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HS #
630796

REPORT NO. 124-KAR-03-02

SAFETY COMPLIANCE TESTING FOR FMVSS 124

ACCELERATOR CONTROL SYSTEMS

2003 FORD CROWN VICTORIA

NHTSA NO. C30204

PREPARED BY:
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July 22, 2003

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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400 SEVENTH STREET, SW
WASHINGTON, D.C. 20590

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16. *Abstract*

Compliance tests were conducted on the subject 2003 Ford Crown Victoria in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP124V06 for the determination of FMVSS 124 compliance. There were no apparent test failures.

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PURPOSE OF COMPLIANCE TEST

1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2003 Ford Crown Victoria, manufactured by Ford Motor Company, to determine compliance with 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-124V-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

2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY

A 2003 Ford Crown Victoria was subjected to FMVSS 124 compliance testing. The tests were conducted at KARCO Engineering in Adelanto, California on July 22, 2003. The following tests were performed:

- Inspection
- Time to Return to Idle Position (Complete Normal Operation)
- Time to Return to Idle Position (1st Energy Source Removed)
- Time to Return to Idle Position (2nd 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 adjustable 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.5 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 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.6 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 Ford Crown Victoria was rpm limited and the RPM of the engine remained relatively constant for throttle plate positions beyond a certain point. On data traces, time of release of accelerator pedal and time of severance is time zero (%) 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 Ford Crown Victoria on July 22, 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	Ford Motor Corp	VIN	2FAFP73W33X180682
Manufacturing Date	01/03	Delivery Date	03/15/03
Dealer	Antelope Valley Ford	NHTSA No.	C30204
Odometer Reading (mi.)	77	Fuel Type	Gas
Engine Displacement	4.6 LT	Cylinders	V8
Transmission	Automatic	Final Drive	Rear
Engine Placement	Longitudinal	Color	Blue
Tire Press./Max. Cap. Front	32 psi	Cold Tire Press. Front	32 psi
Tire Press./Max. Cap. Rear	35 psi	Cold Tire Press. Rear	35 psi
Recommend Tire Size	P225/60R16	Type of Spare	T145/80D16
Tire Size on Vehicle	P225/60R16	Manufacturer	Good Year
GVWR	5804	Cargo Capacity	1100
GAWR Front	2700	GAWR Rear	3104
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	YES
Driver Airbag	YES	Passenger Airbag	YES

DATA SHEET NO. 2

VEHICLE THROTTLE CONTROL INSPECTION

VEHICLE			
YEAR	**2003**	MAKE	**Ford**
MODEL	**Crown Victoria**	BODY STYLE	**4 – door**
NHTSA NO.	**C30204**	VIN	**2FAFP73W33X180682**
TEST DATE:	**07/22/03**	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.	Tension spring mounted on throttle shaft
Describe the third energy source.	N/A
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: **07/22/03**

APPROVED BY: **MATTHEW A. IVORY** DATE: **07/22/03**

DATA SHEET NO. 3

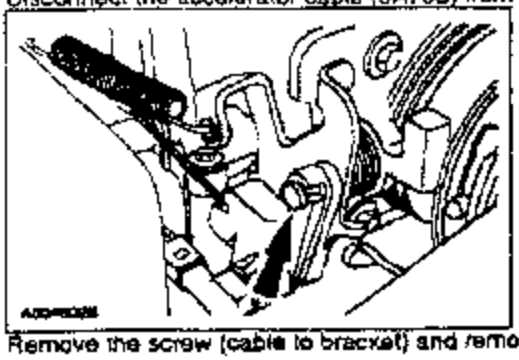
MANUFACTURER'S DRAWINGS

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X160682
TEST DATE:	07/22/03	TEMPERATURE:	N/A

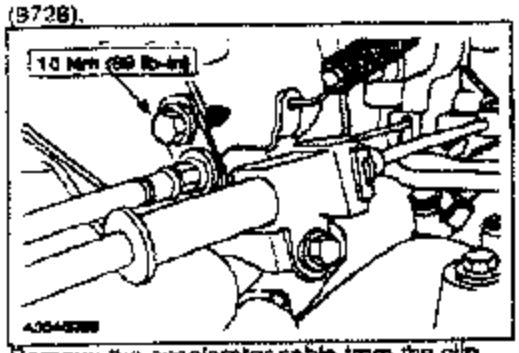
Accelerator Cable — 4.6L (2V)

Removal and Installation

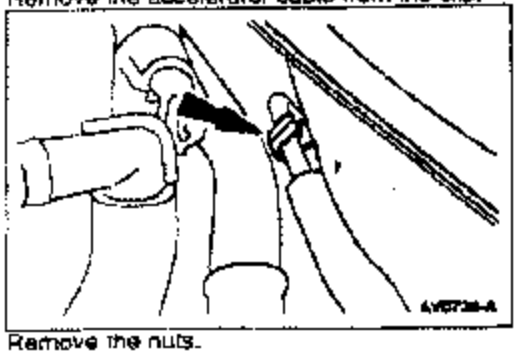
1. Remove the front engine appearance cover (6A957) and the throttle return spring (9B589). For additional information, refer Section 303-12.
2. Disconnect the accelerator cable (9A758) from the throttle body lever.



3. Remove the screw (cable to bracket) and remove the accelerator cable from the accelerator cable bracket (9728).



4. Remove the accelerator cable from the clip.

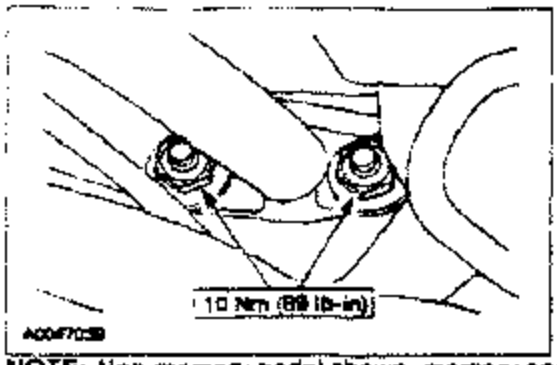


5. Remove the nuts.

DATA SHEET NO. 3 (continued)

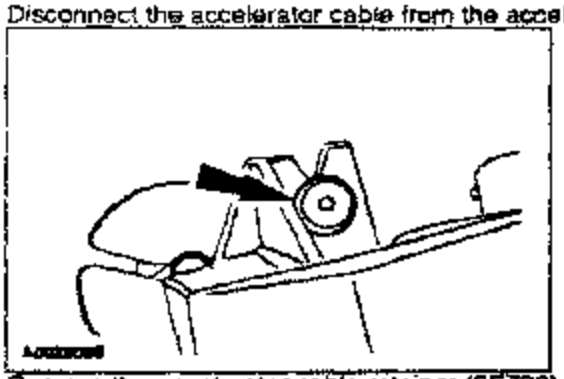
MANUFACTURER'S DRAWINGS

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
TEST DATE:	07/22/03	TEMPERATURE:	N/A

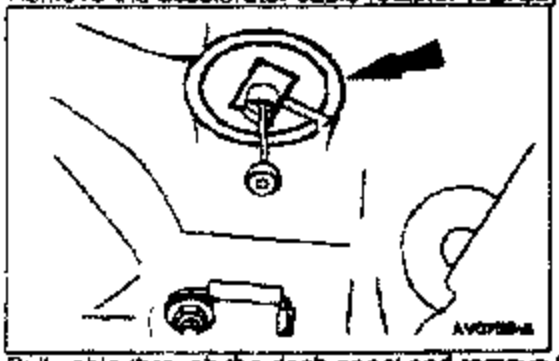


6. **NOTE:** Non-memory pedal shown, memory pedal similar.

   Disconnect the accelerator cable from the accelerator pedal and shaft (9725).



7. Remove the accelerator cable retainer (9E728).



8. Pull cable through the dash panel and remove from the vehicle.
9. To install, reverse the removal procedure.

DATA SHEET NO. 3 (continued)

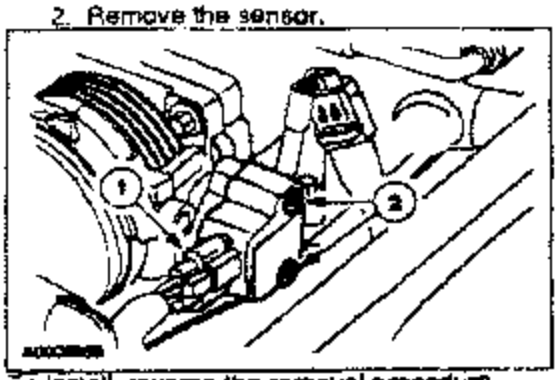
MANUFACTURER'S DRAWINGS

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
TEST DATE:	07/22/03	TEMPERATURE:	N/A

Throttle Position (TP) Sensor —4.6L (2V)

Removal and Installation

1. Disconnect the battery ground cable. For additional information, refer to Section 414-01.
2. Remove the engine appearance cover.
3. Remove the throttle position (TP) sensor.
    1. Disconnect the electrical connector.
    2. Remove the sensor.



4. To install, reverse the removal procedure.

DATA SHEET NO. 4

TEST EXECUTION

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
TEST DATE:	07/22/03	TEMPERATURE:	31°C

THROTTLE CONTROL SYSTEM CONDITION:				ACCELERATOR CONTROL SYSTEM INTACT, 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%	25.3%	2478.7	89°C	0.0%	120 msec	Pass
2	50%	52.5%	3655.6	89°C	0.0%	120 msec	Pass
3	75%	76.9%	4042.5	89°C	0.0%	130 msec	Pass
4	100%	100.4%	3993.2	89°C	0.0%	110 msec	Pass

THROTTLE CONTROL SYSTEM CONDITION:			ACCELERATOR CONTROL SYSTEM INTACT, 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%	28.3%	N/A	N/A	0.0%	90 msec	Pass
2	50%	51.4%	N/A	N/A	0.0%	100 msec	Pass
3	75%	78.2%	N/A	N/A	0.0%	130 msec	Pass
4	100%	100.1%	N/A	N/A	0.0%	110 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: **07/22/03**

APPROVED BY: **MATTHEW A. IVORY** DATE: **07/22/03**

DATA SHEET NO. 4...(CONTINUED)

TEST EXECUTION

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
TEST DATE:	07/22/03	TEMPERATURE:	31°C

THROTTLE CONTROL SYSTEM CONDITION:				1ST 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%	29.0%	4124.1	93°C	0.0%	150 msec	Pass
2	50%	43.7%	4072.0	93°C	0.0%	100 msec	Pass
3	75%	78.7%	4037.9	93°C	0.0%	170 msec	Pass
4	100%	99.5%	4064.8	93°C	0.0%	120 msec	Pass

THROTTLE CONTROL SYSTEM CONDITION:				1ST 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%	27.8%	N/A	N/A	0.0%	80 msec	Pass
2	50%	52.8%	N/A	N/A	0.0%	130 msec	Pass
3	75%	79.9%	N/A	N/A	0.0%	140 msec	Pass
4	100%	100.5%	N/A	N/A	0.0%	150 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: **07/22/03**

APPROVED BY: **MATTHEW A. IVORY** DATE: **07/22/03**

DATA SHEET NO. 4...(CONTINUED)

