in Diameter X-Z | (0.003) | (0.004) | (0.005) |

DRUM MASS
kg

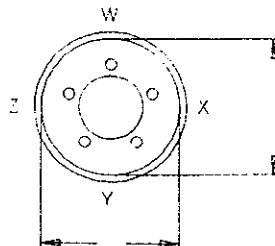
| Pre Test | * | Post Test | * | Loss | * |
|----------|---|-----------|---|------|---|
|----------|---|-----------|---|------|---|

NOTE: Values in parentheses indicate an increase in thickness or mass.

| | Pre Test | Post Test |
|---|----------|-----------|
| DRUM SURFACE FINISH , inches (adjacent to W position) | 129 | 69 |
| DRUM BRINELL HARDNESS (adjacent to W position) | 207 | 223 |
| DRUM TIR , inches | 0.005 | 0.005 |

*NOTE: Not conducted due to Drum Mass is higher than scale capacity.

Drum Diameter Measurement Locations



FMVSS 121 DYNAMOMETER REQUIREMENTS FOR BRAKES PRODUCED AFTER 13 OCTOBER 1978

| CATEGORY | AVERAGE RETARDATION FORCE RATIO minimum | BRAKE POWER 9 ft/s ² 100 psig maximum | BRAKE RECOVERY 12 ft/s ² 85 psig maximum | |
|-------------------------|--|---|--|-------------------------------------|
| | | | ANTI-LOCK 12 psig minimum | NON ANTI-LOCK 20 psig minimum |
| Truck-Tractor, front | | X | | |
| Truck-Tractor, rear | | X | * | X |
| Truck, front | | X | * | X |
| Truck, rear | | X | * | X |
| Trailered Vehicle, psig | X | | * | X |
| 20 | 0.05 | | | |
| 30 | 0.12 | | | |
| 40 | 0.18 | | | |
| 50 | 0.25 | | | |
| 60 | 0.31 | | | |
| 70 | 0.37 | | | |
| 80 | 0.41 | | | |
| Bus, Commercial, rear | | X | * | X |
| Bus, Commercial, rear | | X | * | X |
| Bus, School, front | | X | * | X |
| Bus, School, rear | | X | * | X |

*The Anti-Lock system is a manufacturer option. The requirement applies to all assemblies that have an Anti-Lock system provided.



TEST BRAKE NOISE GLOSSARY

"Peeps" or "Squeaks" medium to high-pitched noises of very short duration.

"Squeals" -high-pitched noises of rather long duration and very loud.

"Chatter" -low frequency but rather high intensity stuttering of the brake. On some chatters the dynamometer shakes a bit, may be any length.

"Howl" -noise of rather long duration and very loud, medium pitch.

"Squawks" -medium low-pitched noises of very short duration.

"Groans" -medium low-pitched noises of long duration.

"Moans" -very low-pitched noises of long duration.

NOTE: All brake noise will be footnoted at the bottom of the data sheets.
If excessive noise was observed, a separate note will be included.
If no noise is observed, there will be no comments shown.



FMVSS 121D. DYNAMOMETER TEST
 TEST SYNOPSIS

| Cycle | Initial Temp 'F | Time Cycle s | Brake Speed mi/h | Cooling Speed mi/h | Press lb/in ² | Press Unit lb/in ² | Max Press Allowed | Decel ft/s ² | Number of Stops |
|-------------------|--------------------|-----------------|--|-----------------------|-----------------------------|----------------------------------|-------------------|----------------------------|-----------------|
| Burnish | 350 | -- | 40 | 30 | -- | -- | 105 | 10.0 | 200 |
| Burnish | 500 | -- | 40 | 30 | -- | -- | 105 | 10.0 | 200 |
| Brake Retardation | 160 | -- | 50 | 30 | 20-80 | 10 | -- | -- | 7 |
| Brake Power | 175 | 72 | 50-15 | 30 | -- | -- | 100 | 9.0 | 10 |
| | | | 175°F initial temperature for the first snub only | | | | | | |
| Hot Stop | -- | 60 | 20 | 30 | -- | -- | 120 | 14.0 | 1 |
| | | | Hot Stops begins 60 seconds after the end of the 10 th Brake Power snub | | | | | | |
| Recovery | -- | 60 | 30 | 30 | -- | -- | 85 | 12.0 | 20 |
| | | | First stop begins 120 seconds after the end of the Hot Stop | | | | | | |
| End of Test | -- | -- | -- | -- | -- | -- | -- | -- | -- |



