SAFETY COMPLIANCE TESTING FOR
FMVSS 124L
ACCELERATOR CONTROL SYSTEMS

HONDA OF AMERICA MFG., INC.
2004 HONDA ELEMENT
NHTSA NO. C45300

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

MAY 14, 2004
FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6115 (NVS-220)
WASHINGTON, D.C. 20590
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Prepared By: 

Approved By: 

Approval Date: 5/14/04

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: 

Acceptance Date: 5/17/04
<table>
<thead>
<tr>
<th>1. Report No.</th>
<th>124L-GTL-04-004</th>
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<tr>
<td>2. Government Accession No.</td>
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<tr>
<td>3. Recipient's Catalog No.</td>
<td></td>
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<tr>
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<td>May 14, 2004</td>
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<tr>
<td>6. Performing Organ. Code</td>
<td>GTL</td>
</tr>
<tr>
<td>7. Author(s)</td>
<td>Grant Farrand, Project Engineer Debbie Messick, Project Manager</td>
</tr>
<tr>
<td>9. Performing Organization Name and Address</td>
<td>General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443</td>
</tr>
<tr>
<td>10. Work Unit No. (TRAIS)</td>
<td></td>
</tr>
<tr>
<td>11. Contract or Grant No.</td>
<td>DTNH22-01-C-11025</td>
</tr>
<tr>
<td>13. Type of Report and Period Covered</td>
<td>Final Test Report May 6, 2004</td>
</tr>
<tr>
<td>15. Supplementary Notes</td>
<td></td>
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<tr>
<td>16. Abstract</td>
<td>Compliance tests were conducted on the subject 2004 Honda Element MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-124-06 for the determination of FMVSS 124 compliance. Test failures identified were as follows: NONE</td>
</tr>
<tr>
<td>17. Key Words</td>
<td>Compliance Testing Safety Engineering FMVSS 124</td>
</tr>
<tr>
<td>18. Distribution Statement</td>
<td>Copies of this report are available from NHTSA NHTSA Technical Reference Div., Rm. 5108 (NAD-52) 400 7th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4946</td>
</tr>
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<td>19. Security Classif. (of this report)</td>
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</tr>
<tr>
<td>21. No. of Pages</td>
<td>56</td>
</tr>
<tr>
<td>22. Price</td>
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SECTION 1
PURPOSE OF COMPLIANCE TEST

FMVSS 124 specifies requirements for the return of a vehicle's throttle to the idle position when the driver removes the actuating force from the accelerator control, or in the event of a severance or disconnection in the accelerator control system. The purpose of FMVSS 124 is to reduce deaths and injuries resulting from engine overspeed caused by malfunctions in the accelerator control system. This standard applies to passenger cars, multipurpose passenger vehicles (MPV's), trucks and buses.
SECTION 2
TEST PROCEDURES AND DISCUSSION OF RESULTS

Compliance testing was conducted on a 2004 Honda Element, MPV, NHTSA No. C45300 in accordance with the National Highway Traffic Safety Administration (NHTSA) Laboratory Procedure TP-124-06.

Output from the vehicle throttle position sensor on the air throttle plate shaft was used to measure throttle position and data was recorded at 1000 HZ with GTL’s data acquisition system. Testing was conducted to simulate the normal removal of the driver’s foot from the accelerator pedal. Testing was performed with the vehicle in park and the engine running. Return to idle times were determined for four throttle plate positions with the accelerator control system complete and with each of the three throttle return springs (2) on the throttle plate shaft and (1) on the accelerator pedal independently disconnected. The severed linkage test was also performed by disconnecting the throttle cable from the throttle body. As the air throttle plate was mechanically linked to the accelerator pedal, no electrical disconnections were required.