TEST EXECUTION

VEHICLE			
YEAR	2003	MAKE	Ford
MODEL	Crown Victoria	BODY STYLE	4 door
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
TEST DATE:	07/22/03	TEMPERATURE:	33°C

THROTTLE CONTROL SYSTEM CONDITION:				2ND 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%	**25.7%**	**4227.8**	**92°C**	**0.0%**	**170 msec**	**Pass**
2	50%	**50.0%**	**4525.1**	**92°C**	**0.0%**	**110 msec**	**Pass**
3	75%	**76.5%**	**4466.9**	**92°C**	**0.0%**	**210 msec**	**Pass**
4	100%	**100.2%**	**4526.1**	**92°C**	**0.0%**	**110 msec**	**Pass**

THROTTLE CONTROL SYSTEM CONDITION:				2ND 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%	**24.3%**	**N/A**	**N/A**	**0.0%**	**90 msec**	**Pass**
2	50%	**52.0%**	**N/A**	**N/A**	**0.0%**	**120 msec**	**Pass**
3	75%	**79.7%**	**N/A**	**N/A**	**0.0%**	**190 msec**	**Pass**
4	100%	**100.3%**	**N/A**	**N/A**	**0.0%**	**130 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: **07/22/03**

APPROVED BY: **MATTHEW A. IVORY** DATE: **07/22/03**

DATA SHEET NO. 4...(CONTINUED)

TEST EXECUTION

VEHICLE			
YEAR	**2003**	MAKE	**FORD**
MODEL	**FORD CROWN VICTORIA**	BODY STYLE	**4 door**
NHTSA NO.	**C30204**	VIN	**2FAFP73W33X180682**
TEST DATE:	**07/22/03**	TEMPERATURE:	**34°C**

THROTTLE CONTROL SYSTEM CONDITION:				SEVERANCE			
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%	**26.7%**	**3279.0**	**93°C**	**0.0%**	**80 msec**	**Pass**
2	50%	**49.7%**	**4280.7**	**93°C**	**0.0%**	**160 msec**	**Pass**
3	75%	**75.7%**	**4314.5**	**93°C**	**0.0%**	**140 msec**	**Pass**
4	100%	**102.7%**	**4396.1**	**93°C**	**0.0%**	**150 msec**	**Pass**

THROTTLE CONTROL SYSTEM CONDITION:				SEVERANCE			
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%	**27.2%**	**N/A**	**N/A**	**0.0%**	**130 msec**	**Pass**
2	50%	**49.3%**	**N/A**	**N/A**	**0.0%**	**110 msec**	**Pass**
3	75%	**73.5%**	**N/A**	**N/A**	**0.0%**	**140 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: **07/22/03**