PRE BURNISH BRAKE ADJUSTMENT CHECK

1. 2.12 inches stroke at 80 psi.
2. 20 lbf·ft (240 lbf·in) drag torque at 10 r/min.



| STOP | ISPD | FSPD | STPT | STPD | AVGD | APRD | INPR | SPRD | EDPR | MXPR | MNPR | ATQD | INTQ | SUTD | EDTQ | MXTQ | MNTQ | IN1 | MX1 | IN2 | MX2 | IN3 | MX3 | STRK |
|------|------|------|------|------|-------|------|--------|--------|--------|------|------|-------|-------|-------|-------|------|------|-----|-----|-----|-----|-----|------|------|
| | m/h | m/h | s | ft | ft/s² | | lb/in² | lb/in² | lb/in² | | | lb/ft | lb/ft | lb/ft | lb/ft | | | F | F | F | F | in | in | in |
| 1 | 40.0 | 0.6 | 5.97 | 179 | 9.58 | 86.8 | 83.7 | 86.9 | 99.3 | 99.6 | 80.1 | 6270 | 6565 | 5909 | 6774 | 5898 | 460 | 558 | 350 | 381 | 261 | 269 | 2.12 | |
| 20 | 40.0 | 0.5 | 5.91 | 179 | 9.62 | 71.0 | 76.8 | 80.5 | 54.2 | 93.4 | 45.4 | 6314 | 6554 | 6587 | 6927 | 6347 | 409 | 521 | 350 | 377 | 306 | 311 | 2.11 | |
| 40 | 40.0 | 0.5 | 5.89 | 178 | 9.67 | 59.3 | 66.7 | 63.3 | 62.3 | 68.8 | 45.7 | 6347 | 6576 | 6587 | 6894 | 6237 | 411 | 515 | 350 | 376 | 307 | 312 | 2.04 | |
| 60 | 40.0 | 0.6 | 5.89 | 177 | 9.69 | 58.2 | 63.4 | 61.5 | 48.0 | 65.4 | 46.8 | 6358 | 6533 | 6587 | 6467 | 6893 | 409 | 510 | 349 | 376 | 307 | 315 | 2.00 | |
| 80 | 39.9 | 0.5 | 5.88 | 177 | 9.64 | 58.2 | 62.7 | 61.7 | 46.3 | 66.3 | 44.1 | 6369 | 6534 | 6587 | 6435 | 6916 | 409 | 511 | 350 | 376 | 309 | 315 | 2.00 | |
| 100 | 40.0 | 0.6 | 5.89 | 177 | 9.70 | 57.4 | 60.5 | 60.8 | 47.6 | 65.7 | 44.4 | 6347 | 6544 | 6576 | 6587 | 6927 | 409 | 510 | 350 | 377 | 310 | 316 | 1.99 | |
| 120 | 39.9 | 0.6 | 5.89 | 177 | 9.66 | 56.6 | 59.7 | 59.3 | 44.4 | 64.4 | 40.7 | 6380 | 6565 | 6587 | 6413 | 6916 | 407 | 513 | 350 | 376 | 311 | 317 | 1.97 | |
| 140 | 40.0 | 0.6 | 5.89 | 177 | 9.71 | 56.5 | 58.0 | 59.4 | 47.7 | 64.1 | 43.4 | 6369 | 6554 | 6576 | 6435 | 6971 | 409 | 515 | 351 | 376 | 311 | 317 | 1.97 | |
| 160 | 39.9 | 0.6 | 5.88 | 177 | 9.66 | 55.3 | 58.2 | 58.6 | 46.1 | 63.2 | 39.3 | 6380 | 6565 | 6576 | 6292 | 6927 | 407 | 516 | 350 | 377 | 311 | 318 | 1.95 | |
| 180 | 40.0 | 0.6 | 5.88 | 177 | 9.72 | 58.2 | 56.7 | 58.4 | 51.3 | 63.0 | 40.6 | 6380 | 6544 | 6576 | 6369 | 6960 | 407 | 516 | 350 | 377 | 311 | 318 | 1.97 | |
| 200 | 40.0 | 0.5 | 5.89 | 177 | 9.73 | 54.3 | 55.0 | 57.3 | 53.9 | 61.6 | 40.4 | 6380 | 6565 | 6576 | 6292 | 6971 | 408 | 516 | 351 | 377 | 315 | 320 | 1.95 | |

