

REPORT NO. 124-KAR-03-001

**SAFETY COMPLIANCE TESTING  
FOR FMVSS 124**

**ACCELERATOR CONTROL SYSTEMS**

2003 JEEP  
GRAND CHEROKEE  
5 DOOR MPV

NHTSA NO. C30306

PREPARED BY:  
KARCO ENGINEERING  
9270 HOLLY ROAD  
ADELANTO, CALIFORNIA 92301



July 30, 2003

FINAL REPORT

PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
ROOM 6115 (NVS-221)  
400 SEVENTH STREET, SW  
WASHINGTON, D.C. 20590

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Prepared by: Matthew A. Ivory Date: July 16, 2003  
Mr. Matthew A. Ivory, Project Engineer  
KARCO Engineering

Reviewed by: Jerry L. Kratzke Date: July 16, 2003  
Mr. Jerry L. Kratzke, Director of Operations  
KARCO Engineering

Approved by: Frank D. Richardson Date: July 16, 2003  
Mr. Frank D. Richardson, Program Manager  
KARCO Engineering

FINAL REPORT ACCEPTED BY:

Accepted By: STP

Acceptance Date: 8/8/03

### Technical Report Documentation Page

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| 16. Abstract<br><br>Compliance tests were conducted on the subject 2003 Jeep Cherokee SUV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP124-06 for the determination of FMVSS 124 compliance. There were no apparent test failures. |                                                            |                                                                                                                                                                                                                                |           |
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## TABLE OF CONTENTS

| <u>Section</u>  |                                                 | <u>Page</u> |
|-----------------|-------------------------------------------------|-------------|
| 1               | Purpose of Compliance Test                      | 1           |
| 2               | Compliance Test Procedure and Data Summary      | 2           |
| 3               | Test Data                                       | 5           |
| <u>Appendix</u> |                                                 |             |
| A               | Photographs                                     | A           |
| B               | Data Plots                                      | B           |
| C               | Test Equipment List and Calibration Information | C           |

## LIST OF PHOTOGRAPHS

| <u>Figure</u> |                                                                       | <u>Page</u> |
|---------------|-----------------------------------------------------------------------|-------------|
| A-1           | Front View of Vehicle                                                 | A-1         |
| A-2           | Left Side View of Vehicle                                             | A-2         |
| A-3           | Right Side View of Vehicle                                            | A-3         |
| A-4           | Vehicle's Certification Label                                         | A-4         |
| A-5           | Vehicle's Tire Information Label                                      | A-5         |
| A-6           | Vehicle's Engine Compartment                                          | A-6         |
| A-7           | Vehicle's Accelerator Pedal Assembly                                  | A-7         |
| A-8           | Spring's 1 and 2 Located on Vehicle's Accelerator Control System      | A-8         |
| A-9           | Throttle Plate Sensor Located on Vehicle's Accelerator Control System | A-9         |
| A-10          | Overall View of Vehicle's Test Setup                                  | A-10        |
| A-11          | Close-Up View of Vehicle's Test Setup                                 | A-11        |
| A-12          | Instrumentation                                                       | A-12        |
| A-13          | Severance on Throttle Body                                            | A-13        |

# LIST OF DATA PLOTS

| <u>Figure</u> |                                                                                                    | <u>Page</u> |
|---------------|----------------------------------------------------------------------------------------------------|-------------|
| B-1           | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, Normal Operation)                   | B-1         |
| B-2           | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, Normal Operation)                   | B-2         |
| B-3           | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, Normal Operation)                   | B-3         |
| B-4           | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, Normal Operation)                  | B-4         |
| B-5           | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, Normal Operation, Engine Off)       | B-5         |
| B-6           | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, Normal Operation, Engine Off)       | B-6         |
| B-7           | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, Normal Operation, Engine Off)       | B-7         |
| B-8           | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, Normal Operation, Engine Off)      | B-8         |
| B-9           | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, #1 Spring Disconnected)             | B-9         |
| B-10          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, #1 Spring Disconnected)             | B-10        |
| B-11          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, #1 Spring Disconnected)             | B-11        |
| B-12          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, #1 Spring Disconnected)            | B-12        |
| B-13          | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, #1 Spring Disconnected, Engine Off) | B-13        |
| B-14          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, #1 Spring Disconnected, Engine Off) | B-14        |
| B-15          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, #1 Spring Disconnected, Engine Off) | B-15        |

# LIST OF DATA PLOTS

| <u>Figure</u> |                                                                                                         | <u>Page</u> |
|---------------|---------------------------------------------------------------------------------------------------------|-------------|
| B-16          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, #1 Spring Disconnected, Engine Off)     | B-16        |
| B-17          | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, #2 Spring Disconnected)                  | B-17        |
| B-18          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, #2 Spring Disconnected)                  | B-18        |
| B-19          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, #2 Spring Disconnected)                  | B-19        |
| B-20          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, #2 Spring Disconnected)                 | B-20        |
| B-21          | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, #2 Spring Disconnected, Engine Off)      | B-21        |
| B-22          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, #2 Spring Disconnected, Engine Off)      | B-22        |
| B-23          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, #2 Spring Disconnected, Engine Off)      | B-23        |
| B-24          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, #2 Spring Disconnected, Engine Off)     | B-24        |
| B-25          | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, Severance of Throttle Cable)             | B-25        |
| B-26          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, Severance of Throttle Cable)             | B-26        |
| B-27          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, Severance of Throttle Cable)             | B-27        |
| B-28          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, Severance of Throttle Cable)            | B-28        |
| B-29          | Throttle Position vs. Time/Engine RPM vs. Time<br>(25% of WOT, Severance of Throttle Cable, Engine Off) | B-29        |
| B-30          | Throttle Position vs. Time/Engine RPM vs. Time<br>(50% of WOT, Severance of Throttle Cable, Engine Off) | B-30        |

## LIST OF DATA PLOTS

| <u>Figure</u> |                                                                                                          | <u>Page</u> |
|---------------|----------------------------------------------------------------------------------------------------------|-------------|
| B-31          | Throttle Position vs. Time/Engine RPM vs. Time<br>(75% of WOT, Severance of Throttle Cable, Engine Off)  | B-31        |
| B-32          | Throttle Position vs. Time/Engine RPM vs. Time<br>(100% of WOT, Severance of Throttle Cable, Engine Off) | B-32        |



**SECTION 1**  
**PURPOSE OF COMPLIANCE TEST**

## **1. PURPOSE OF COMPLIANCE TEST**

Tests were conducted on a 2003 Jeep Cherokee MPV, manufactured by Chrysler Corporation, to determine compliance with Federal Motor Vehicle Safety Standard (FMVSS) 124, "Accelerator Control Systems". FMVSS 124 establishes 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 this standard is to reduce the number of deaths and injuries resulting from engine over-speed caused by malfunctions in the accelerator control system.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-124-06, dated April 20, 2000, and corresponding KARCO Engineering test procedure KTP-124, dated June 13, 2003, except for engine off testing which was authorized by the OVSC to provide additional data. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

|            |   |                                                 |
|------------|---|-------------------------------------------------|
| Section 2  | - | Compliance Test Procedure and Data Summary      |
| Section 3  | - | Test Results                                    |
| Appendix A | - | Photographs                                     |
| Appendix B | - | Data Plots                                      |
| Appendix C | - | Test Equipment List and Calibration Information |

**SECTION 2**  
**COMPLIANCE TEST PROCEDURE and DATA SUMMARY**

## **2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY**

A 2003 Jeep Cherokee SUV was subjected to FMVSS 124 compliance testing. The tests were conducted at KARCO Engineering in Adelanto, California on July 15 and July 16, 2003. The following tests were performed:

- Inspection
- Time to Return to Idle Position (Complete Normal Operation)
- Time to Return to Idle Position (1<sup>st</sup> Energy Source Removed)
- Time to Return to Idle Position (2<sup>nd</sup> Energy Source Removed)
- Time to Return to Idle Position (Severance )

The tests were conducted per the FMVSS 124 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

### **A. INSPECTION**

The operation of all accelerator control systems shall be checked to ascertain that the systems operate correctly. The accelerator control systems shall have at least two sources of energy capable of returning the throttle to the idle.

### **B. COMPLIANCE TEST EXECUTION (STATIC TESTING OF ACCELERATOR CONTROL SYSTEMS)**

#### **B.1 FULLY OPERATIONAL SYSTEM**

Continuously record ambient temperature, engine coolant temperature, throttle position versus time and engine RPM versus time for the duration of each test. The accelerator may be depressed by hand or foot pressure or by any other mechanical means. Conduct the tests for 25% WOT, 50% WOT, 75% WOT and 100% WOT. Conduct the test a second time with the engine off.

## **B.2 DISCONNECTION OF THE FIRST SOURCE OF THROTTLE RETURN ENERGY**

Remove one of the throttle return springs. Continuously record ambient temperature, engine coolant temperature, throttle position versus time, and engine RPM versus time for the duration of each test. The accelerator may be depressed by hand or foot pressure or by any other mechanical means. Conduct the tests for 25% WOT, 50% WOT, 75% WOT and 100% WOT. Conduct the test a second time with the engine off. Return the system to original condition.

## **B.3 DISCONNECTION OF THE SECOND SOURCE OF THROTTLE RETURN ENERGY**

Remove the second throttle return spring. Continuously record ambient temperature, engine coolant temperature, throttle position versus time, and engine RPM versus time for the duration of each test. The accelerator may be depressed by hand or foot pressure or by any other mechanical means. Conduct the tests for 25% WOT, 50% WOT, 75% WOT and 100% WOT. Conduct the test a second time with the engine off. Return the system to original condition.

## **B.4 SEVERANCE**

Identify the points determined in Section 11.3.4 of the test procedure to be the most critical in the accelerator control system. Induce severance or disconnection in the throttle return linkage. Continuously record ambient temperature, engine coolant temperature, throttle position versus time engine, and RPM versus time for the duration of each test. The accelerator may be depressed by hand or foot pressure or by any other mechanical means. Conduct the tests for 25% WOT, 50% WOT, 75% WOT and 100% WOT. Conduct the test a second time with the engine off. Return the system to original condition.

## **B.5 TEST SET-UP**

Each series of tests were conducted in the same manner. Throttle plate position was determined by measuring voltage output directly from the throttle position sensor. Engine RPM was obtained with an optical fifth wheel recording speed on an engine belt. The Jeep Grand Cherokee was rpm limited and the RPM of the engine remained relatively constant for throttle plate positions beyond a certain throttle position. On data traces, time of release of accelerator pedal and time of severance is time zero (0). Percentage (%) on data trace is percent of throttle maximum rotation where zero is the idle state position. On data traces, RPM time is for RPM to return to approximate steady state idle. Worst case severance was accomplished by disconnecting the accelerator cable from the throttle body and actuating the throttle position with a piece of string. Time zero on the data plots equates to release of string simulating failure.

SECTION 3  
TEST DATA

### **3. TEST DATA**

The results of FMVSS 124 compliance tests that were conducted on the 2003 Jeep Cherokee SUV on July 15 through July 16, 2003, to determine compliance with FMVSS 124, "Accelerator Control Systems" are presented in this section.



# DATA SHEET NO. 1

## VEHICLE INSPECTION AND IDENTIFICATION

| TEST VEHICLE INFORMATION    |                              |                        |                   |
|-----------------------------|------------------------------|------------------------|-------------------|
| Manufacturer                | Daimler Chrysler Corporation | VIN                    | 1J4GX48523C541958 |
| Manufacturing Date          | 09/02                        | Delivery Date          | 03/24/03          |
| Dealer                      | Ontario Auto Center          | NHTSA No.              | C30306            |
| Odometer Reading (mi.)      | 7                            | Fuel Type              | Gas               |
| Engine Displacement         | 4.0                          | Cylinders              | 6                 |
| Transmission                | Automatic                    | Final Drive            | Rear              |
| Engine Placement            | Longitudinal                 | Color                  | Blue              |
| Tire Press./Max. Cap. Front | 33 psi                       | Cold Tire Press. Front | 33 psi            |
| Tire Press./Max. Cap. Rear  | 33 psi                       | Cold Tire Press. Rear  | 33 psi            |
| Recommend Tire Size         | P225/75R16                   | Type of Spare          | P225/75R16        |
| Tire Size on Vehicle        | P225/75R16                   | Manufacturer           | Goodyear          |
| GVWR                        | 5150                         | Cargo Capacity         | 582               |
| GAWR Front                  | 2500                         | GAWR Rear              | 2950              |
| Air Conditioning            | YES                          | Power Steering         | YES               |
| Power Brakes                | YES                          | AM/FM/Cassette         | YES               |
| Disc Brakes (Front)         | YES                          | Disc Brakes (Rear)     | YES               |
| Power Windows               | YES                          | Tilt Steering          | YES               |
| Anti-lock Brakes (ABS)      | YES                          | Power Seats            | NO                |
| Driver Airbag               | YES                          | Passenger Airbag       | YES               |

# DATA SHEET NO. 2

## VEHICLE THROTTLE CONTROL INSPECTION

| VEHICLE    |                |              |                   |
|------------|----------------|--------------|-------------------|
| YEAR       | 2003           | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306         | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03       | TEMPERATURE: | N/A               |

|                                                                                                                                                       |                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Determine how many forms of energy are present on the vehicle to return throttle to idle. If more than two, describe the third in the comments below. | 2                                                        |
| Describe the first energy source.                                                                                                                     | Torsion spring mounted on throttle shaft.                |
| Describe the second energy source.                                                                                                                    | Torsion spring mounted on throttle shaft.                |
| Does vehicle have a return spring on the accelerator pedal?                                                                                           | No                                                       |
| Describe point of severance.                                                                                                                          | Throttle cable was disconnected from the throttle shaft. |
|                                                                                                                                                       |                                                          |

Comments:

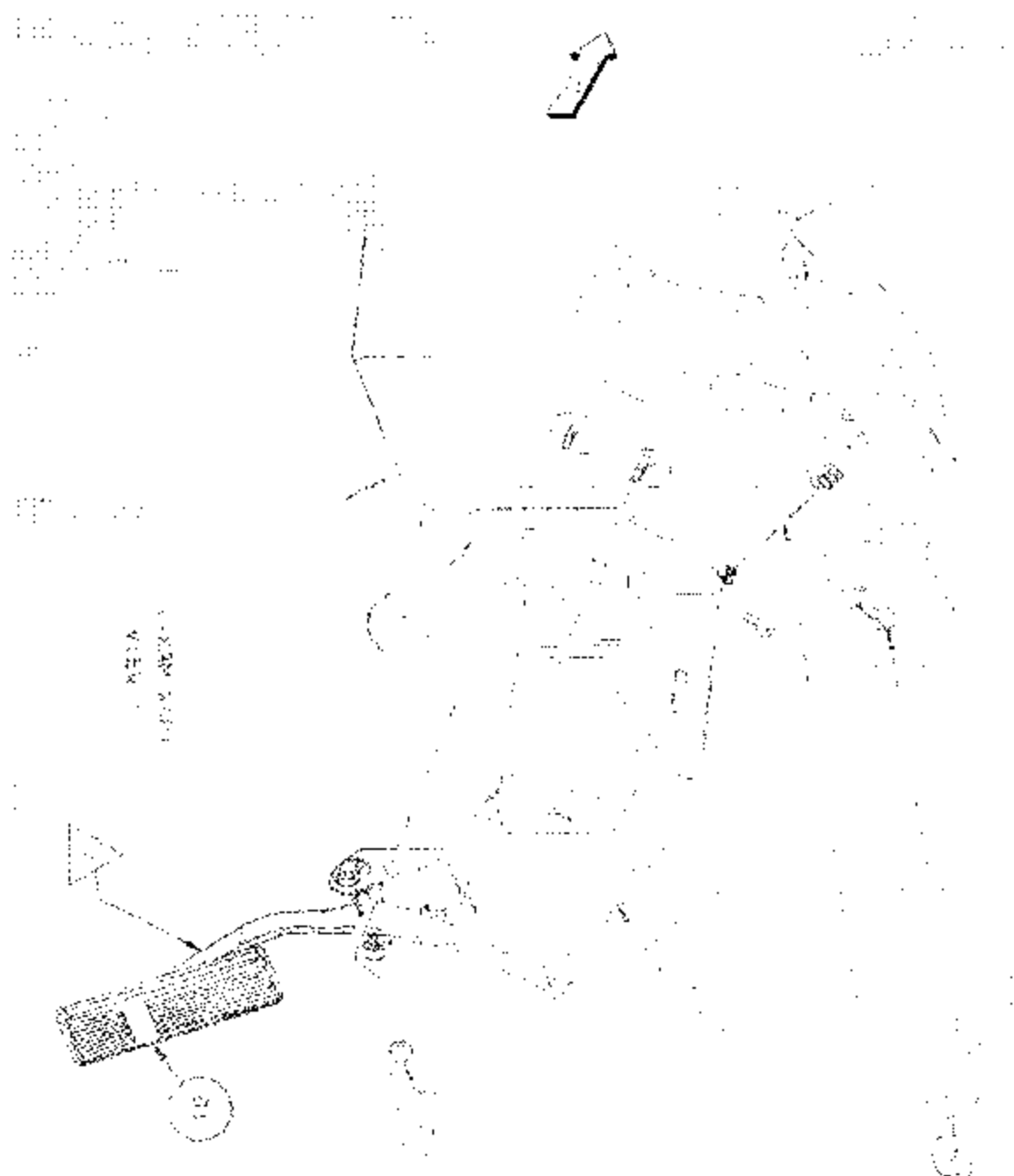
|              |          |   |          |  |
|--------------|----------|---|----------|--|
| TEST STATUS: | PASSED — | x | FAILED — |  |
|--------------|----------|---|----------|--|

RECORDED BY: JESSE FUENTES DATE: 07/16/03

APPROVED BY: MATTHEW A. IVORY DATE: 07/16/03

**DATA SHEET NO. 3**  
**MANUFACTURER'S DRAWINGS**

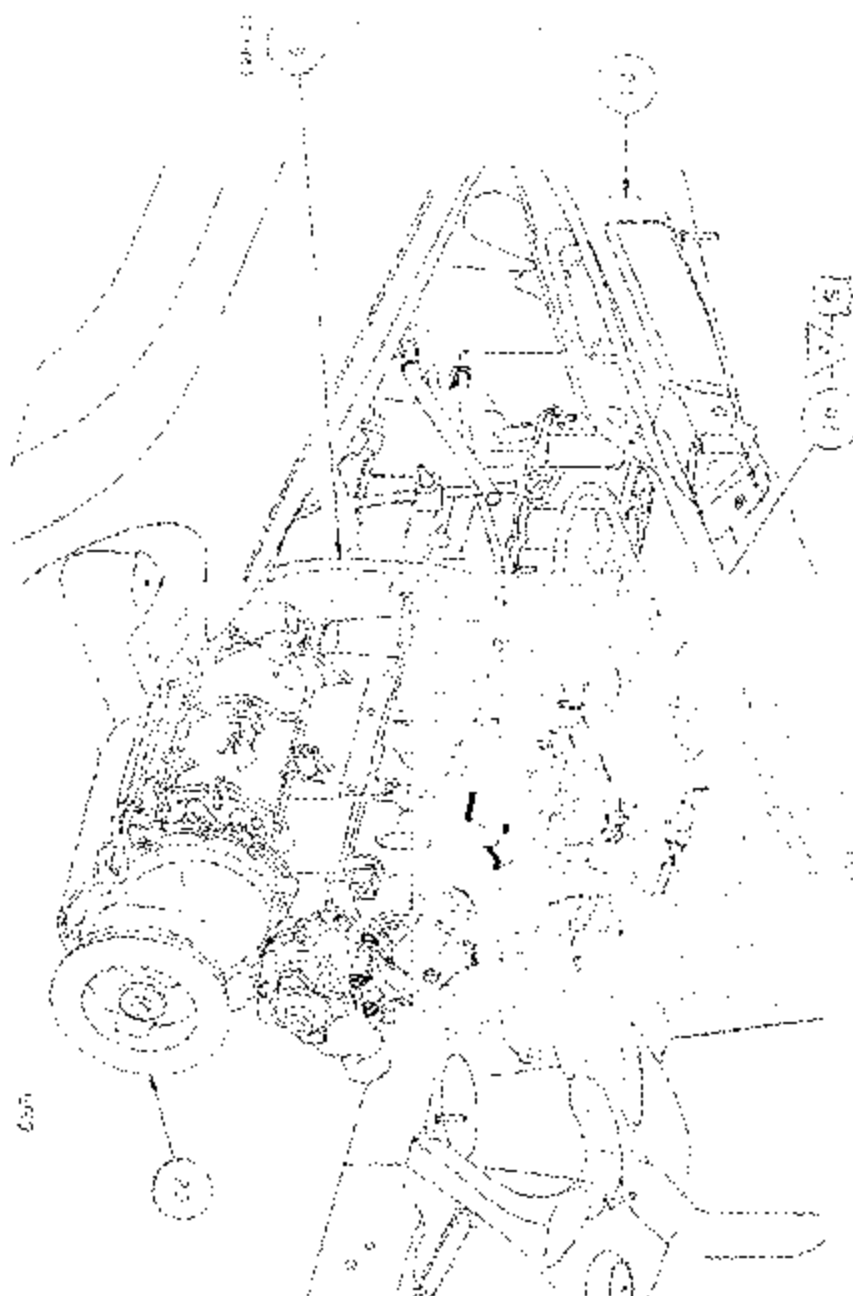
| VEHICLE    |                   |              |                   |
|------------|-------------------|--------------|-------------------|
| YEAR       | 2003              | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE    | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306            | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03-07/16/03 | TEMPERATURE: | N/A               |



# DATA SHEET NO. 3...(CONT.)

## MANUFACTURER'S DRAWINGS

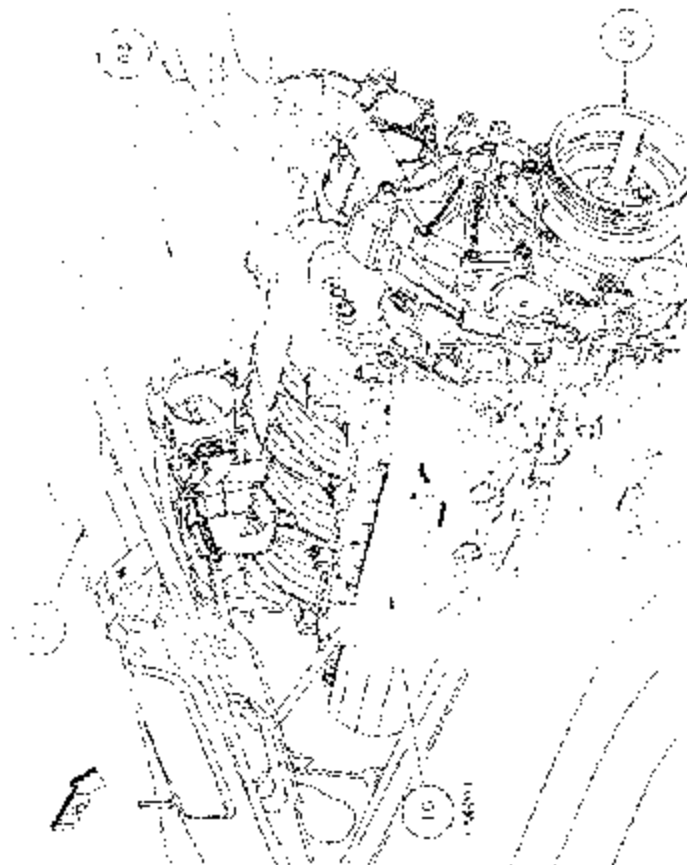
| VEHICLE    |                   |              |                   |
|------------|-------------------|--------------|-------------------|
| YEAR       | 2003              | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE    | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306            | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03-07/16/03 | TEMPERATURE: | N/A               |



DATA SHEET NO. 3...(CONT.)

MANUFACTURER'S DRAWINGS

| VEHICLE    |                   |              |                   |
|------------|-------------------|--------------|-------------------|
| YEAR       | 2003              | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE    | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306            | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03-07/16/03 | TEMPERATURE: | N/A               |



DATA SHEET NO. 3...(CONT.)

MANUFACTURER'S DRAWINGS

| VEHICLE    |                   |              |                   |
|------------|-------------------|--------------|-------------------|
| YEAR       | 2003              | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE    | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306            | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03-07/16/03 | TEMPERATURE: | N/A               |



# DATA SHEET NO. 4

## TEST EXECUTION

| VEHICLE    |                |              |                   |
|------------|----------------|--------------|-------------------|
| YEAR       | 2003           | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306         | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03       | TEMPERATURE: | 36°C              |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | ACCELERATOR CONTROL SYSTEM INTACT,<br>AMBIENT TEMPERATURE, ENGINE ON |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|----------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                           | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 25.4%                    | 5351.8     | 91°C                                                                 | 0.0%                                     | 245 msec               | Pass       |
| 2                                  | 50%                       | 51.2%                    | 4977.1     | 91°C                                                                 | 0.0%                                     | 150 msec               | Pass       |
| 3                                  | 75%                       | 76.0%                    | 5670.3     | 91°C                                                                 | 0.0%                                     | 200 msec               | Pass       |
| 4                                  | 100%                      | 100.8%                   | 5361.5     | 91°C                                                                 | 0.0%                                     | 130 msec               | Pass       |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | ACCELERATOR CONTROL SYSTEM INTACT,<br>AMBIENT TEMPERATURE, ENGINE OFF |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|-----------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                            | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 25.1%                    | N/A        | N/A                                                                   | 0.0%                                     | 100 msec               | Pass       |
| 2                                  | 50%                       | 49.9%                    | N/A        | N/A                                                                   | 0.0%                                     | 100 msec               | Pass       |
| 3                                  | 75%                       | 76.5%                    | N/A        | N/A                                                                   | 0.0%                                     | 110 msec               | Pass       |
| 4                                  | 100%                      | 100.5%                   | N/A        | N/A                                                                   | 0.0%                                     | 140 msec               | Pass       |

### RETURN TIME REQUIREMENTS:

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

|              |          |   |          |  |
|--------------|----------|---|----------|--|
| TEST STATUS: | PASSED — | x | FAILED — |  |
|--------------|----------|---|----------|--|

RECORDED BY: JESSE FUENTES DATE: 07/16/03

APPROVED BY: MATTHEW A. IVORY DATE: 07/16/03

# DATA SHEET NO. 4...(CONTINUED)

## TEST EXECUTION

| VEHICLE    |                |              |                   |
|------------|----------------|--------------|-------------------|
| YEAR       | 2003           | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306         | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/15/03       | TEMPERATURE: | 36°C              |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | 1 <sup>ST</sup> RETURN SPRING REMOVED, AMBIENT TEMPERATURE, ENGINE ON |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|-----------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                            | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 25.2%                    | 6005.3     | 90°C                                                                  | 0.0%                                     | 140 msec               | Pass       |
| 2                                  | 50%                       | 49.6%                    | 5707.7     | 90°C                                                                  | 0.0%                                     | 130 msec               | Pass       |
| 3                                  | 75%                       | 78.2%                    | 5774.4     | 90°C                                                                  | 0.0%                                     | 140 msec               | Pass       |
| 4                                  | 100%                      | 100.1%                   | 5724.6     | 90°C                                                                  | 0.0%                                     | 120 msec               | Pass       |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | 1 <sup>ST</sup> RETURN SPRING REMOVED, AMBIENT TEMPERATURE, ENGINE OFF |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|------------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                             | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 24.8%                    | N/A        | N/A                                                                    | 0.0%                                     | 70 msec                | Pass       |
| 2                                  | 50%                       | 49.9%                    | N/A        | N/A                                                                    | 0.0%                                     | 110 msec               | Pass       |
| 3                                  | 75%                       | 76.5%                    | N/A        | N/A                                                                    | 0.0%                                     | 240 msec               | Pass       |
| 4                                  | 100%                      | 100.7%                   | N/A        | N/A                                                                    | 0.0%                                     | 120 msec               | Pass       |

### RETURN TIME REQUIREMENTS:

1 second (1000 msec) for vehicles less than 4536 kg.

2 seconds (2000 msec) for vehicles more than 4536 kg.

3 seconds (3000 msec) for vehicle exposed to -18°C or less.

|              |          |   |          |  |
|--------------|----------|---|----------|--|
| TEST STATUS: | PASSED — | x | FAILED — |  |
|--------------|----------|---|----------|--|

RECORDED BY: JESSE FUENTES DATE: 07/16/03

APPROVED BY: MATTHEW A. IVORY DATE: 07/16/03



# DATA SHEET NO. 4...(CONTINUED)

## TEST EXECUTION

| VEHICLE    |                |              |                   |
|------------|----------------|--------------|-------------------|
| YEAR       | 2003           | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306         | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/16/03       | TEMPERATURE: | 36°C              |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | 2 <sup>ND</sup> RETURN SPRING REMOVED, AMBIENT TEMPERATURE, ENGINE ON |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|-----------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                            | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 26.0%                    | 4309.4     | 90°C                                                                  | 0.0%                                     | 120 msec               | Pass       |
| 2                                  | 50%                       | 50.9%                    | 4432.9     | 90°C                                                                  | 0.0%                                     | 130 msec               | Pass       |
| 3                                  | 75%                       | 76.2%                    | 4774.2     | 90°C                                                                  | 0.0%                                     | 140 msec               | Pass       |
| 4                                  | 100%                      | 99.5%                    | 4874.1     | 90°C                                                                  | 0.0%                                     | 140 msec               | Pass       |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | 2 <sup>ND</sup> RETURN SPRING REMOVED, AMBIENT TEMPERATURE, ENGINE OFF |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|------------------------------------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                                             | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 26.2%                    | N/A        | N/A                                                                    | 0.0%                                     | 110 msec               | Pass       |
| 2                                  | 50%                       | 53.0%                    | N/A        | N/A                                                                    | 0.0%                                     | 120 msec               | Pass       |
| 3                                  | 75%                       | 74.5%                    | N/A        | N/A                                                                    | 0.0%                                     | 120 msec               | Pass       |
| 4                                  | 100%                      | 101.3%                   | N/A        | N/A                                                                    | 0.0%                                     | 170 msec               | Pass       |

### RETURN TIME REQUIREMENTS:

1 second (1000 msec) for vehicles less than 4536 kg.

2 seconds (2000 msec) for vehicles more than 4536 kg.