APPROVED BY: **MATTHEW A. IVORY** DATE: **07/22/03**

APPENDIX A
PHOTOGRAPHS

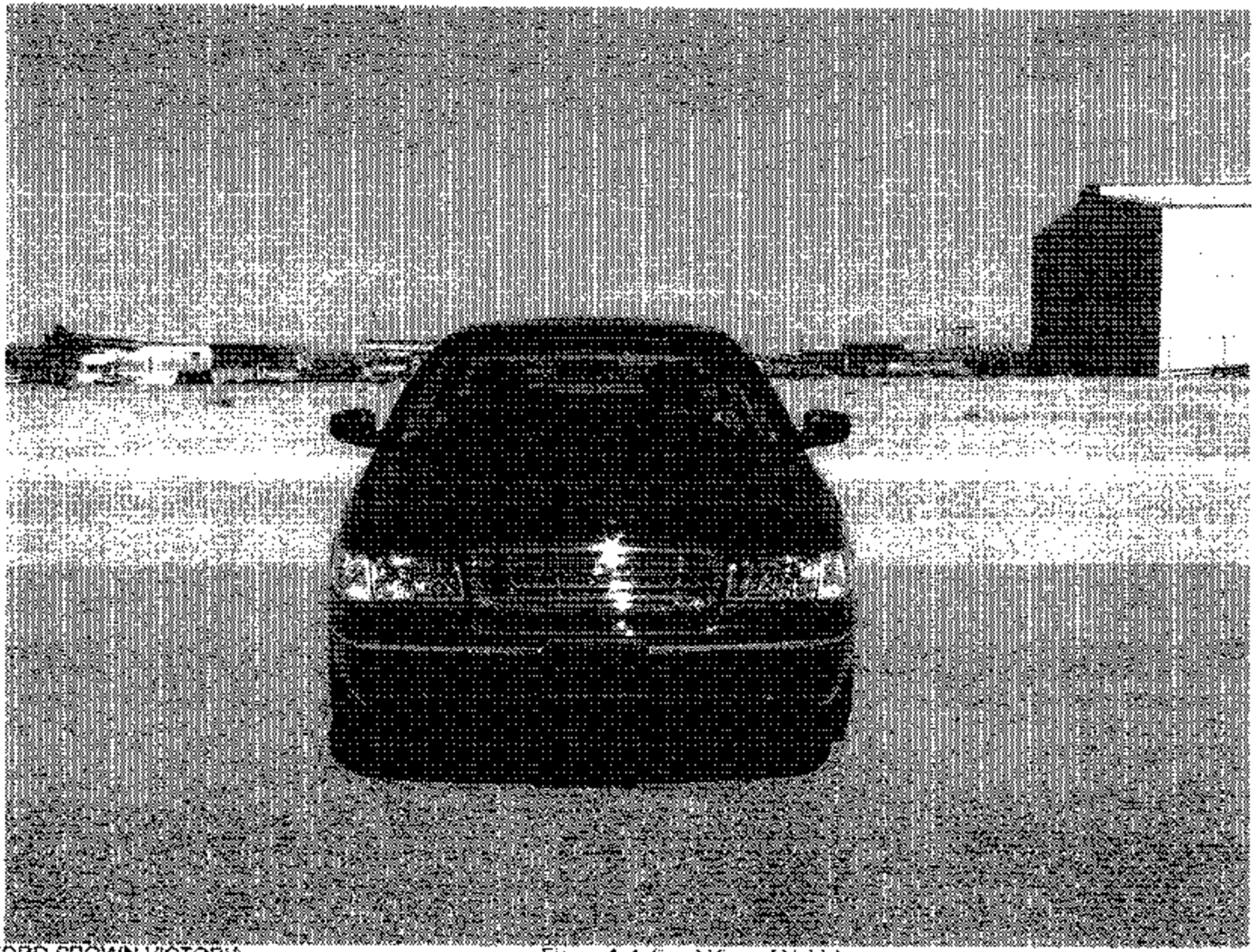


Figure A-1: Front View of Vehicle

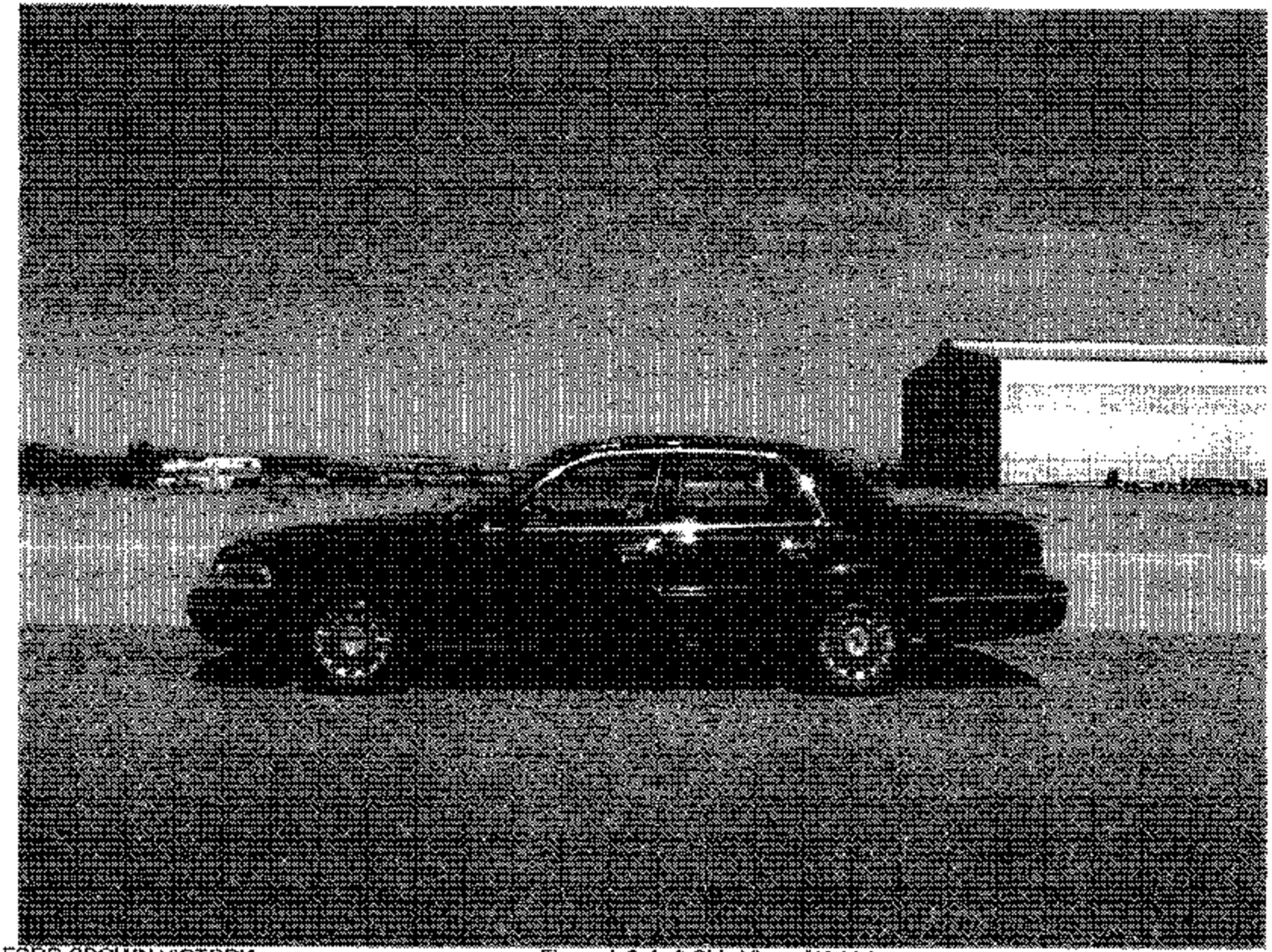


Figure A-2: Left Side View of Vehicle

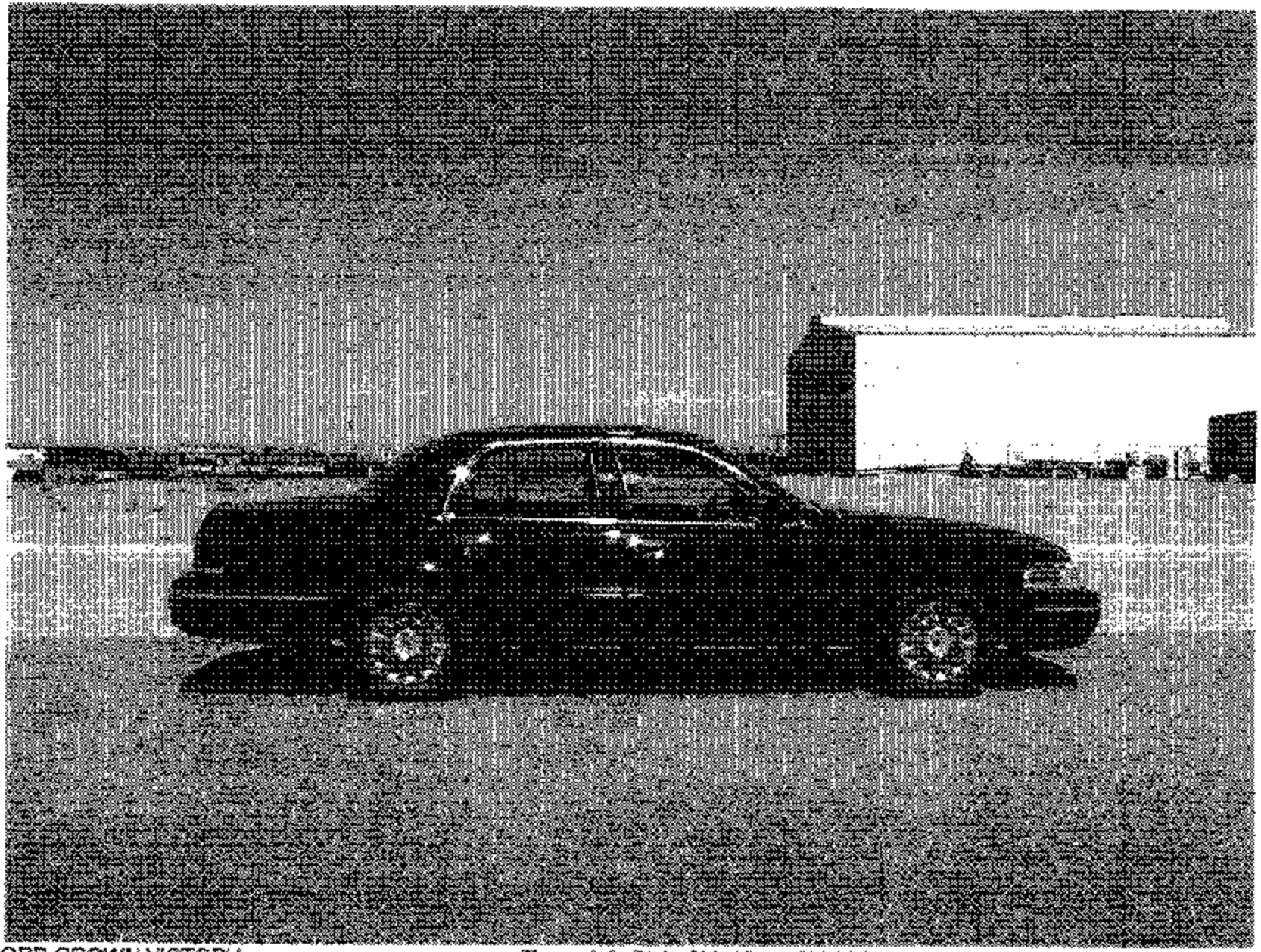


Figure A-3: Right Side View of Vehicle

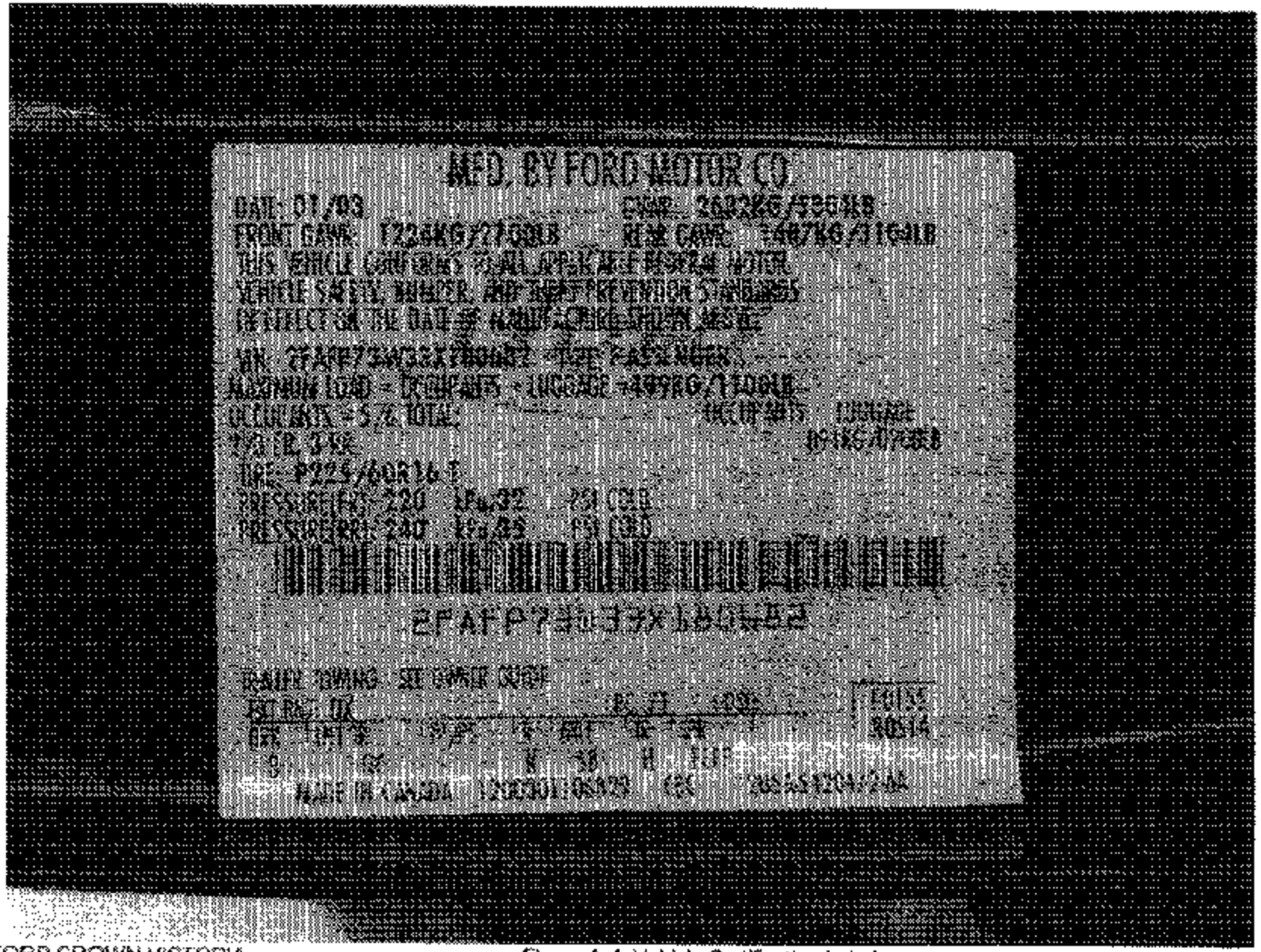