BURNISH

40 mi/h - 10.0 ft/s² Deceleration Rate

350°F Initial Temperature

500°F Initial Temperature

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|------|
| 1 | 39.9 | 0.6 | 5.95 | 178 | 9.59 | 67.7 | 56.8 | 61.4 | 99.4 | 99.5 | 51.3 | 6347 | 6643 | 6554 | 6128 | 6828 | 6095 | 579 | 700 | 499 | 537 | 438 | 446 | 2.10 |
| 20 | 40.0 | 0.6 | 5.93 | 178 | 9.64 | 58.7 | 53.5 | 55.3 | 86.5 | 94.7 | 48.0 | 6369 | 6565 | 6565 | 6369 | 6883 | 6325 | 553 | 655 | 492 | 522 | 436 | 442 | 2.07 |
| 40 | 40.1 | 0.6 | 5.91 | 178 | 9.73 | 56.5 | 54.3 | 54.0 | 79.7 | 87.1 | 47.4 | 6369 | 6675 | 6565 | 6369 | 6872 | 6347 | 545 | 648 | 479 | 510 | 426 | 431 | 2.06 |
| 60 | 40.1 | 0.6 | 5.91 | 178 | 9.70 | 55.7 | 53.1 | 53.8 | 74.7 | 80.5 | 48.4 | 6369 | 6643 | 6565 | 6424 | 6861 | 6325 | 541 | 646 | 476 | 508 | 422 | 428 | 2.04 |
| 80 | 40.1 | 0.5 | 5.97 | 181 | 9.55 | 54.6 | 53.1 | 52.8 | 74.7 | 80.5 | 45.9 | 6270 | 6708 | 6576 | 6445 | 6916 | 6336 | 542 | 645 | 476 | 508 | 423 | 428 | 2.04 |
| 100 | 40.1 | 0.7 | 5.91 | 178 | 9.70 | 55.2 | 53.1 | 53.5 | 73.9 | 78.1 | 49.2 | 6369 | 6719 | 6576 | 6456 | 6861 | 6358 | 540 | 646 | 474 | 508 | 423 | 429 | 2.04 |
| 120 | 40.1 | 0.6 | 5.91 | 178 | 9.71 | 55.0 | 51.3 | 53.2 | 73.9 | 79.0 | 48.4 | 6369 | 6609 | 6565 | 6445 | 6850 | 6347 | 542 | 648 | 475 | 508 | 423 | 429 | 2.04 |
| 140 | 40.0 | 0.7 | 5.93 | 179 | 9.63 | 54.4 | 51.1 | 52.4 | 73.2 | 77.5 | 44.4 | 6358 | 6632 | 6565 | 6456 | 6872 | 6336 | 542 | 650 | 474 | 510 | 425 | 430 | 2.03 |
| 160 | 40.1 | 0.5 | 5.93 | 178 | 9.70 | 55.2 | 51.5 | 53.3 | 73.4 | 77.6 | 46.6 | 6369 | 6675 | 6565 | 6467 | 6850 | 6347 | 543 | 652 | 474 | 510 | 426 | 432 | 2.04 |
| 180 | 40.1 | 0.6 | 5.93 | 178 | 9.71 | 54.6 | 51.2 | 52.4 | 73.4 | 78.1 | 44.0 | 6380 | 6632 | 6565 | 6435 | 6916 | 6292 | 542 | 655 | 475 | 511 | 426 | 433 | 2.03 |
| 200 | 40.0 | 0.6 | 5.91 | 178 | 9.68 | 54.9 | 51.3 | 53.3 | 72.9 | 77.2 | 48.9 | 6369 | 6686 | 6565 | 6456 | 6839 | 6358 | 543 | 654 | 474 | 511 | 427 | 434 | 2.03 |

PRE RETARDATION BRAKE ADJUSTMENT CHECK

- 1.50 inches stroke at 80 psi.
- 50 lbf·ft (600 lbf·in) drag torque at 10 r/min.