3 seconds (3000 msec) for vehicle exposed to -18°C or less.

|              |          |   |          |  |
|--------------|----------|---|----------|--|
| TEST STATUS: | PASSED — | x | FAILED — |  |
|--------------|----------|---|----------|--|

RECORDED BY: JESSE FUENTES

DATE: 07/16/03

APPROVED BY: MATTHEW A. IVORY

DATE: 07/16/03

# DATA SHEET NO. 4...(CONTINUED)

## TEST EXECUTION

| VEHICLE    |                |              |                   |
|------------|----------------|--------------|-------------------|
| YEAR       | 2003           | MAKE         | JEEP              |
| MODEL      | GRAND CHEROKEE | BODY STYLE   | 5 door SUV        |
| NHTSA NO.  | C30306         | VIN          | 1J4GX48523C541958 |
| TEST DATE: | 07/16/03       | TEMPERATURE: | 33°C              |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | SEVERANCE, AMBIENT TEMPERATURE, ENGINE ON |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|-------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 26.0%                    | 3971.9     | 90°C                                      | 0.0%                                     | 120 msec               | Pass       |
| 2                                  | 50%                       | 49.7%                    | 3746.8     | 90°C                                      | 0.0%                                     | 120 msec               | Pass       |
| 3                                  | 75%                       | 81.4%                    | 4310.0     | 90°C                                      | 0.0%                                     | 150 msec               | Pass       |
| 4                                  | 100%                      | 102.3%                   | 4250.8     | 90°C                                      | 0.0%                                     | 160 msec               | Pass       |

| THROTTLE CONTROL SYSTEM CONDITION: |                           |                          |            | SEVERANCE, AMBIENT TEMPERATURE, ENGINE OFF |                                          |                        |            |
|------------------------------------|---------------------------|--------------------------|------------|--------------------------------------------|------------------------------------------|------------------------|------------|
| TEST NO.                           | NOMINAL THROTTLE POSITION | ACTUAL THROTTLE POSITION | ENGINE RPM | ENGINE COOLANT TEMPERATURE                 | THROTTLE POSITION SENSOR READING AT IDLE | TIME TO RETURN TO IDLE | PASS /FAIL |
| 1                                  | 25%                       | 25.0%                    | N/A        | N/A                                        | 0.0%                                     | 120 msec               | Pass       |
| 2                                  | 50%                       | 48.1%                    | N/A        | N/A                                        | 0.0%                                     | 100 msec               | Pass       |
| 3                                  | 75%                       | 71.3%                    | N/A        | N/A                                        | 0.0%                                     | 110 msec               | Pass       |
| 4                                  | 100%                      | 99.9 %                   | N/A        | N/A                                        | 0.0%                                     | 340 msec               | Pass       |

### RETURN TIME REQUIREMENTS:

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

|              |          |   |          |  |
|--------------|----------|---|----------|--|
| TEST STATUS: | PASSED — | x | FAILED — |  |
|--------------|----------|---|----------|--|

RECORDED BY: JESSE FUENTES DATE: 07/16/03

APPROVED BY: MATTHEW A. IVORY DATE: 07/16/03

APPENDIX A  
PHOTOGRAPHS

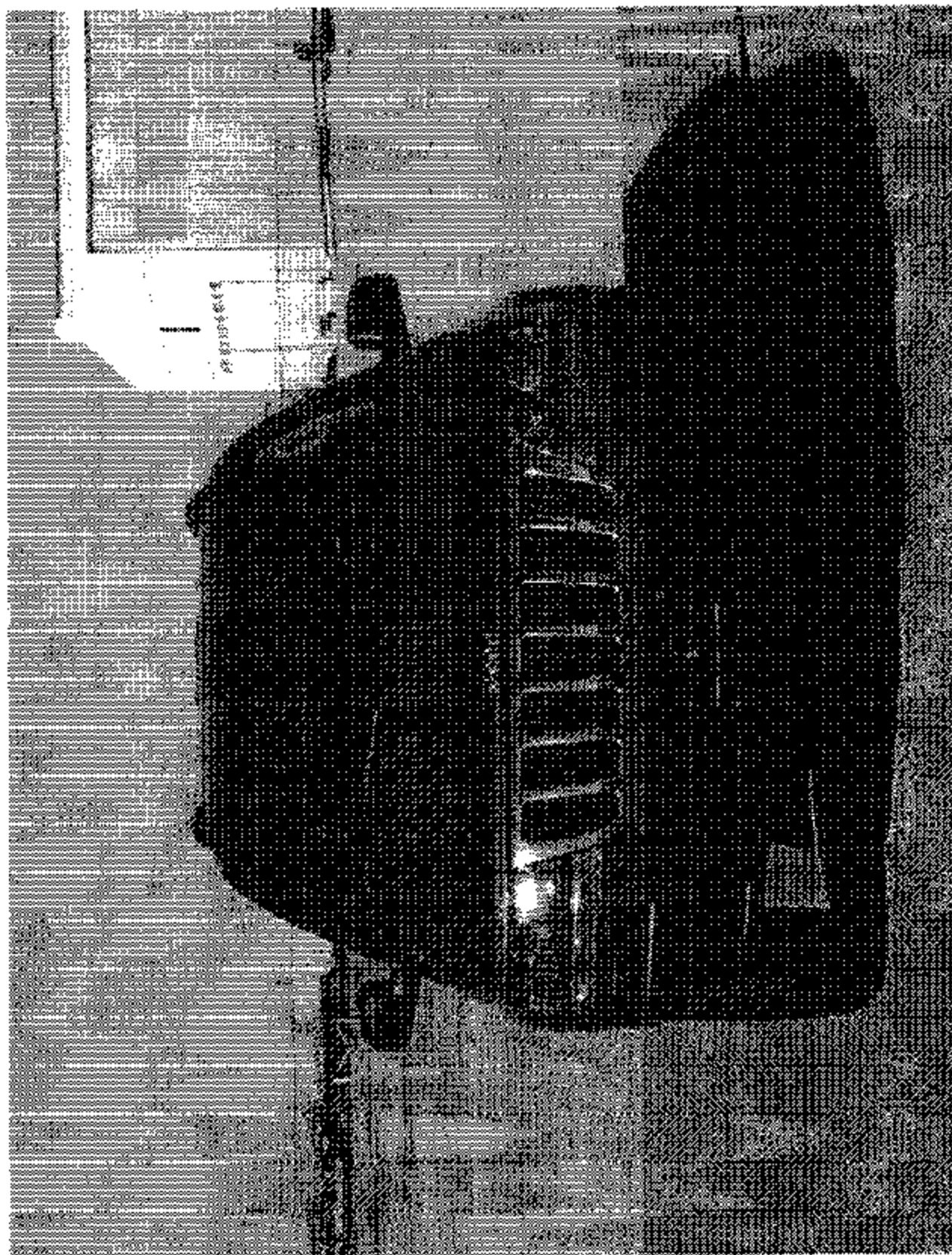


Figure A-1: Front View of Vehicle

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

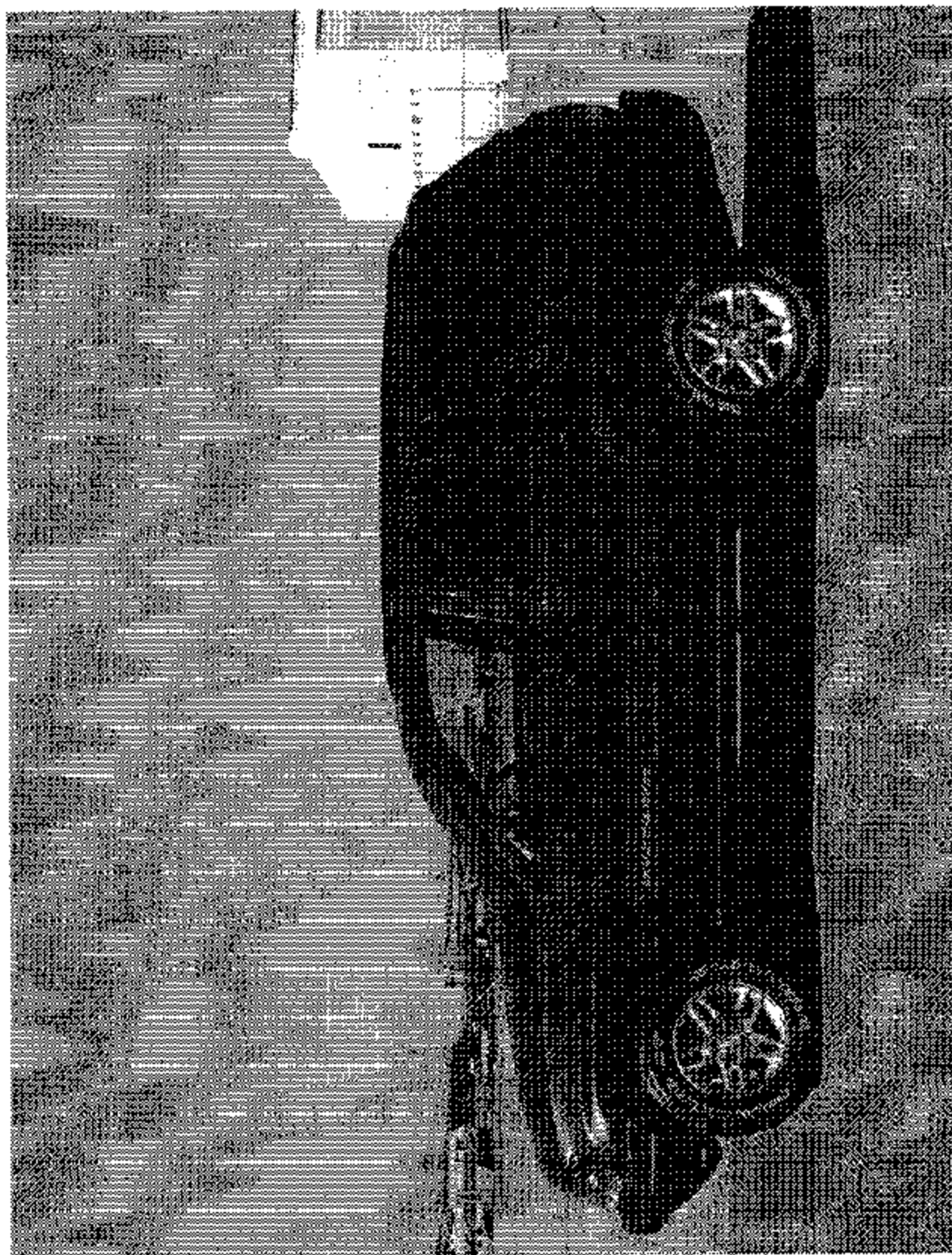


Figure A-2: Left Side View of Vehicle

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

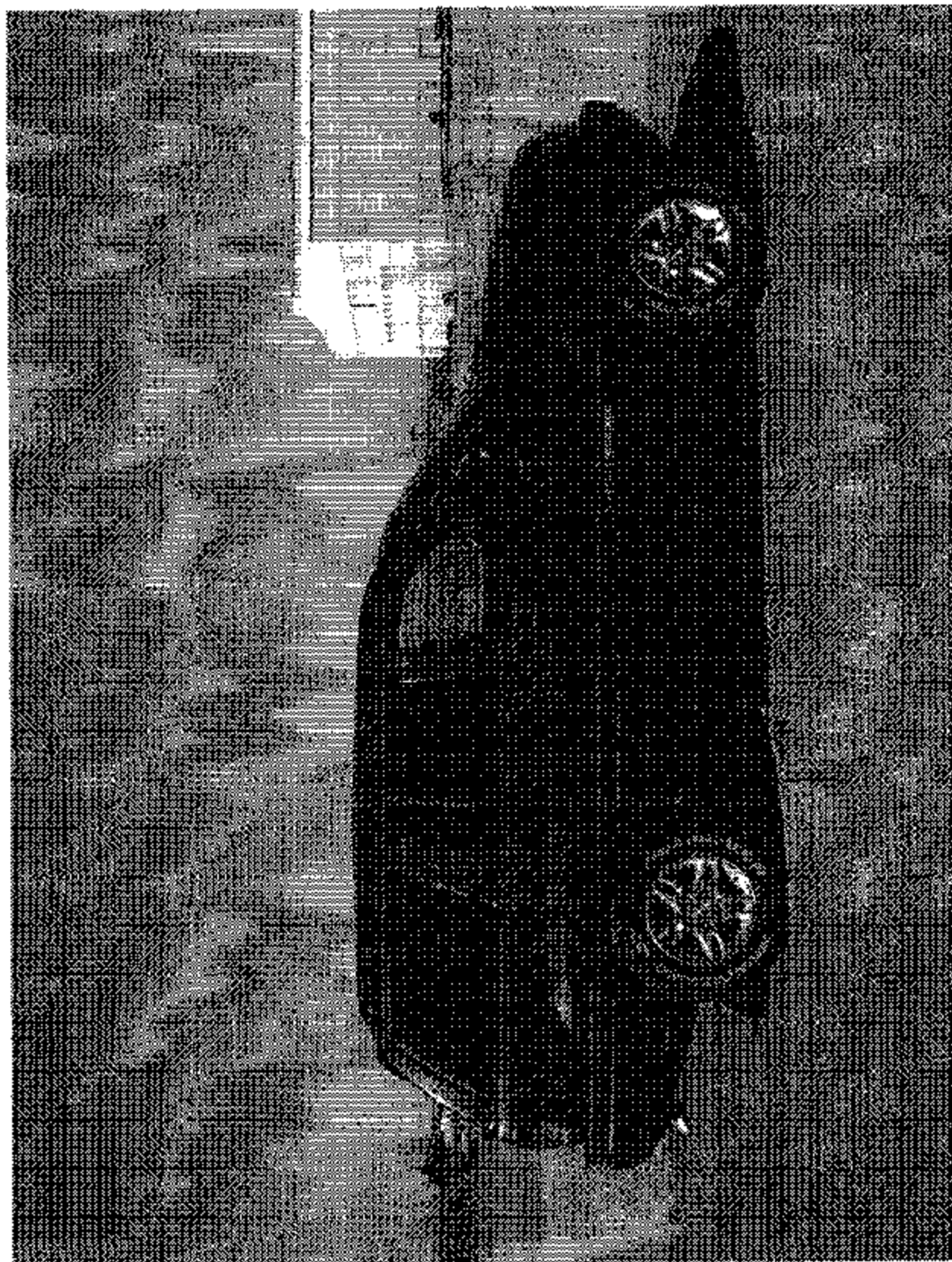


Figure A-3: Right Side View of Vehicle

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

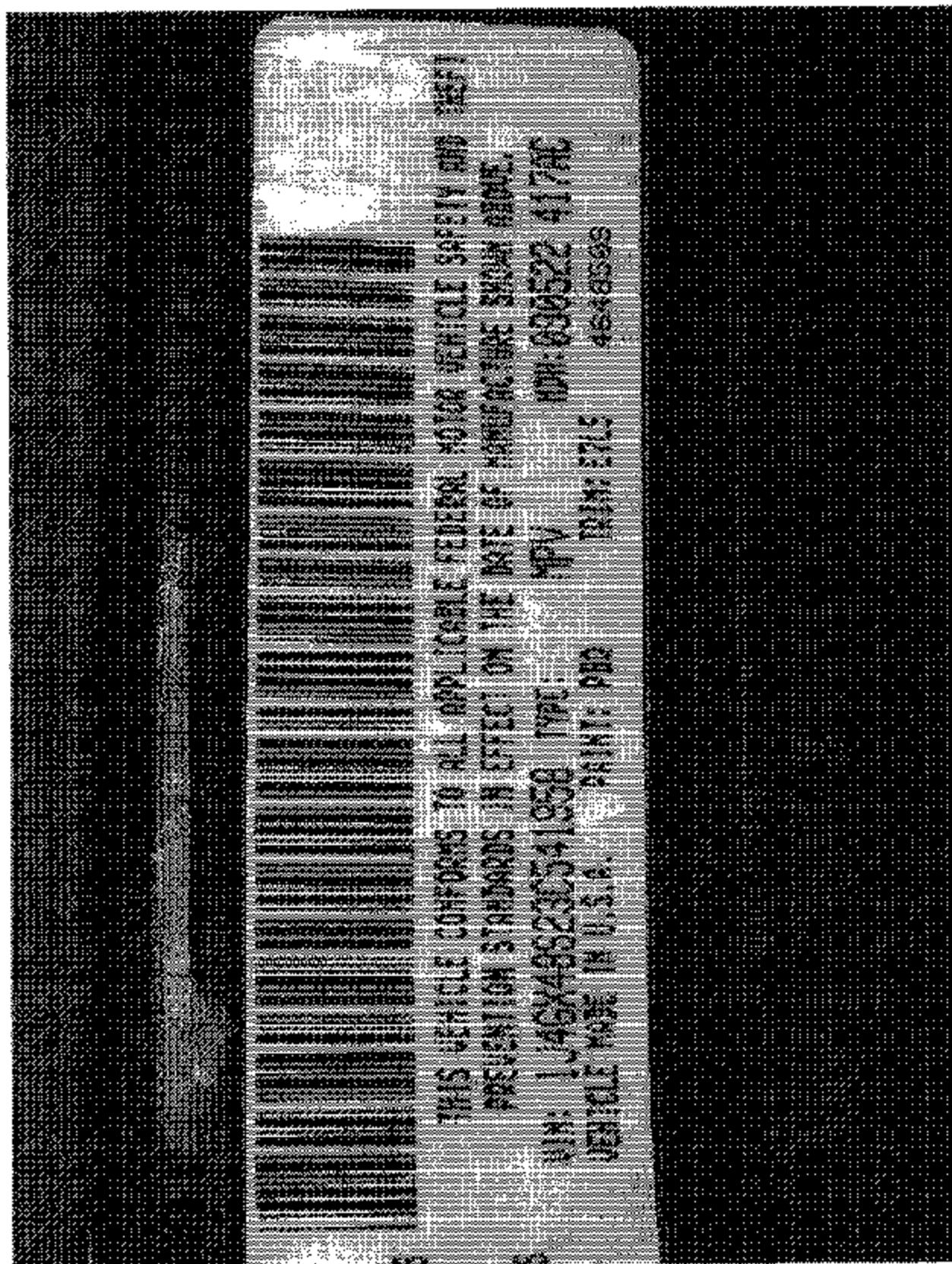


Figure A-4: Vehicle's Certification Label

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

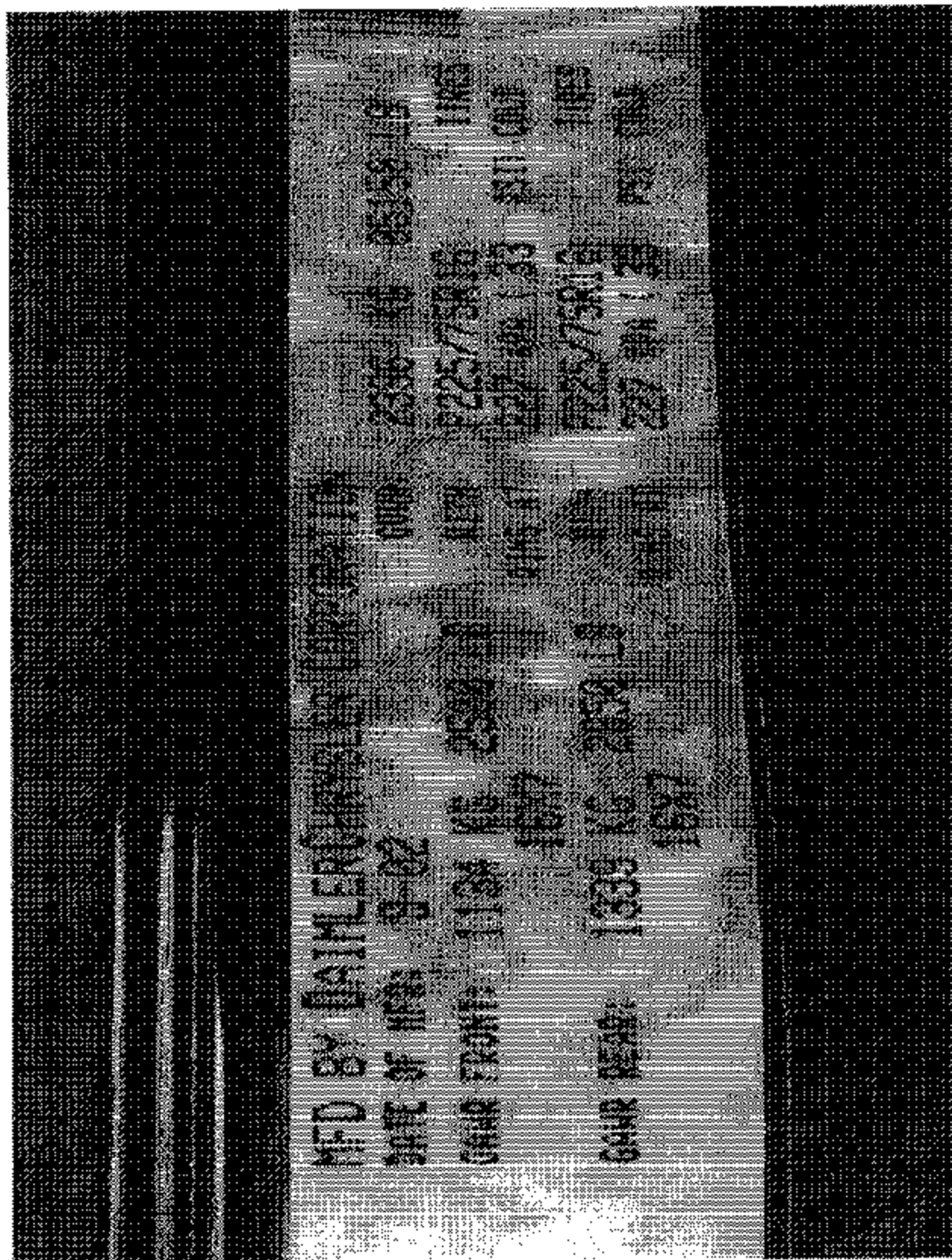


Figure A-5: Vehicle's Tire Information Label

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124



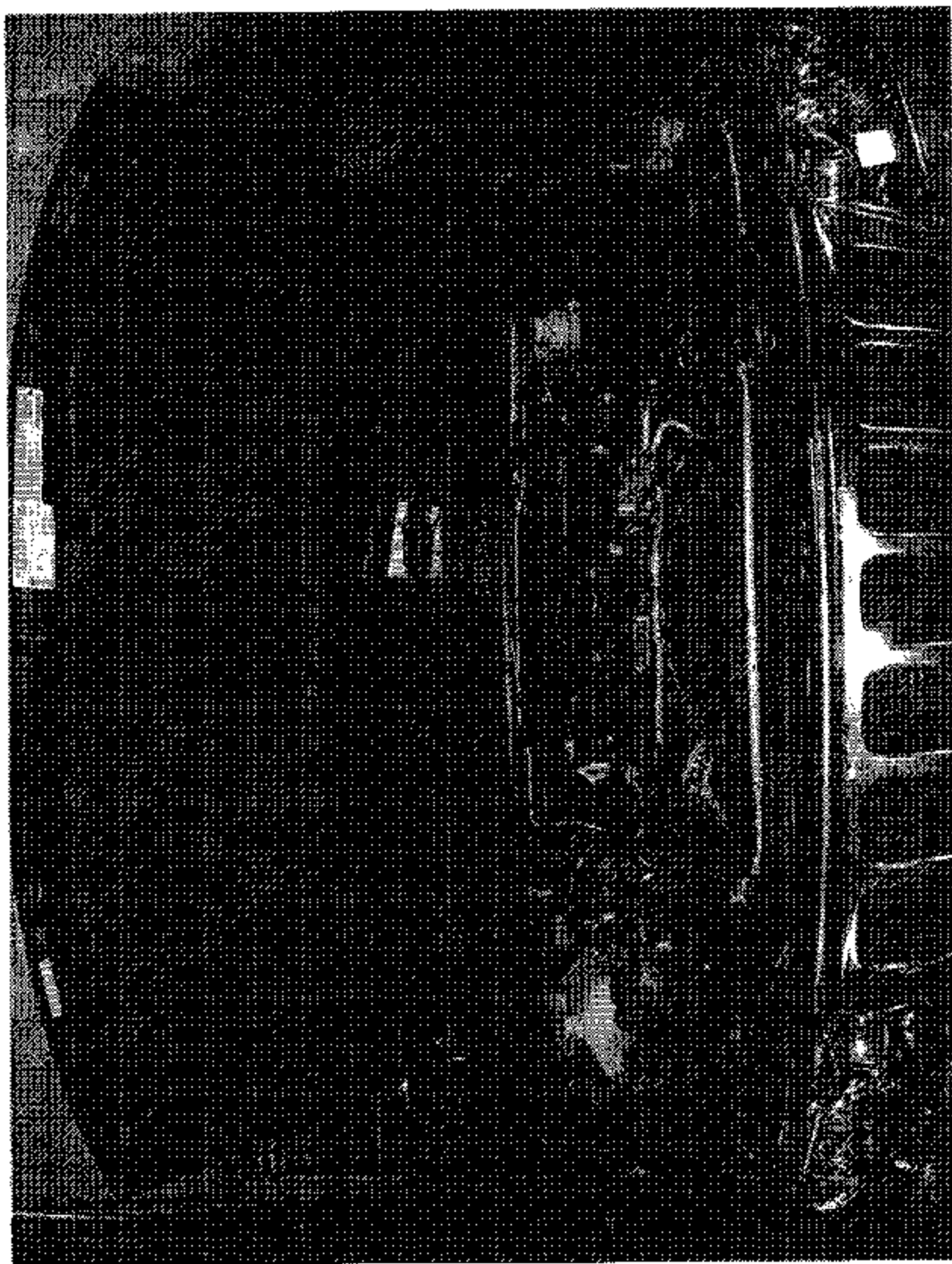


Figure A-6: Vehicle's Engine Compartment

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124



Figure A-7: Vehicle's Accelerator Pedal Assembly

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

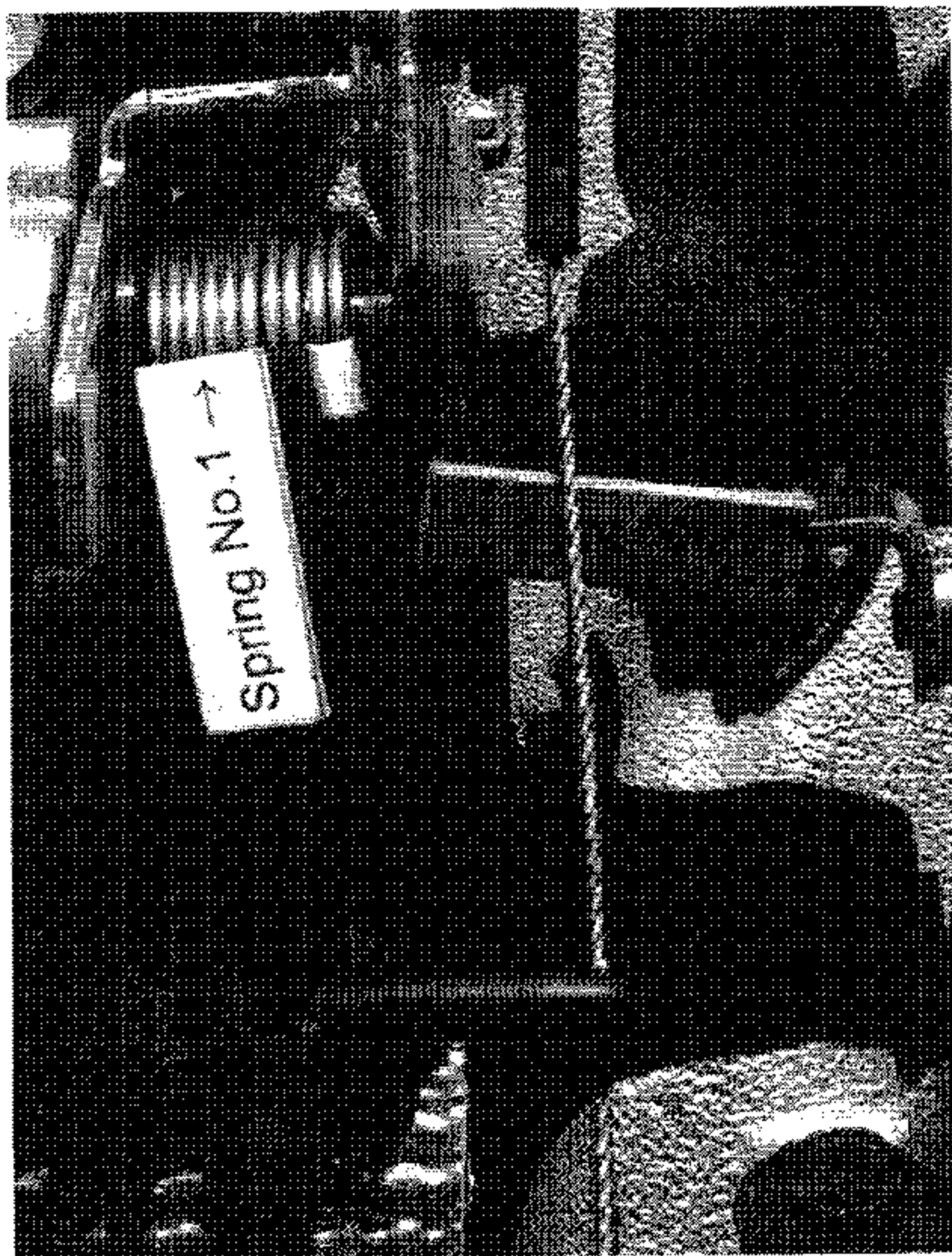


Figure A-8: Spring's 1 and 2 Located on Vehicle's Accelerator Control System

2003 JEEP GRAND CHEROKEE  
NHTSA NO. 030306  
FMVSS NO. 124



Figure A-9: Throttle Plate Sensor Located on Vehicle's Accelerator Control System