Figure A-4: Vehicle Certification Label

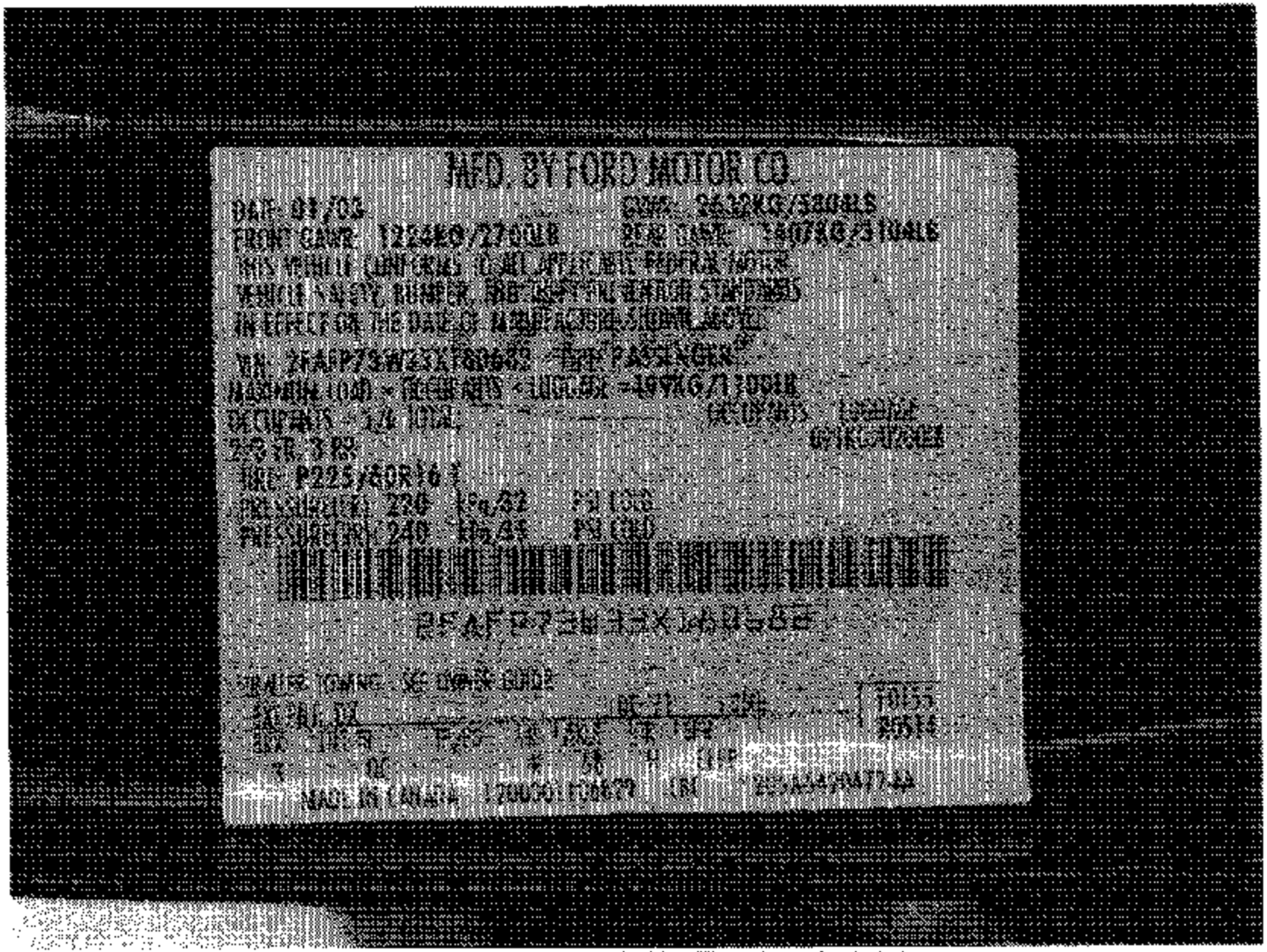


Figure A-5: Vehicle Tire Information Label

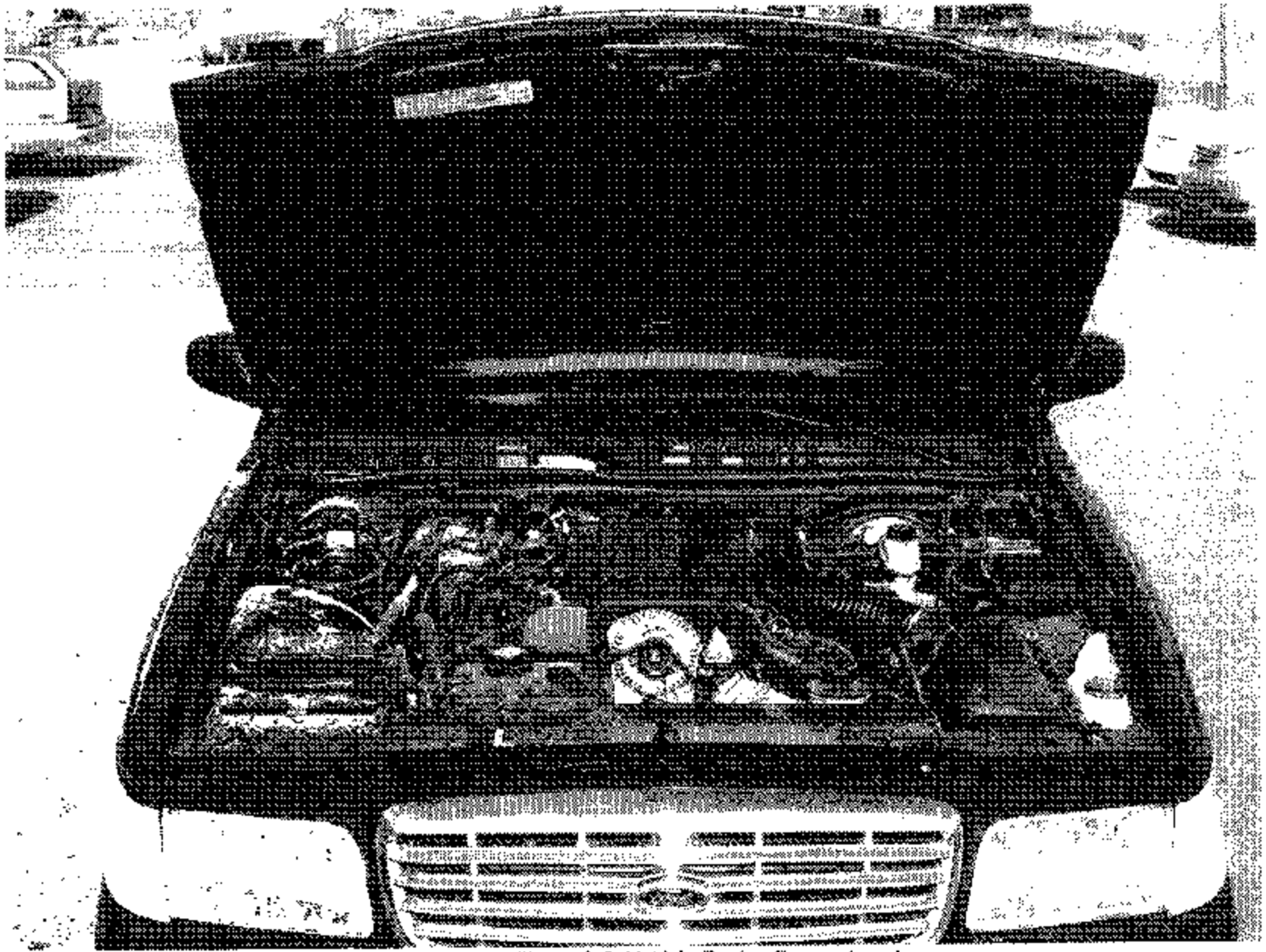


Figure A-6: Vehicle Engine Compartment

2003 FORD CROWN VICTORIA
NHTSA NO. C30204
FMVSS NO. 124

Figure A-7: Vehicle Accelerator Pedal Assembly

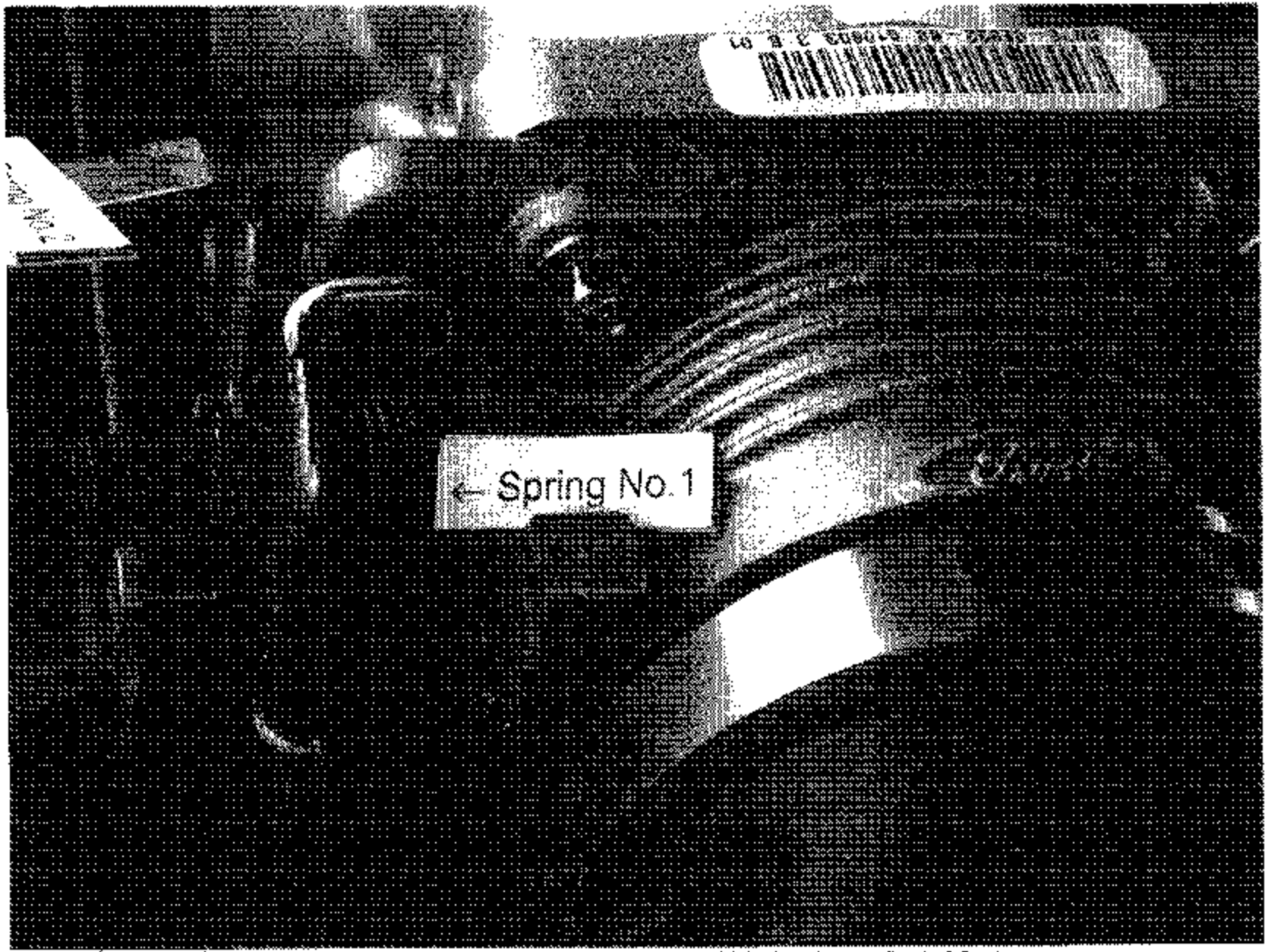