| STOP | I SPD | F SPD | STPT | STPD | AVGD | APRD | INPR | SPRD | EDPR | MXPR | MNPR | ATOD | INTQ | SUID | EDTQ | MXTQ | MNTQ | IN1 | MX1 | IN2 | MX2 | IN3 | MX3 | STRK | RETD |
|------|-------|-------|------|------|-------------------|------|------|------|---------------------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|------|------|
| | | mi/h | s | ft | ft/s ² | | | | lbf/in ² | | | | | | | | | | | | | | | in | |

BRAKE RETARDATION

50 mi/h - Type 30 Air Chamber - 160°F Initial Temperature

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|-----|-------|-----|-------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|------|-------|
| 1 | 49.6 | 0.6 | 16.81 | 637 | 4.16 | 19.9 | 19.8 | 19.9 | 20.0 | 20.0 | 19.7 | 2724 | 2713 | 2735 | 3304 | 3370 | 2462 | 186 | 323 | 161 | 229 | 156 | 170 | 0.84 | 0.130 |
| 1 | 49.6 | 0.6 | 11.27 | 424 | 6.25 | 29.9 | 29.9 | 29.9 | 29.9 | 29.9 | 29.8 | 4114 | 4016 | 4169 | 4519 | 4760 | 3862 | 187 | 340 | 161 | 222 | 157 | 171 | 1.00 | 0.198 |
| 1 | 49.4 | 0.6 | 8.40 | 312 | 8.40 | 39.7 | 39.7 | 39.7 | 39.7 | 39.8 | 39.6 | 5515 | 5519 | 5527 | 6018 | 6292 | 5500 | 181 | 362 | 161 | 229 | 159 | 176 | 1.14 | 0.262 |
| 1 | 49.6 | 0.5 | 6.88 | 253 | 10.47 | 49.5 | 49.5 | 49.5 | 49.6 | 49.7 | 49.4 | 6833 | 6835 | 6838 | 7069 | 7392 | 6825 | 176 | 482 | 161 | 230 | 159 | 176 | 1.23 | 0.324 |
| 1 | 48.8 | 0.7 | 5.62 | 204 | 12.52 | 59.6 | 59.8 | 59.7 | 59.7 | 59.8 | 59.3 | 8210 | 8178 | 8222 | 8690 | 8942 | 7916 | 175 | 447 | 161 | 241 | 160 | 179 | 1.39 | 0.390 |
| 1 | 48.9 | 0.5 | 4.89 | 178 | 14.48 | 69.4 | 69.7 | 69.6 | 69.6 | 69.6 | 69.3 | 9476 | 9488 | 9500 | 9606 | 10000 | 9470 | 174 | 501 | 161 | 256 | 160 | 179 | 1.50 | 0.450 |
| 1 | 48.3 | 0.7 | 4.28 | 154 | 16.28 | 79.3 | 79.4 | 79.3 | 79.4 | 79.7 | 79.2 | 10696 | 10702 | 10708 | 10936 | 11210 | 10695 | 175 | 506 | 161 | 235 | 161 | 177 | 1.62 | 0.508 |

| STOP | ISPD | FSPD | STPT | STPD | AVGD | APRD | INPR | SPRD | EDPR | MXPR | MNPR | ATOD | INTQ | SUID | EDIQ | MXIQ | MNIQ | IN1 | MX1 | IN2 | MX2 | IN3 | MX3 | STRK |
|------|------|------|------|------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | mi/h | mi/h | s | ft | ft/s ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² | lb/ft ² |

50-15 mi/h - 9.0 ft/s² Deceleration Rate - 72 Second Time Cycle - First Snub 175°F Initial Temperature