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

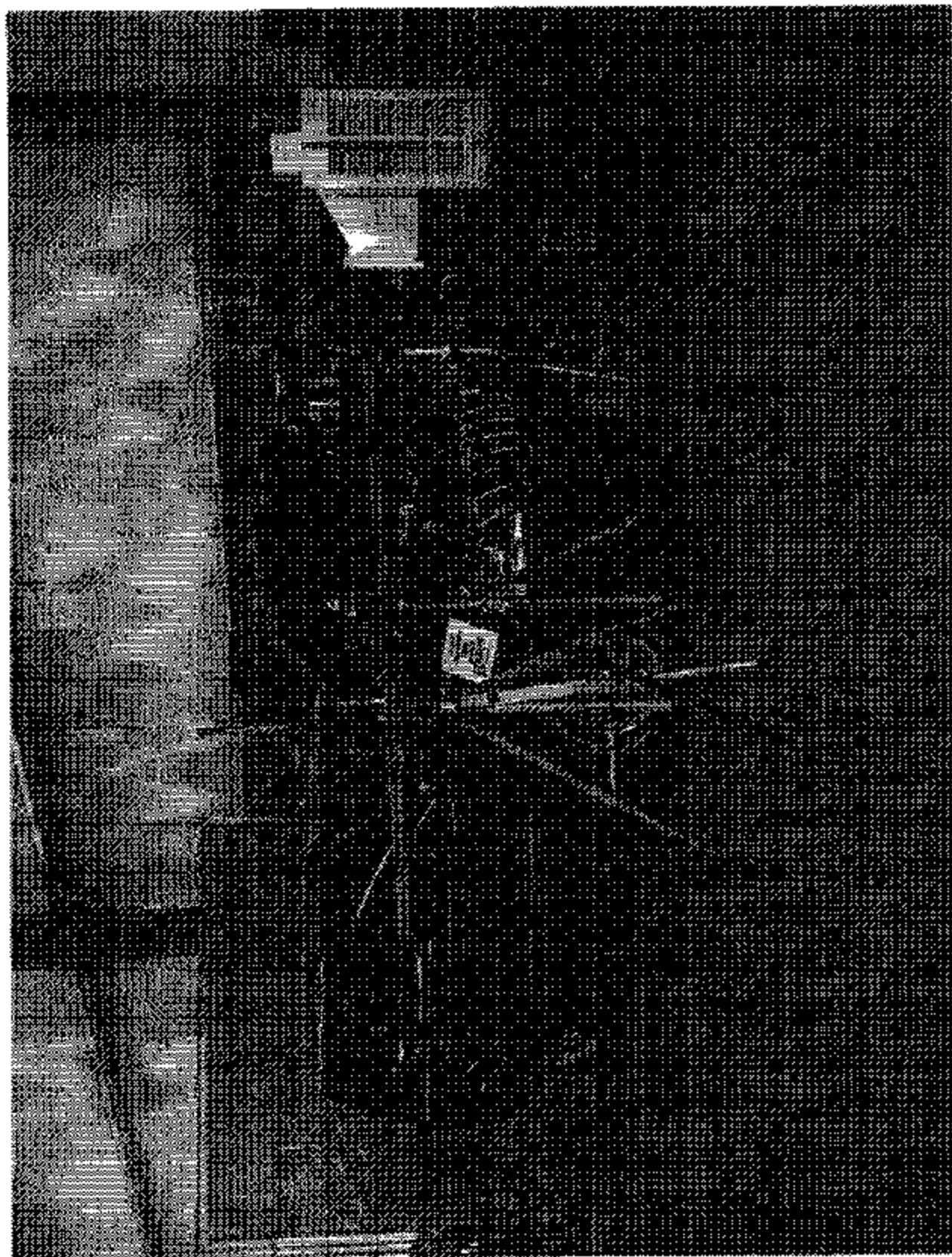


Figure A-10: Overall View of Vehicle's Test Setup

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

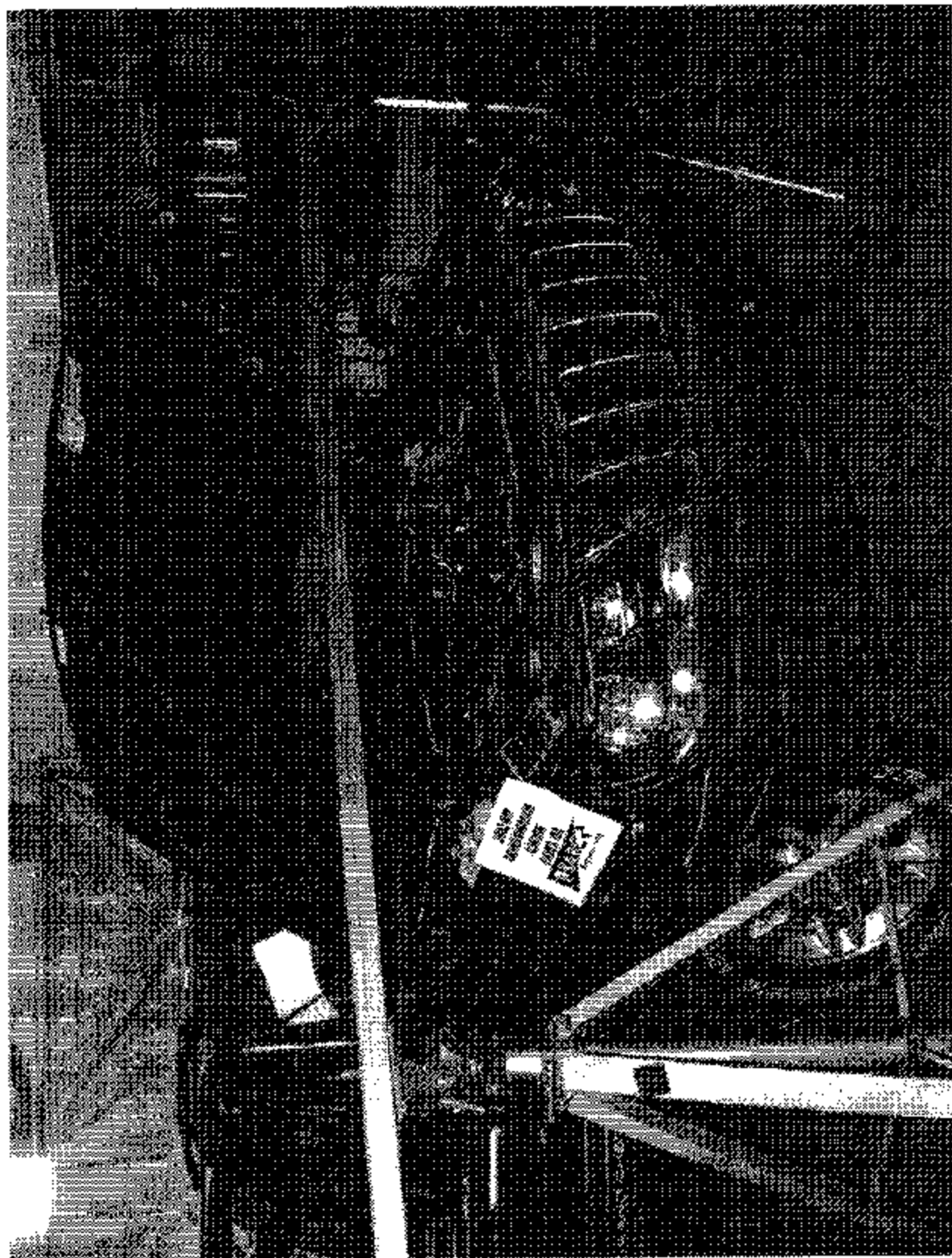


Figure A-11: Close-Up View of Vehicle's Test Setup

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

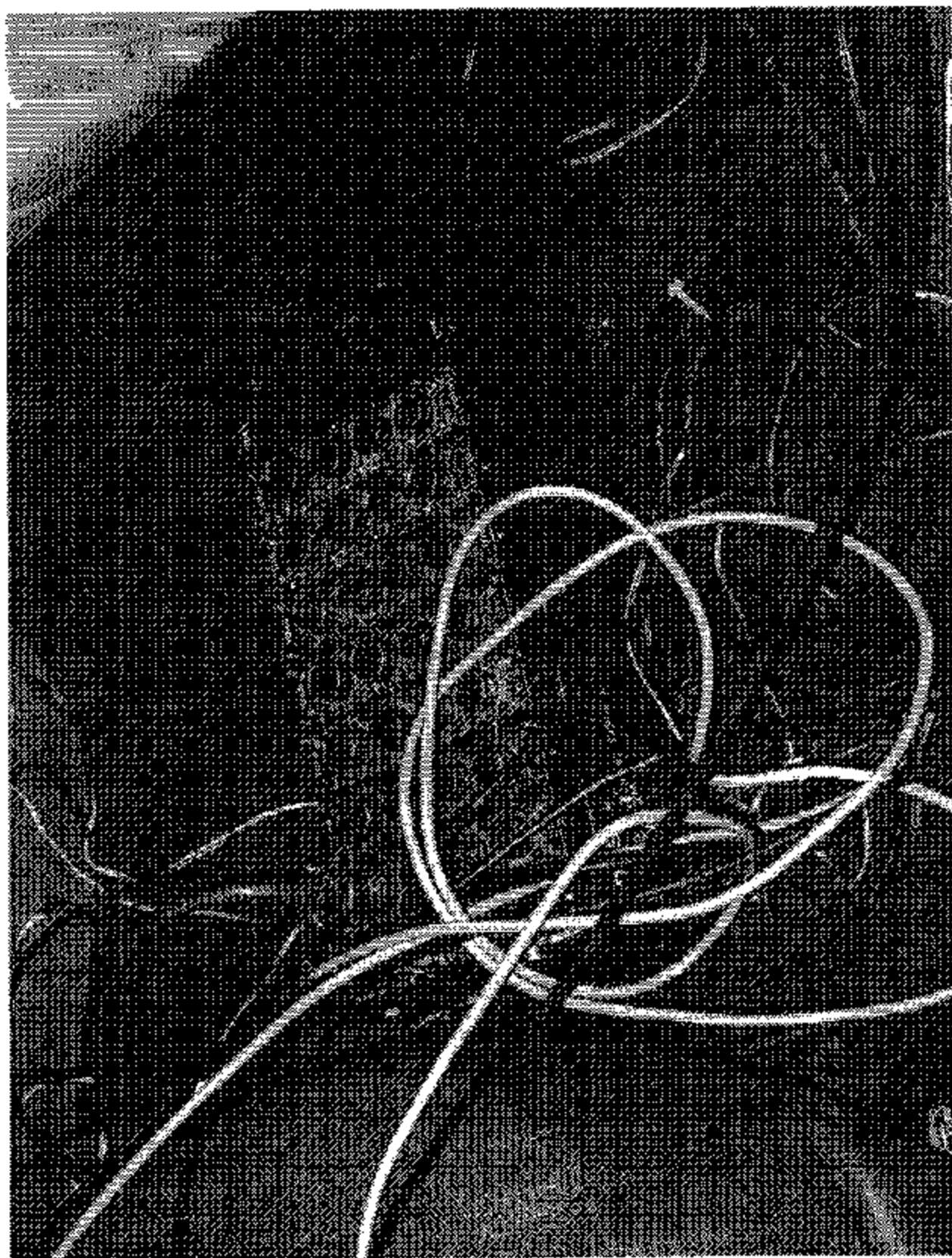


Figure A-12: Instrumentation

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124

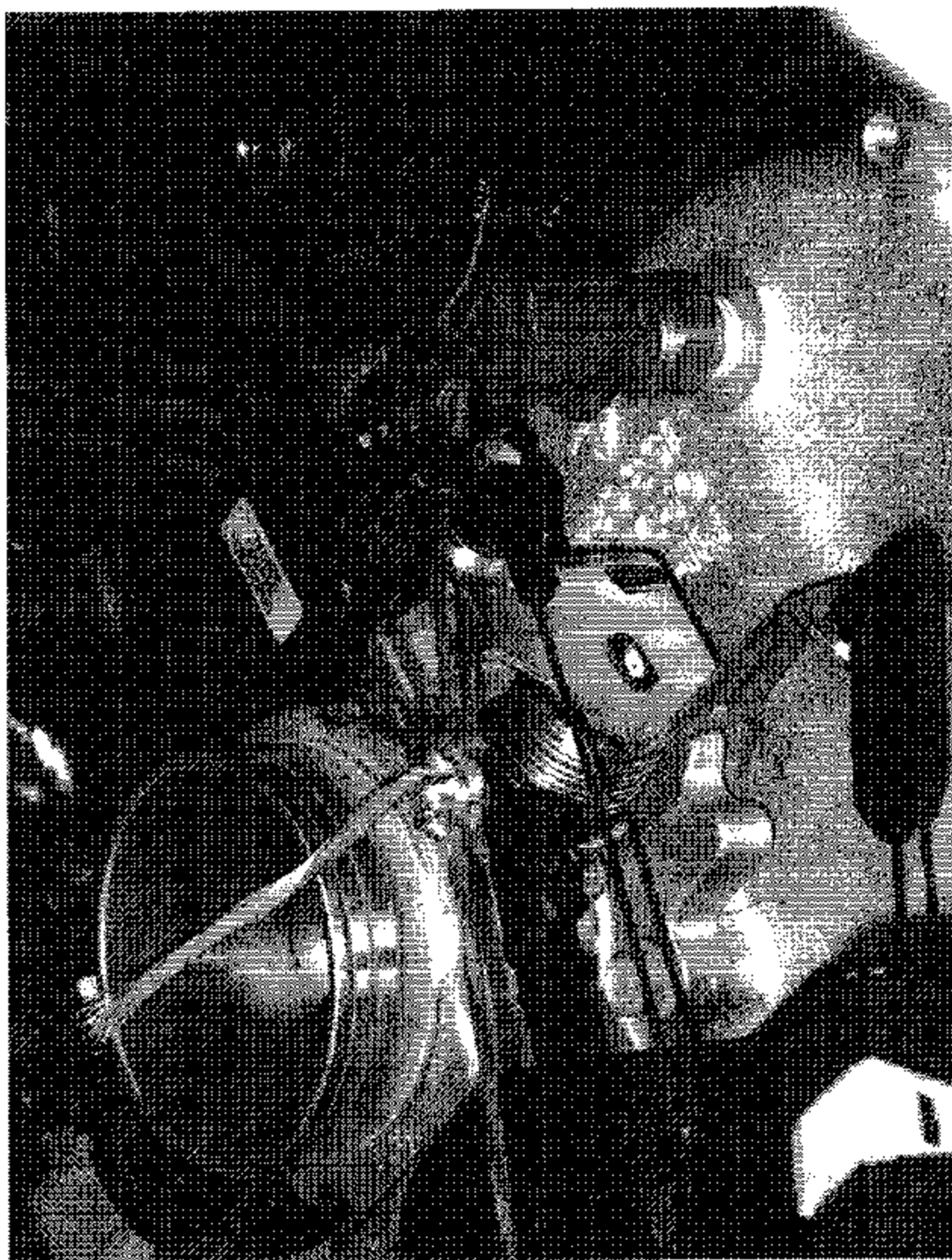
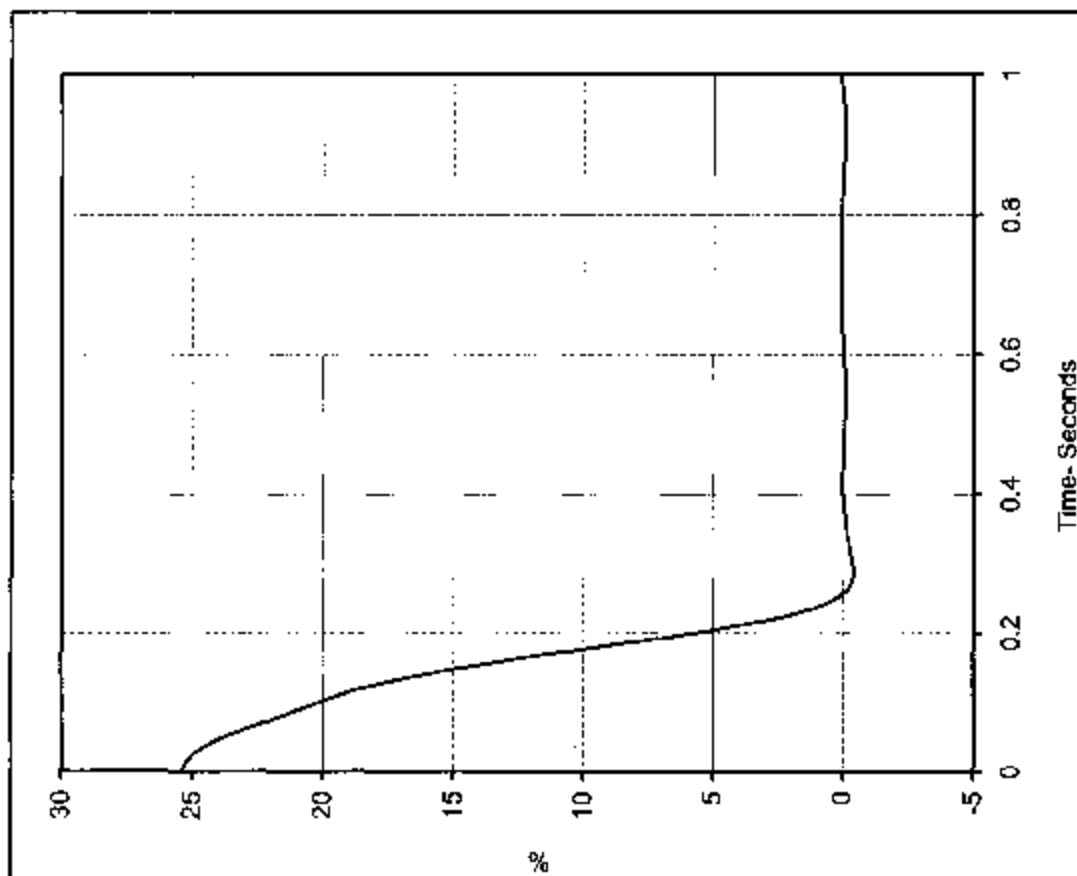


Figure A-13: Severance on Throttle Body

2003 JEEP GRAND CHEROKEE  
NHTSA NO. C30306  
FMVSS NO. 124



**APPENDIX B**  
**DATA PLOTS**



| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

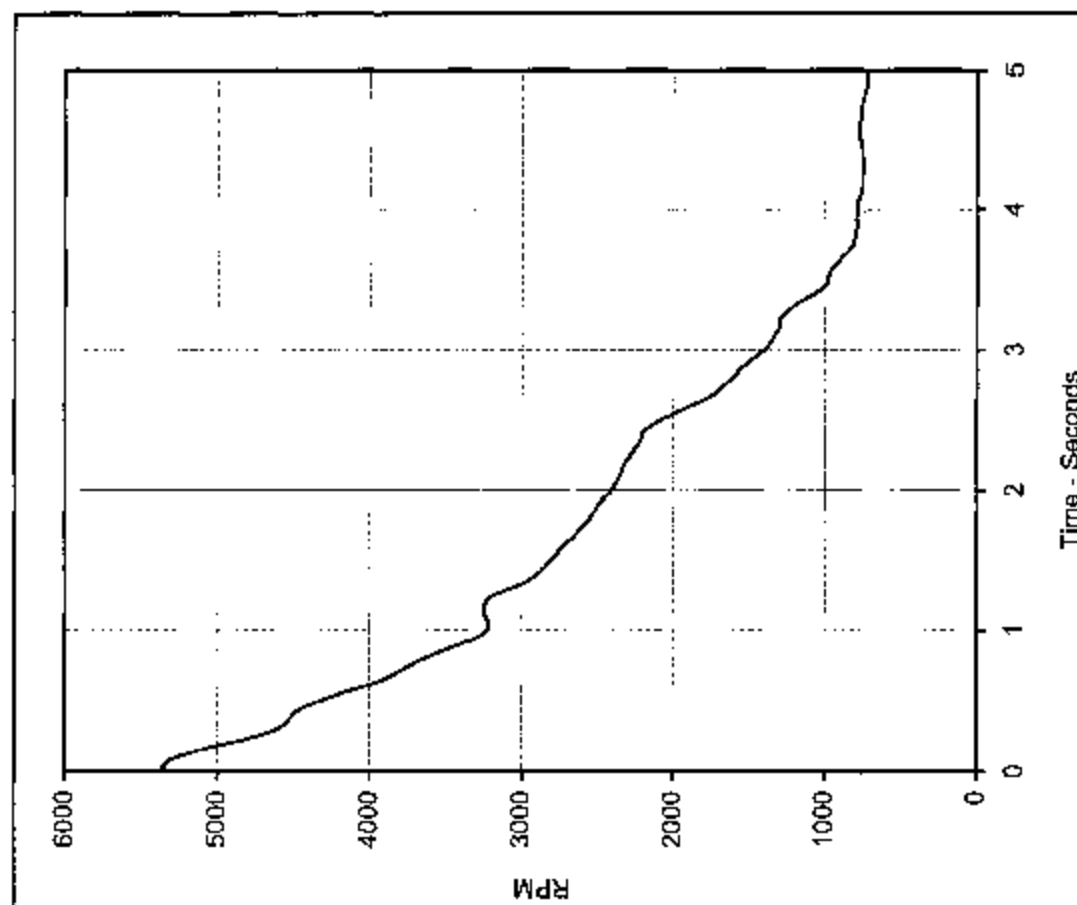
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 25.4 | 0.0  | 245.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 5351.8 | 0.0  | 719.9 | 5.0  | 5           |

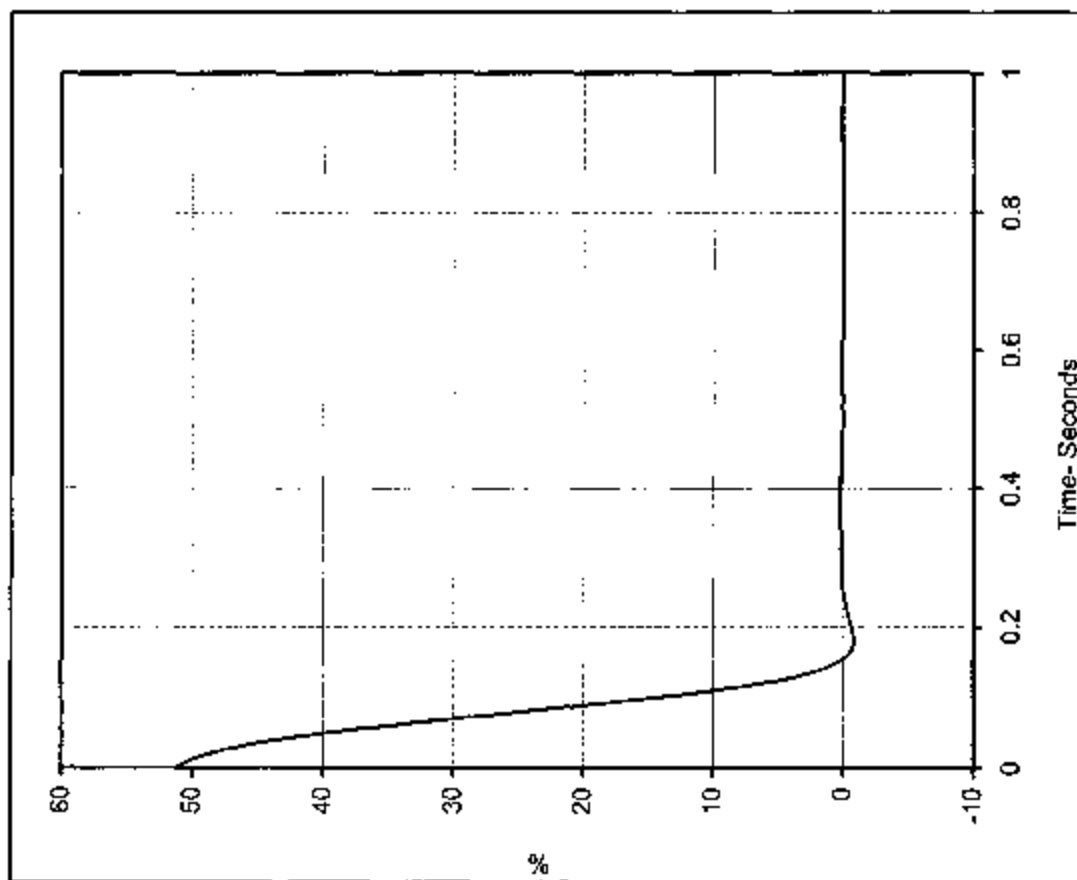
Test Date:

7/22/03

NHTSA No.:

C30306





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 51.2 | 0.0  | 150.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

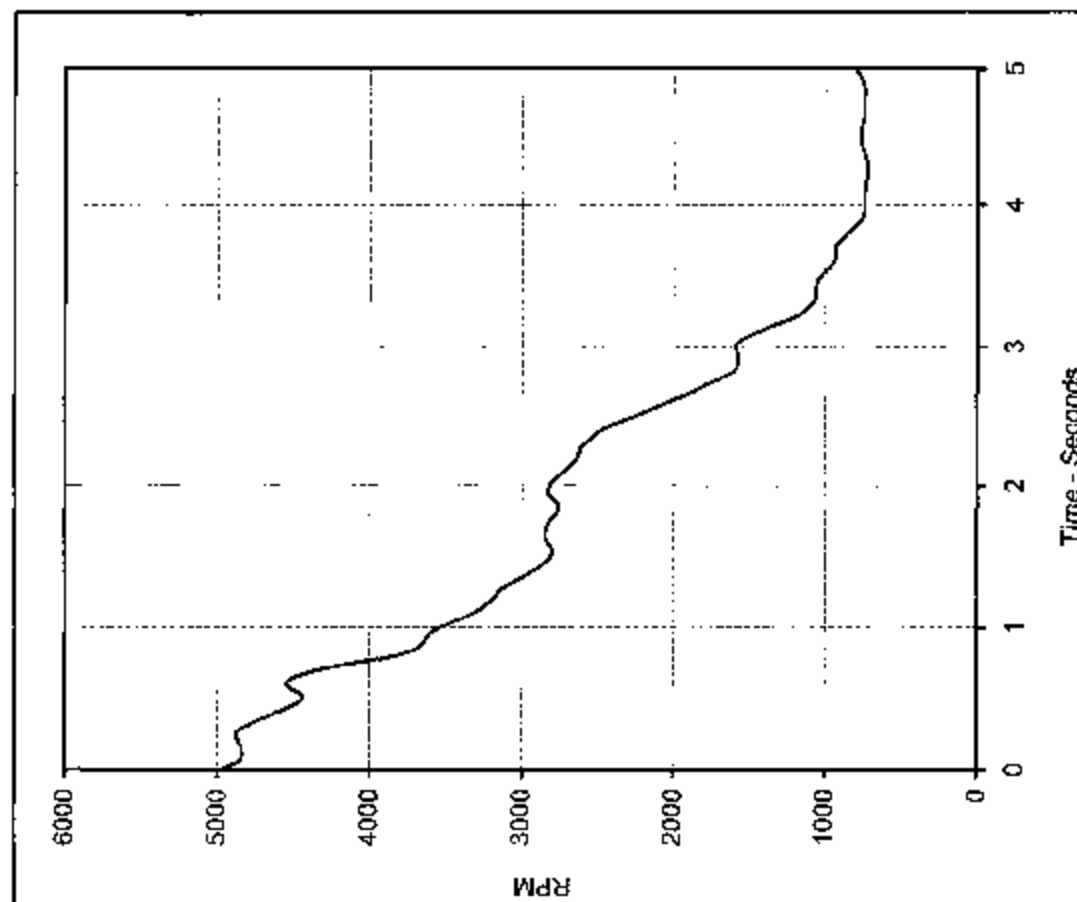
2003 Jeep Cherokee SUV

Test Date:

7/22/03

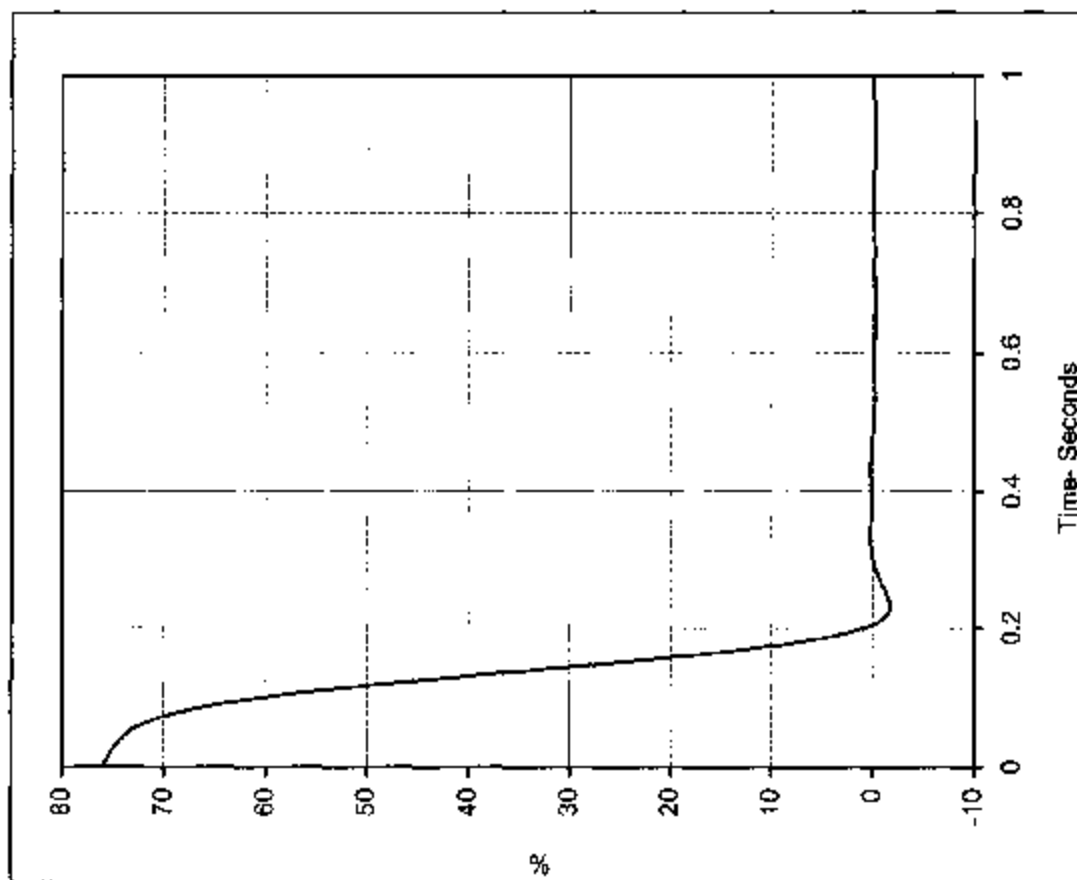
NHTSA No.:

C30306



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Filter (Hz) |
|-------|--------|------|-------|-------------|
| RPM   | 4977.1 | 0.0  | 722.7 | 5           |



| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

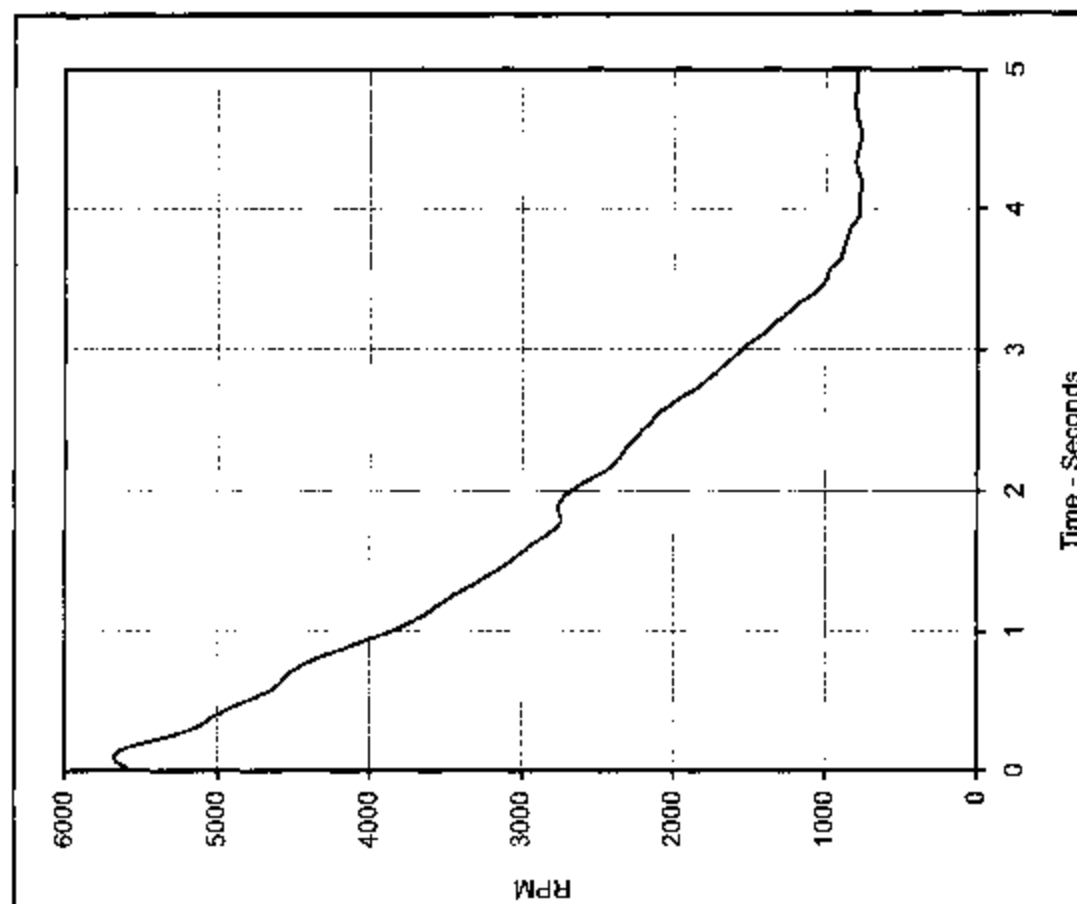
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 76.0 | 0.0  | 200.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 5670.3 | 0.1  | 765.2 | 4.5  | 5           |

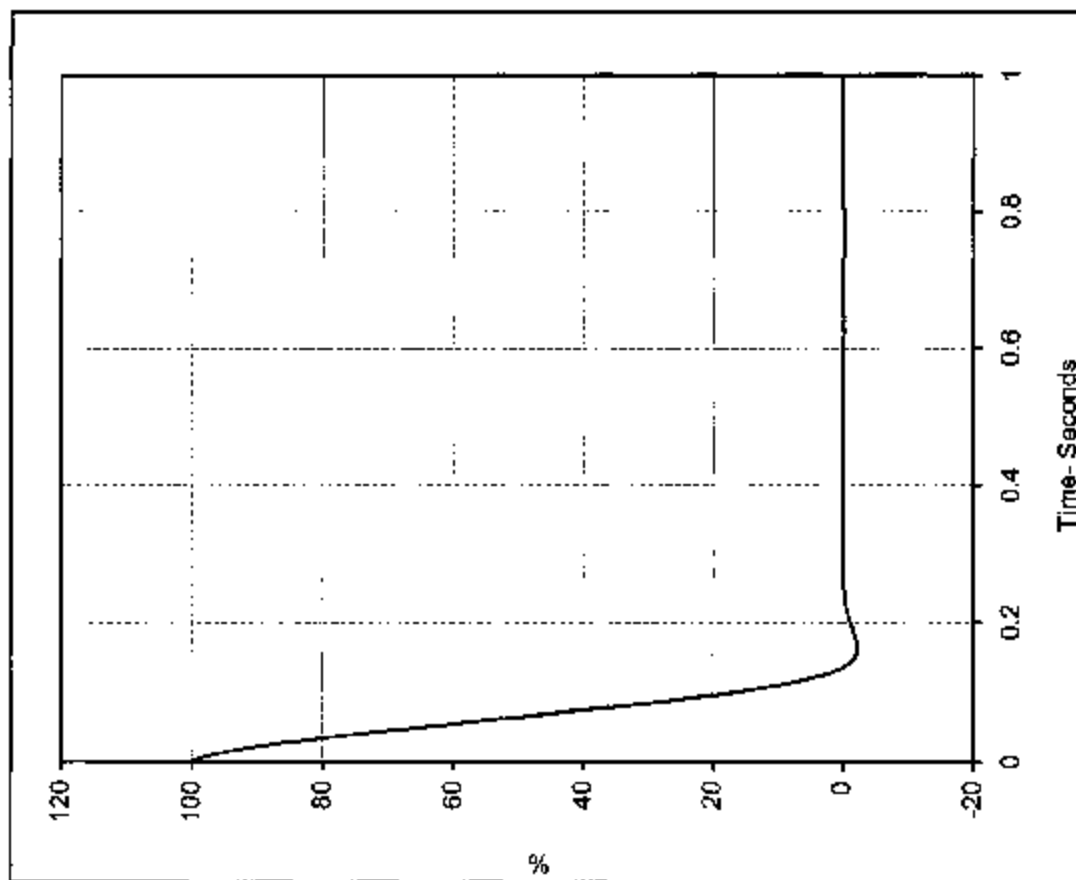
Test Date:

7/22/03

NHTSA No.:

C30306





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

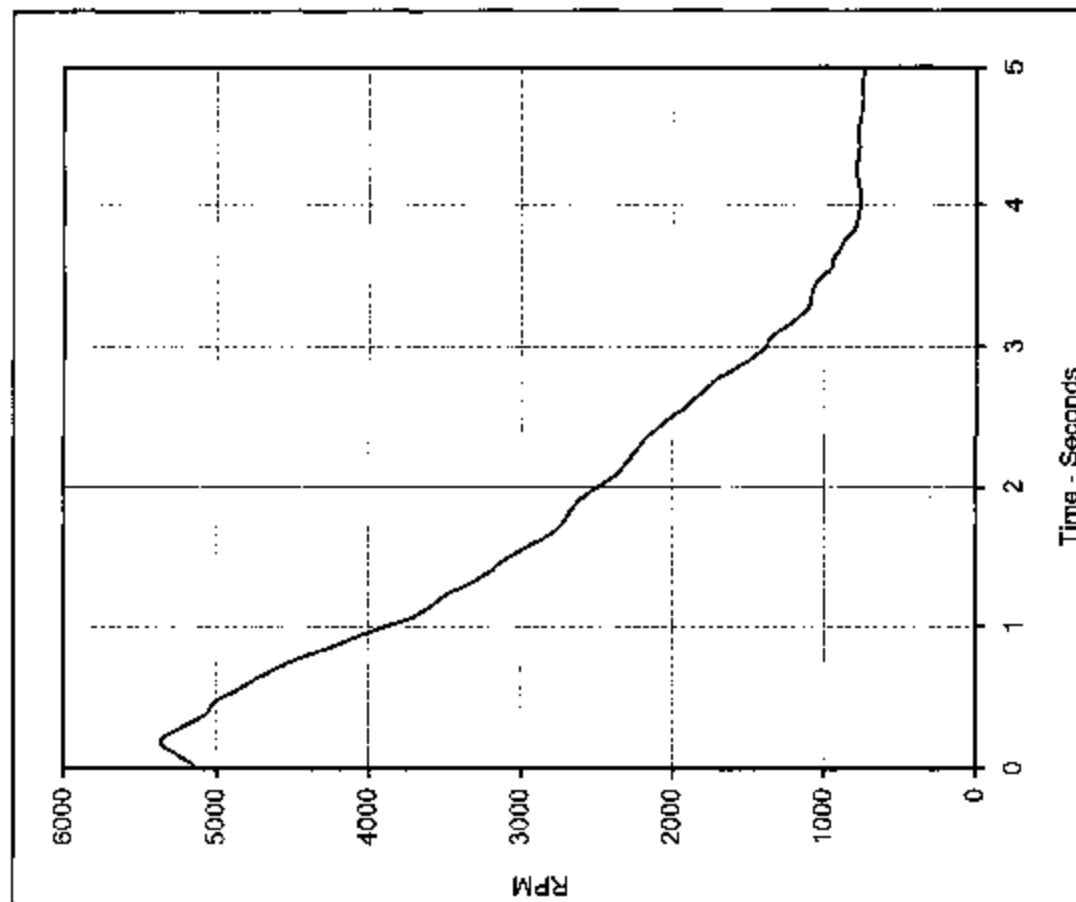
| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 100.8 | 0.0  | 130.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 5361.5 | 0.2  | 731.0 | 5.0  | 5           |

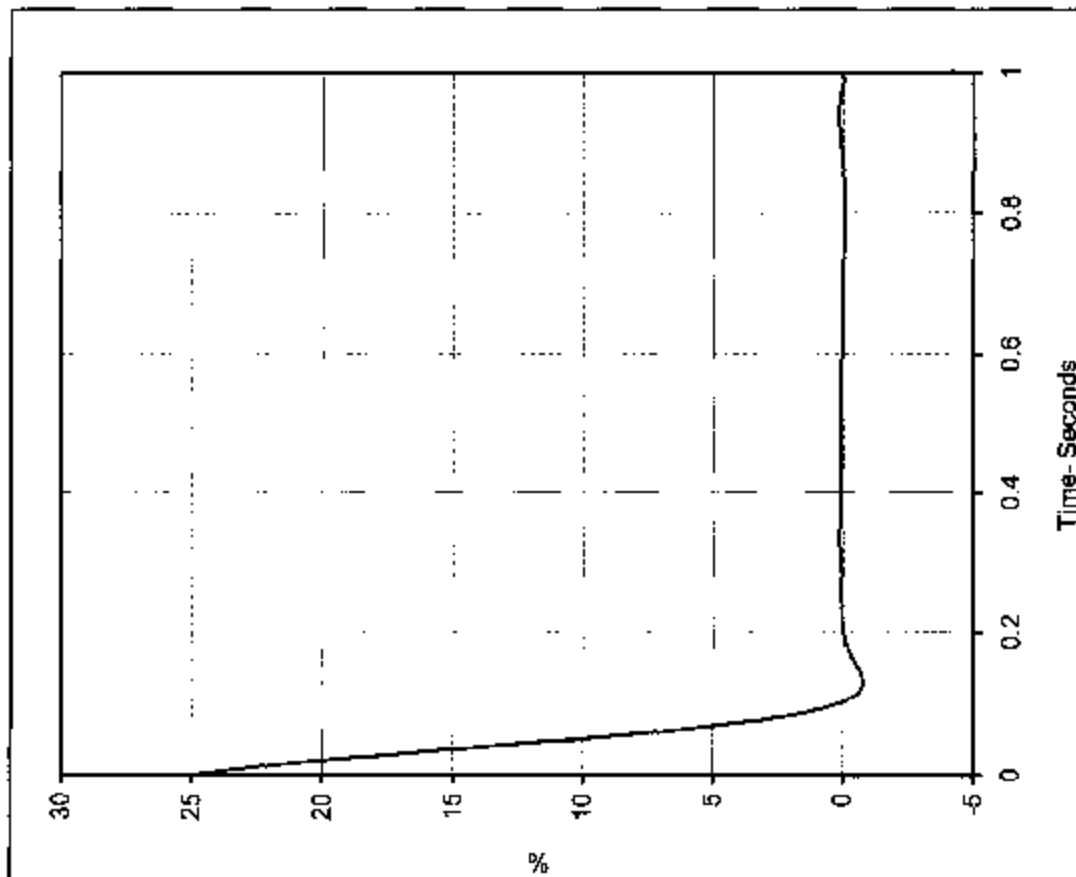
Test Date:

7/22/03

NHTSA No.:

C30306

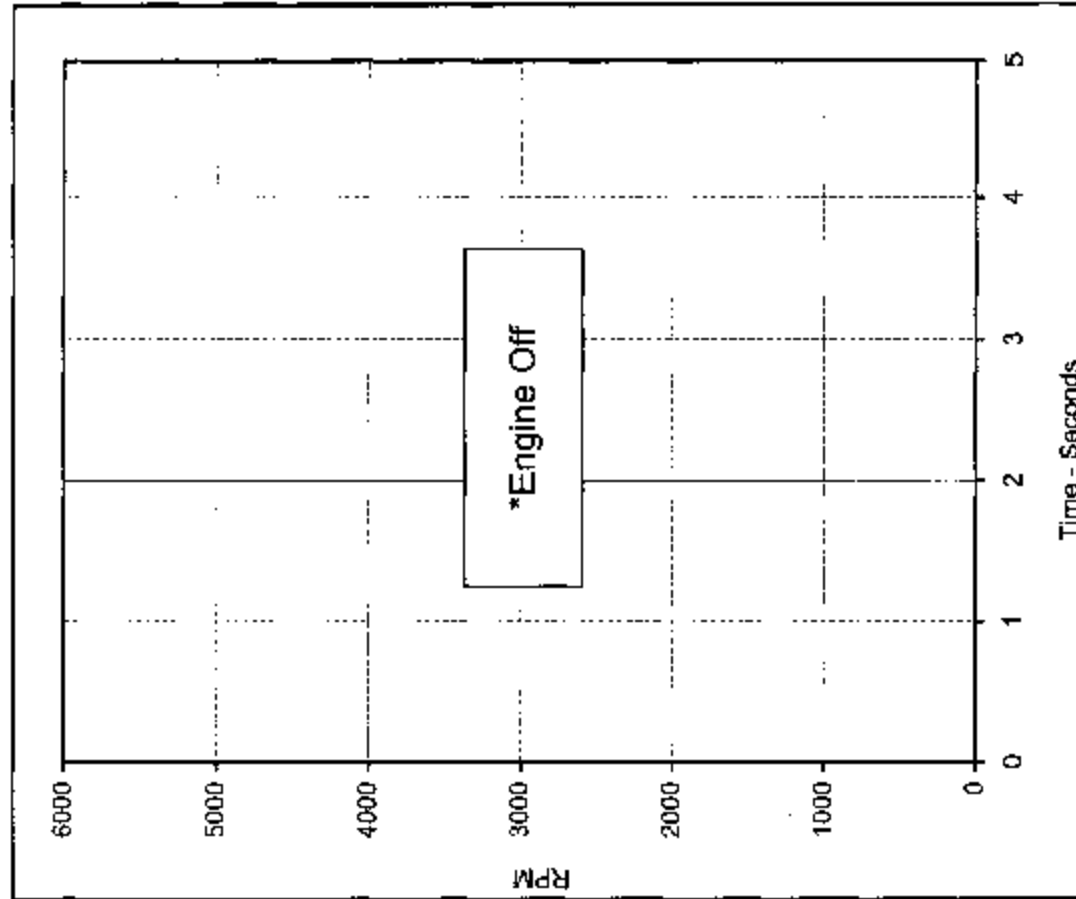




| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 25.1 | 0.0  | 100.0              | 5           |

Test Program: FMVSS 124 (Normal Operation)  
 Test Vehicle: 2003 Jeep Cherokee SUV

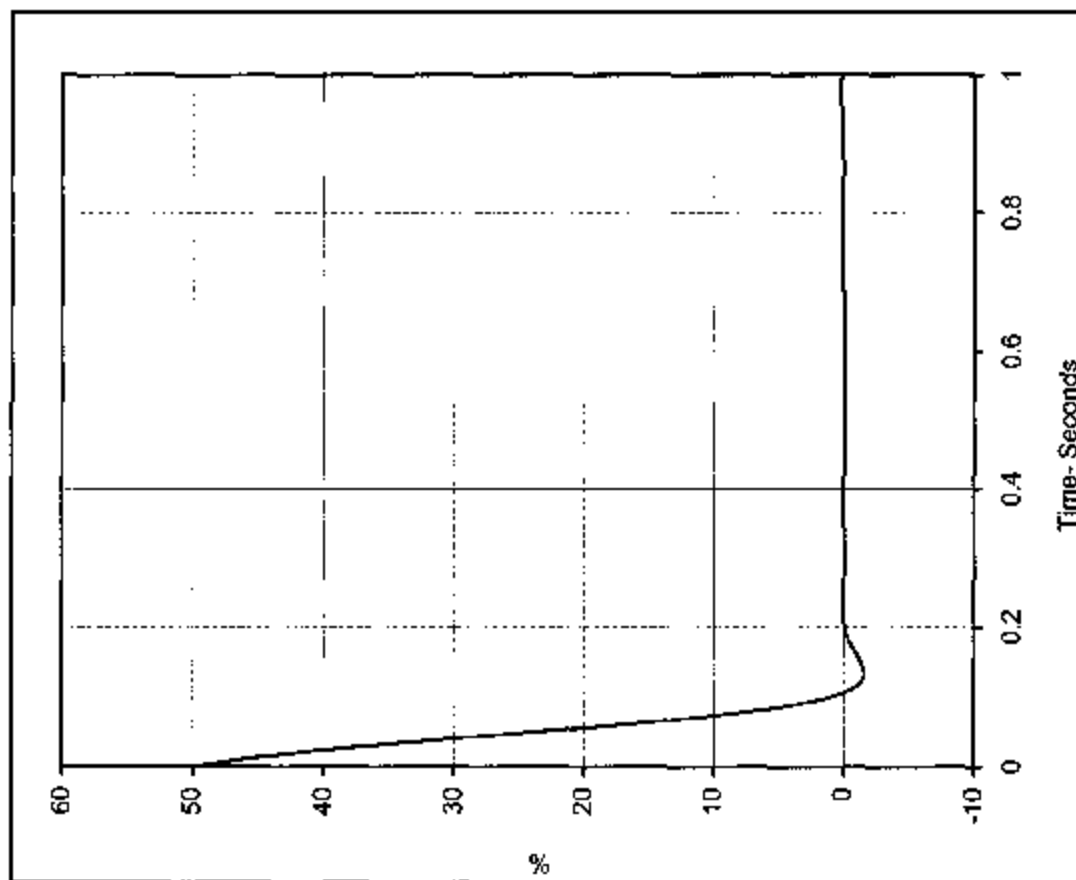


| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off  
 Test Date: 7/22/03  
 NHTSA No.: C30306





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

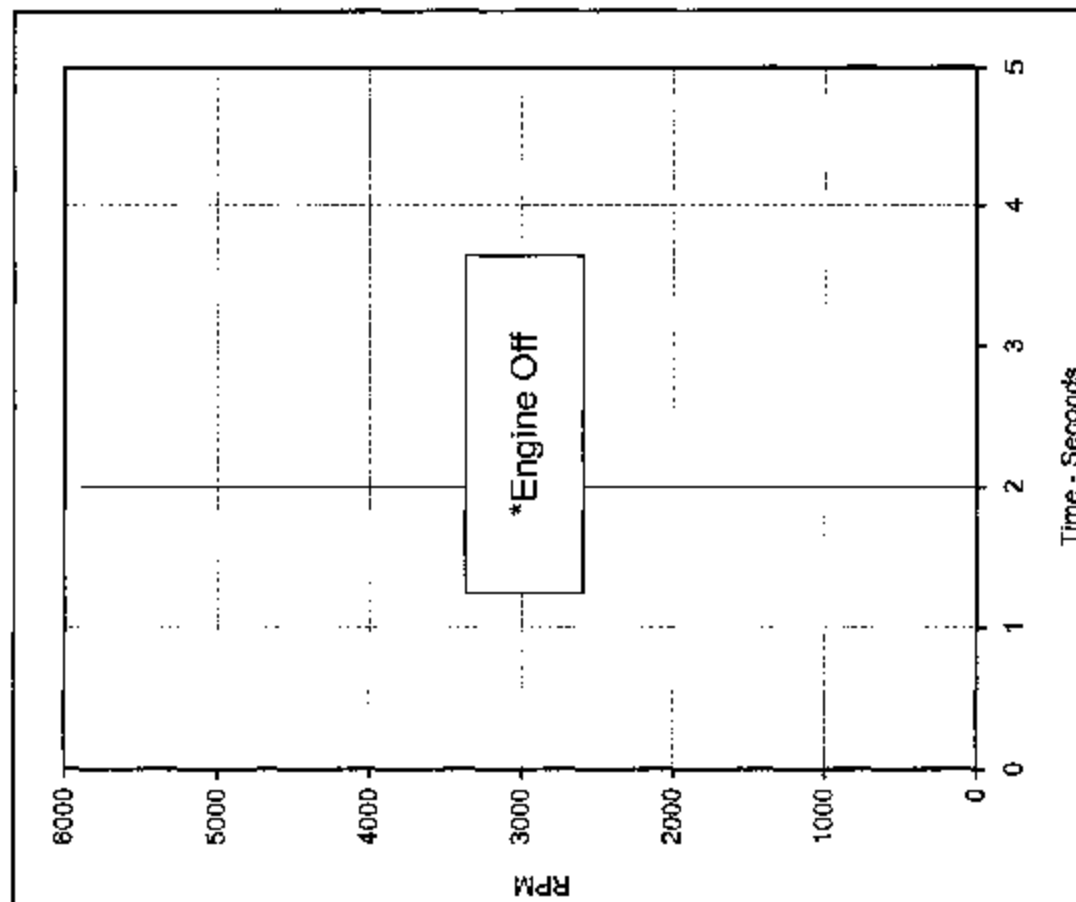
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 49.9 | 0.0  | 100.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

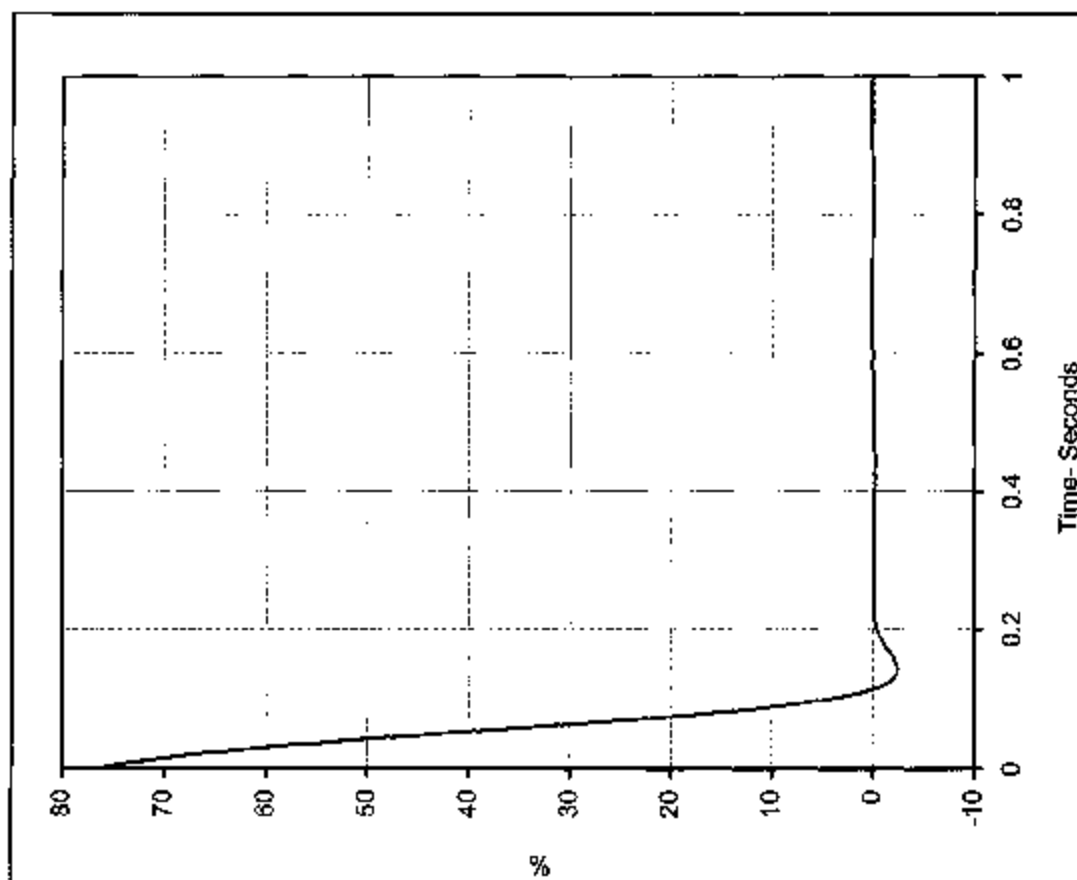
Test Date:

7/22/03

NHTSA No.:

C30306





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

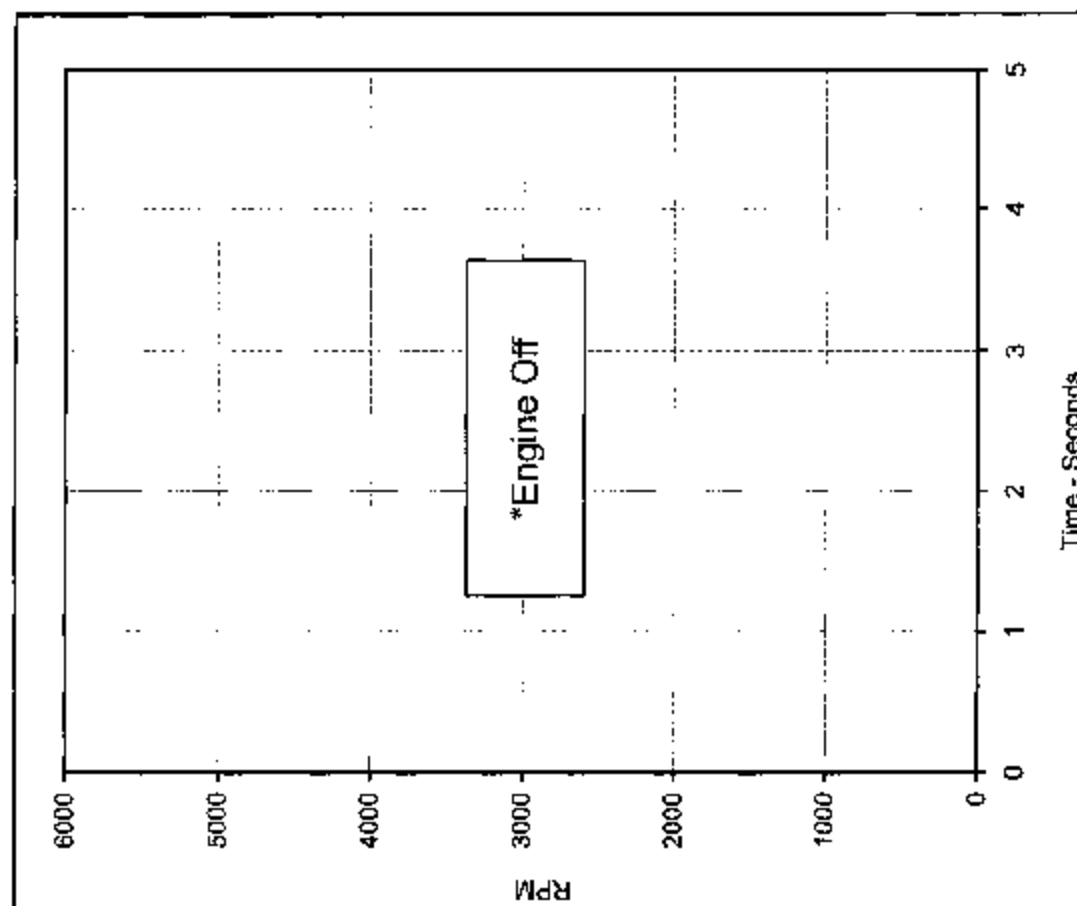
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 76.5 | 0.0  | 110.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date:

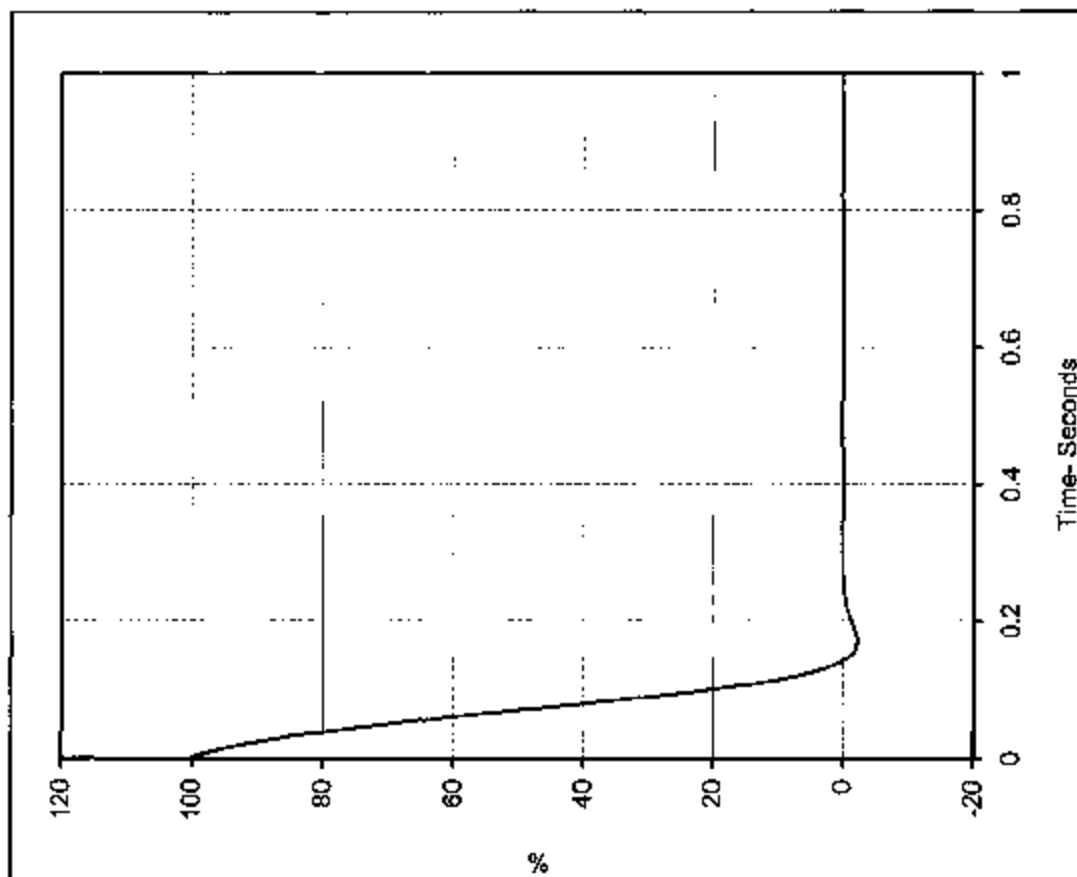
7/22/03

NHTSA No.:

C30306







| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

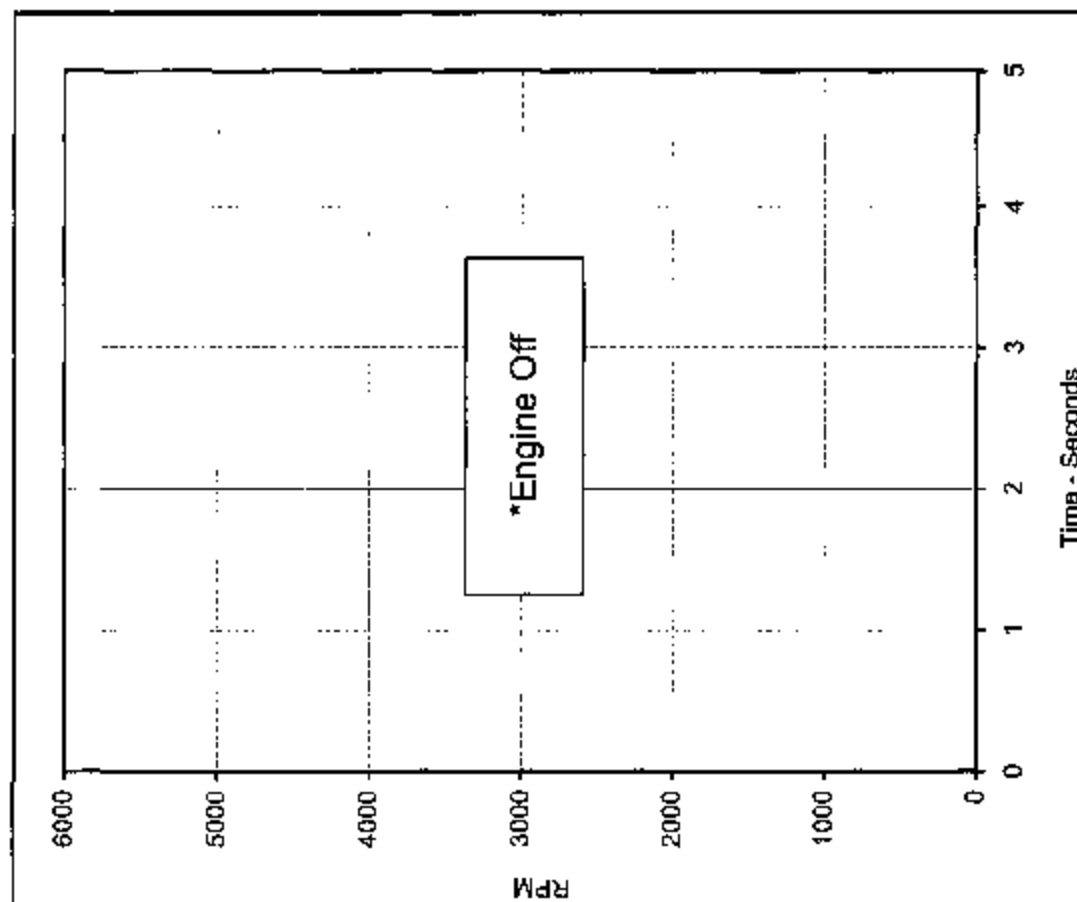
| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 100.5 | 0.0  | 140.0              | 5           |

Test Program:

FMVSS 124 (Normal Operation)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

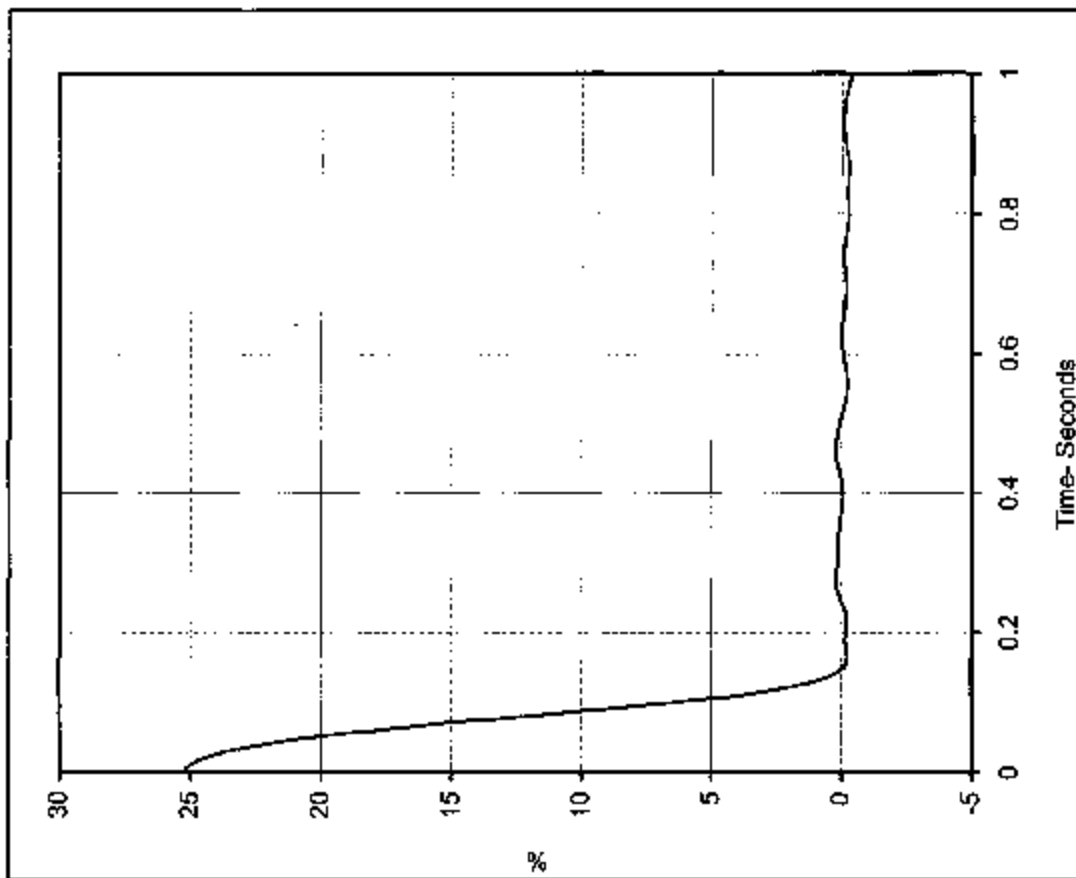
Test Date:

7/22/03

NHTSA No.:

C30306





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

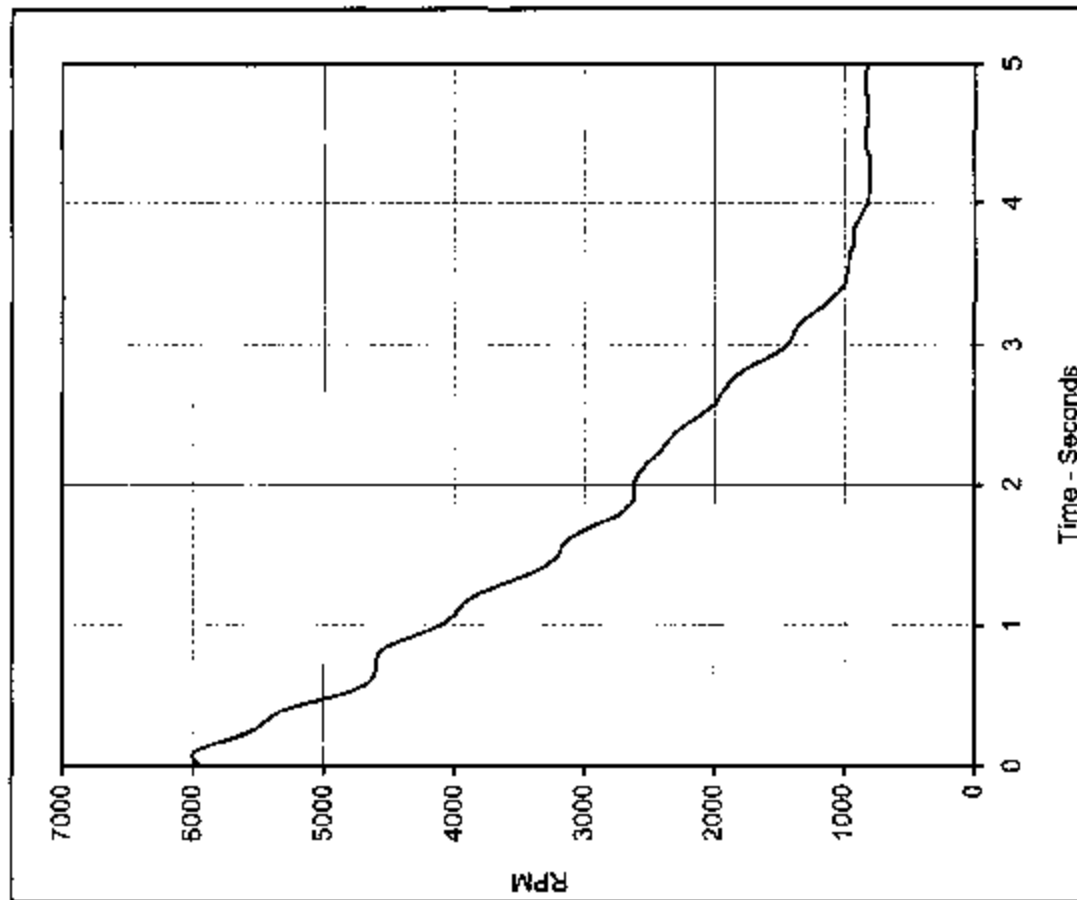
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 25.2 | 0.0  | 140.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 6005.3 | 0.1  | 803.8 | 4.1  | 5           |

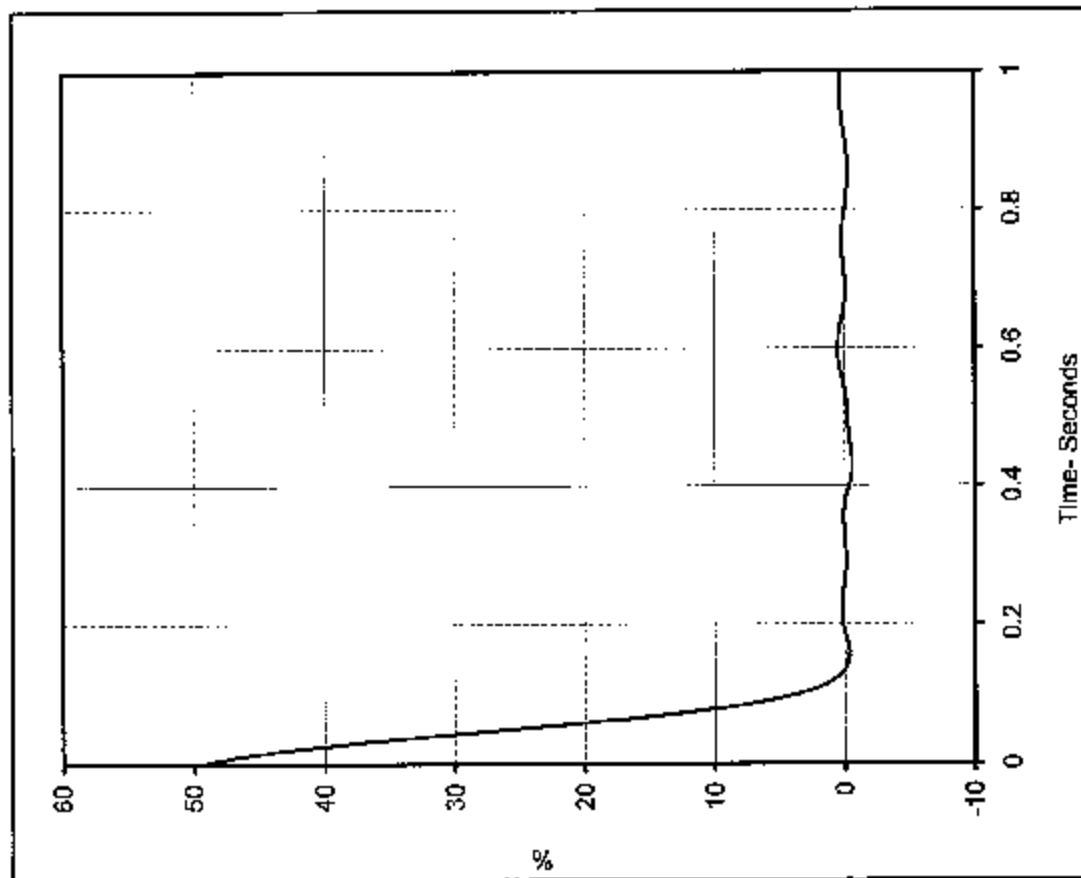
Test Date:

7/22/03

NHTSA No.:

Q23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

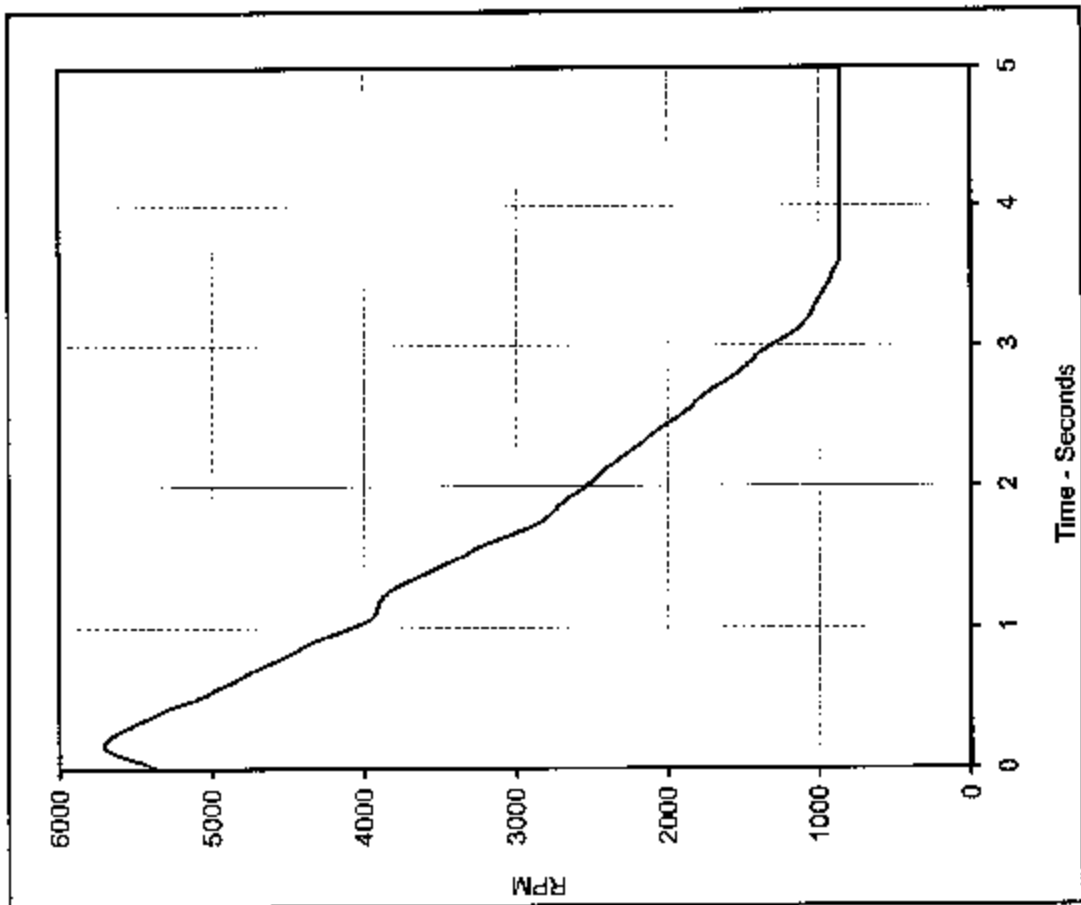
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 49.6 | 0.0  | 130.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Filter (Hz) |
|-------|--------|------|-------|-------------|
| RPM   | 5707.7 | 0.2  | 861.2 | 5           |

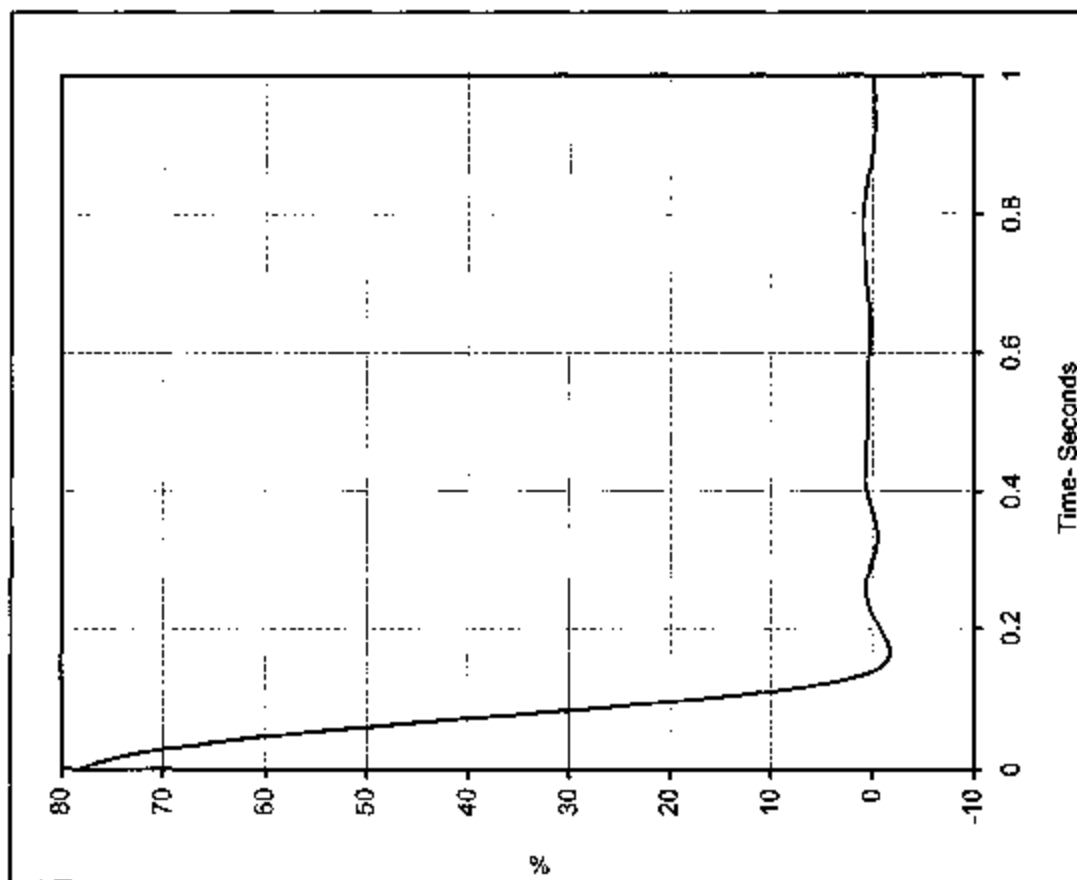
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