Figure A-8: Spring 1 Located on Vehicle Accelerator Control System

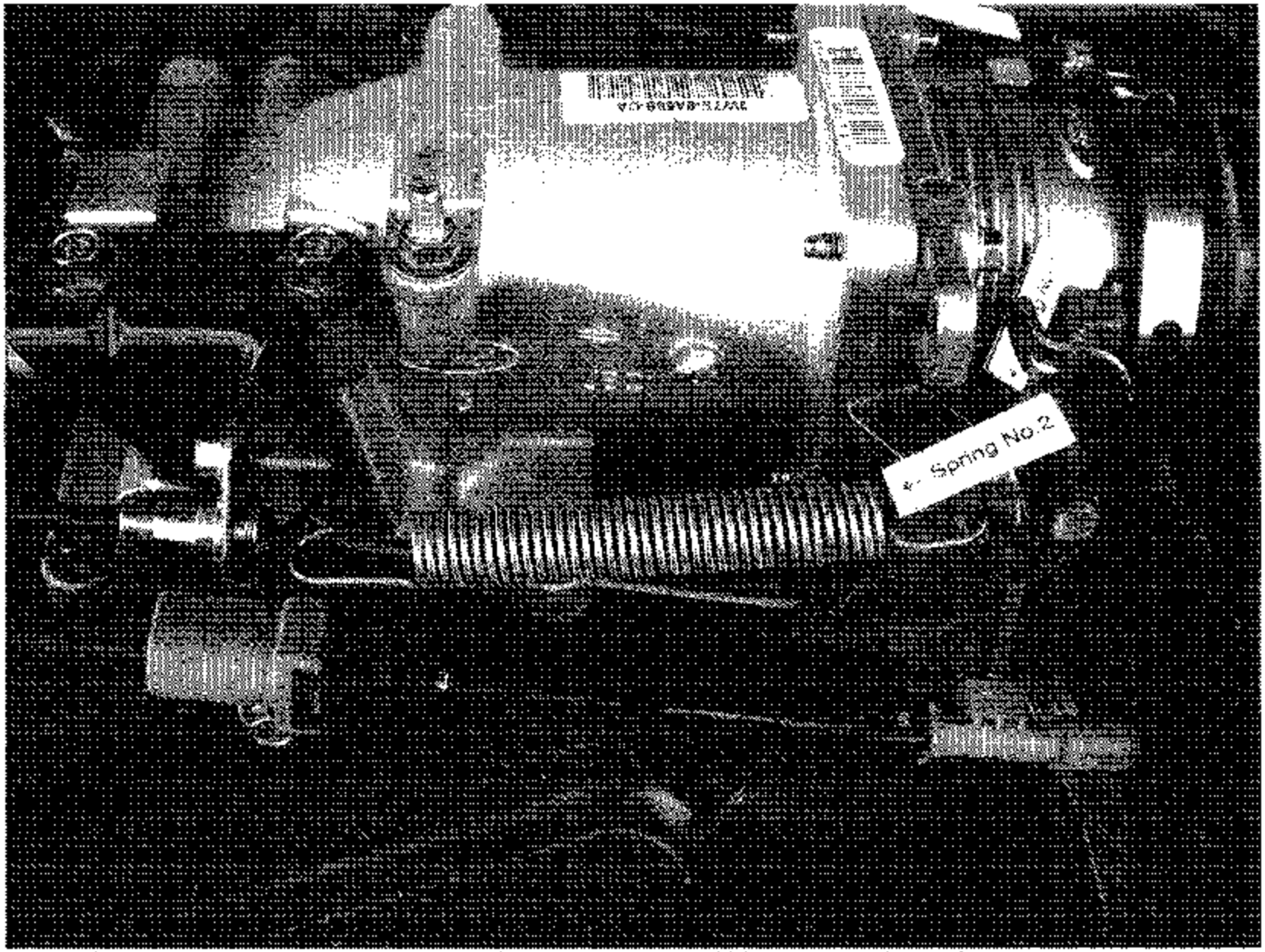


Figure A-9: Spring 2 Located on Vehicle Accelerator Control System

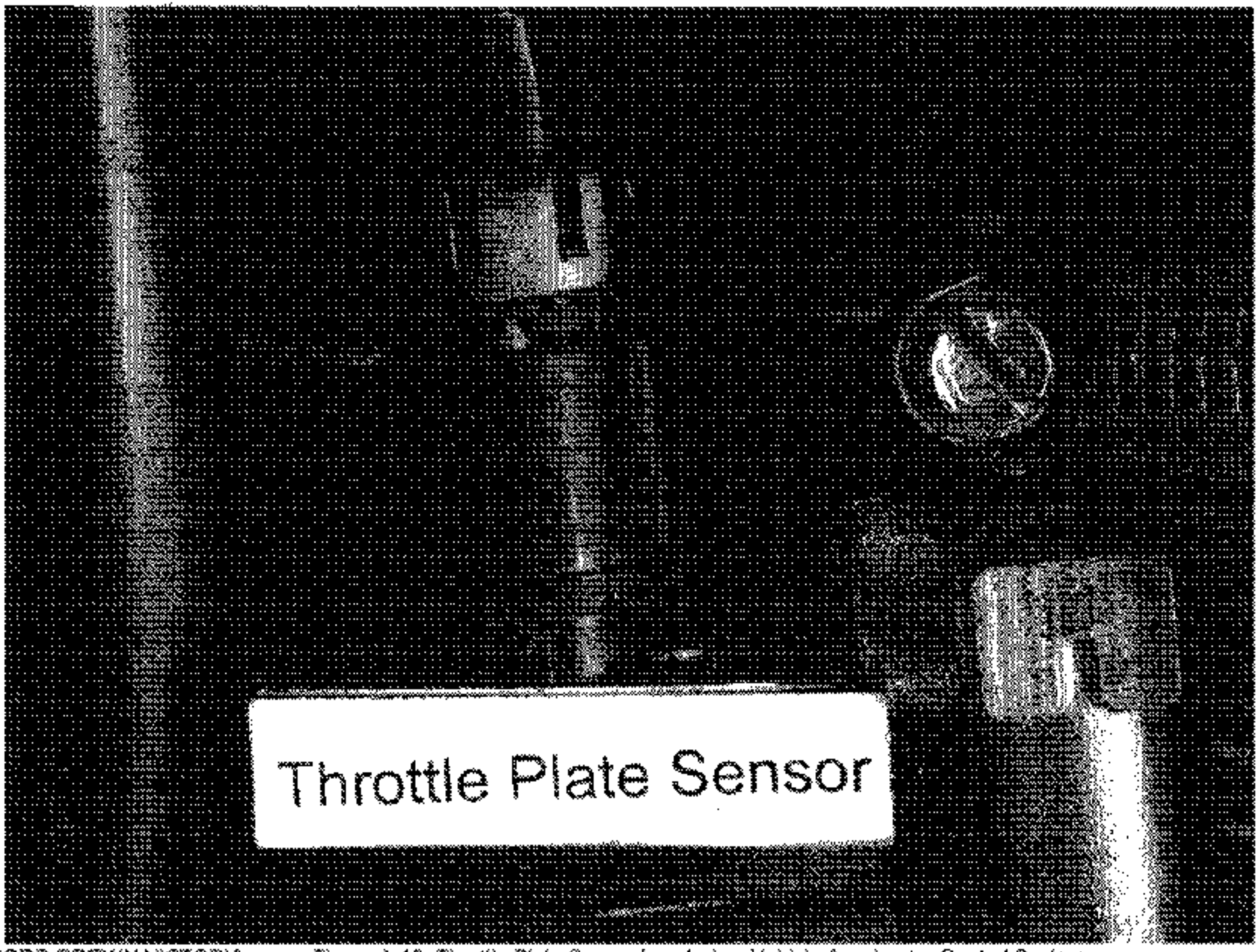


Figure A-10: Throttle Plate Sensor Located on Vehicle Accelerator Control System

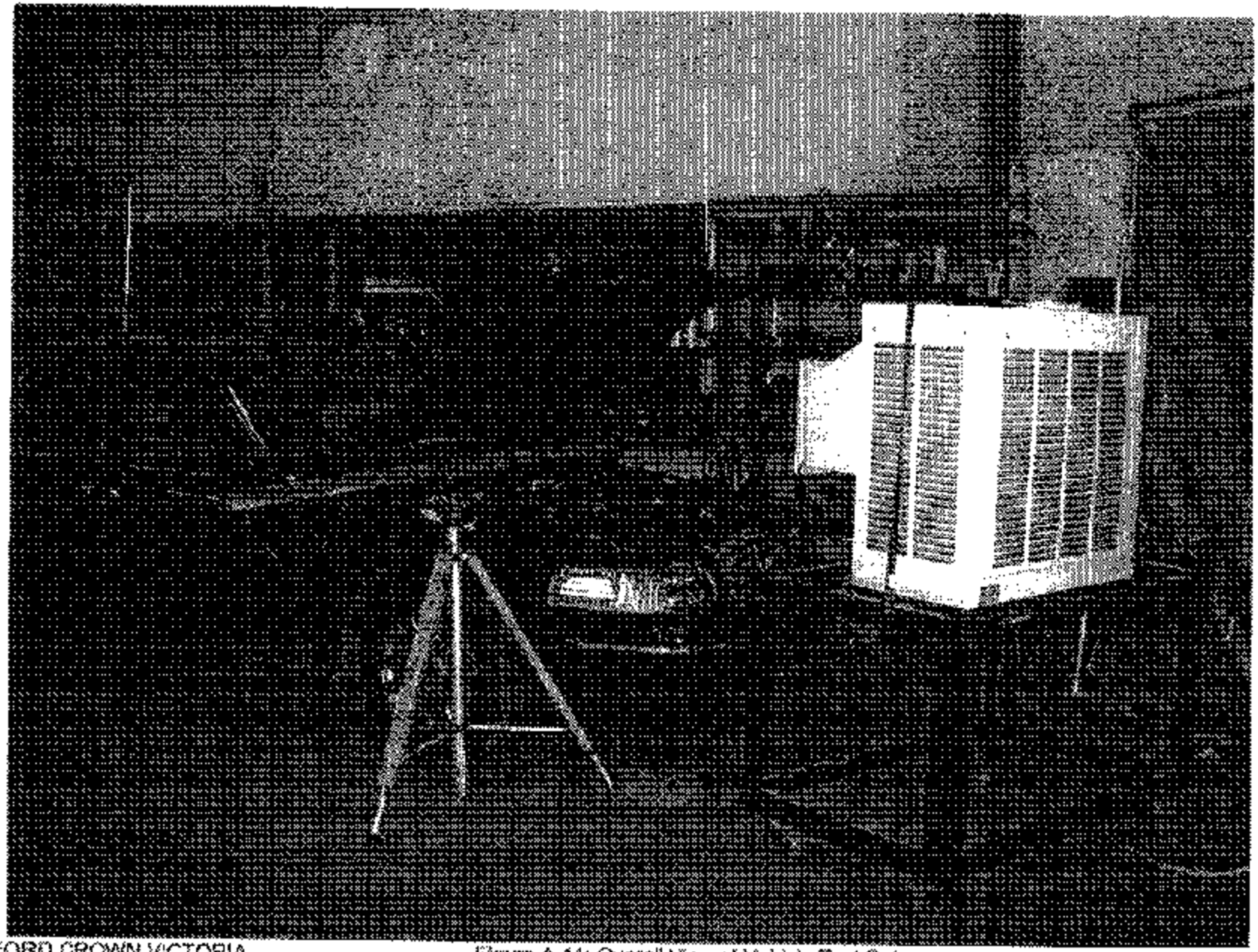