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|------|
| 1 | 49.8 | 15.9 | 5.61 | 272 | 8.78 | 39.4 | 41.9 | 39.8 | 42.1 | 43.6 | 33.4 | 5788 | 5986 | 5920 | 5931 | 6402 | 5679 | 201 | 347 | 178 | 308 | 175 | 193 | 1.19 |
| 2 | 49.8 | 15.9 | 5.62 | 272 | 8.80 | 40.8 | 41.7 | 40.6 | 39.5 | 46.7 | 32.7 | 5777 | 6018 | 5920 | 5942 | 6347 | 5625 | 250 | 428 | 229 | 306 | 197 | 215 | 1.26 |
| 3 | 49.8 | 15.8 | 5.64 | 272 | 8.79 | 41.9 | 43.6 | 41.8 | 44.3 | 46.2 | 32.0 | 5777 | 6106 | 5920 | 5942 | 6336 | 5592 | 288 | 487 | 262 | 342 | 217 | 229 | 1.31 |
| 4 | 49.6 | 15.7 | 5.61 | 272 | 8.77 | 43.7 | 44.0 | 43.7 | 46.6 | 48.0 | 36.6 | 5788 | 5909 | 5920 | 6062 | 6292 | 5668 | 320 | 489 | 274 | 317 | 231 | 239 | 1.35 |
| 5 | 49.8 | 15.9 | 5.64 | 273 | 8.75 | 44.9 | 45.4 | 44.5 | 49.5 | 50.9 | 35.3 | 5777 | 6062 | 5920 | 5964 | 6270 | 5668 | 346 | 466 | 281 | 310 | 242 | 249 | 1.45 |
| 6 | 49.8 | 15.8 | 5.62 | 272 | 8.81 | 45.0 | 46.1 | 45.0 | 49.7 | 50.1 | 39.1 | 5777 | 5953 | 5920 | 6051 | 6237 | 5734 | 372 | 467 | 289 | 316 | 254 | 260 | 1.46 |
| 7 | 49.8 | 15.9 | 5.66 | 274 | 8.73 | 45.8 | 45.2 | 45.9 | 49.7 | 51.5 | 39.3 | 5777 | 6018 | 5920 | 5788 | 6150 | 5734 | 395 | 497 | 304 | 334 | 269 | 275 | 1.54 |
| 8 | 49.9 | 15.7 | 5.68 | 275 | 8.75 | 46.3 | 45.5 | 46.6 | 49.7 | 51.7 | 41.2 | 5777 | 5964 | 5920 | 6205 | 5756 | 5756 | 416 | 596 | 319 | 355 | 284 | 291 | 1.54 |
| 9 | 50.0 | 15.8 | 5.68 | 276 | 8.77 | 45.8 | 44.6 | 46.0 | 51.3 | 51.3 | 40.4 | 5777 | 5964 | 5920 | 5986 | 6161 | 5734 | 433 | 663 | 337 | 379 | 298 | 307 | 1.55 |
| 10 | 50.2 | 15.7 | 5.72 | 278 | 8.81 | 45.6 | 45.9 | 45.9 | 48.5 | 51.4 | 41.4 | 5777 | 6095 | 5920 | 5734 | 6161 | 5734 | 448 | 669 | 353 | 406 | 313 | 322 | 1.57 |

HOT STOP

| mi/h | ft/s ² | Deceleration Rate | Stop begins | 60 seconds after the end of the 10 th Brake Power snub |
|------|-------------------|-------------------|-------------|---|
| 1 | 19.9 | 0.7 | 1.93 | 31 |
| | | | | 13.84 |
| | | | | 76.5 |
| | | | | 87.8 |
| | | | | 86.3 |
| | | | | 77.2 |
| | | | | 91.9 |
| | | | | 73.8 |
| | | | | 8990 |
| | | | | 10534 |
| | | | | 10512 |
| | | | | 10250 |
| | | | | 10740 |
| | | | | 10228 |
| | | | | 466 |
| | | | | 509 |
| | | | | 371 |
| | | | | 386 |
| | | | | 325 |
| | | | | 327 |
| | | | | 1.95 |

30 mi/h - 12.0 ft/s² Deceleration Rate - First stop begins 120 seconds after the end of Hot Stop