This testing was to be performed at low ambient temperature of -40° C (-0 +5° C) in accordance with the NHTSA Test Procedure TP-124-06 however, due to the inability of prior test vehicles to start at this extreme temperature the test was performed at -13° C (-25° F).
SECTION 3
COMPLIANCE TEST DATA

Test data for this test can be found on the following pages. Photographs are found in Section 5 and Test Plots are found in Section 6.
DATA SHEET 1
VEHICLE DESCRIPTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004 HONDA ELEMENT MPV

VEHICLE NHTSA NO.: C45300

VEHICLE VIN: 5J6YH28254L000085

DATE OF TEST: MAY 6, 2004

TEST LAB: GENERAL TESTING LABORATORIES

VEHICLE ENGINE TYPE: 4 CYL

GVWR: 2020 KG

VEHICLE ENGINE SIZE: 2.4 L D.O.H.C 16 VALVE

VEHICLE ACCEL. CONTROL SYSTEM (ACS) (Air or Fuel Throttled): AIR

MAX. BHP ENGINE SPEED: 160 HP.

MFR. IDLE RPM: COMPUTER CONTROLLED (750)

FUEL METERING DEVICE (Carburetor, fuel injection, etc): FUEL INJECTION

REMARKS:

RECORDED BY: DATE: 05/06/04

APPROVED BY:
DATA SHEET 2
NORMAL OPERATION TEST
(fully operational system)

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004 HONDA ELEMENT, MPV
VEHICLE NHTSA NO.: C45300
DATE OF TEST: MAY 6, 2004

Check one:

SYSTEM CONDITION: COMPLETE (no modifications) Normal Operation

<table>
<thead>
<tr>
<th>ACCELERATOR POSITION</th>
<th>THROTTLE POSITION SENSOR READING</th>
<th>RPM</th>
<th>TEMPERATURE (°F)</th>
<th>THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)</th>
<th>RETURN TIME TO IDLE (Msec)</th>
<th>PASS/FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>% WIDE OPEN THROTTLE (WOT)</td>
<td>ENGINE COOLANT</td>
<td>AMBIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
<td>-25</td>
<td></td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td>50%</td>
<td></td>
<td></td>
<td>-24</td>
<td></td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td>75%</td>
<td></td>
<td></td>
<td>-24</td>
<td></td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td>-24</td>
<td></td>
<td></td>
<td>13%</td>
</tr>
</tbody>
</table>

RETURN TIME REQUIREMENTS:

- 1 second (1000 ms) for vehicles less than 4536 kg.
- 2 seconds (2000 ms) for vehicles more than 4536 kg.
- 3 seconds (3000 ms) for vehicles exposed to -18° C or less

PASS X FAIL ________

REMARKS: Baseline Idle 12% to 13% at this temperature.

RECORDED BY: DATE: 05/06/04
APPROVED BY:
DATA SHEET 3 (1 of 3)
FAIL-SAFE OPERATION DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004 HONDA ELEMENT, MPV
VEHICLE NHTSA NO.: C45300
DATE OF TEST: MAY 6, 2004

Check one:


SYSTEM CONDITION: #1 SPRING DISCONNECTED (OUTER SPRING)

<table>
<thead>
<tr>
<th>ACCELERATOR POSITION</th>
<th>THROTTLE POSITION SENSOR READING</th>
<th>RPM</th>
<th>TEMPERATURE (°F)</th>
<th>THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)</th>
<th>RETURN TIME TO IDLE (Msec)</th>
<th>PASS/FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>% WIDE OPEN THROTTLE (WOT)</td>
<td>ENGINE COOLANT</td>
<td>AMBIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td>25</td>
<td>3800</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>28</td>
</tr>
<tr>
<td>50%</td>
<td>50</td>
<td>5100</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>32</td>
</tr>
<tr>
<td>75%</td>
<td>75</td>
<td>5200</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>36</td>
</tr>
<tr>
<td>100%</td>
<td>100</td>
<td>5200</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>39</td>
</tr>
</tbody>
</table>

RETURN TIME REQUIREMENTS:

1 second (1000 ms) for vehicles less than 4536 kg.
2 seconds (2000 ms) for vehicles more than 4536 kg.
3 seconds (3000 ms) for vehicles exposed to -18° C or less

PASS ___ X ___ FAIL ____________

REMARKS:

RECORDED BY: ___________________________ DATE: 05/06/04
APPROVED BY: ___________________________
DATA SHEET 3 (2 of 3)
FAIL-SAFE OPERATION DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE:  2004 HONDA ELEMENT, MPV
VEHICLE NHTSA NO.:  C45300
DATE OF TEST:  MAY 6, 2004