Figure A-11: Overall View of Vehicle Test Setup

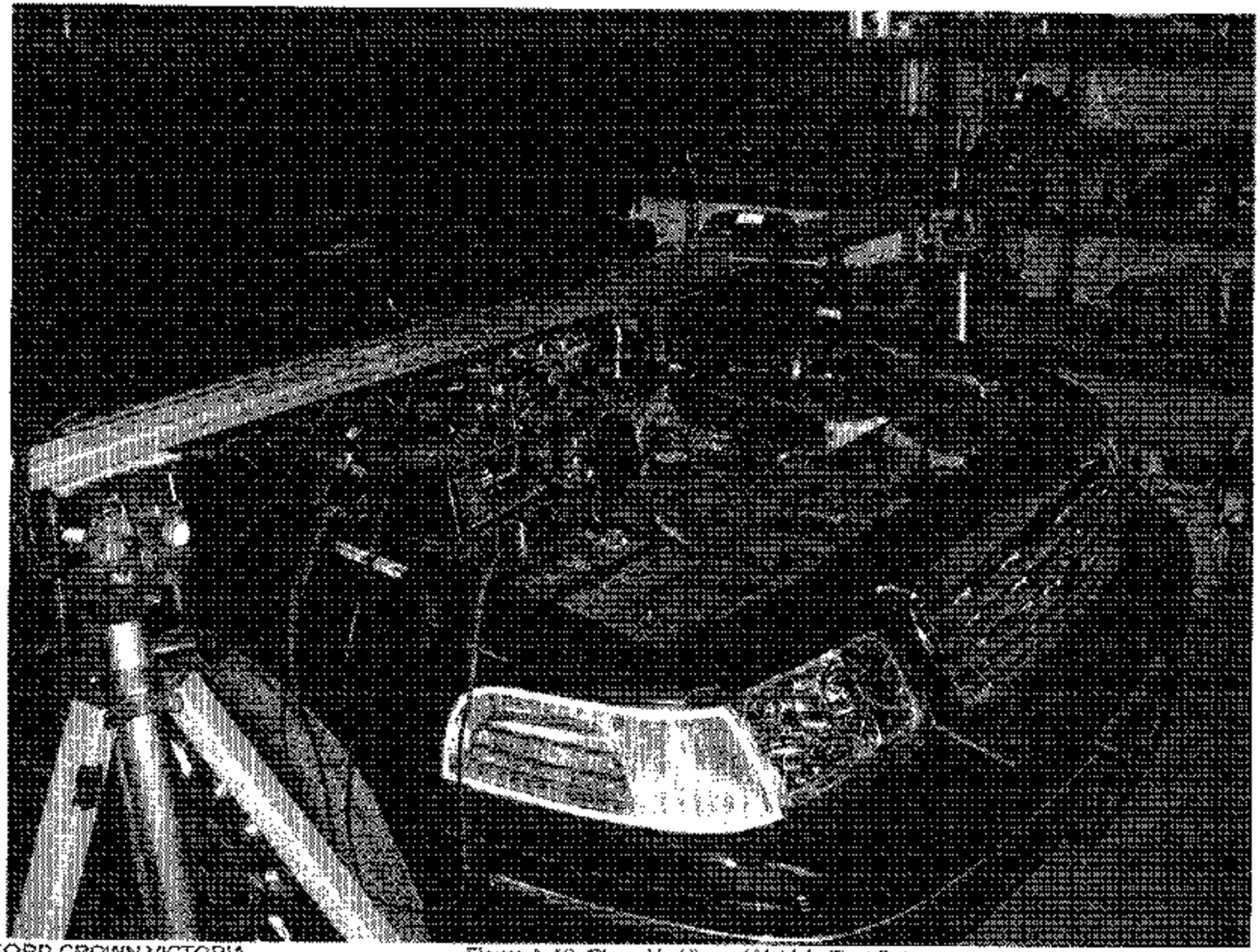


Figure A-12: Close-Up View of Vehicle Test Setup

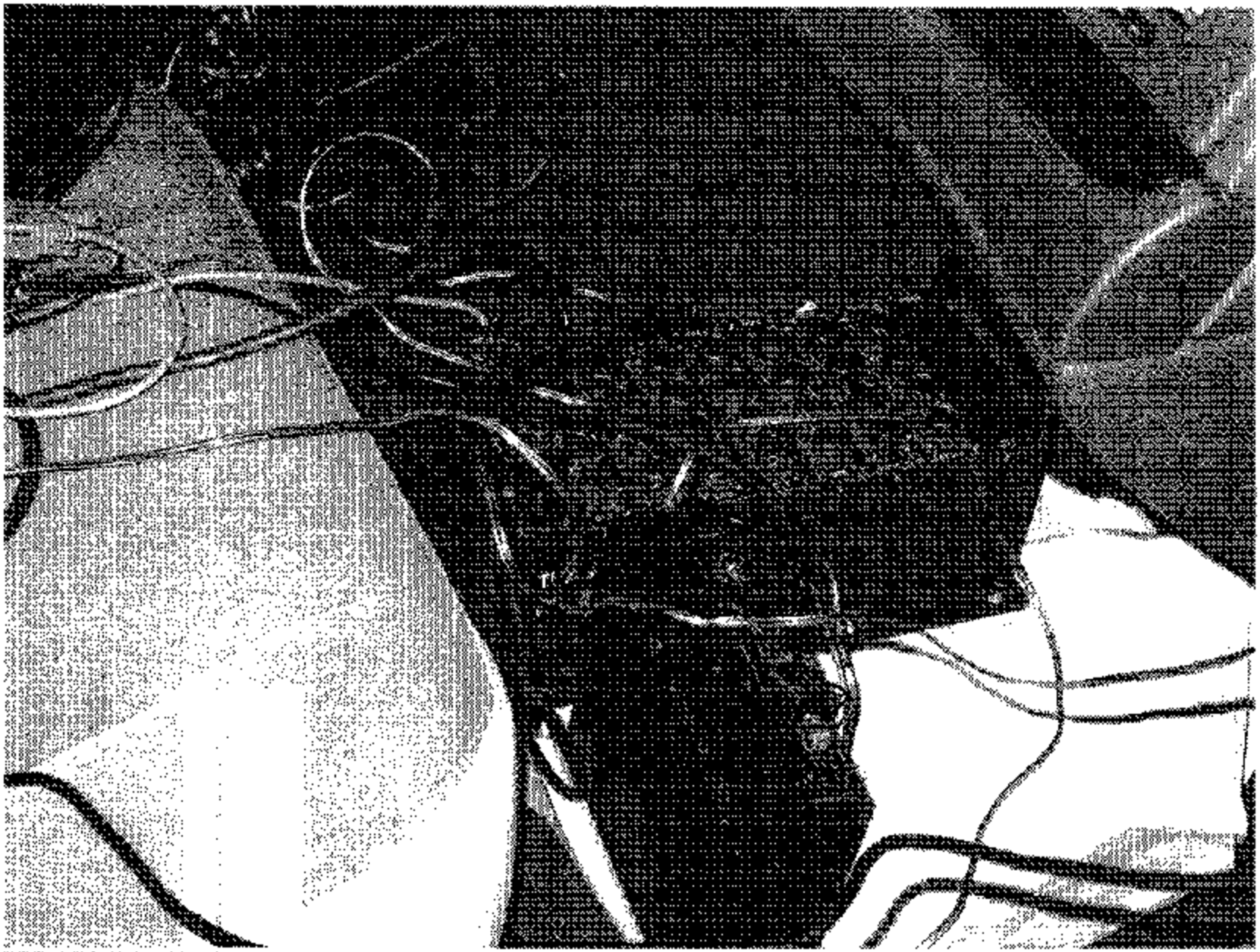


Figure A-13: Instrumentation

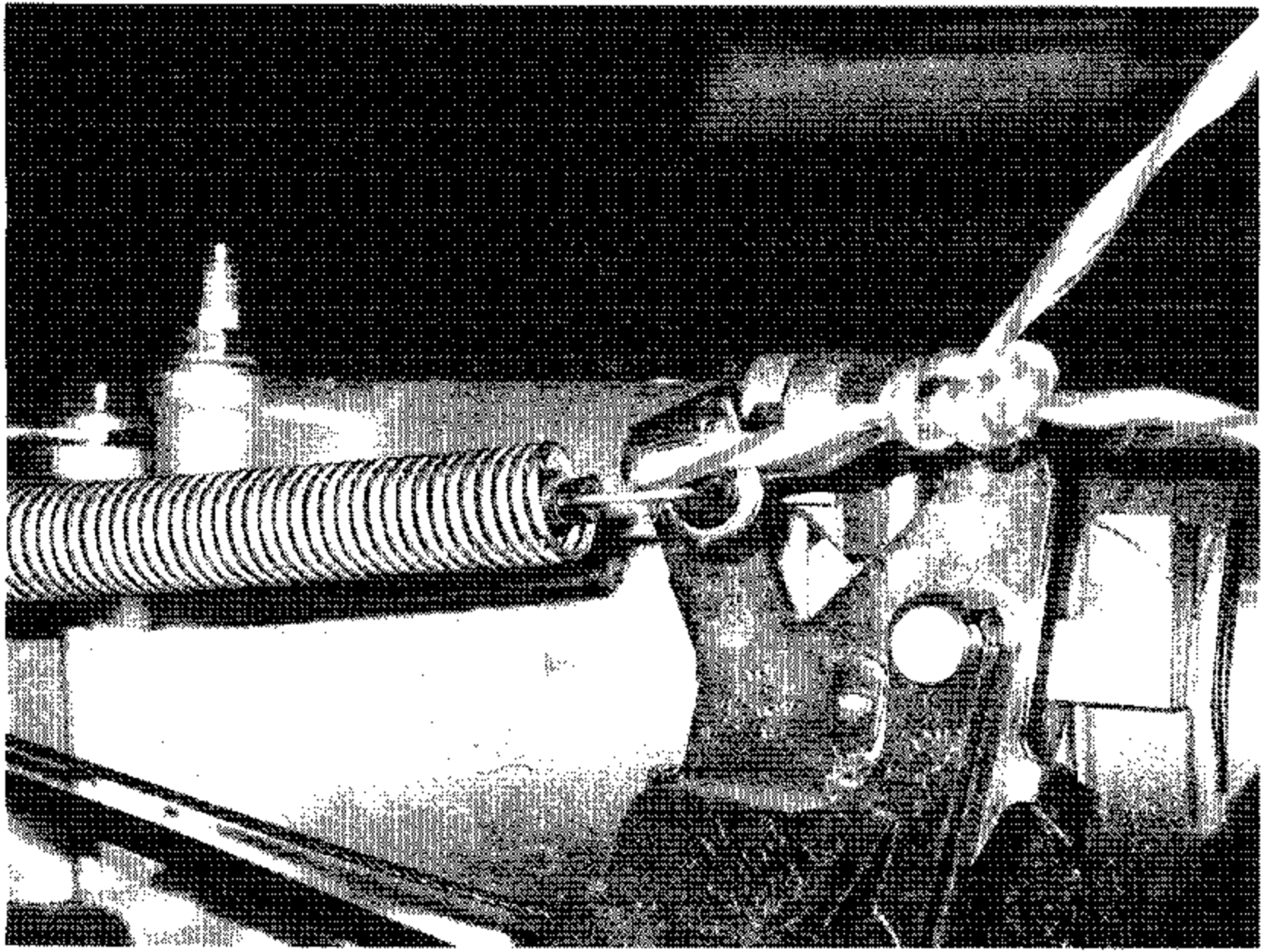
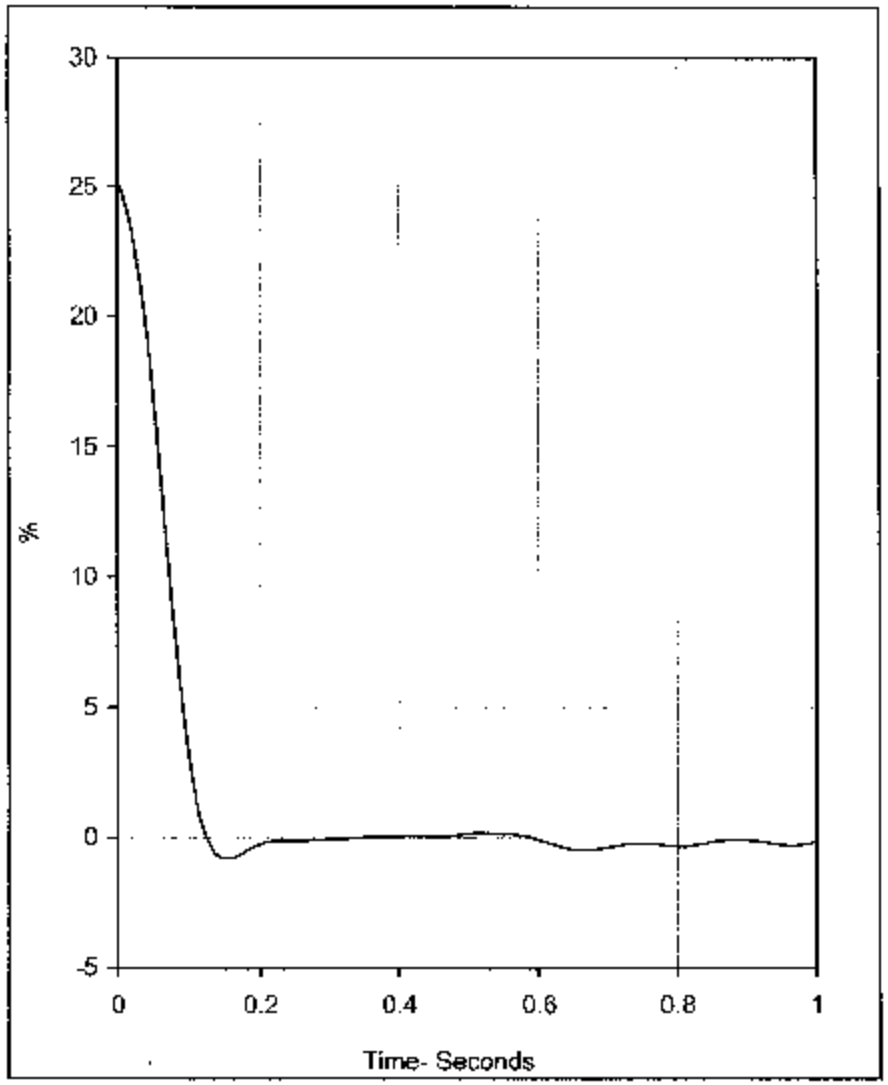
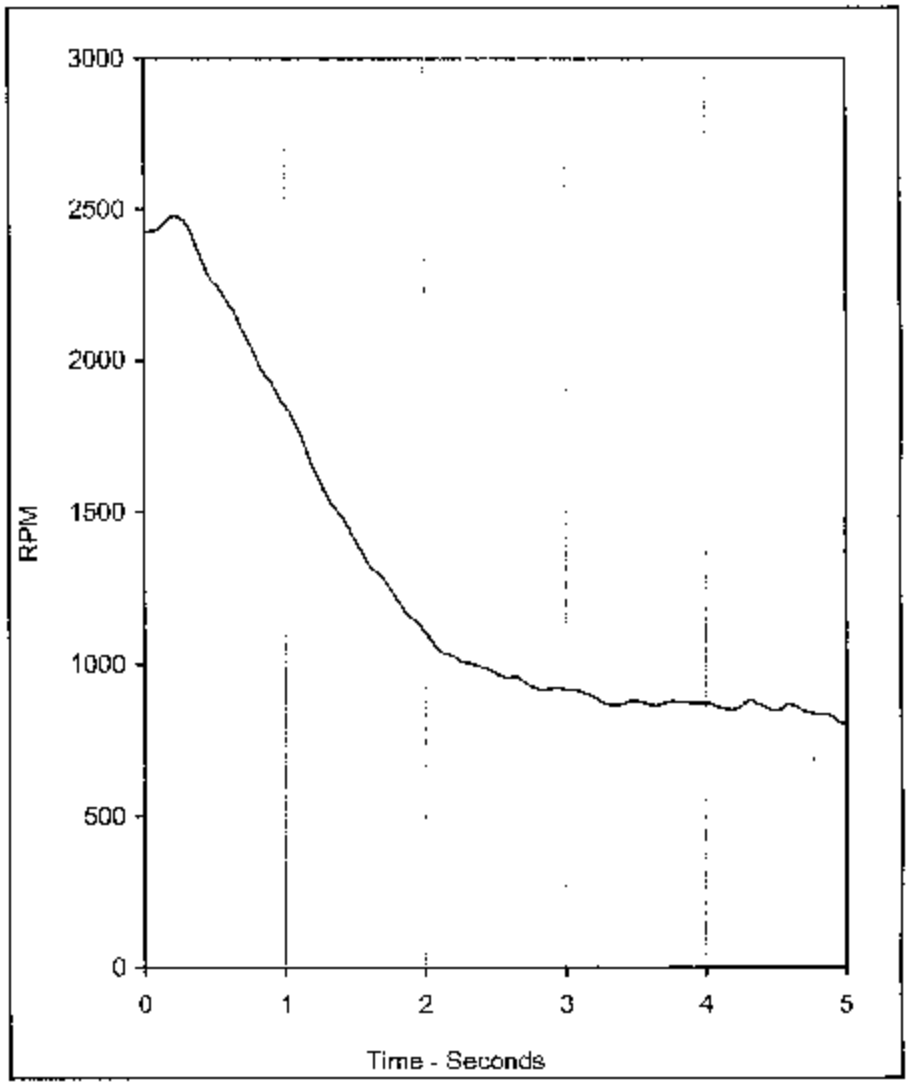