| mi/h | ft/s ² | Deceleration Rate | Stop begins | 60 seconds after the end of Hot Stop |
|------|-------------------|-------------------|-------------|--------------------------------------|
| 1 | 30.0 | 0.6 | 3.57 | 82 |
| 2 | 30.0 | 0.6 | 3.57 | 82 |
| 3 | 30.0 | 0.6 | 3.58 | 82 |
| 4 | 29.8 | 0.6 | 3.57 | 81 |
| 5 | 29.8 | 0.6 | 3.56 | 82 |
| 6 | 30.0 | 0.7 | 3.56 | 81 |
| 7 | 30.0 | 0.6 | 3.56 | 81 |
| 8 | 30.0 | 0.5 | 3.56 | 81 |
| 9 | 30.0 | 0.5 | 3.57 | 81 |
| 10 | 30.0 | 0.5 | 3.56 | 81 |
| 11 | 30.0 | 0.7 | 3.55 | 81 |
| 12 | 30.0 | 0.6 | 3.56 | 82 |
| 13 | 29.8 | 0.7 | 3.56 | 82 |
| 14 | 30.0 | 0.8 | 3.56 | 81 |
| 15 | 30.0 | 0.7 | 3.56 | 81 |
| 16 | 29.8 | 0.6 | 3.56 | 81 |
| 17 | 30.0 | 0.6 | 3.56 | 81 |
| 18 | 30.0 | 0.7 | 3.56 | 82 |
| 19 | 30.0 | 0.7 | 3.55 | 81 |
| 20 | 30.0 | 0.7 | 3.55 | 82 |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----|------|-----|------|----|-------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|------|
| 1 | 30.0 | 0.6 | 3.57 | 82 | 11.81 | 56.1 | 59.2 | 60.2 | 49.5 | 63.3 | 46.9 | 7703 | 8178 | 8210 | 8036 | 8406 | 7982 | 416 | 504 | 338 | 370 | 316 | 320 | 1.64 |
| 2 | 30.0 | 0.6 | 3.57 | 82 | 11.83 | 55.3 | 59.6 | 59.2 | 49.9 | 62.3 | 47.1 | 7715 | 8364 | 8222 | 8058 | 8428 | 8026 | 410 | 500 | 341 | 373 | 318 | 320 | 1.62 |
| 3 | 30.0 | 0.6 | 3.58 | 82 | 11.82 | 54.6 | 57.4 | 58.6 | 48.4 | 61.8 | 46.6 | 7711 | 8276 | 8210 | 8080 | 8428 | 7916 | 406 | 495 | 344 | 373 | 317 | 321 | 1.61 |
| 4 | 29.8 | 0.6 | 3.57 | 81 | 11.75 | 54.6 | 58.1 | 58.6 | 47.6 | 61.8 | 44.4 | 7726 | 8364 | 8222 | 8026 | 8450 | 8014 | 401 | 493 | 343 | 371 | 316 | 320 | 1.61 |
| 5 | 29.8 | 0.6 | 3.56 | 82 | 11.70 | 54.1 | 57.9 | 58.3 | 47.7 | 61.7 | 44.8 | 7737 | 8320 | 8222 | 8058 | 8494 | 8026 | 397 | 490 | 343 | 370 | 315 | 319 | 1.61 |
| 6 | 30.0 | 0.7 | 3.56 | 81 | 11.86 | 53.3 | 57.9 | 57.9 | 44.2 | 61.8 | 45.3 | 7730 | 8342 | 8222 | 8080 | 8494 | 7948 | 393 | 487 | 342 | 368 | 316 | 318 | 1.60 |
| 7 | 30.0 | 0.6 | 3.56 | 81 | 11.85 | 53.6 | 57.6 | 58.0 | 47.1 | 61.5 | 45.4 | 7735 | 8244 | 8210 | 8046 | 8494 | 7938 | 389 | 483 | 340 | 367 | 313 | 318 | 1.60 |
| 8 | 30.0 | 0.5 | 3.56 | 81 | 11.88 | 53.3 | 58.1 | 57.9 | 46.2 | 61.7 | 45.8 | 7750 | 8320 | 8222 | 8036 | 8494 | 7960 | 386 | 481 | 339 | 365 | 312 | 317 | 1.61 |
| 9 | 30.0 | 0.5 | 3.57 | 81 | 11.87 | 53.4 | 57.6 | 58.0 | 45.1 | 61.7 | 44.7 | 7740 | 8330 | 8222 | 8146 | 8504 | 7906 | 383 | 478 | 338 | 363 | 312 | 316 | 1.60 |
| 10 | 30.0 | 0.5 | 3.56 | 81 | 11.86 | 52.8 | 55.9 | 57.5 | 43.7 | 61.6 | 45.1 | 7733 | 8222 | 8222 | 8166 | 8516 | 7840 | 380 | 474 | 336 | 361 | 311 | 314 | 1.61 |