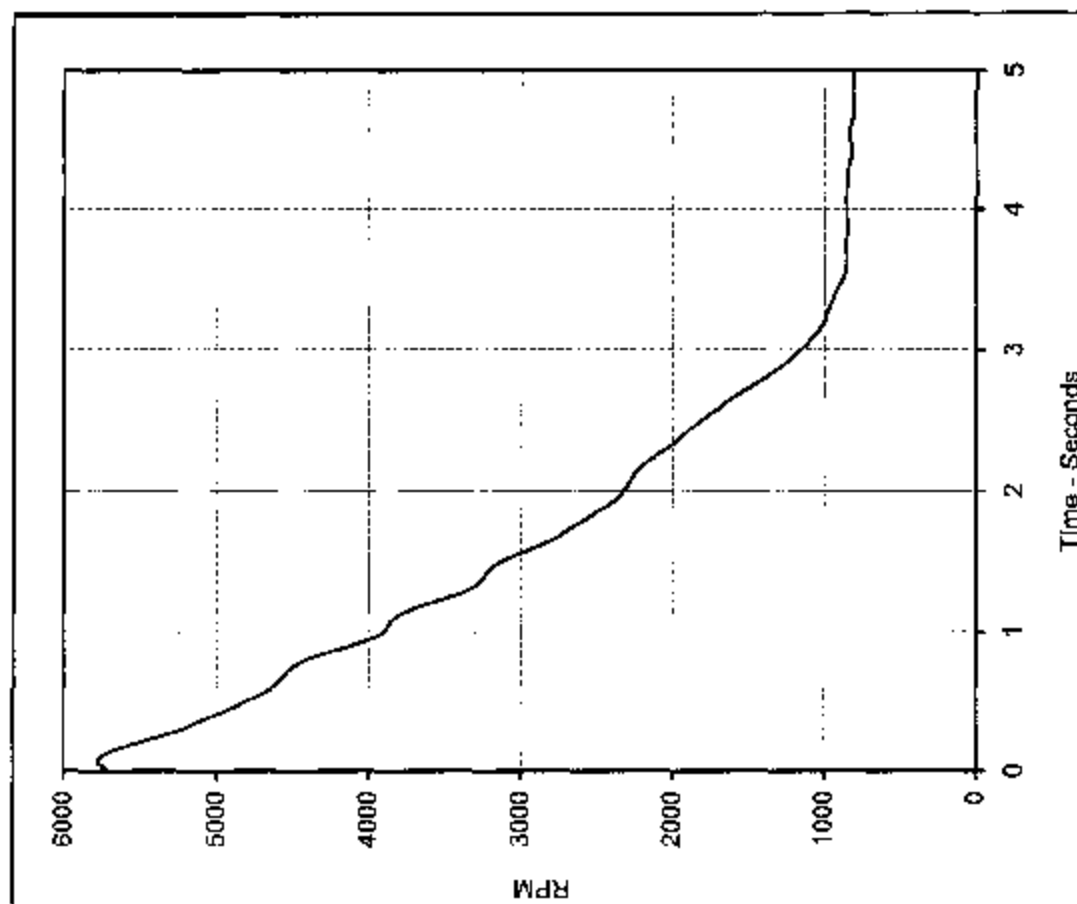
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 78.2 | 0.0  | 140.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Filter (Hz) |
|-------|--------|------|-------|-------------|
| RPM   | 5774.4 | 0.1  | 805.0 | 5           |

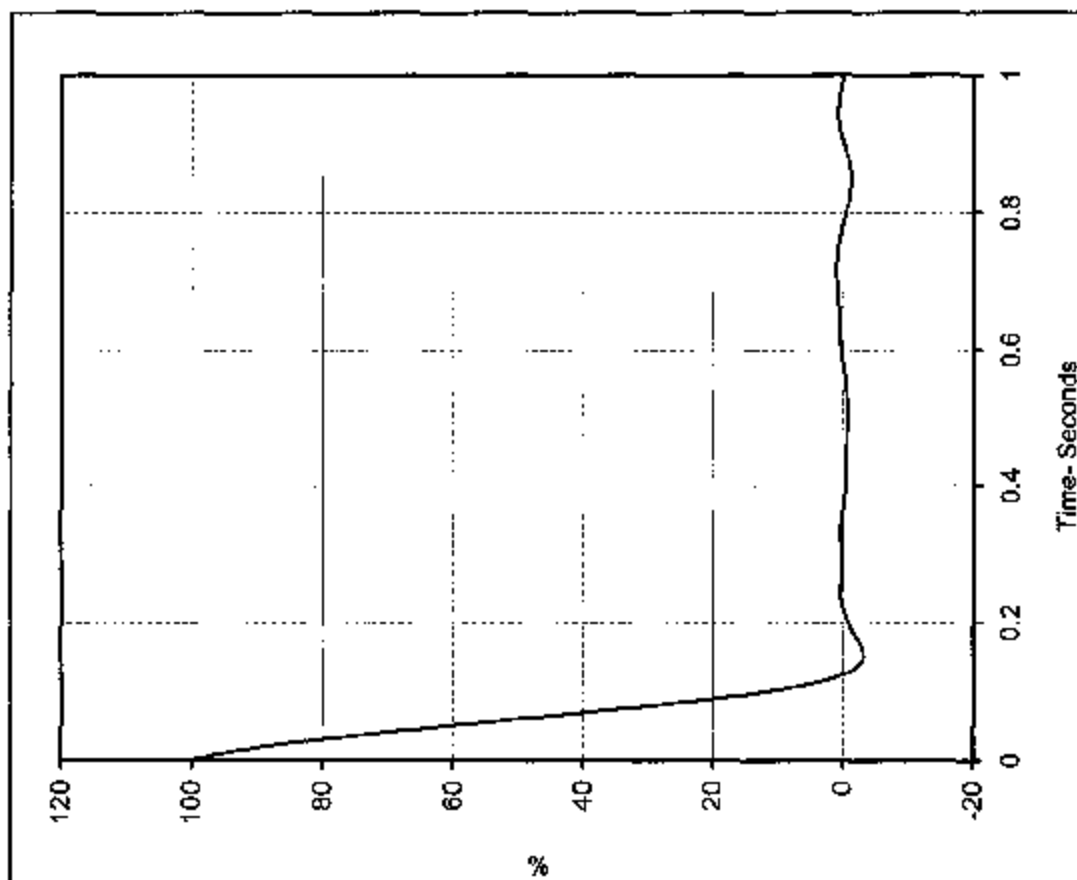
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

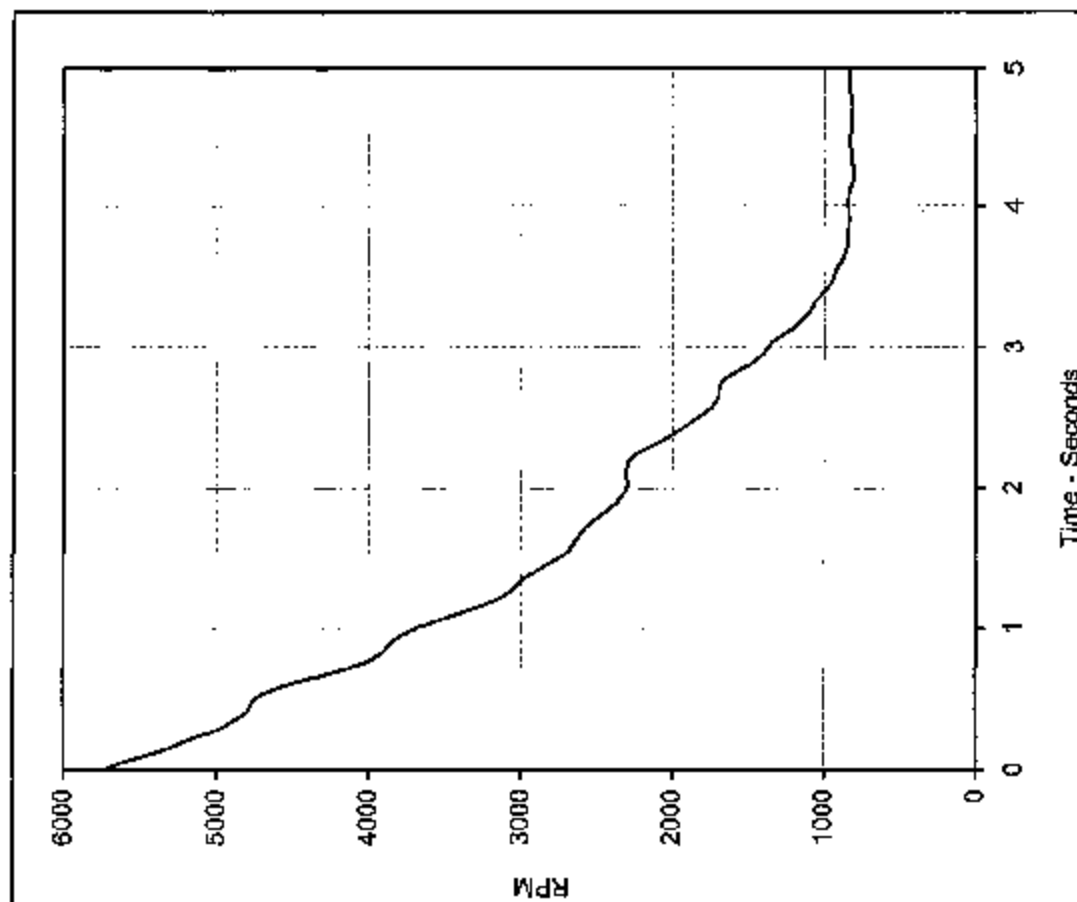
| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 100.1 | 0.0  | 120.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Filter (Hz) |
|-------|--------|------|-------|-------------|
| RPM   | 5724.6 | 0.0  | 797.2 | 5           |

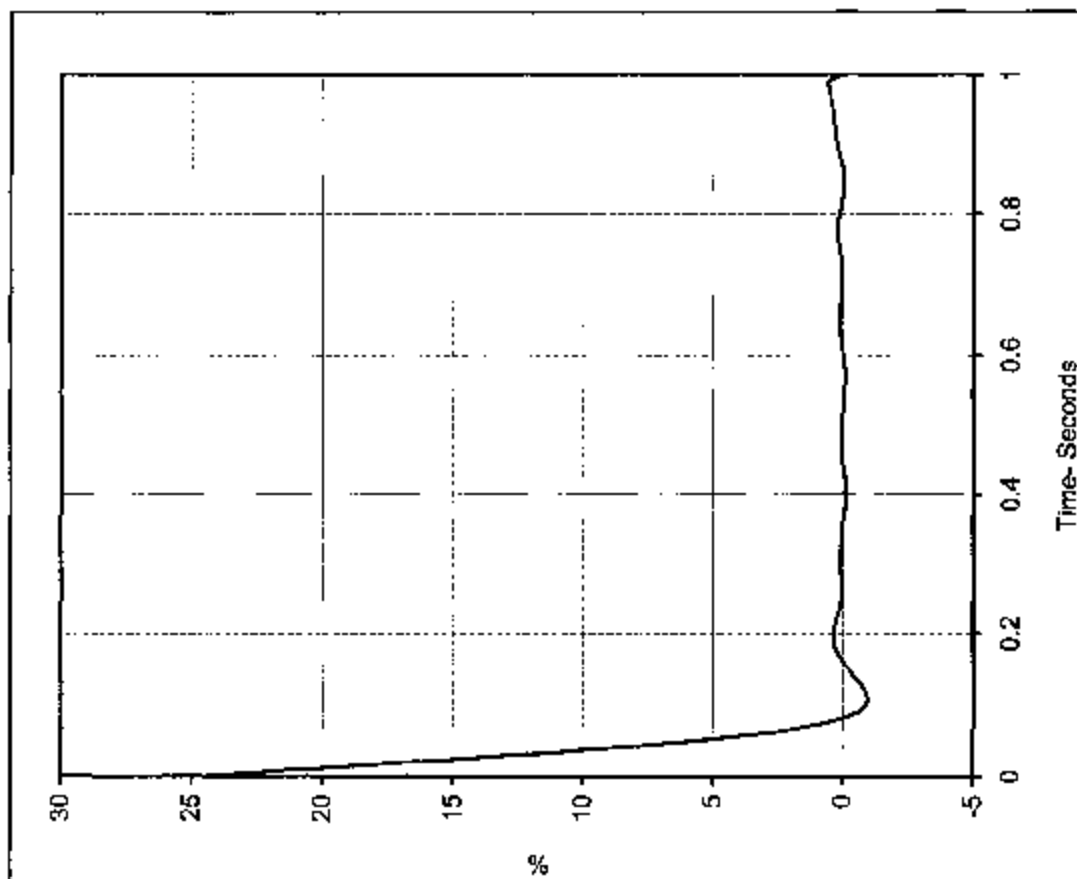
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

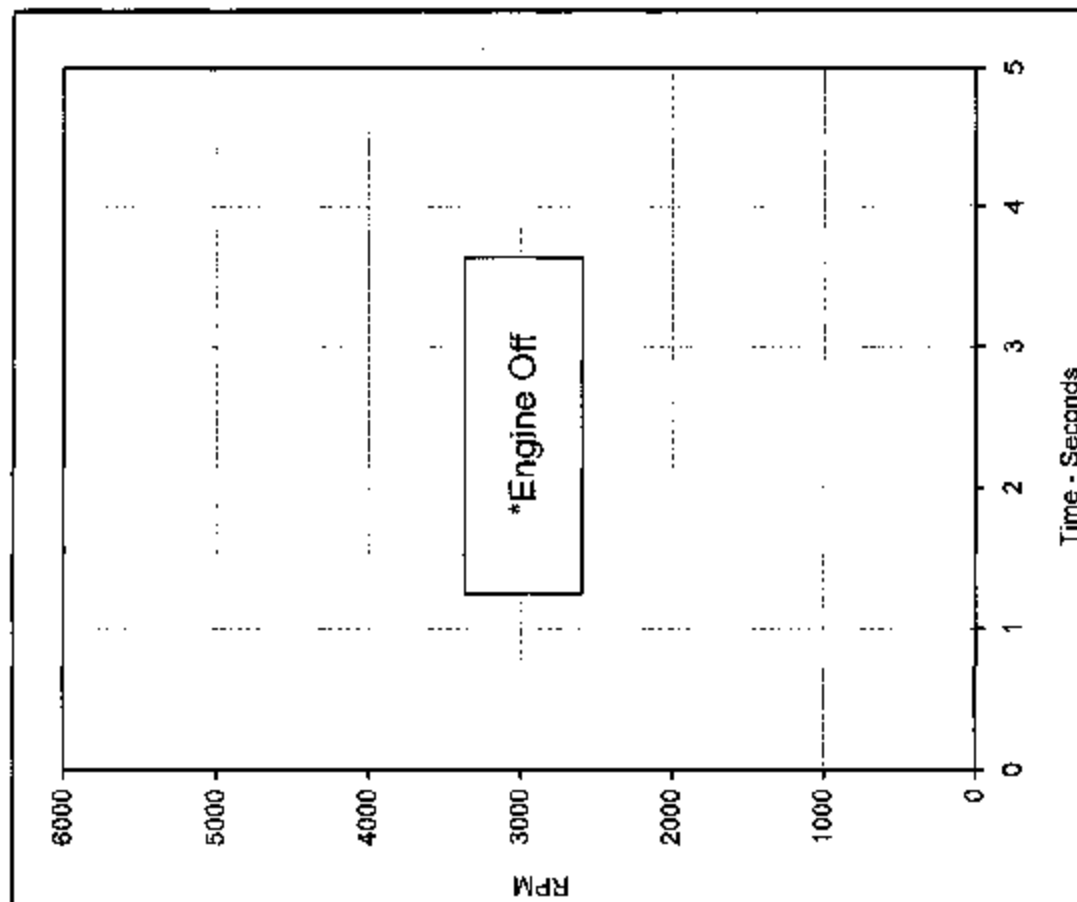
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 24.8 | 0.0  | 70.0               | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

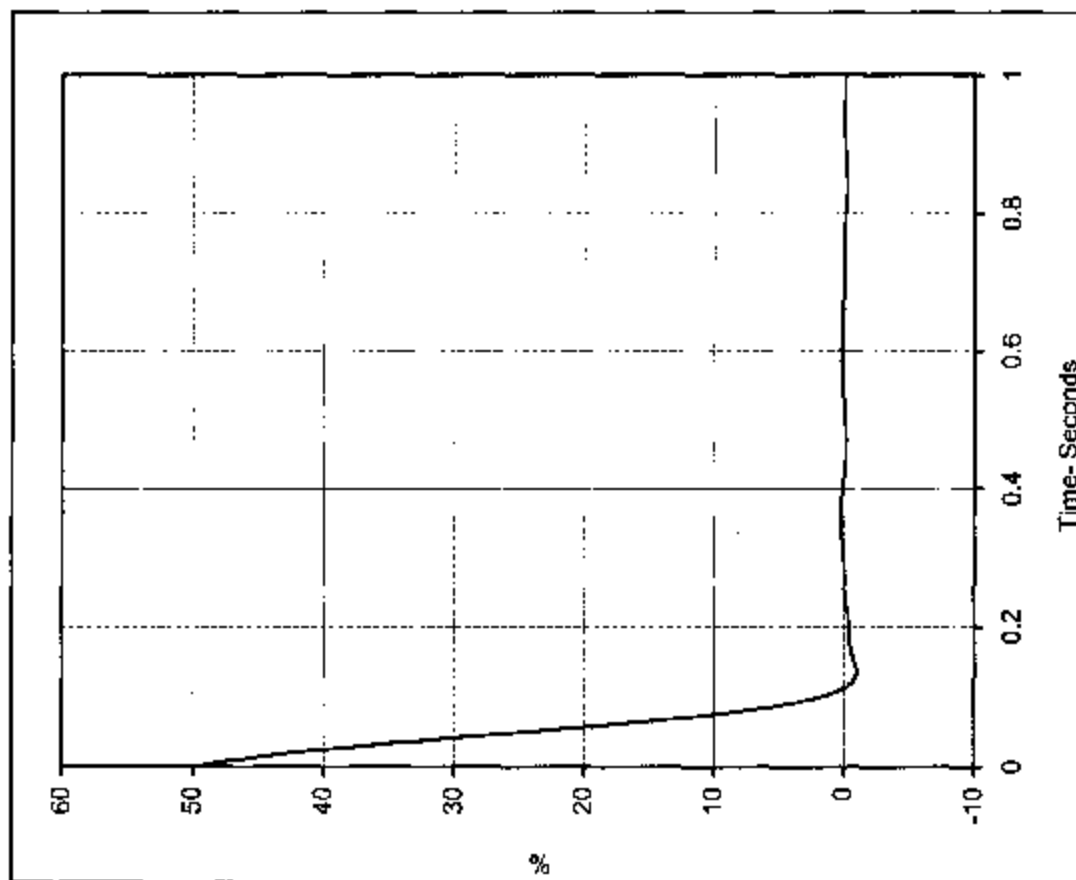
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

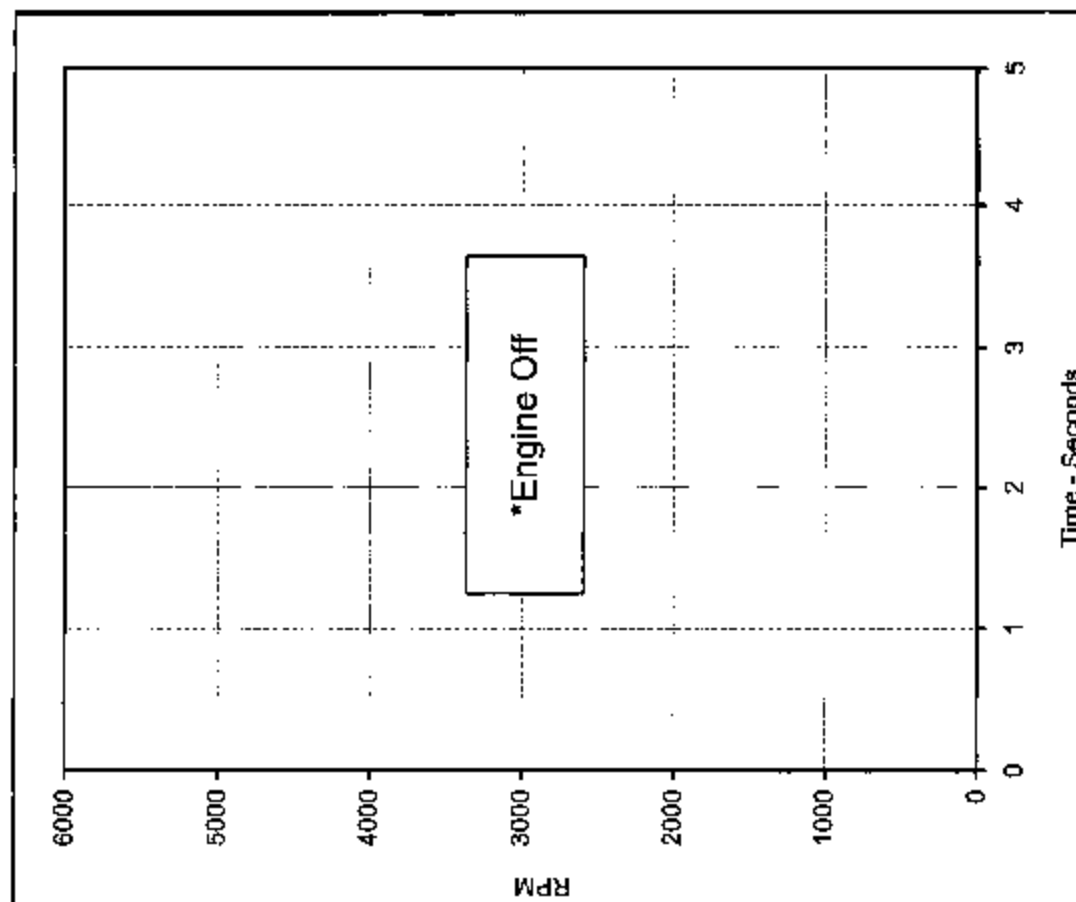
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 49.9 | 0.0  | 110.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

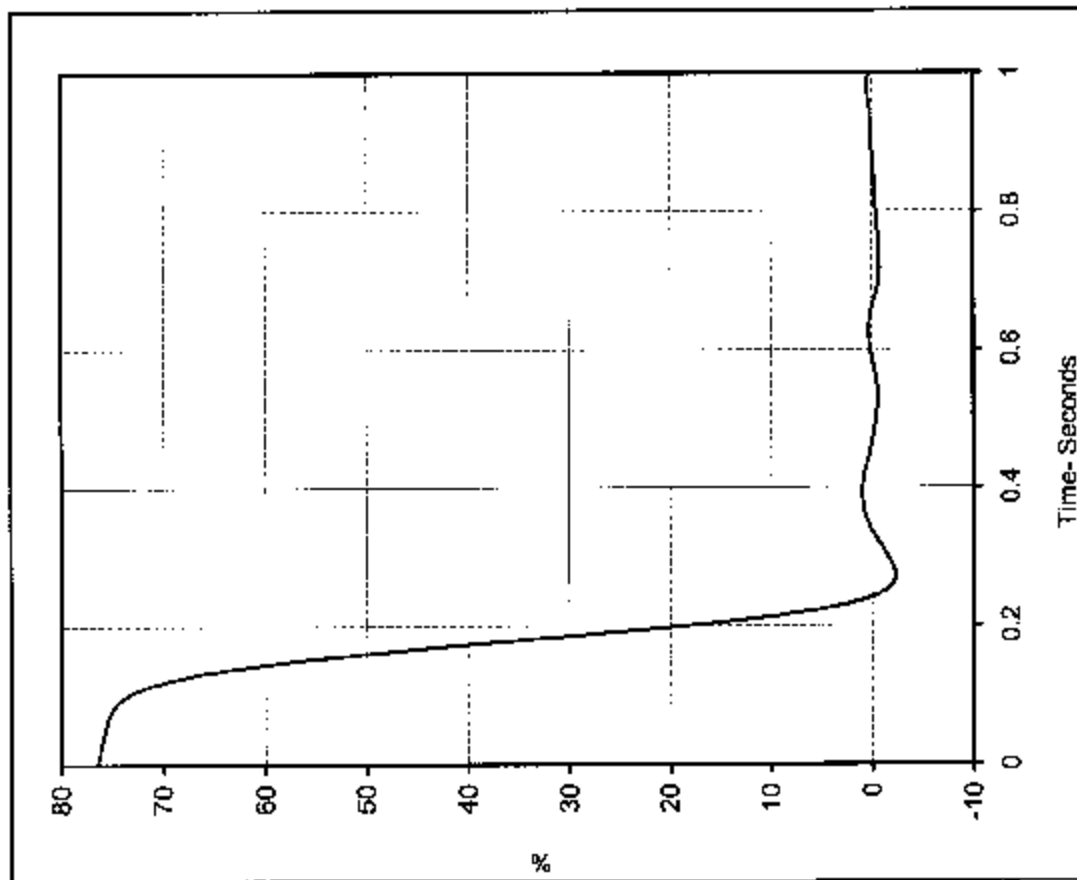
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          | CURNO | Type |
|----------------------------|-------|------|
| Throttle Position vs. Time | 001   | FIL  |

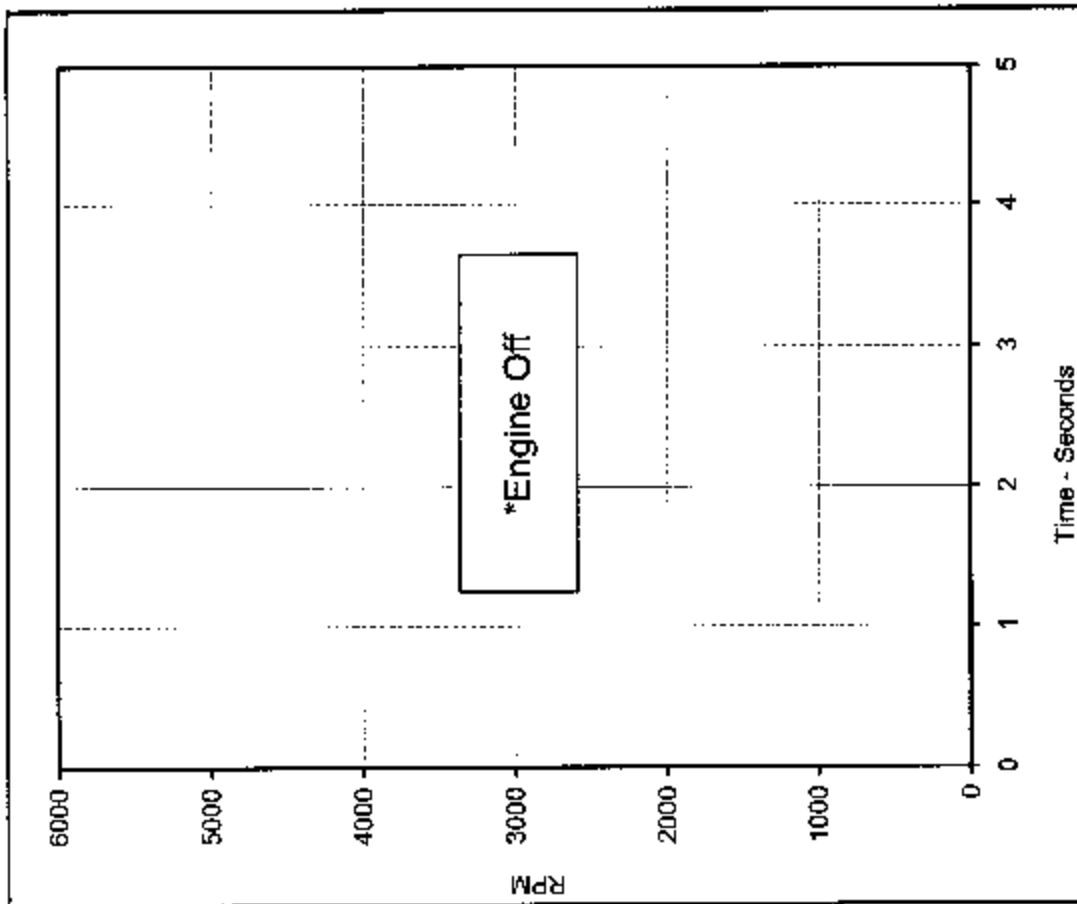
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 76.5 | 0.0  | 240.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   | CURNO | Type |
|---------------------|-------|------|
| Engine RPM vs. Time | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date:

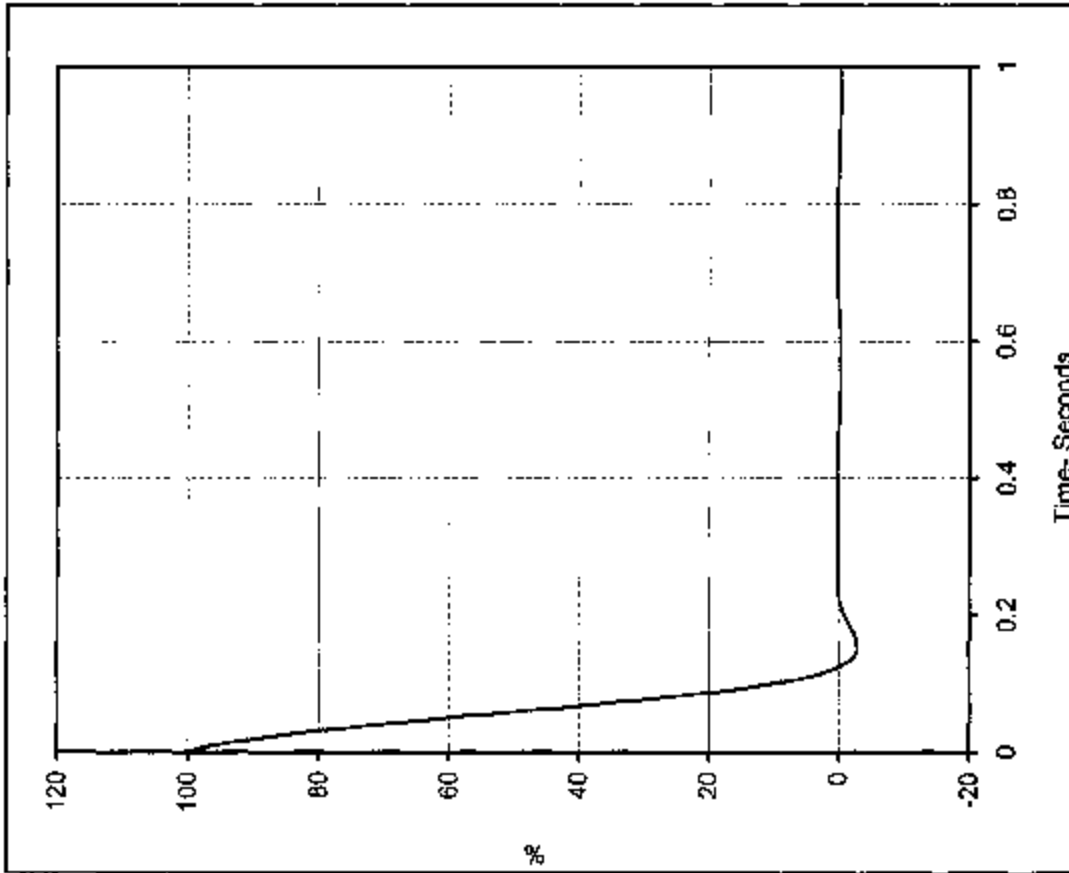
7/22/03

NHTSA No.:

C23030







| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

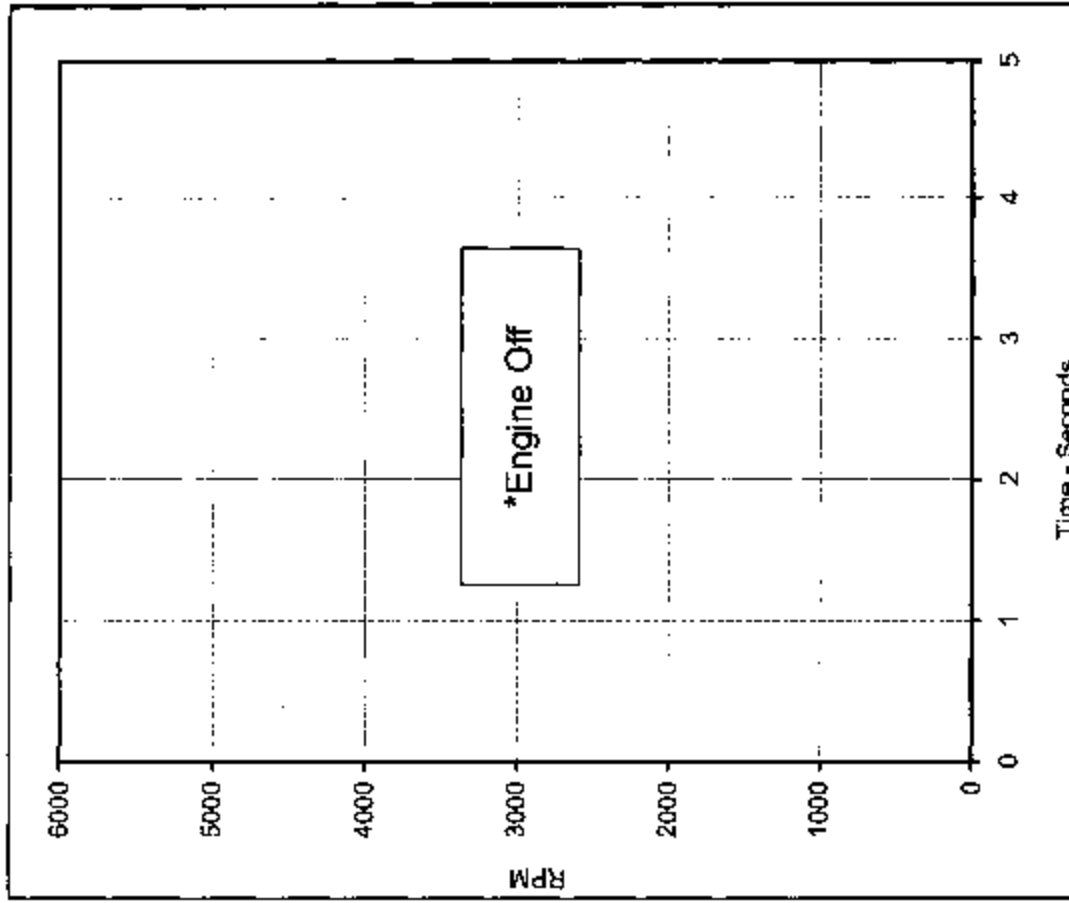
| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 100.7 | 0.0  | 120.0              | 5           |