Check one:

SYSTEM CONDITION: #2 SPRING DISCONNECTED (INNER SPRING)

<table>
<thead>
<tr>
<th>ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)</th>
<th>THROTTLE POSITION SENSOR READING</th>
<th>RPM</th>
<th>TEMPERATURE (°F)</th>
<th>THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)</th>
<th>RETURN TIME TO IDLE (Msec)</th>
<th>PASS/FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>25</td>
<td>4000</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>25</td>
</tr>
<tr>
<td>50%</td>
<td>50</td>
<td>5100</td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>73</td>
</tr>
<tr>
<td>75%</td>
<td>75</td>
<td></td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>32</td>
</tr>
<tr>
<td>100%</td>
<td>100</td>
<td></td>
<td>32</td>
<td>-25</td>
<td>13%</td>
<td>50</td>
</tr>
</tbody>
</table>

RETURN TIME REQUIREMENTS:

1 second (1000 ms) for vehicles less than 4536 kg.
2 seconds (2000 ms) for vehicles more than 4536 kg.
3 seconds (3000 ms) for vehicles exposed to -18° C or less

PASS  X  FAIL  

REMARKS:

RECORDED BY:  
DATE:  05/06/04

APPROVED BY:
DATA SHEET 3 (3 of 3)
FAIL-SAFE OPERATION DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004 HONDA ELEMENT, MPV
VEHICLE NHTSA NO.: C45300
DATE OF TEST: MAY 6, 2004

Check one:

SYSTEM CONDITION: #3 SPRING DISCONNECTED (ACCELERATOR)

<table>
<thead>
<tr>
<th>ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)</th>
<th>THROTTLE POSITION SENSOR READING</th>
<th>RPM</th>
<th>TEMPERATURE (°F)</th>
<th>ENGINE COOLANT</th>
<th>AMBIENT</th>
<th>THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)</th>
<th>RETURN TIME TO IDLE (Msec)</th>
<th>PASS/FAIL</th>
</tr>
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<tbody>
<tr>
<td>25%</td>
<td>25</td>
<td>5100</td>
<td>0</td>
<td>-25</td>
<td>13%</td>
<td></td>
<td>35</td>
<td>P</td>
</tr>
<tr>
<td>50%</td>
<td>50</td>
<td>5100</td>
<td>1</td>
<td>-25</td>
<td>13%</td>
<td></td>
<td>39</td>
<td>P</td>
</tr>
<tr>
<td>75%</td>
<td>75</td>
<td>5100</td>
<td>1</td>
<td>-25</td>
<td>13%</td>
<td></td>
<td>48</td>
<td>P</td>
</tr>
<tr>
<td>100%</td>
<td>100</td>
<td>5100</td>
<td>3</td>
<td>-25</td>
<td>13%</td>
<td></td>
<td>42</td>
<td>P</td>
</tr>
</tbody>
</table>

RETURN TIME REQUIREMENTS:

1 second (1000 ms) for vehicles less than 4536 kg.
2 seconds (2000 ms) for vehicles more than 4536 kg.
3 seconds (3000 ms) for vehicles exposed to -18° C or less

PASS _____ X _____ FAIL __________

REMARKS:

RECORDED BY: [Signature] DATE: 05/06/04
APPROVED BY: [Signature]
DATA SHEET 4
FAIL-SAFE OPERATION SEVERED

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2004 HONDA ELEMENT, MPV
VEHICLE NHTSA NO.: C45300
DATE OF TEST: MAY 6, 2004

Check one:

SYSTEM CONDITION: SEVERANCE

<table>
<thead>
<tr>
<th>ACCELERATOR</th>
</tr>
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<tbody>
<tr>
<td>POSITION</td>
</tr>
<tr>
<td>% WIDE OPEN</td>
</tr>
<tr>
<td>THROTTLE</td>
</tr>
<tr>
<td>RPM</td>
</tr>
<tr>
<td>TEMPERATURE</td>
</tr>
<tr>
<td>THROTTLE</td>
</tr>
<tr>
<td>POSITION</td>
</tr>
<tr>
<td>SENSOR</td>
</tr>
<tr>
<td>ENG. COOLANT</td>
</tr>
<tr>
<td>AMBIENT</td>
</tr>
<tr>
<td>SENSOR</td>
</tr>
<tr>
<td>READING</td>
</tr>
<tr>
<td>READING @</td>
</tr>
<tr>
<td>IDLE</td>
</tr>
<tr>
<td>BASELINE</td>
</tr>
<tr>
<td>RETURN</td>
</tr>
<tr>
<td>TIME TO</td>
</tr>
<tr>
<td>IDLE</td>
</tr>
<tr>
<td>(Msec)</td>
</tr>
<tr>
<td>PASS/Fail</td>
</tr>
</tbody>
</table>

25% | 25 | 4100 | 21 | -25 | 13% | 22 | P
50% | 50 | 5100 | 22 | -25 | 13% | 6  | P
75% | 75 | 5100 | 26 | -25 | 13% | 8  | P
100%| 100| 5100 | 29 | -25 | 13% | 6  | P

RETURN TIME REQUIREMENTS:

1 second (1000 ms) for vehicles less than 4536 kg.
2 seconds (2000 ms) for vehicles more than 4536 kg.
3 seconds (3000 ms) for vehicles exposed to -18° C or less

PASS ___ X ___ FAIL ______________

REMARKS:

RECORDED BY: [Signature] DATE: 05/06/04
APPROVED BY: [Signature]
## SECTION 4

**TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO.</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTINUOUS RECORDER</td>
<td>OMEGA</td>
<td>55662</td>
<td>03/04</td>
<td>03/05</td>
</tr>
<tr>
<td>ENGINE RECORDING</td>
<td>FLUKE</td>
<td>7471026</td>
<td>03/04</td>
<td>03/05</td>
</tr>
<tr>
<td>ENGINE RECORDING</td>
<td>MONARCH</td>
<td>1444664</td>
<td>01/04</td>
<td>07/05</td>
</tr>
<tr>
<td>SOFTWARE</td>
<td>GTL</td>
<td>N/A</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
<tr>
<td>CHAMBER</td>
<td>GTL</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>EXHAUST DUCT</td>
<td>GTL</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
SECTION 5
PHOTOGRAPHS
2004 HONDA ELEMENT
NHTSA NO. C45300
FMVSS NO. 124L

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE
FIGURE 5.4
CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL
<table>
<thead>
<tr>
<th>TIRE AND LOADING INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEATING CAPACITY: TOTAL 4 : FRONT 2 : REAR 2</td>
</tr>
<tr>
<td>The combined weight of occupants and cargo should never exceed 305kg or 675lbs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORIGINAL TIRE SIZE</th>
<th>COLD TIRE INFLATION PRESSURE</th>
<th>SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P215/70R16 99S</td>
<td>FRONT 220kPa, 32PSI</td>
<td>CA</td>
</tr>
<tr>
<td></td>
<td>REAR 235kPa, 34PSI</td>
<td></td>
</tr>
<tr>
<td>COMPACT SPARE TIRE</td>
<td>COLD TIRE INFLATION PRESSURE</td>
<td></td>
</tr>
<tr>
<td>T145/90D16 106M</td>
<td>420kPa, 60PSI</td>
<td></td>
</tr>
</tbody>
</table>

2004 HONDA ELEMENT
NHTSA NO. C45300
FMVSS NO. 124L

FIGURE 5.5
CLOSE-UP VIEW OF VEHICLE'S TIRE INFORMATION LABEL
2004 HONDA ELEMENT
NHTSA NO. C45300
FMVSS NO. 124L

FIGURE 5.7
ACCELERATOR CABLE LINKAGE TO THROTTLE BODY
2004 HONDA ELEMENT
NHTSA NO. C45300
FMVSS NO. 124L

FIGURE 58
ACCELERATOR PEDAL
FIGURE 5.10
THROTTLE BODY REMOVED FROM ENGINE
THROTTLE POSITION SENSOR

FIGURE 5.11
THROTTLE POSITION SENSOR
RETURN SPRING #1 ON TOP. SPRING #2 ON BOTTOM.
2004 HONDA ELEMENT
NHTSA NO. C45300
FMVSS NO. 124L