| 11 | 30.0 | 0.7 | 3.55 | 81 | 11.86 | 52.6 | 55.7 | 57.5 | 42.6 | 61.8 | 44.6 | 7738 | 8232 | 8222 | 8222 | 8504 | 7818 | 379 | 472 | 334 | 360 | 310 | 312 | 1.61 |
| 12 | 30.0 | 0.6 | 3.56 | 82 | 11.81 | 52.7 | 57.2 | 57.4 | 45.4 | 61.9 | 41.5 | 7753 | 8276 | 8222 | 8102 | 8548 | 7960 | 376 | 472 | 332 | 358 | 309 | 311 | 1.61 |
| 13 | 29.8 | 0.7 | 3.56 | 82 | 11.73 | 51.8 | 56.4 | 57.2 | 44.1 | 61.9 | 40.6 | 7756 | 8222 | 8222 | 8090 | 8570 | 7906 | 372 | 469 | 332 | 357 | 306 | 310 | 1.60 |
| 14 | 30.0 | 0.8 | 3.56 | 82 | 11.81 | 52.4 | 57.5 | 57.5 | 42.1 | 61.5 | 41.7 | 7754 | 8342 | 8222 | 8166 | 8548 | 7894 | 372 | 467 | 331 | 355 | 304 | 309 | 1.60 |
| 15 | 30.0 | 0.7 | 3.56 | 81 | 11.87 | 52.0 | 55.3 | 57.2 | 40.5 | 62.0 | 40.5 | 7743 | 8210 | 8222 | 8188 | 8516 | 7796 | 369 | 464 | 330 | 353 | 303 | 308 | 1.61 |
| 16 | 29.8 | 0.6 | 3.56 | 81 | 11.78 | 52.2 | 57.1 | 57.2 | 44.4 | 61.9 | 40.8 | 7741 | 8276 | 8222 | 8124 | 8504 | 7982 | 368 | 464 | 328 | 352 | 303 | 305 | 1.61 |
| 17 | 30.0 | 0.6 | 3.56 | 81 | 11.89 | 51.7 | 58.0 | 57.1 | 43.7 | 61.8 | 40.6 | 7754 | 8342 | 8222 | 8058 | 8582 | 7884 | 366 | 462 | 328 | 352 | 303 | 305 | 1.61 |
| 18 | 30.0 | 0.7 | 3.56 | 82 | 11.82 | 52.0 | 56.4 | 57.2 | 43.1 | 61.7 | 41.1 | 7749 | 8232 | 8232 | 8188 | 8560 | 7960 | 365 | 460 | 325 | 350 | 301 | 304 | 1.60 |
| 19 | 30.0 | 0.7 | 3.55 | 81 | 11.87 | 51.7 | 55.5 | 57.1 | 39.3 | 62.0 | 39.2 | 7743 | 8200 | 8222 | 8166 | 8526 | 7828 | 364 | 459 | 324 | 349 | 300 | 303 | 1.61 |
| 20 | 30.0 | 0.7 | 3.55 | 82 | 11.82 | 51.7 | 56.1 | 56.9 | 41.8 | 62.2 | 39.9 | 7750 | 8232 | 8222 | 8090 | 8484 | 7960 | 362 | 459 | 324 | 348 | 298 | 302 | 1.60 |



POST TEST INSPECTION

Shoe A, Leading: The lining has pitting, resin bleed and 95% contact. There is no cracking or grooving evident.

Shoe B, Trailing: The lining has pitting, resin bleed and 100% contact. There is no cracking or grooving evident.

Drum: The braking surface has light grooving and is silver in color. There are no heat checks or cracks evident.

All other test hardware appears in good condition.



0.90

| | VEHICLE AVG. N.m/kPa | DYNO OE AVG. N.m/kPa | M06033-06 N.m/kPa | M06033-07 N.m/kPa |
|-------------------|-------------------------|-------------------------|----------------------|----------------------|
| RGST--TOTAL TEST | 0.277 | 0.233 | 0.220 | 0.244 |
| RGST--ANALYSIS | 0.285 | 0.258 | 0.229 | 0.256 |
| AVST--TOTAL TEST | 0.291 | 0.247 | 0.250 | 0.284 |
| AVST--ANALYSIS | 0.253 | 0.229 | 0.230 | 0.285 |
| SUSST--TOTAL TEST | 0.298 | 0.251 | 0.253 | 0.285 |
| SUSST--ANALYSIS | 0.254 | 0.232 | 0.232 | 0.285 |

~ Dep.