Figure A-14: Severance of Throttle Body Linkage

APPENDIX B
DATA PLOTS





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	25.3	0.0	120.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	2478.7	0.2	804.1	5.0	5

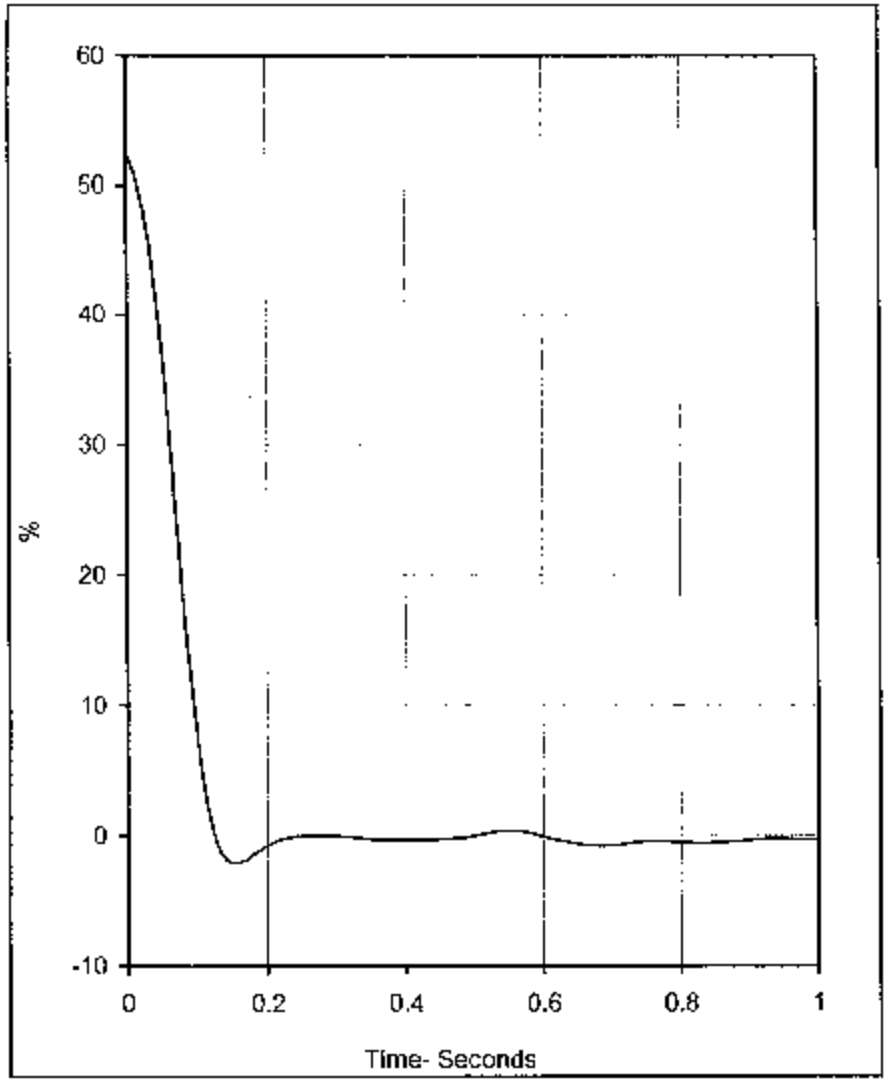
Test Program: FMVSS 124 (Normal Operation)

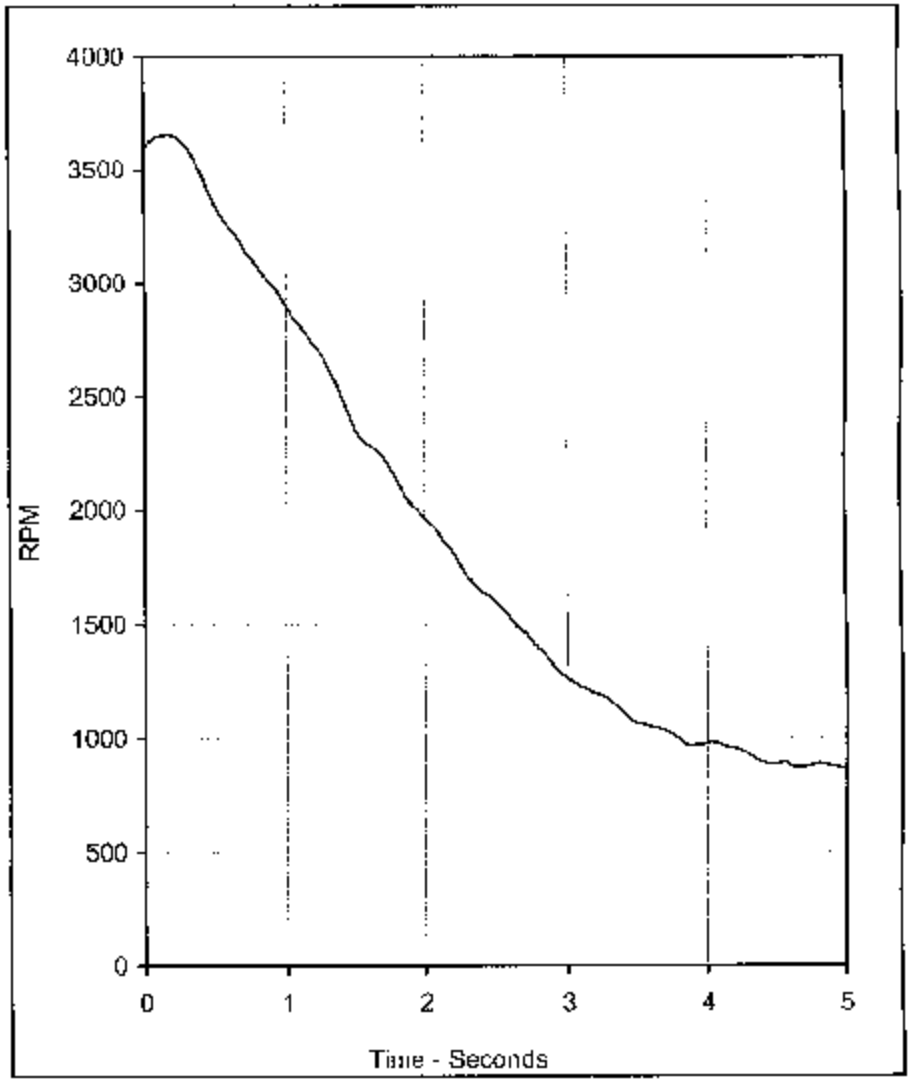
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	52.5	0.0	120.0	5

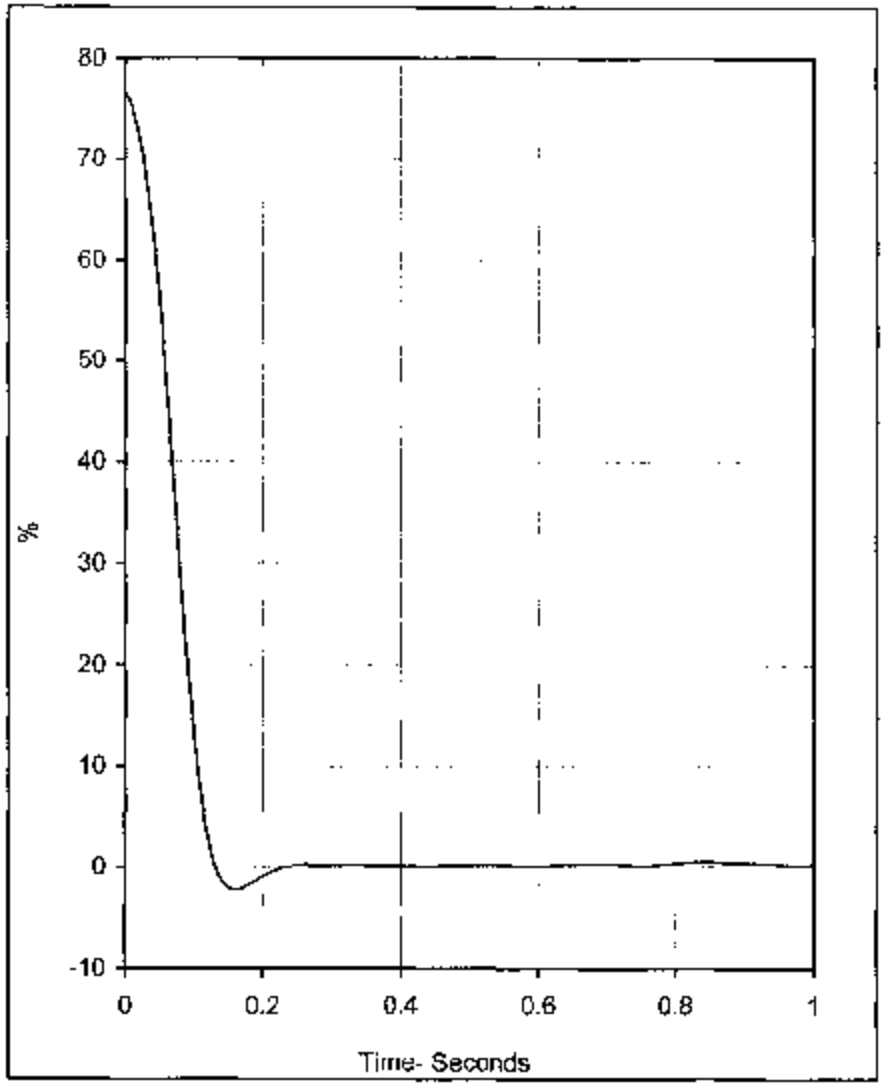
Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