Test Program:

FMVSS 124 (#1 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

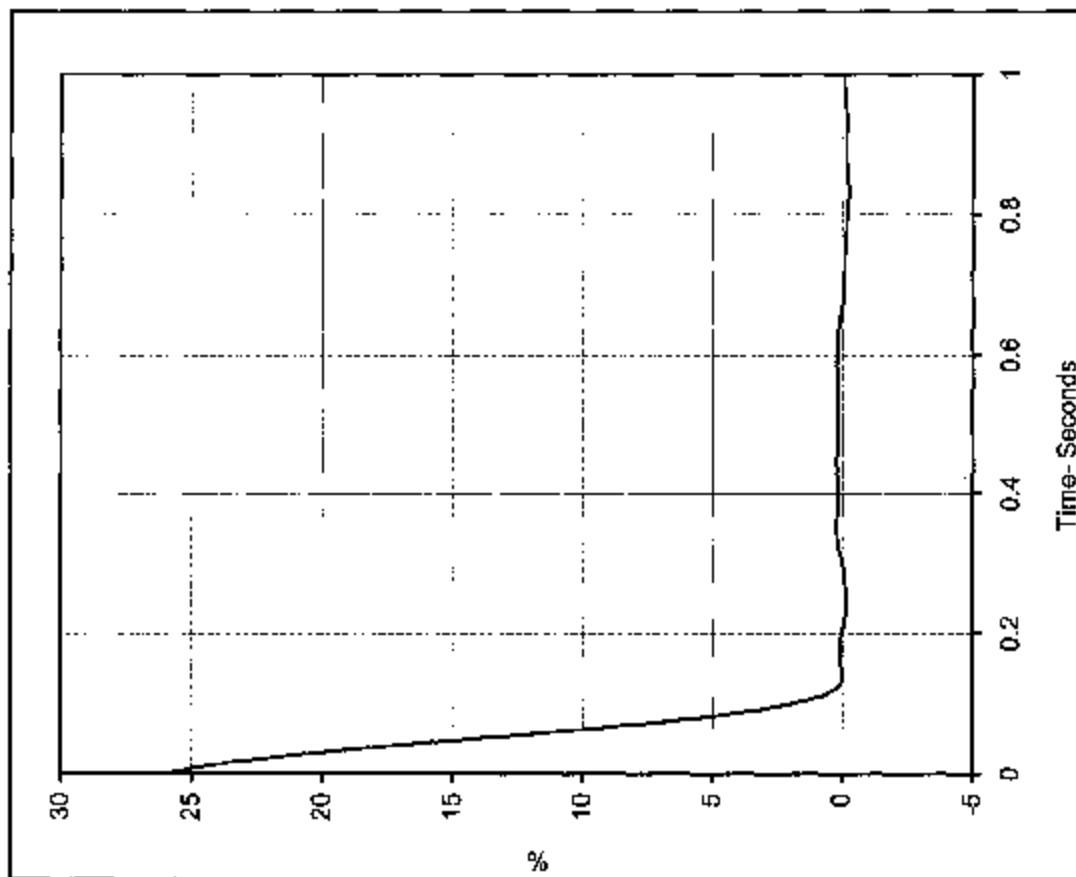
Test Date:

7/22/03

NHTSA No.:

C23030

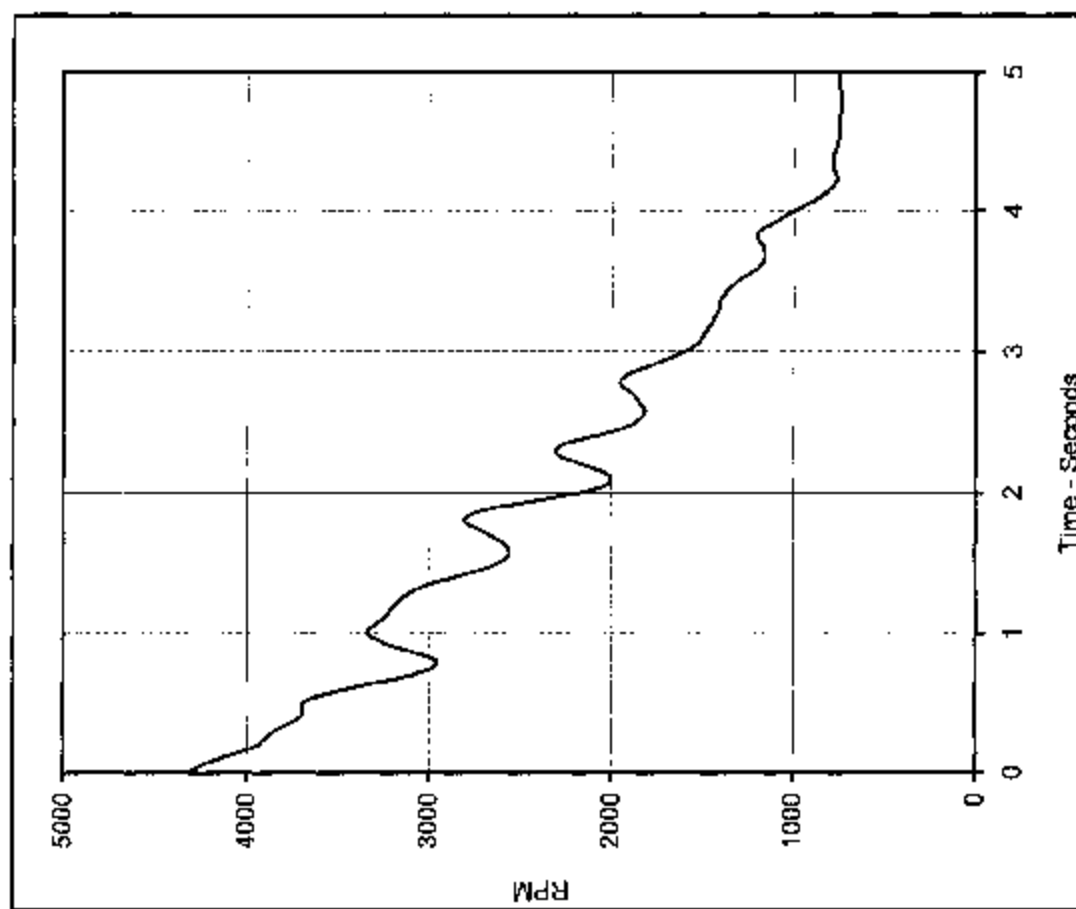




| Curve Description          | CURNO | Type |
|----------------------------|-------|------|
| Throttle Position vs. Time | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 26.0 | 0.0  | 120.0              | 5           |

Test Program: FMVSS 124 (#2 Spring Disconnected)  
 Test Vehicle: 2003 Jeep Cherokee SUV

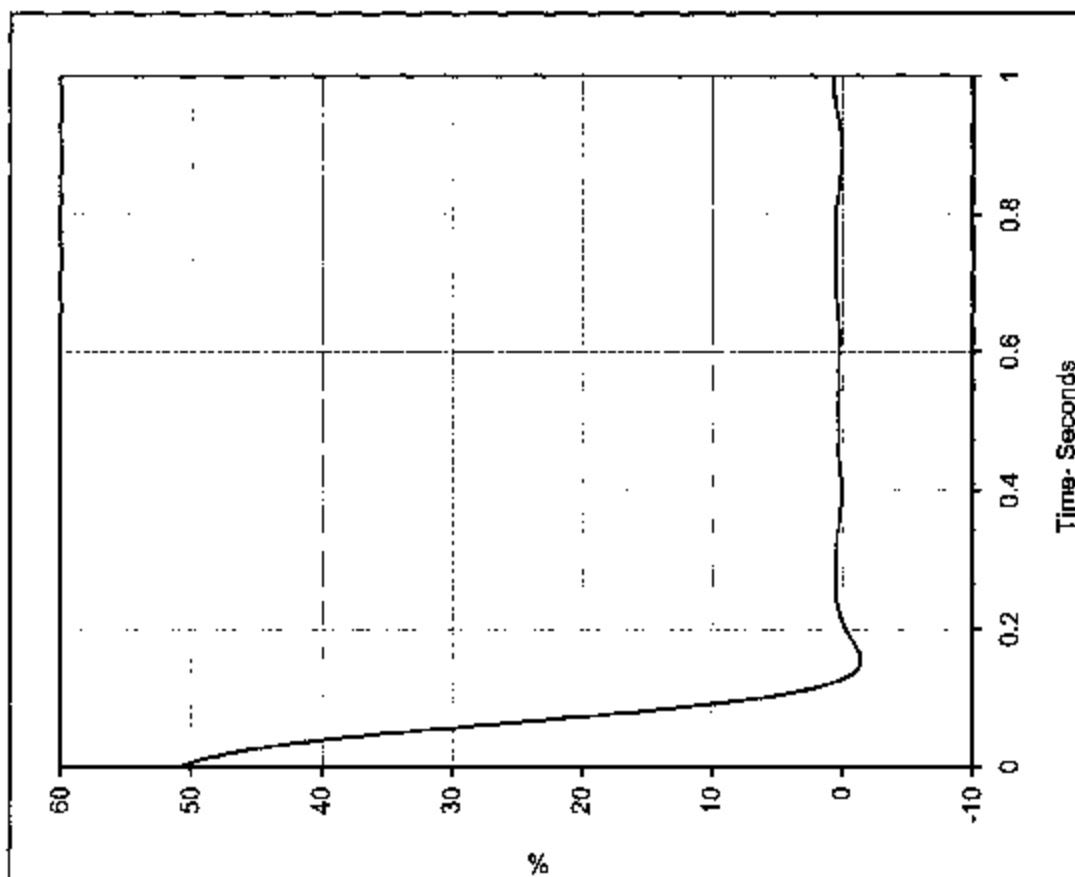


| Curve Description   | CURNO | Type |
|---------------------|-------|------|
| Engine RPM vs. Time | 002   | FIL  |

| Units | Max    | Time | Min   | Filter (Hz) |
|-------|--------|------|-------|-------------|
| RPM   | 4309.4 | 0.0  | 734.9 | 5           |

Test Date: 7/22/03  
 NHTSA No.: C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 50.9 | 0.0  | 130.0              | 5           |

Test Program:

FMVSS 124 (#2 Spring Disconnected)

Test Vehicle:

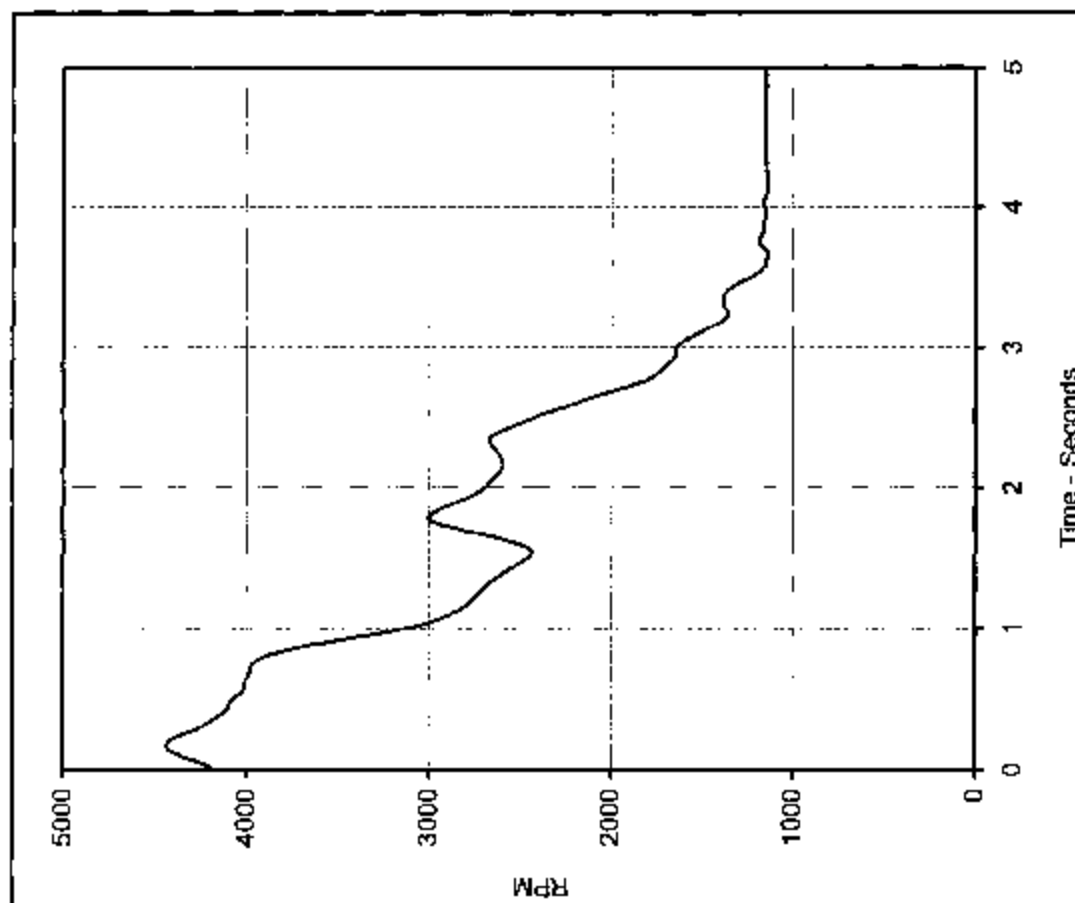
2003 Jeep Cherokee SUV

Test Date:

7/22/03

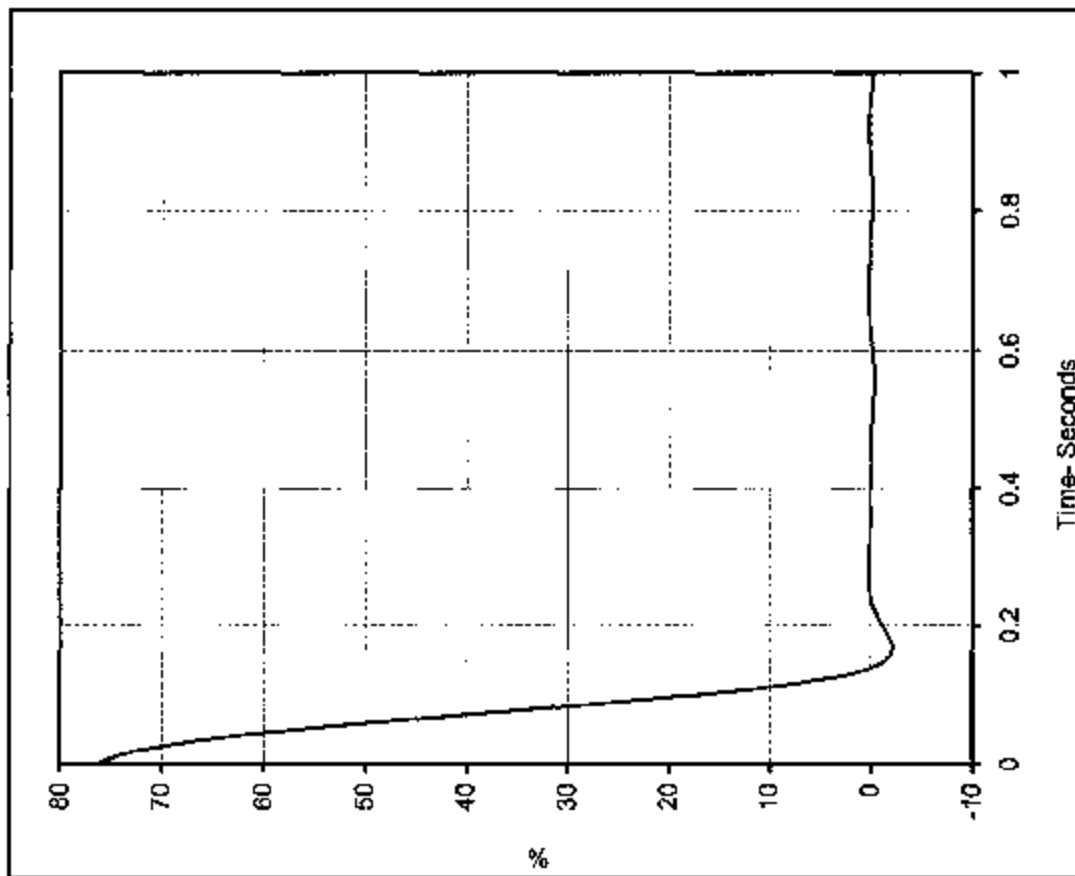
NHTSA No.:

C23030



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min    | Filter (Hz) |
|-------|--------|------|--------|-------------|
| RPM   | 4432.9 | 0.2  | 1141.9 | 5           |



| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 76.2 | 0.0  | 140.0              | 5           |

Test Program:

FMVSS 124 (#2 Spring Disconnected)

Test Vehicle:

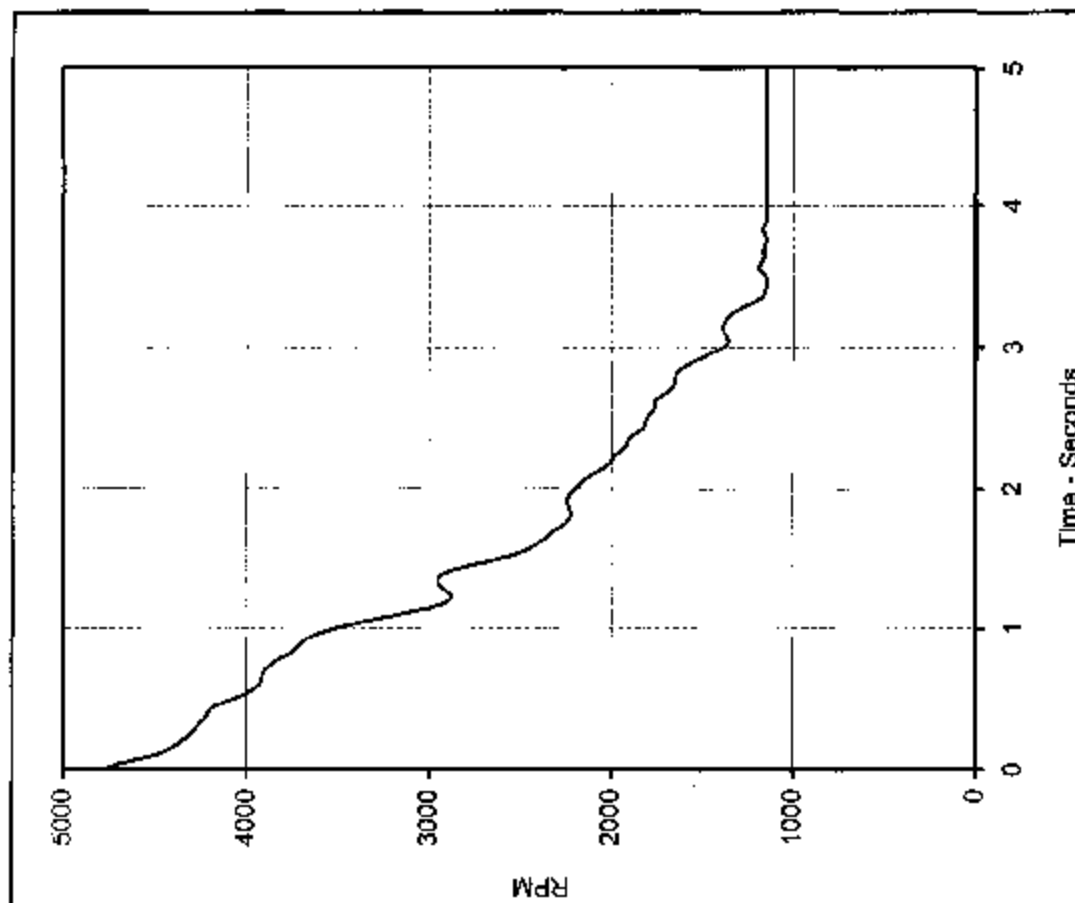
2003 Jeep Cherokee SUV

Test Date:

7/22/03

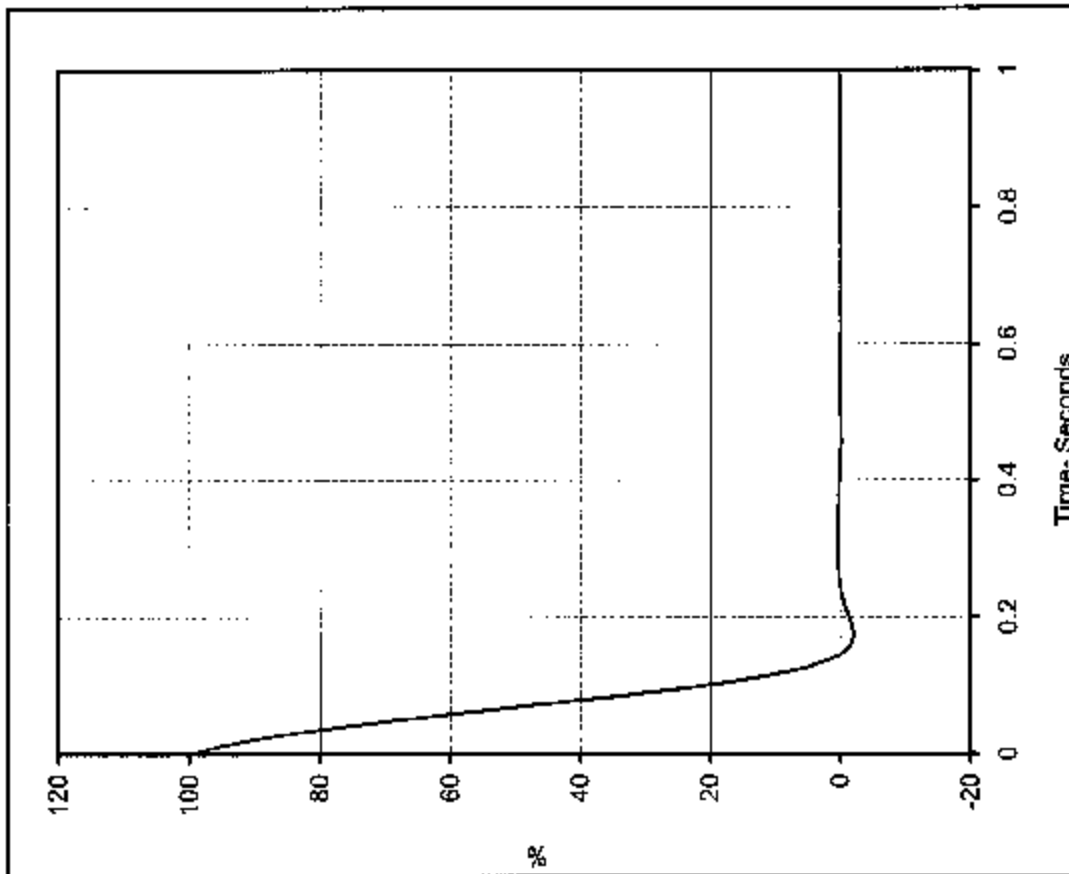
NHTSA No.:

C23030



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min    | Filter (Hz) |
|-------|--------|------|--------|-------------|
| RPM   | 4774.2 | 0.0  | 1141.9 | 5           |



| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

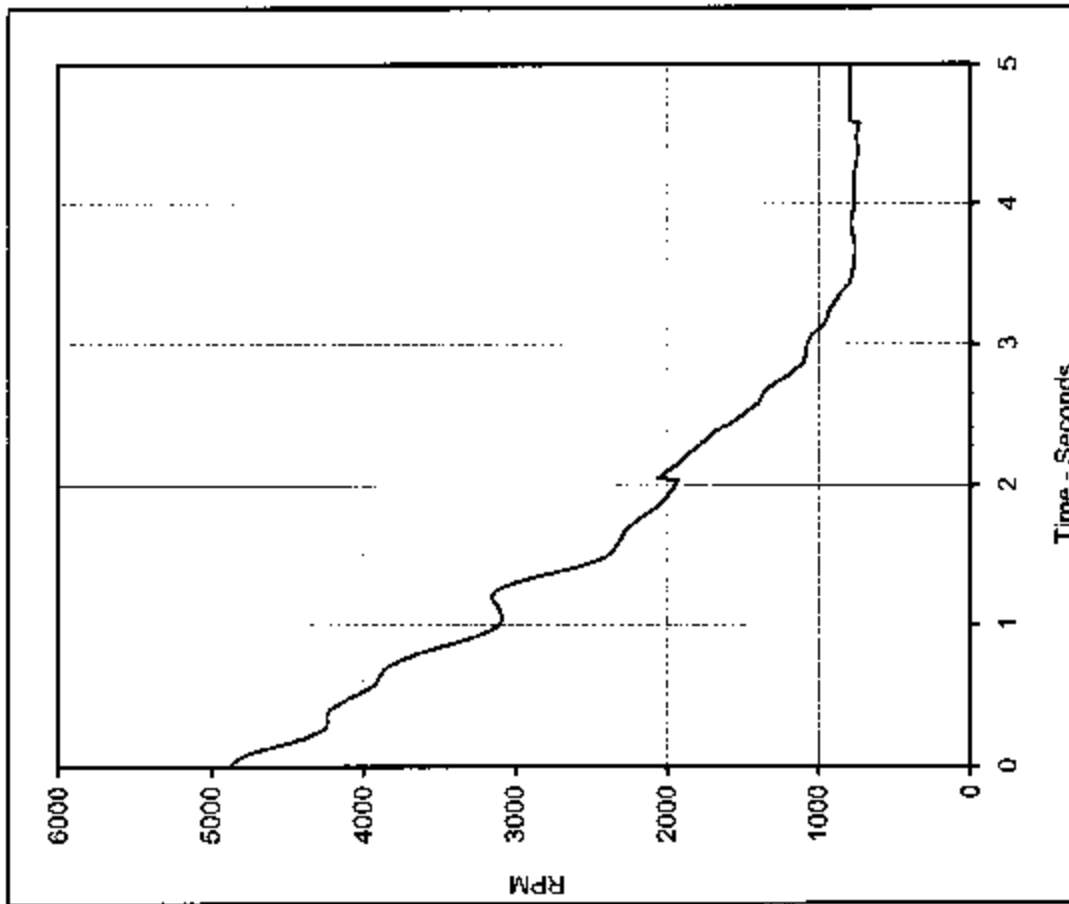
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 99.5 | 0.0  | 140.0              | 5           |

Test Program:

FMVSS 124 (#2 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 4874.1 | 0.0  | 731.0 | 4.6  | 5           |

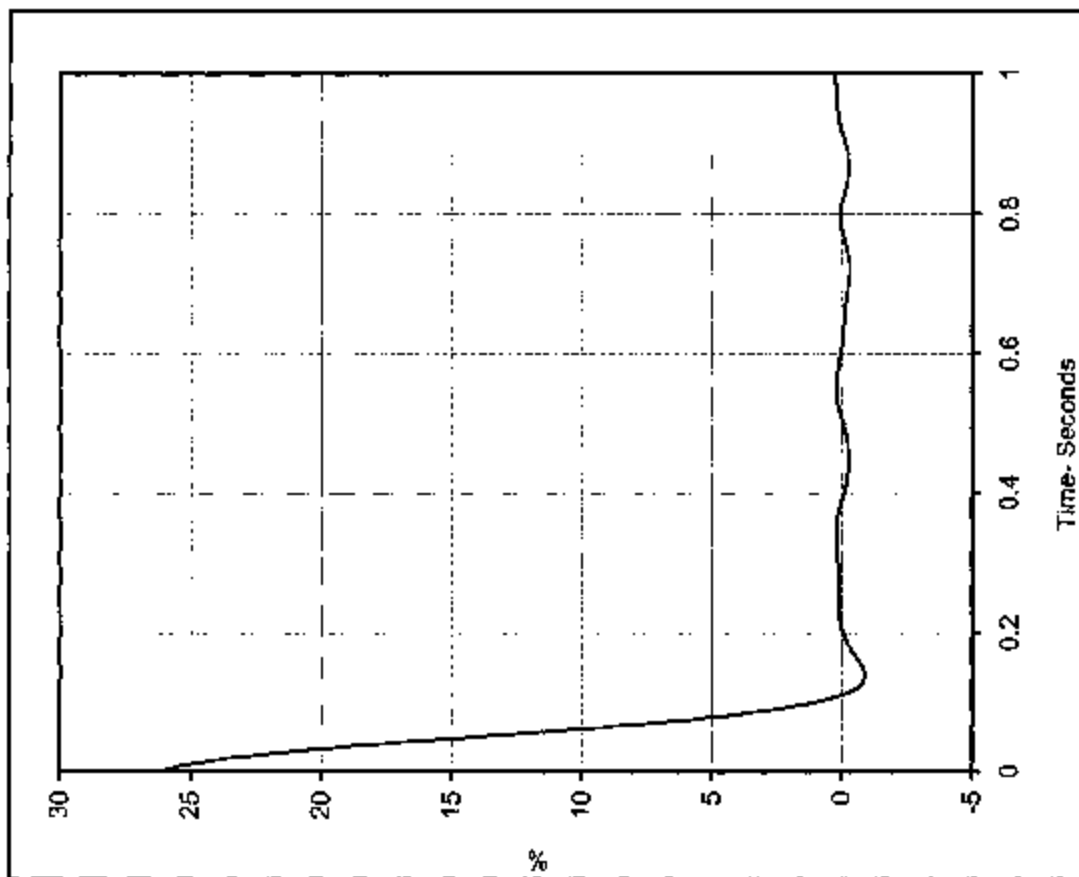
Test Date:

7/22/03

NHTSA No.:

C23030



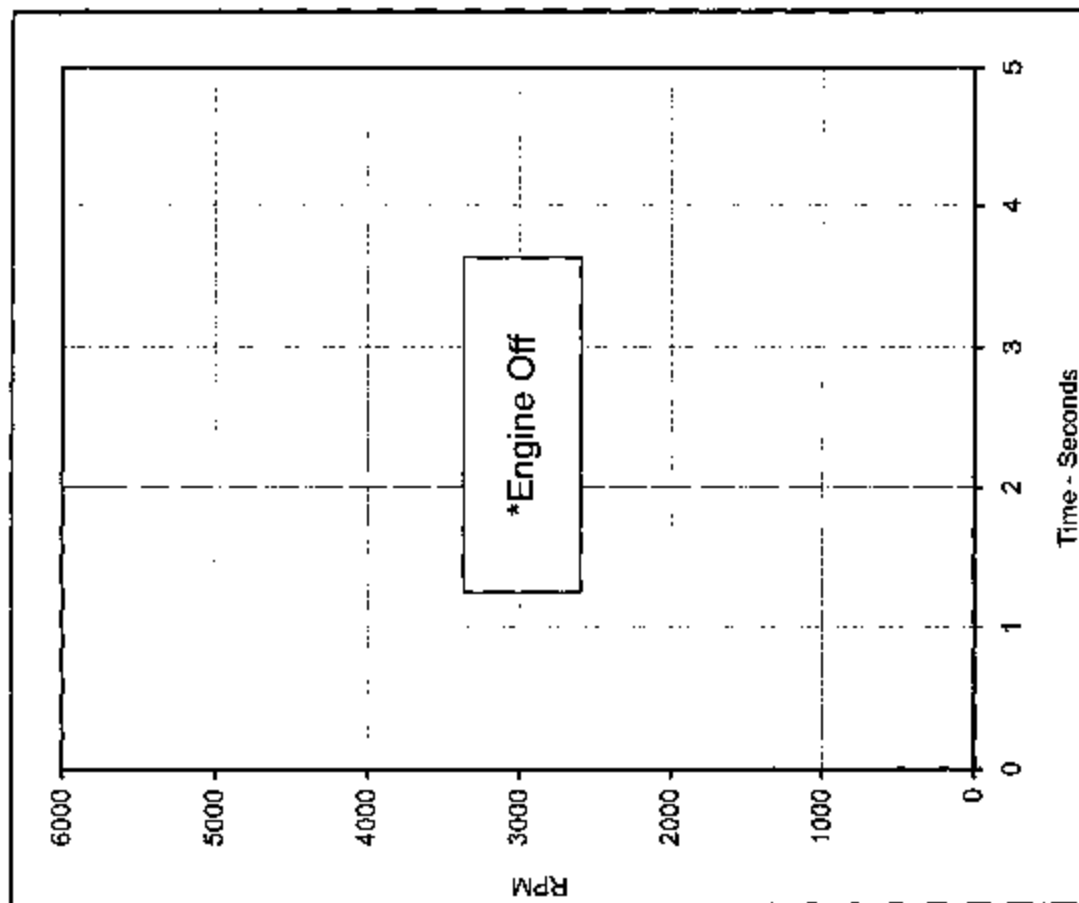


| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 26.2 | 0.0  | 110.0              | 5           |

Test Program: FMVSS 124 (#2 Spring Disconnected)