FIGURE 5.13
TOP VIEW OF THROTTLE BODY
SECTION 6
PLOTS
NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 42.998 %
Y2: 12.776 %
t1: -35471.154 ms
t2: -35442.154 ms
dt: 0.029 s
f: 34.483 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/ NORMAL/50% WOT
10:19:09 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 62.396 %
Y2: 12.973 %
t1: -25121.154 ms
t2: -25090.154 ms
dt: 0.031 s
f: 32.258 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/ NORMAL/75% WOT
10:20:38 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

V % RPM

TRIGGER

THROTTLE POSITION %

RPM

10:12:42.90

- TRIGGER [V]  - Throttle Position [%]  - Engine RPM [RPM]  h:min:s

Channel: Throttle Position
Y1: 70.324 %  Y2: 12.967 %
t1: -15047.154 ms  t2: -15014.154 ms
dt: 0.033 s  f: 30.303 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/ NORMAL/100% WOT
10:22:08 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 95.679 %
Y2: 12.973 %
t1: -6250.154 ms
t2: -6211.154 ms
dt: 0.039 s
f: 25.641 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 1/25% WOT

NHTSA C45300 HONDA ELEMENT

Channel Throttle Position

Y1: 30.934 %
Y2: 12.897 %

t1: -5497.320 ms
t2: -5469.320 ms

dt: 0.028 s
f: 35.714 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 1/50% WOT 11:50:42 AM 5/6/04

NHTSA C46300 HONDA ELEMENT

Channel: Throttle Position
Y1: 40.782 %
t1: -55721.320 ms
dt: 0.032 s

Y2: 12.792 %
t2: -56686.320 ms
f: 31.250 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/Spring 1/75% WOT 11:52:18 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

V % RPM

THROTTLE POSITION %

TRIGGER

Channel: Throttle Position
Y1: 58.047 %
t1: -46247.320 ms

Y2: 12.925 %
t2: -46211.320 ms
dt: 0.036 s
f: 27.778 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 2 /50% WOT 12:16:09 PM 5/6/04

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 40.919 %
t1: -26149.308 ms
dt: 0.073 s

Y2: 13.380 %
t2: -26076.308 ms
t: 13.699 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 2 /100% WOT
12:20:01 PM 5/6/04

NHTSA C45300 HONDA ELEMENT

V % RPM

TRIGGER

THROTTLE POSITION %

RPM

12:12:56.60 12:12:56.65 12:12:56.70

Channel: Throttle Position

Y1: 104.167 %
t1: -7057.308 ms
dt: 0.050 s

Y2: 12.846 %
t2: -7007.308 ms
t: 20.000 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 3 /25% WOT
10:33:26 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

V % RPM

--- TRIGGER [V] --- Throttle Position [%] --- Engine RPM [RPM]

Channel: Throttle Position

Y1: 41.008 %
Y2: 12.938 %
T1: -54660.977 ms
t2: -54625.977 ms
dt: 0.035 s

f: 28.571 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 3 /50% WOT 10:35:00 AM 5/6/04

NHTSA C46300 HONDA ELEMENT

Channel: Throttle Position
Y1: 60.307 %
Y2: 12.801 %
t1: -44675.977 ms
t2: -44636.977 ms
dt: 0.039 s
f: 25.641 Hz
NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 76.275 %  
t1: -34306.977 ms  
dt: 0.048 s

Y2: 12.582 %  
t2: -34258.977 ms  
f: 20.833 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SPRING 3 /100% WOT 10:47:00 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 96.108 %
t1: -5420.756 ms
Y2: 12.884 %
t2: -5378.756 ms
dt: 0.042 s
f: 23.810 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SEVERED/25% WOT

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 22.799 %
t1: -2330.923 ms
dt: 0.022 s

Y2: 13.177 %
t2: -2308.923 ms
f: 45.455 Hz
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SEVERED/50% WOT 11:09:22 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