Test Vehicle: 2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

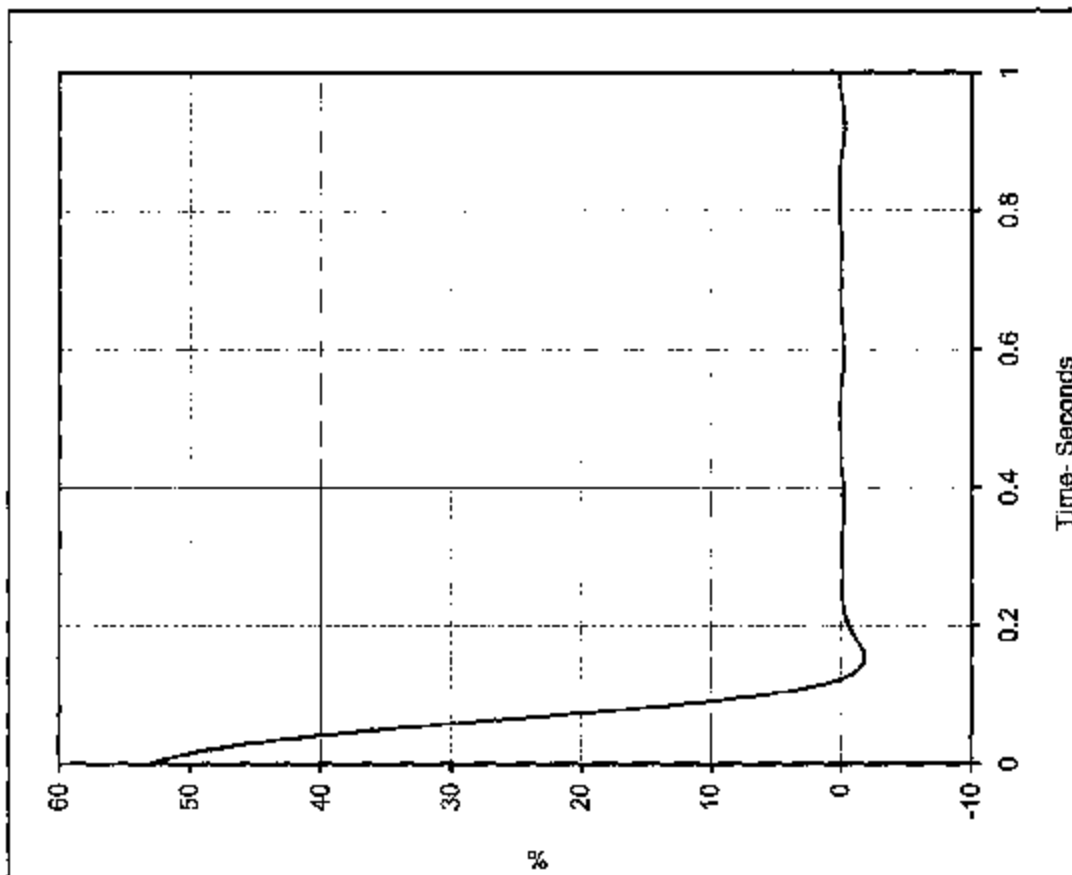
| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date: 7/22/03

NHTSA No.: C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

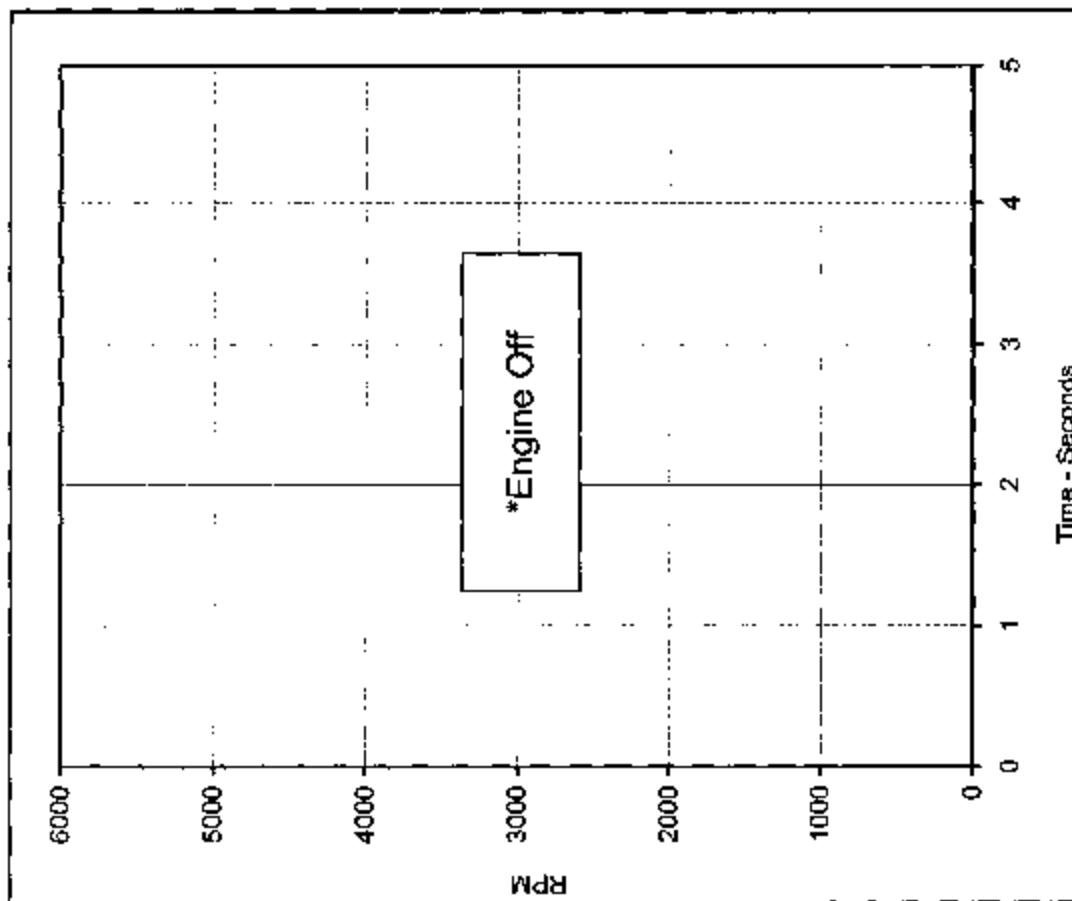
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 53.0 | 0.0  | 120.0              | 5           |

Test Program:

FMVSS 124 (#2 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

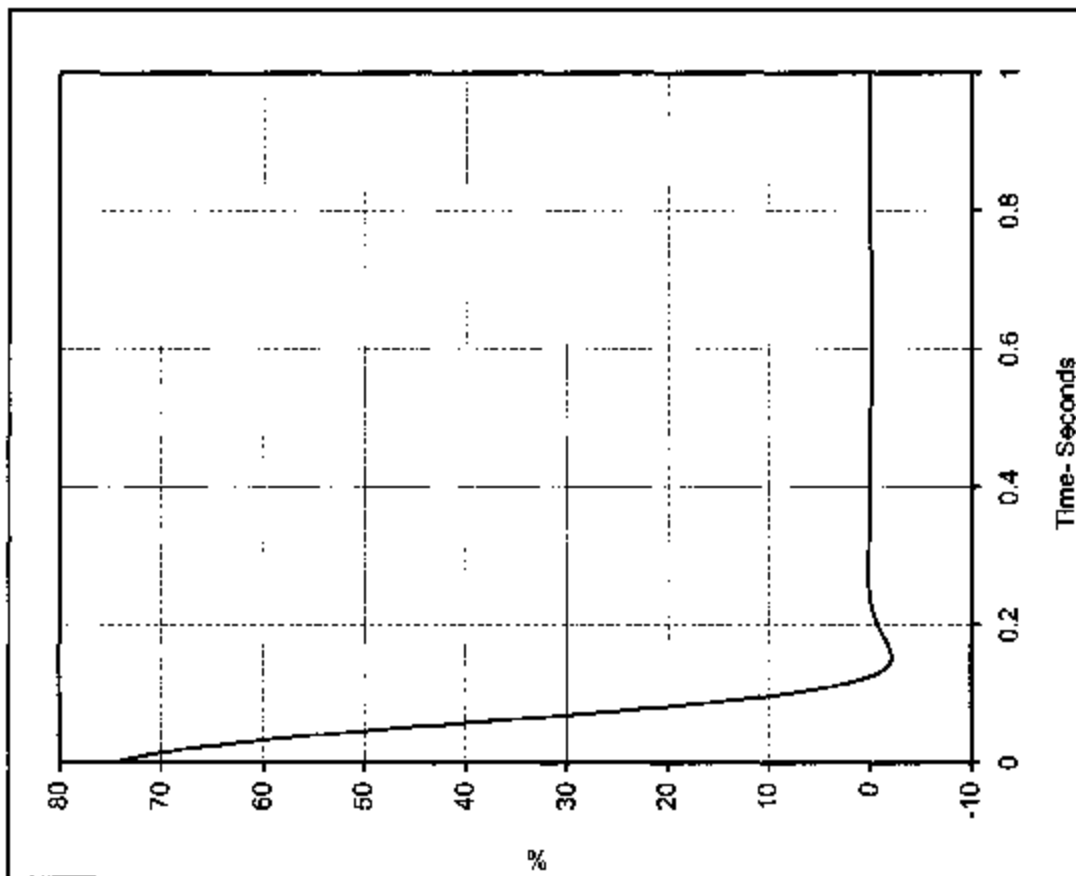
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

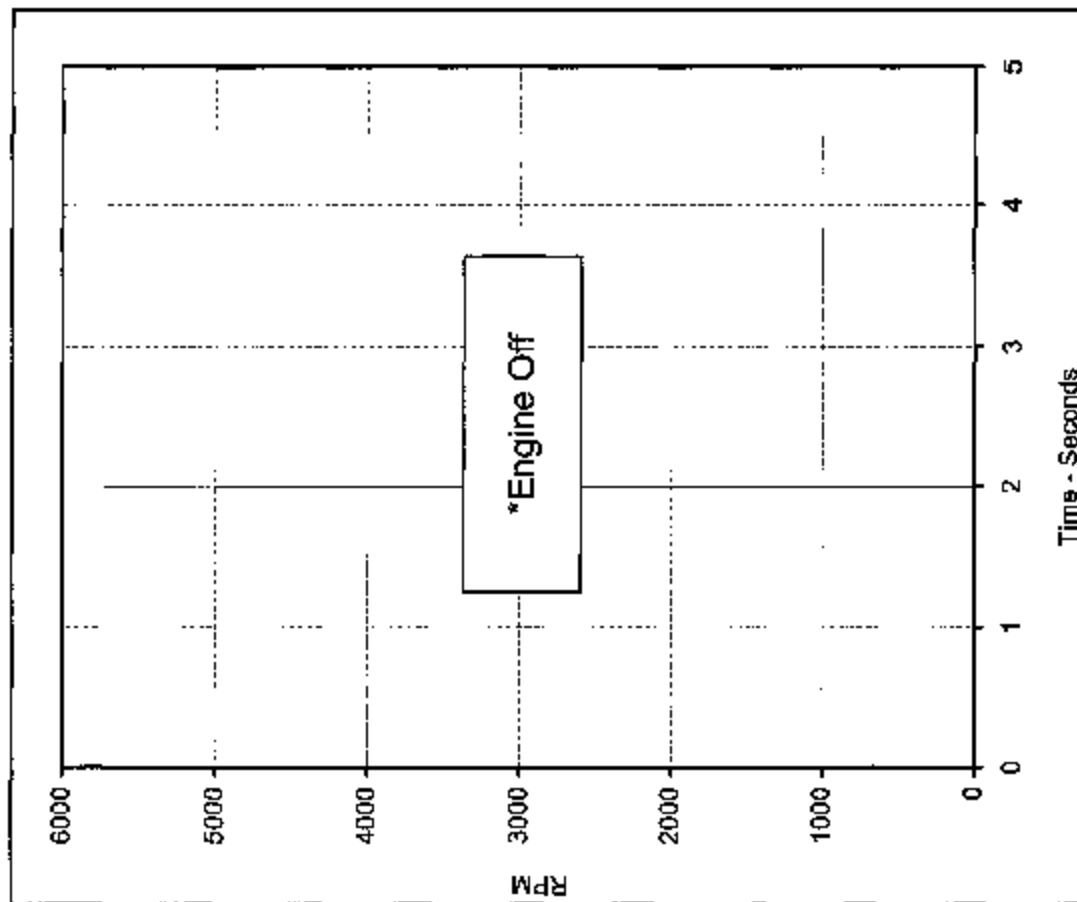
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 74.5 | 0.0  | 120.0              | 5           |

Test Program:

FMVSS 124 (#2 Spring Disconnected)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

Test Date:

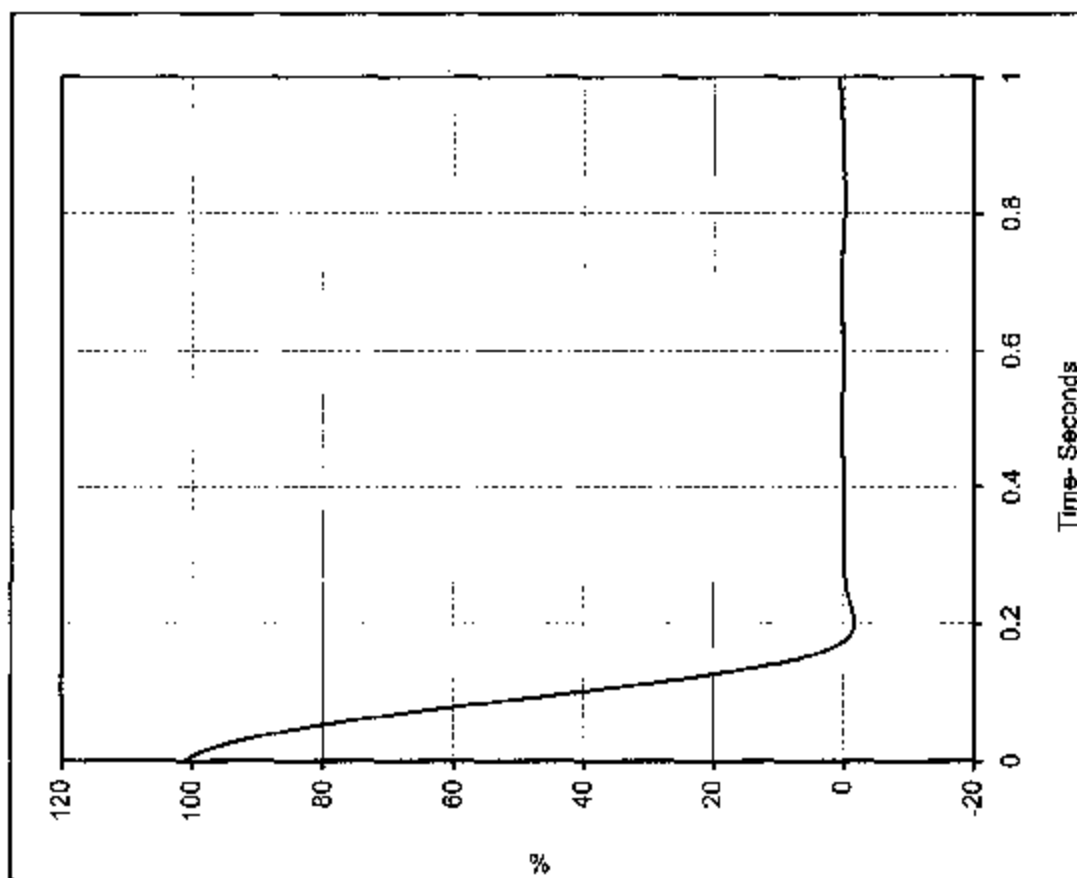
7/22/03

NHTSA No.:

C23030





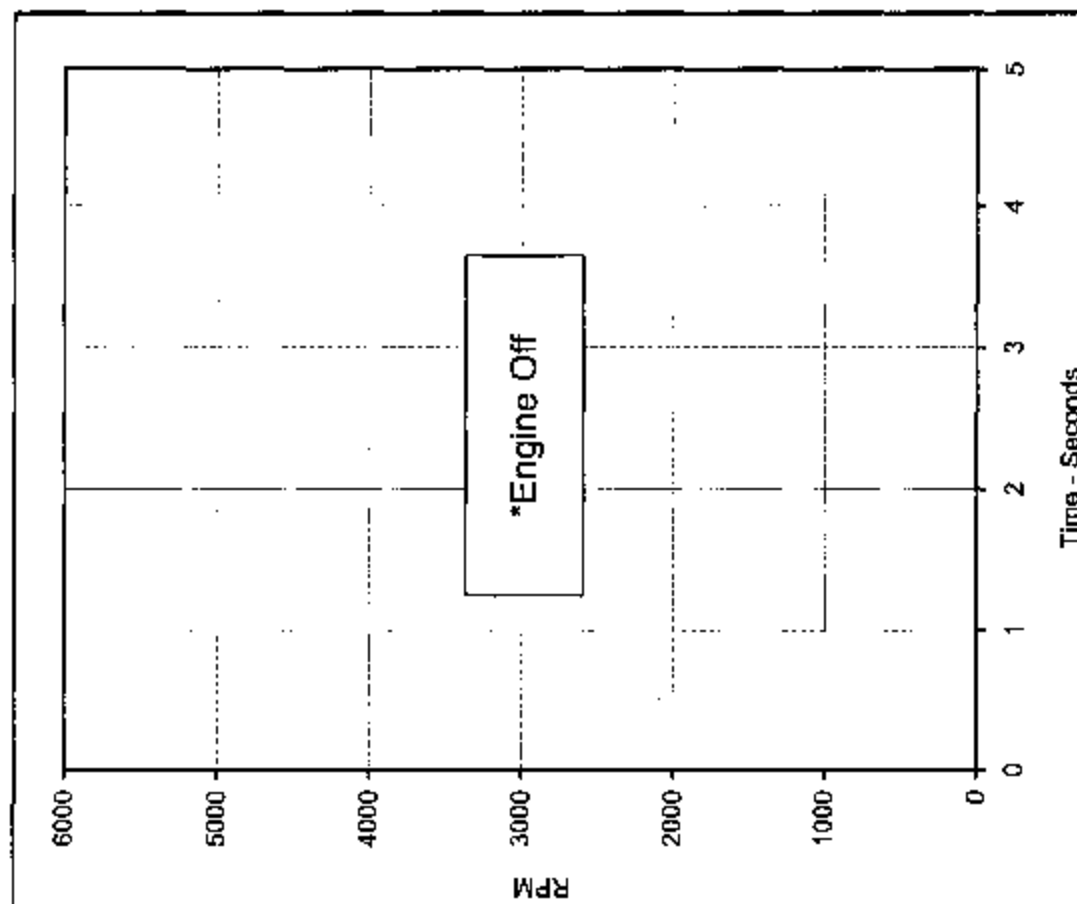


| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 101.3 | 0.0  | 170.0              | 5           |

Test Program: FMVSS 124 (#2 Spring Disconnected)

Test Vehicle: 2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

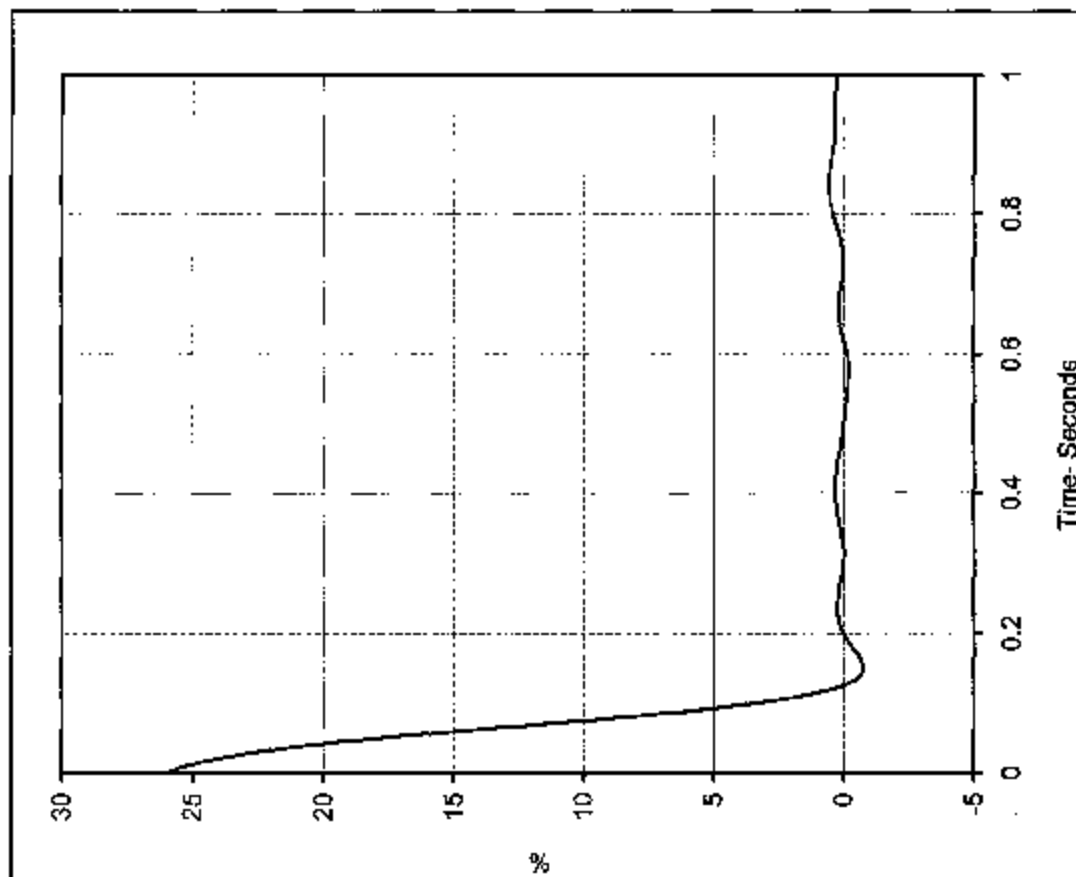
| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

Test Date: 7/22/03

NHTSA No.: C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

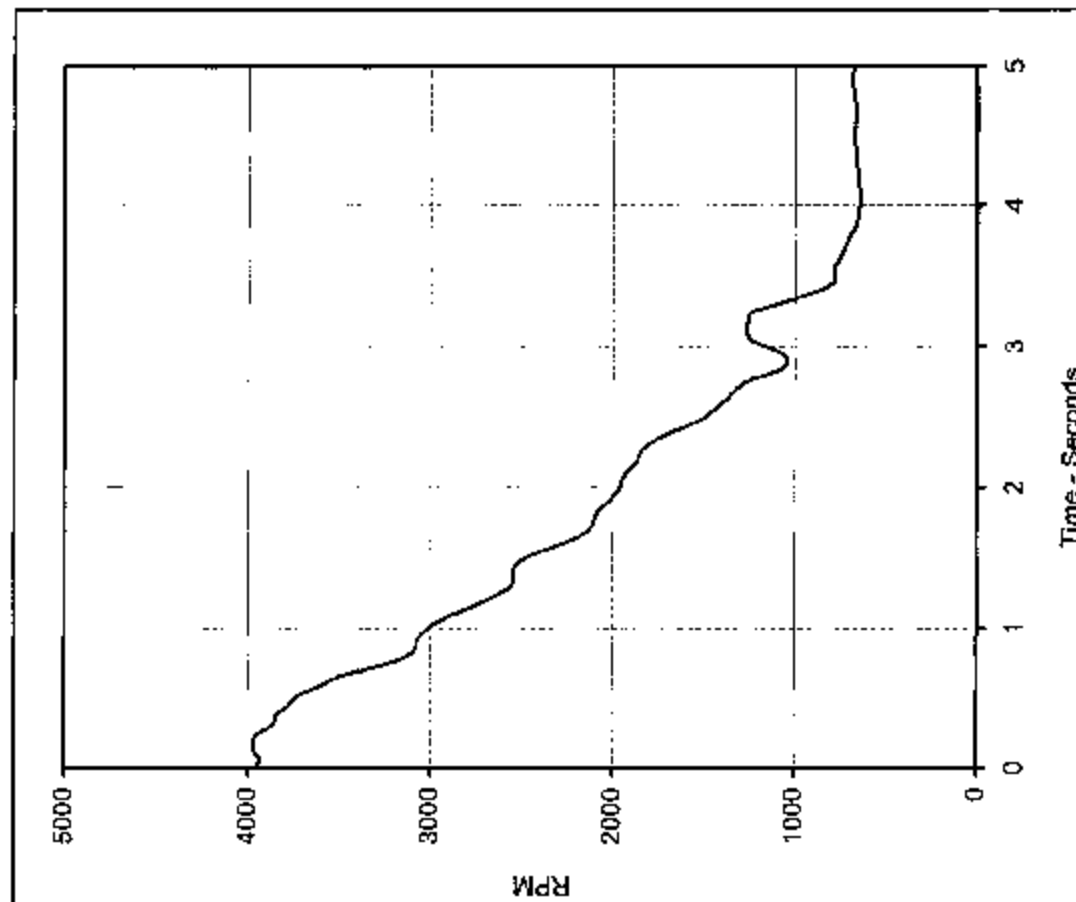
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 25.0 | 0.0  | 120.0              | 5           |

Test Program:

FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 3971.9 | 0.2  | 639.9 | 4.1  | 5           |

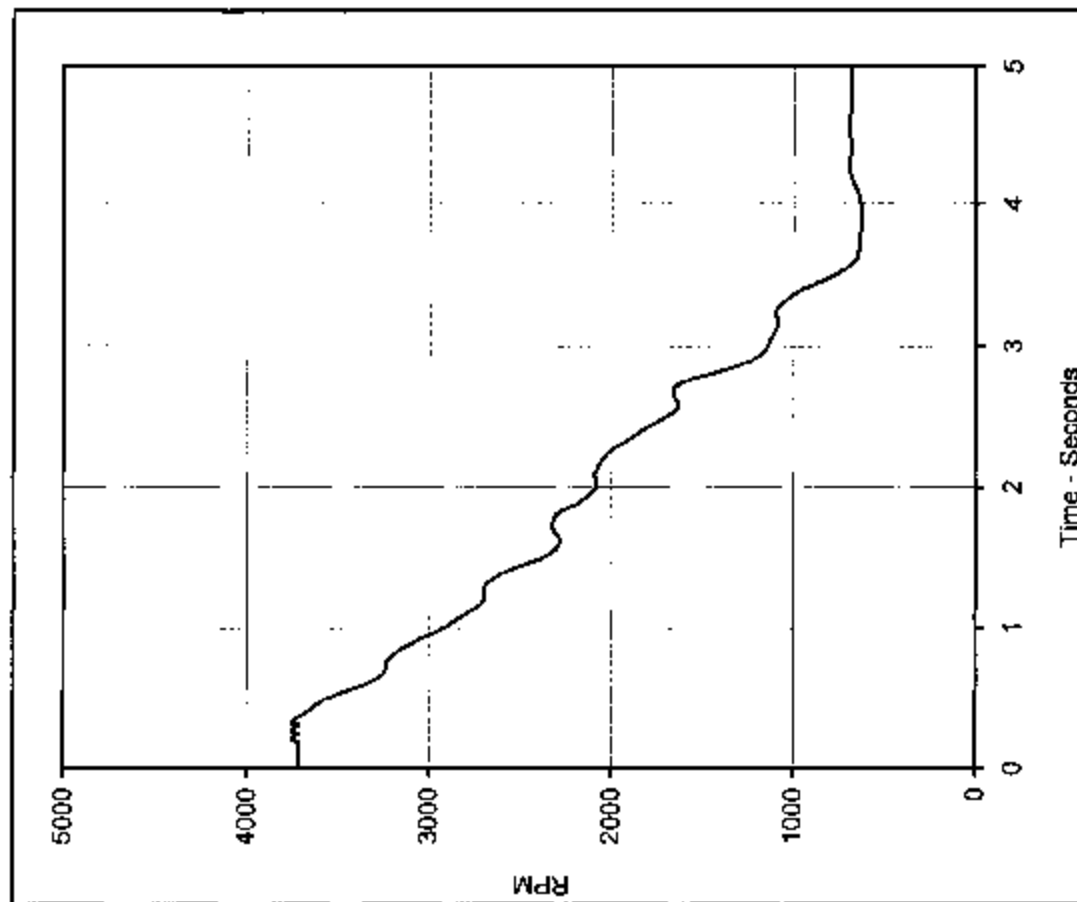
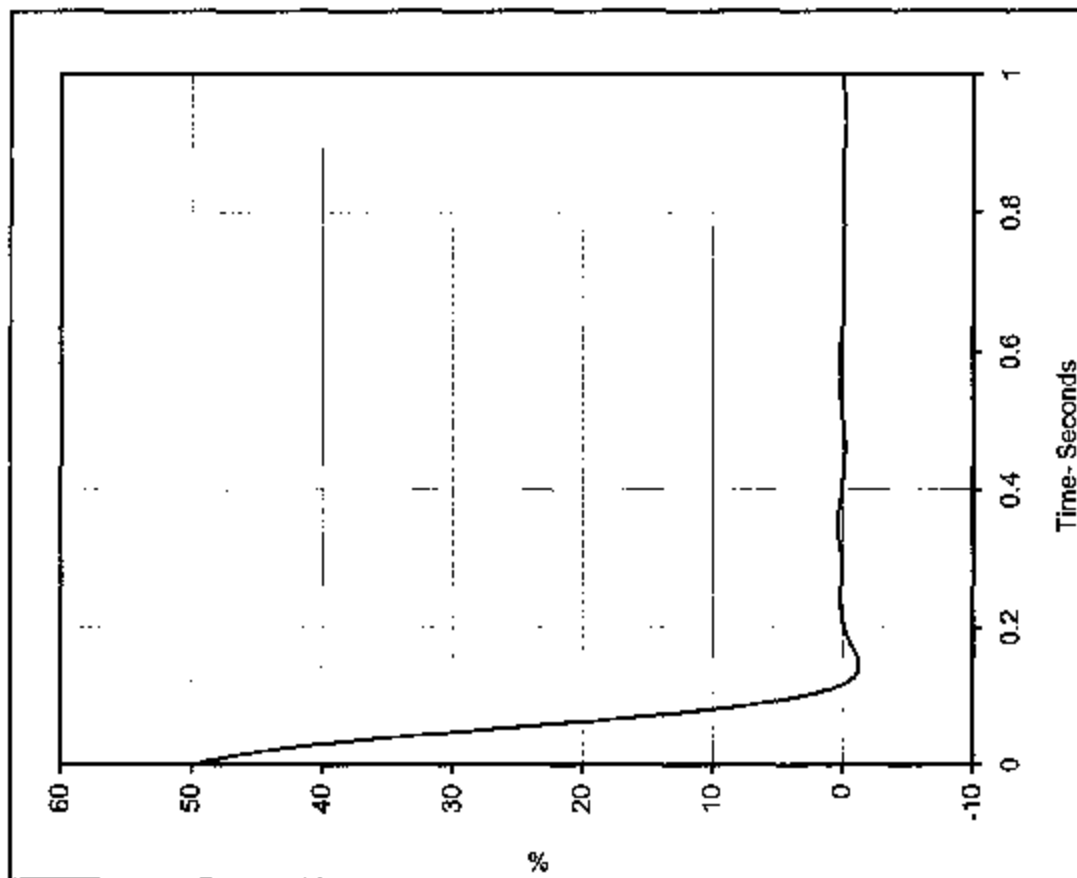
Test Date:

7/22/03

NFTSA No.:

C23030



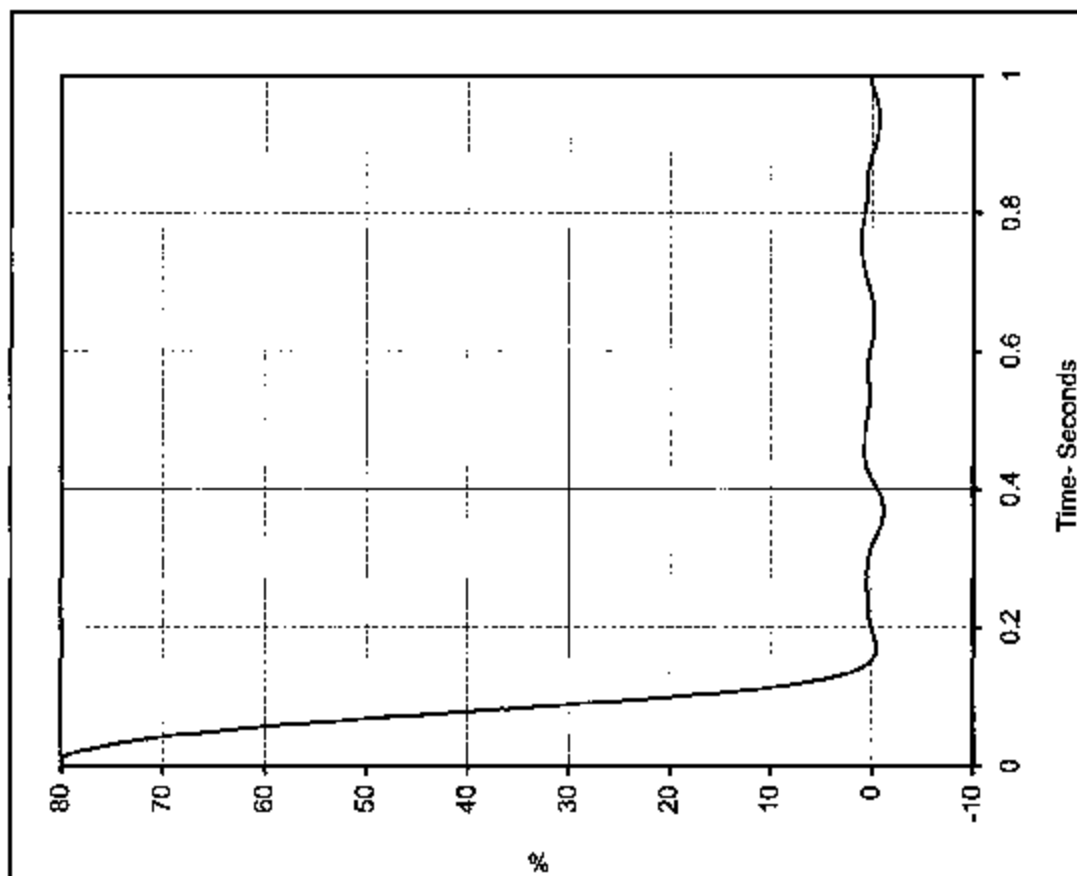


Test Program:  
Test Vehicle:

FMVSS 124 (Severance Of Throttle Cable)  
2003 Jeep Cherokee SUV

Test Date: 7/22/03  
NHTSA No.: C230330





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

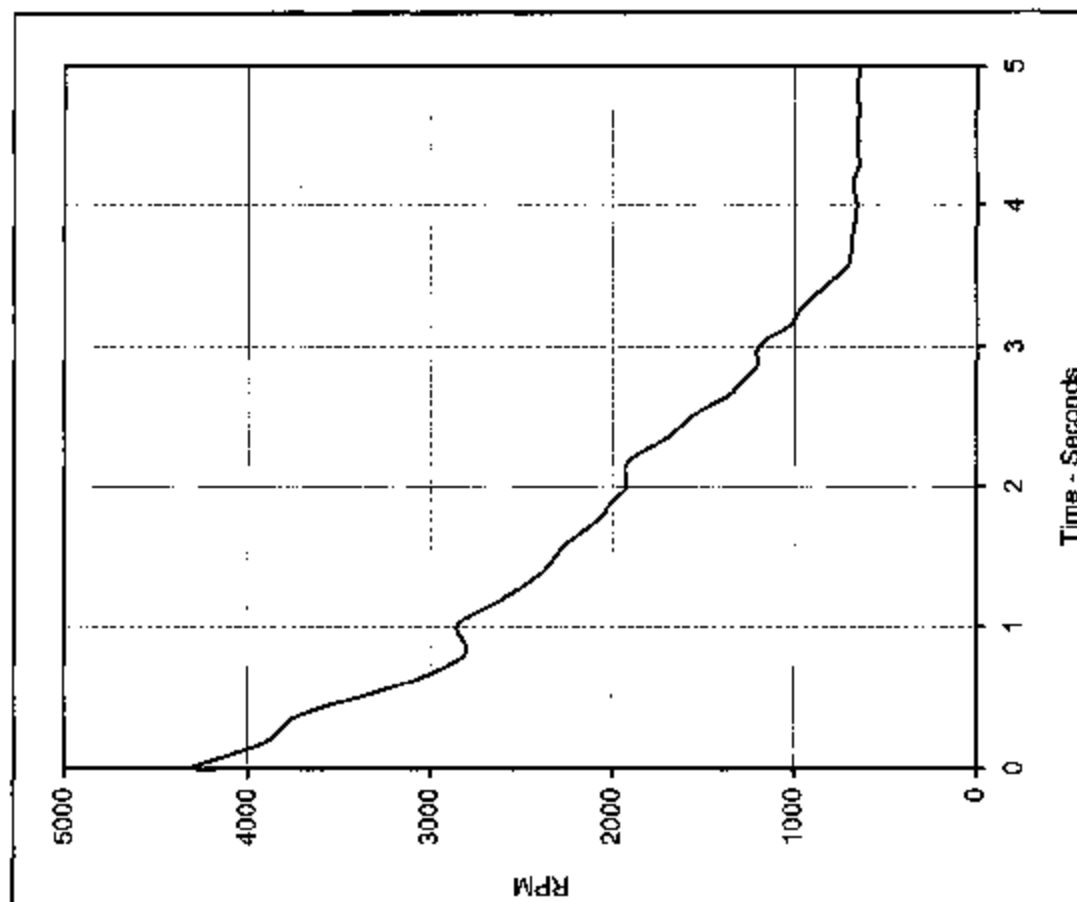
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 81.4 | 0.0  | 150.0              | 5           |

Test Program:

FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 4310.0 | 0.0  | 637.8 | 5.0  | 5           |

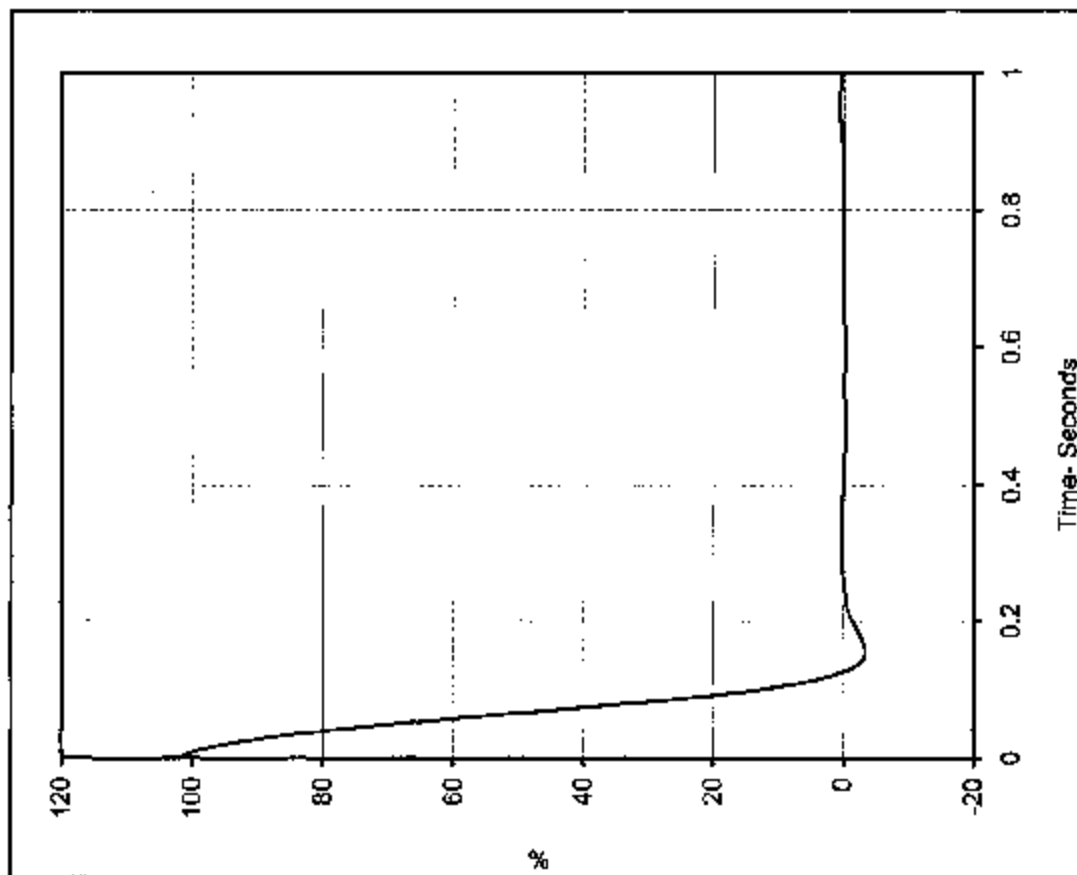
Test Date:

7/22/03

NHTSA No.:

C23030

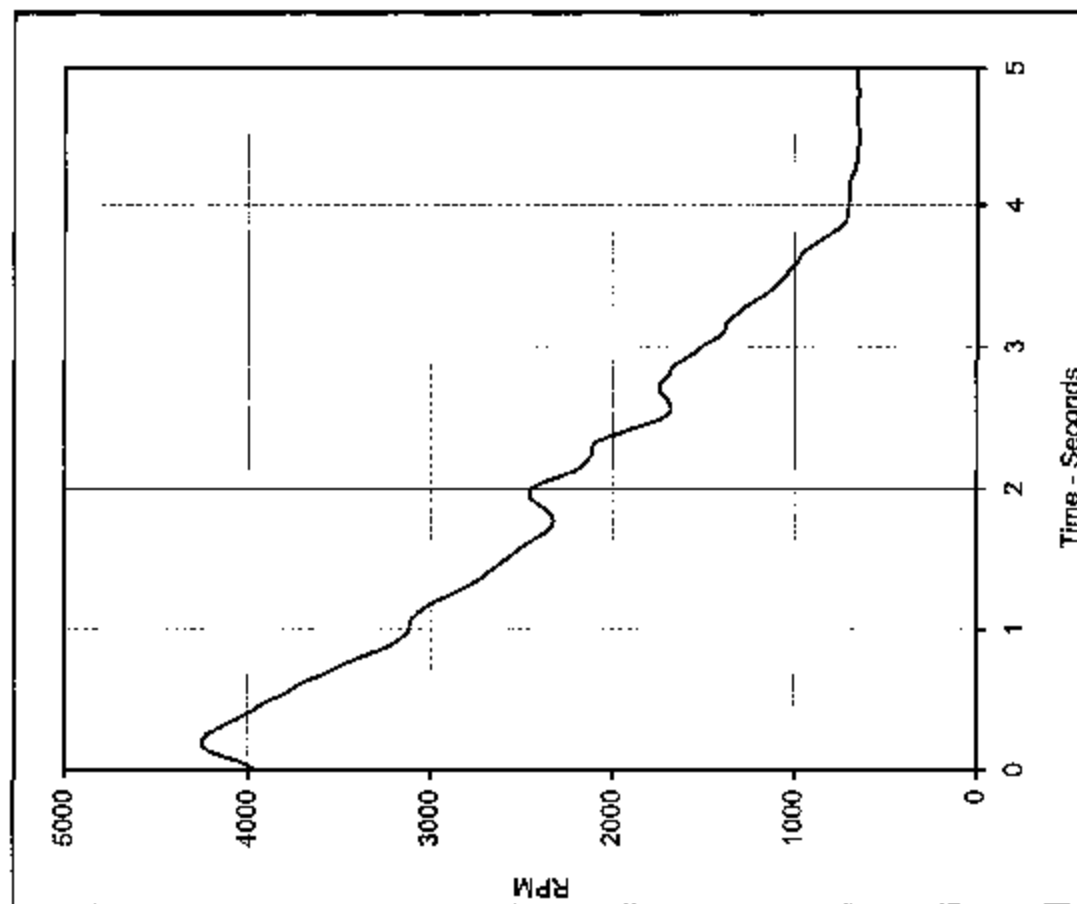




| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max   | Time | Return Time (msec) | Filter (Hz) |
|-------|-------|------|--------------------|-------------|
| %     | 102.3 | 0.0  | #N/A               | 5           |

Test Program: FMVSS 124 (Severance Of Throttle Cable)  
 Test Vehicle: 2003 Jeep Cherokee SUV

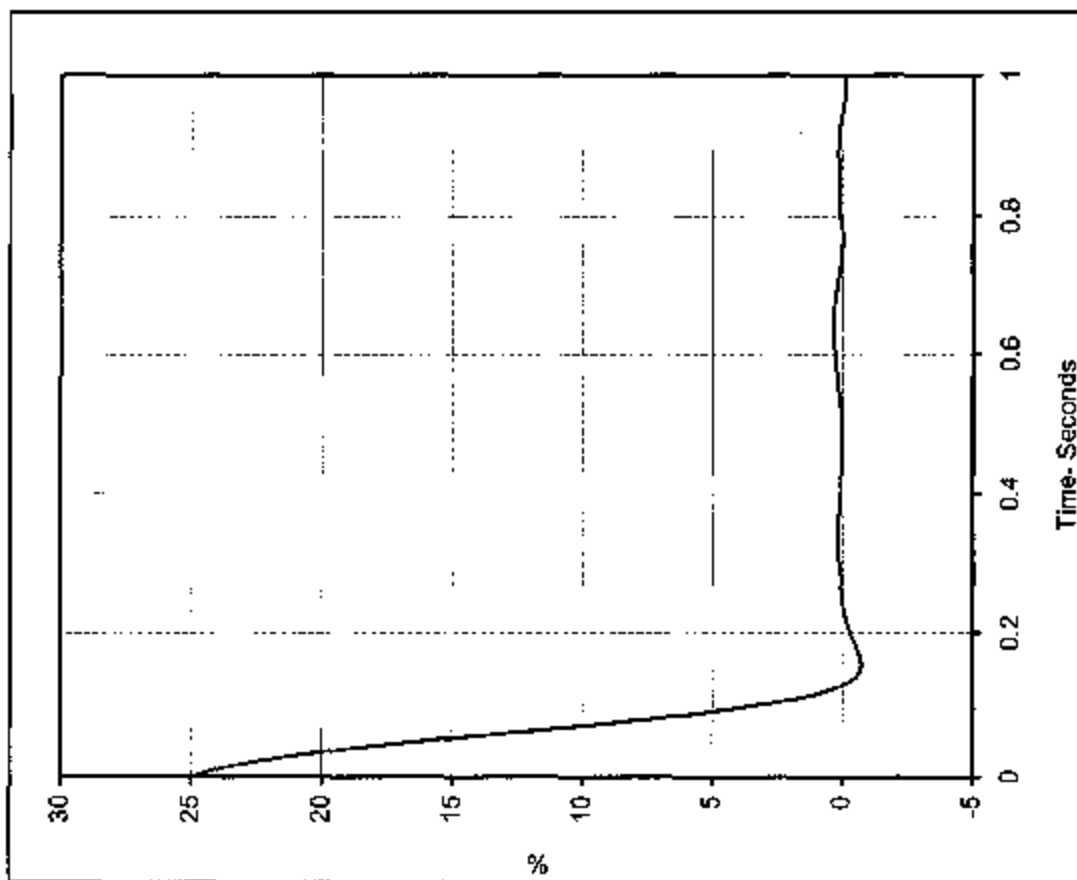


| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max    | Time | Min   | Time | Filter (Hz) |
|-------|--------|------|-------|------|-------------|
| RPM   | 4250.8 | 0.2  | 643.7 | 4.5  | 5           |

Test Date: 7/22/03  
 NHTSA No.: C23030



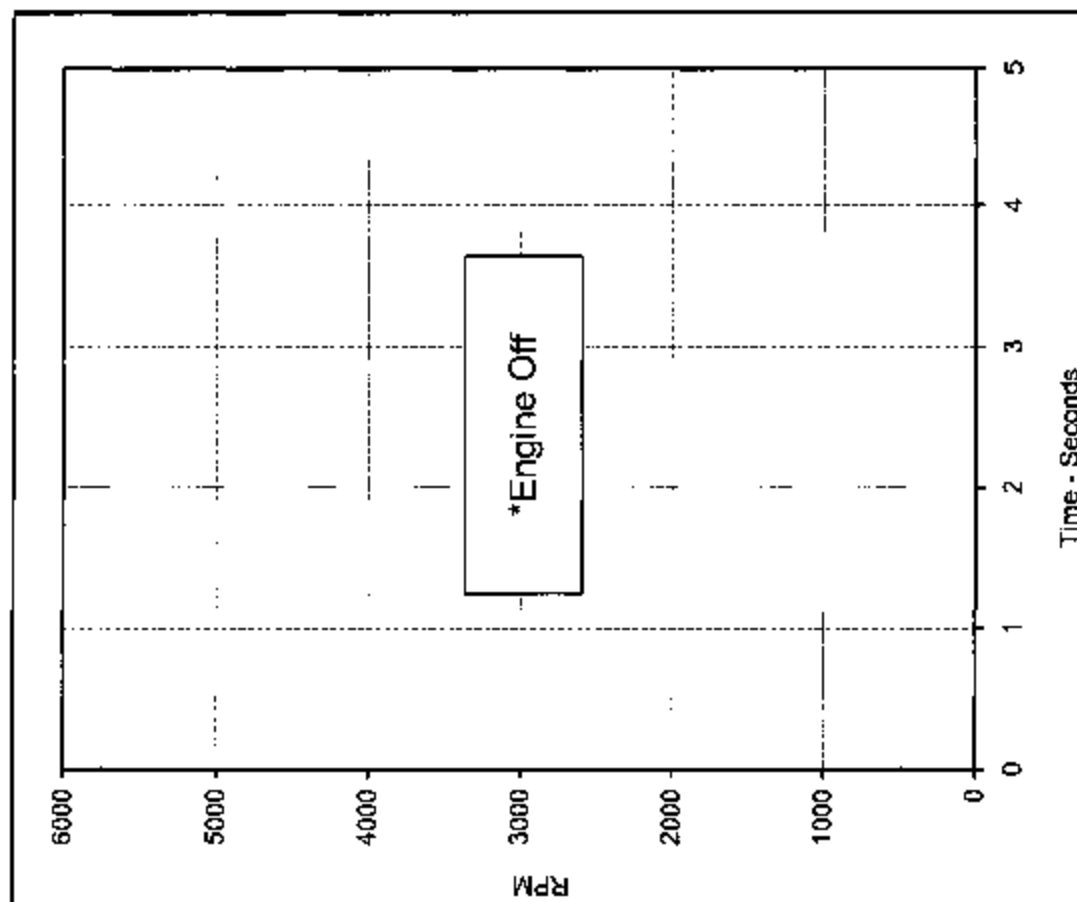


| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 25.0 | 0.0  | 120.0              | 5           |

Test Program: FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle: 2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

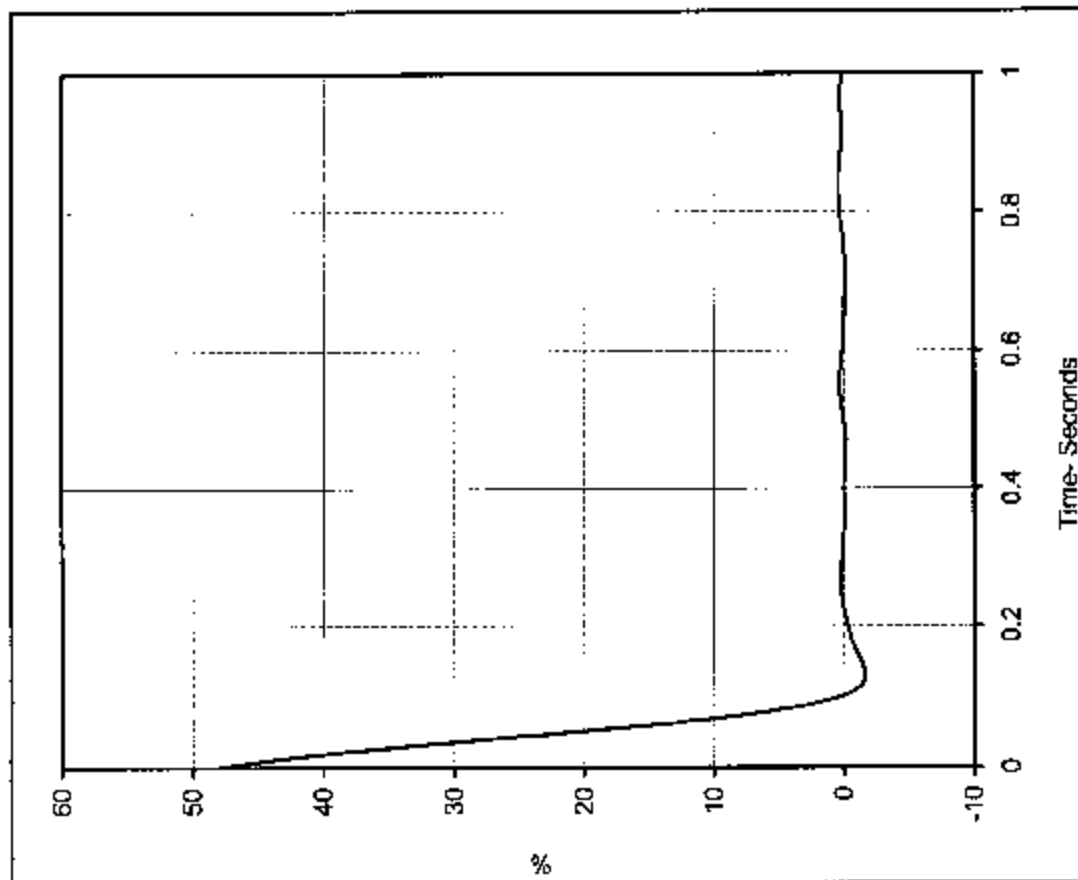
| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date: 7/22/03

NHTSA No.: C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

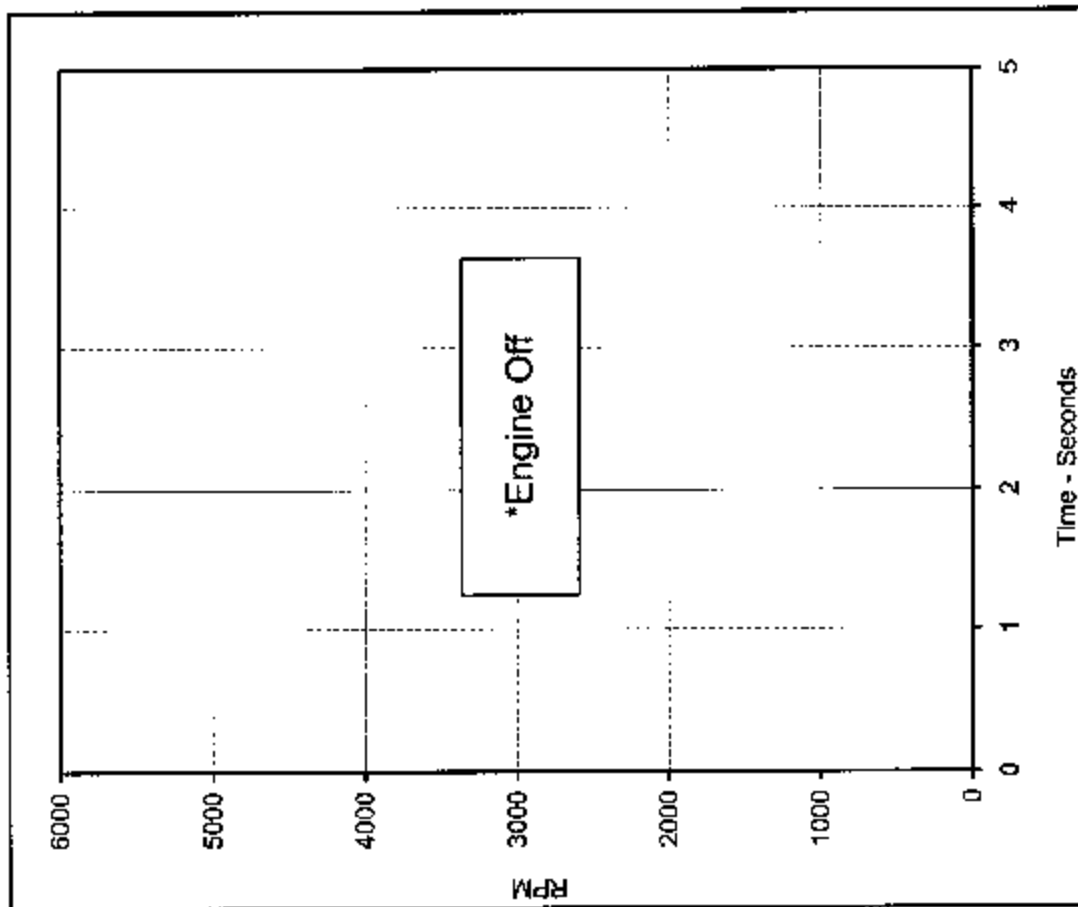
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 48.1 | 0.0  | 100.0              | 5           |

Test Program:

FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Filter (Hz) |
|-------|-----|------|-----|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 5           |

\*Engine Off

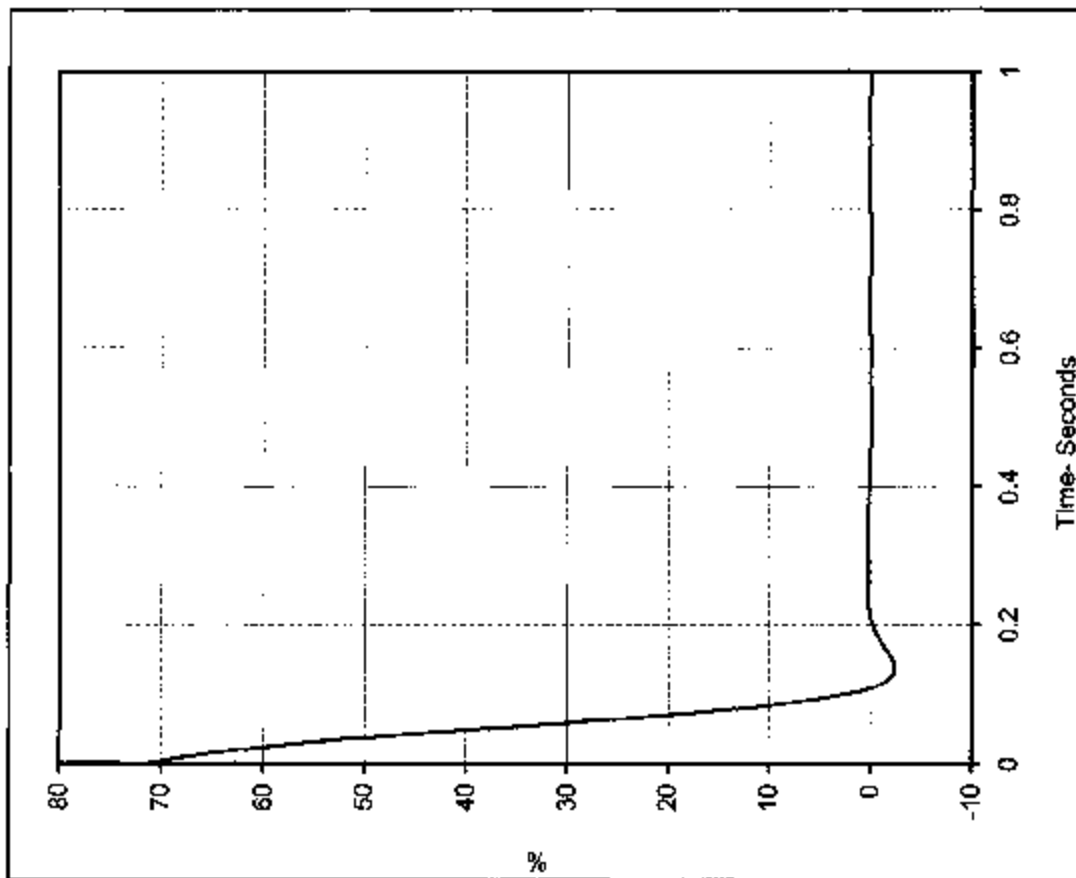
Test Date:

7/22/03

NHTSA No.:

C23030





| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

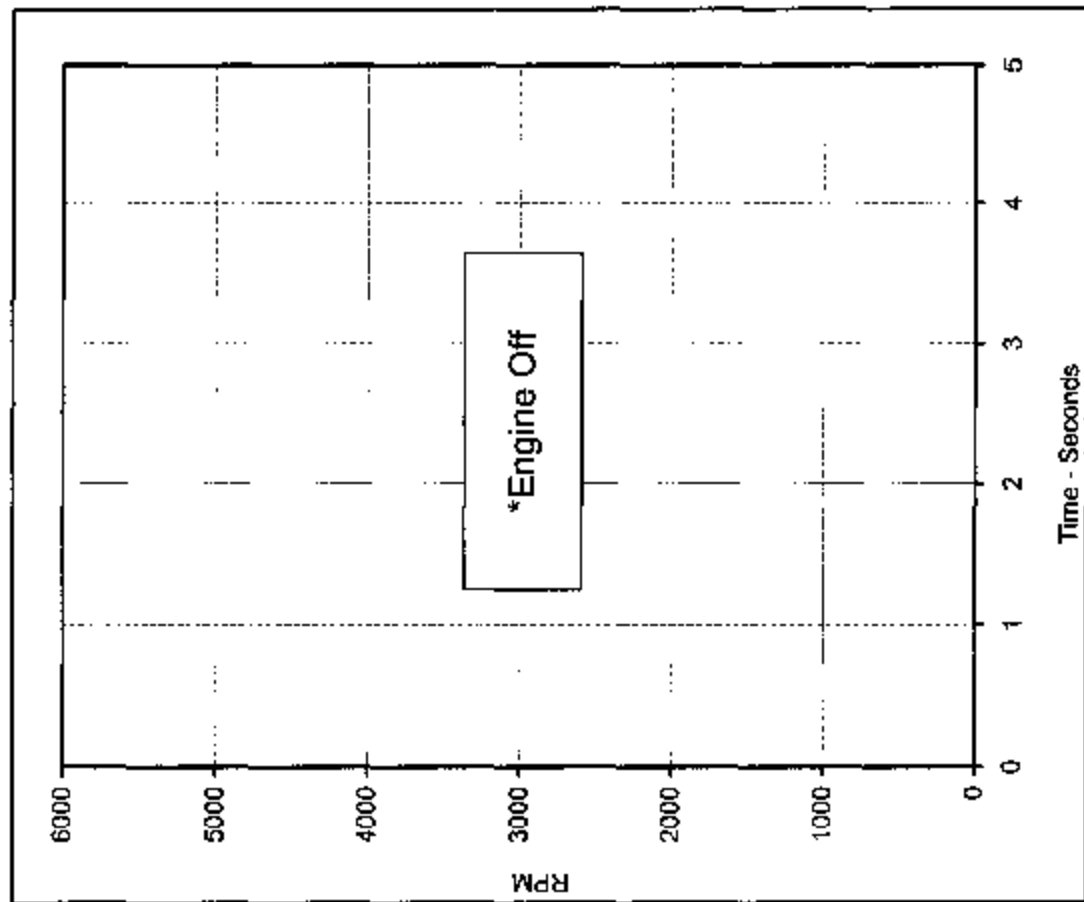
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 71.3 | 0.0  | 110.0              | 5           |

Test Program:

FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date:

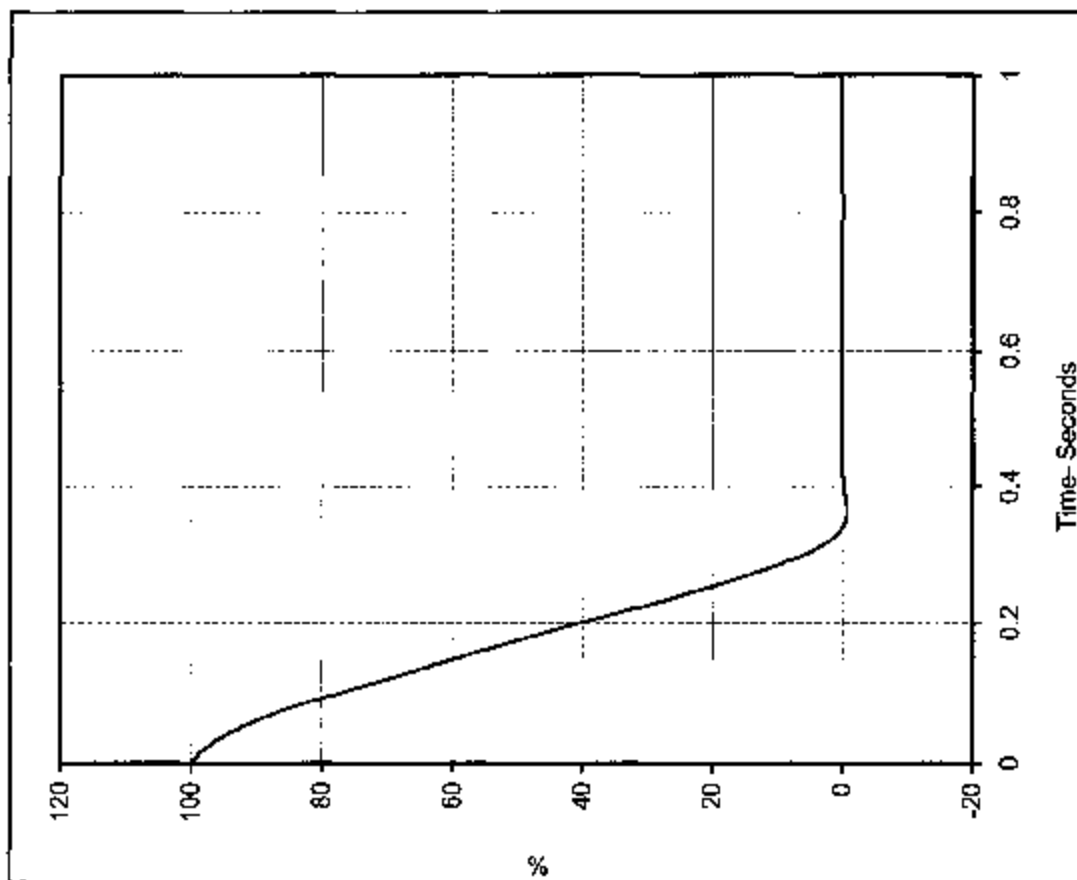
7/22/03

NHTSA No.:

C23030







| Curve Description          |  | CURNO | Type |
|----------------------------|--|-------|------|
| Throttle Position vs. Time |  | 001   | FIL  |

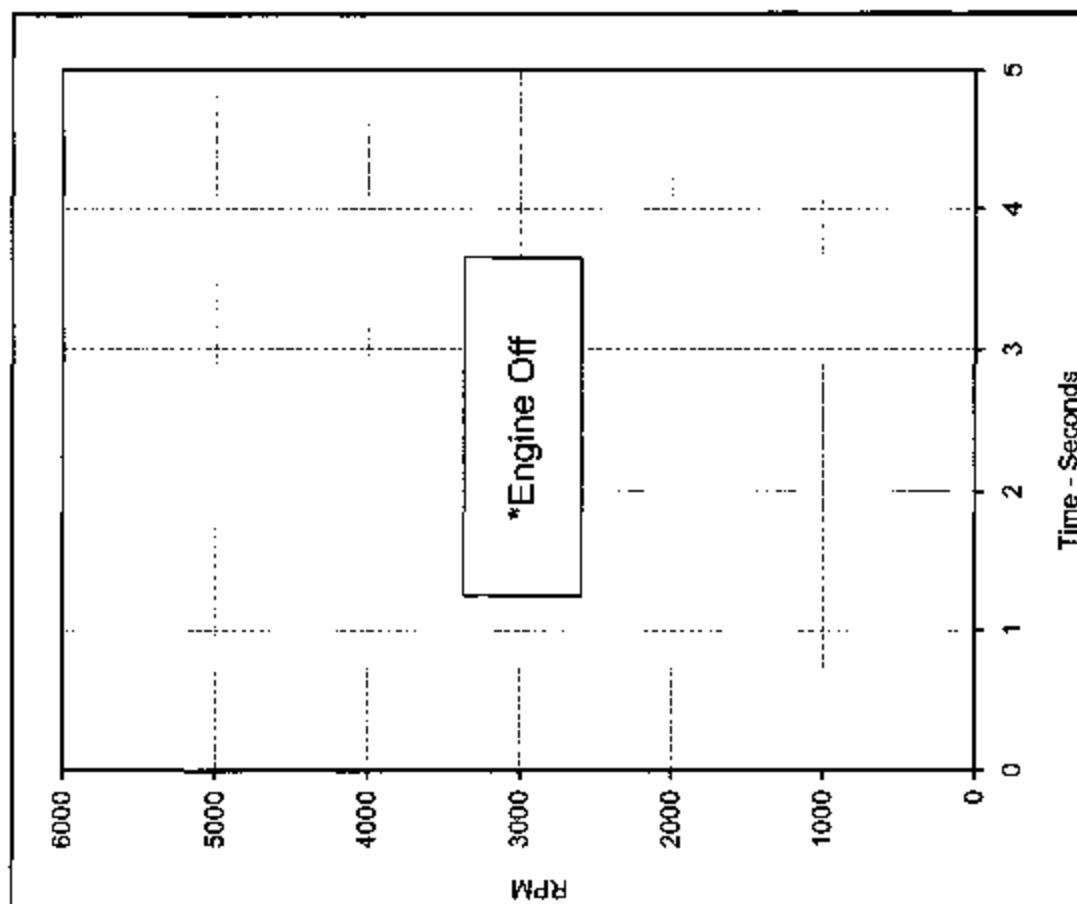
| Units | Max  | Time | Return Time (msec) | Filter (Hz) |
|-------|------|------|--------------------|-------------|
| %     | 99.9 | 0.0  | 340.0              | 5           |

Test Program:

FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle:

2003 Jeep Cherokee SUV



| Curve Description   |  | CURNO | Type |
|---------------------|--|-------|------|
| Engine RPM vs. Time |  | 002   | FIL  |

| Units | Max | Time | Min | Time | Filter (Hz) |
|-------|-----|------|-----|------|-------------|
| RPM   | 0.0 | 0.0  | 0.0 | 0.0  | 5           |

\*Engine Off

Test Date:

7/22/03

NHTSA No.:

C23030



APPENDIX C  
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

# FMVSS 124 Accelerator Control Systems

## Test Equipment List

7/22/03

2003 Jeep Cherokee SUV

| Description       | Manufacturer | Model No. | Serial No. | Limit   | Accuracy | Cal. Date | Due Cal. |
|-------------------|--------------|-----------|------------|---------|----------|-----------|----------|
| TDAS              | DTS          | TDAS      | DM0101     | N/A     | SAE J211 | 11/28/02  | 11/28/03 |
| Computer          | Panasonic    | CF-71     | 8IMAA01852 | N/A     | N/A      | N/A       | N/A      |
| Optical 5th Wheel | Datron       | DLS-2     | 06-262     | 150 MPH | ± 1.0%   | 4/9/03    | 4/8/04   |

*None*