Channel: Throttle Position

Y1: 14.909 %  Y2: 12.827 %
\( t_1: -54568.923 \text{ ms} \)  \( t_2: -54562.923 \text{ ms} \)
\( dt: 0.006 \text{ s} \)  \( f: 166.667 \text{ Hz} \)
FMVSS 124 THROTTLE RETURN TEST
124 COLD/SEVERED/75% WOT 11:11:07 AM 5/6/04

NHTSA C45300 HONDA ELEMENT

V % RPM

--- Trigger [V] --- Throttle Position [%] --- Engine RPM [RPM]

Channel: Throttle Position

Y1: 15.039 %  Y2: 12.970 %
t1: -25513.923 ms  t2: -25505.923 ms
dt: 0.008 s  f: 125.000 Hz
NHTSA C45300 HONDA ELEMENT

FMVSS 124 THROTTLE RETURN TEST
124 COLD/SEVERED/100% WOT

11:05:47.0  11:05:47.5  11:05:48.0

- TRIGGER [V]  - Throttle Position [%]  - Engine RPM [RPM]

h:min:s

Channel: Throttle Position

Y1: 12.808 %  
t1: -14660.923 ms  
dt: 0.006 s

Y2: 12.557 %  
t2: -14654.923 ms  
f: 166.667 Hz
SECTION 7
MANUFACTURER'S DRAWINGS
VEHICLE INFORMATION/TEST SPECIFICATIONS
FMVSS 124 - Accelerator Control Systems

Requested Information:

1.) A sketch of the driver operated accelerator control system (ACS) starting from the accelerator pedal up to and including the fuel metering device (carburetor, fuel injectors, fuel distributor, or fuel injection pump).

Answer: Refer to Fig. 1.

Fig. 1 Accelerator Control System of 04M ELEMENT
2.) For Normal ACS operation, the method utilized to determine the engine idle state (air throttle plate position, fuel delivery rate, other).

Answer: Air Throttle Plate Position is used.

3.) For Fail-Safe operation of the ACS (disconnection or severance), the method utilized to determine return of engine power to the idle state (air throttle plate position, fuel delivery rate, air intake, engine rpm, other)

Answer: Air Throttle Plate Position is used.

4.) Is the vehicle ACS equipped with any of the following:
   A. Accelerator Pedal Position Sensor (APS)
   B. Throttle Plate Position Sensor (TPS)
   C. Electronic Control Module (ECM)
   D. Air throttle plate actuator motor

Answer: B. and C.

5.) If air throttle plate equipped, is there a procedure which can be utilized by the test laboratory to measure the position of the throttle plate by tapping into the TPS or ECM? If so, please describe.

Answer: Connect Recorder to TPS wire as shown in Fig.2. The WOT of the throttle is measured by first measuring the voltage at the idle position, which is set to 0%, and by setting voltage of the fully open throttle to 100%. Also, the throttle return time is measured by the voltage difference time of the throttle position sensor.

Connecting Method for Recorder (Fig.2)
Throttle Plate Position Sensor (Photo)

Example of the Throttle Return Time

6.) Point(s) chosen to demonstrate compliance with FMVSS 124 for single point disconnect and severance.

Answer: The Accelerator Pedal Spring is removed.
7.) Where applicable, were connections in the ACS beyond the ECM such as the fuel injectors tested for disconnection and severance? If yes, provide details.

Answer: No

8.) Where applicable, were idle return times tested for electrical severance accompanied by shorting to ground? If yes, please provide details.

Answer: No

9.) All sources of return energy (springs) for the accelerator pedal and if applicable, the air throttle plate.

Answer: Primary Return Spring and Secondary Return Spring of Air Throttle Valve

![Diagram of return springs]

10.) If fuel delivery rate is used to demonstrate return to idle state, provide:
A. The method used to measure this signal i.e. connection to standard SAE J1587 data bus.
B. Equipment required to measure signal.
C. Fuel rate signal output range at the idle state.

Answer: N.A.

11.) Is the ACS equipped with a limp home mode? If yes, provide operation description.

Answer: N.A.