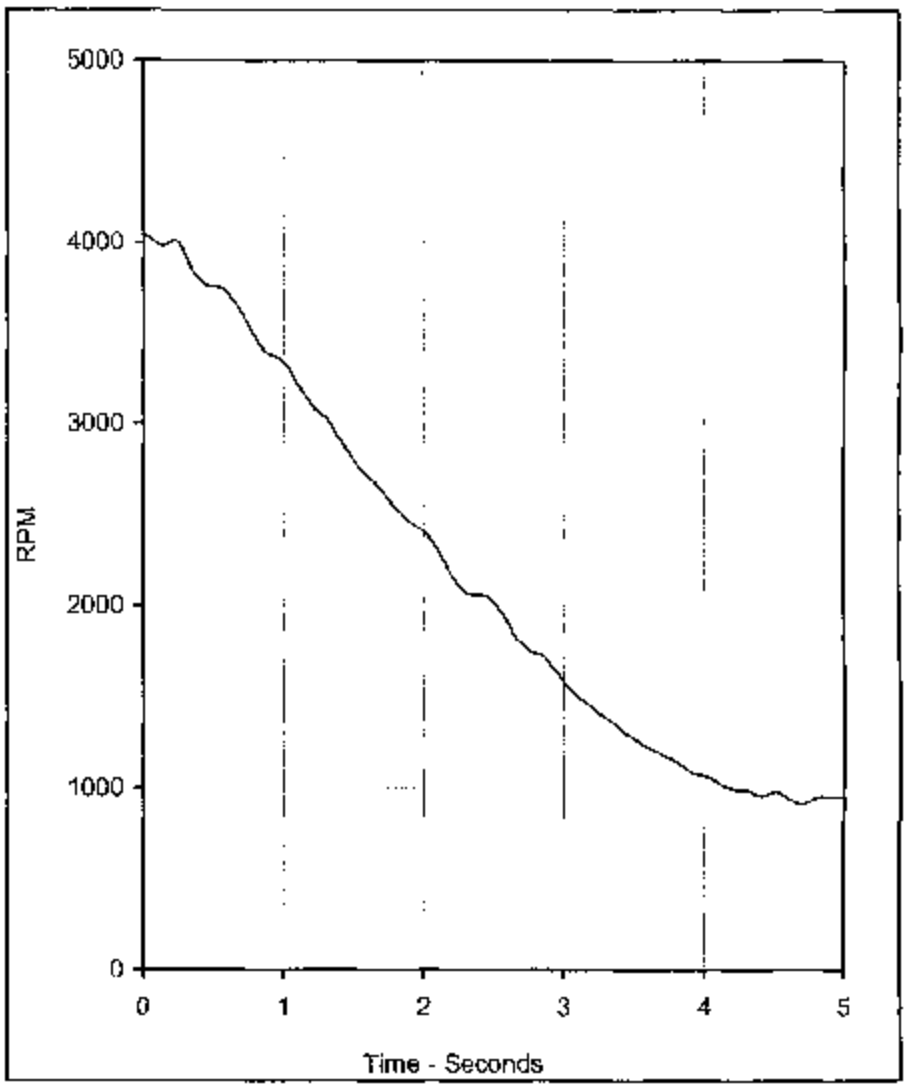
Units	Max	Time	Min	Time	Filter (Hz)
RPM	3655.6	0.2	864.6	5.0	5

Test Program: FMVSS 124 (Normal Operation)
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03
NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	76.9	0.0	130.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	4042.5	0.0	913.8	4.7	5

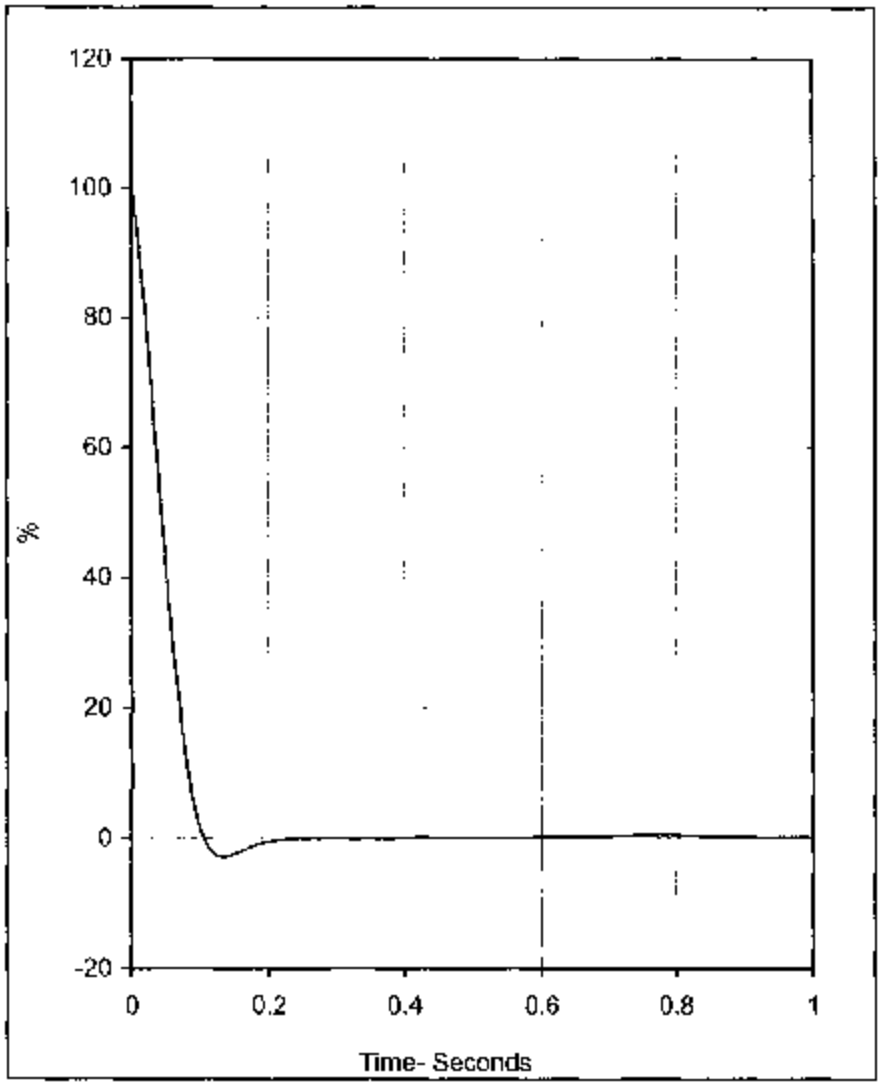
Test Program: FMVSS 124 (Normal Operation)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

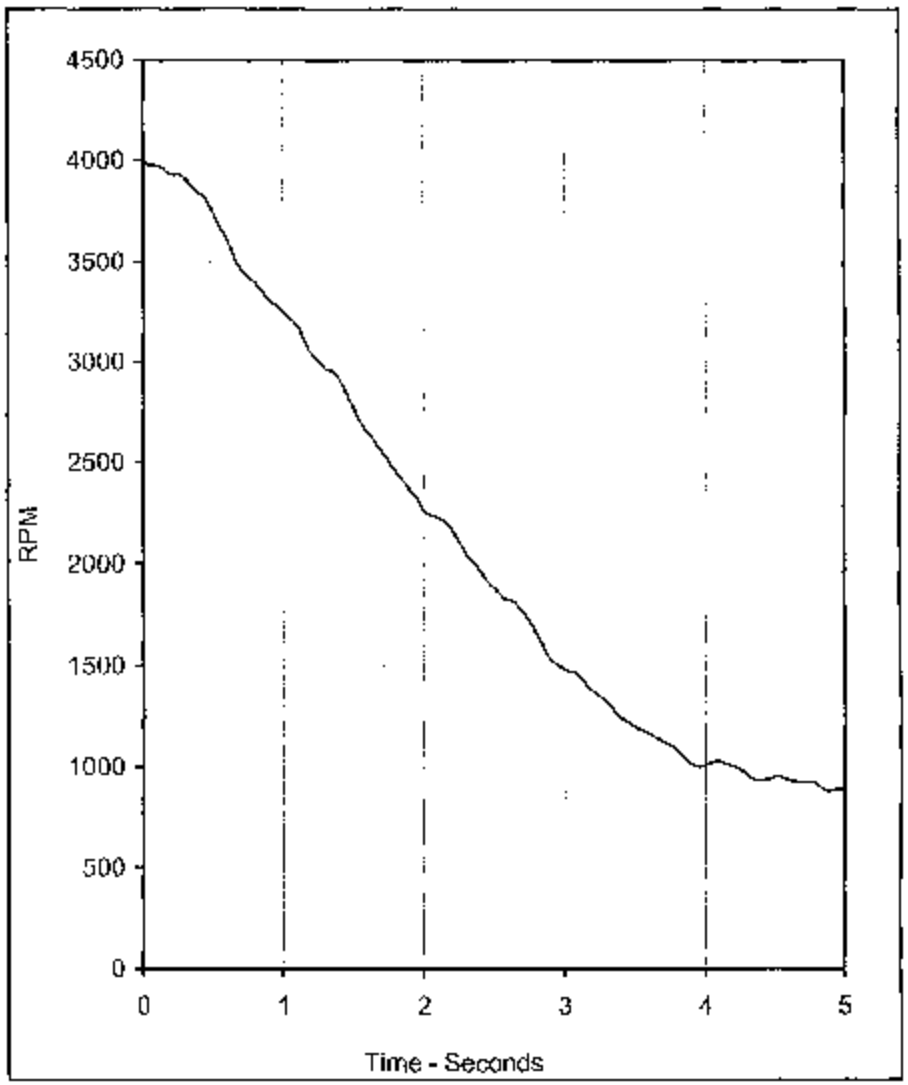
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	100.4	0.0	110.0	5



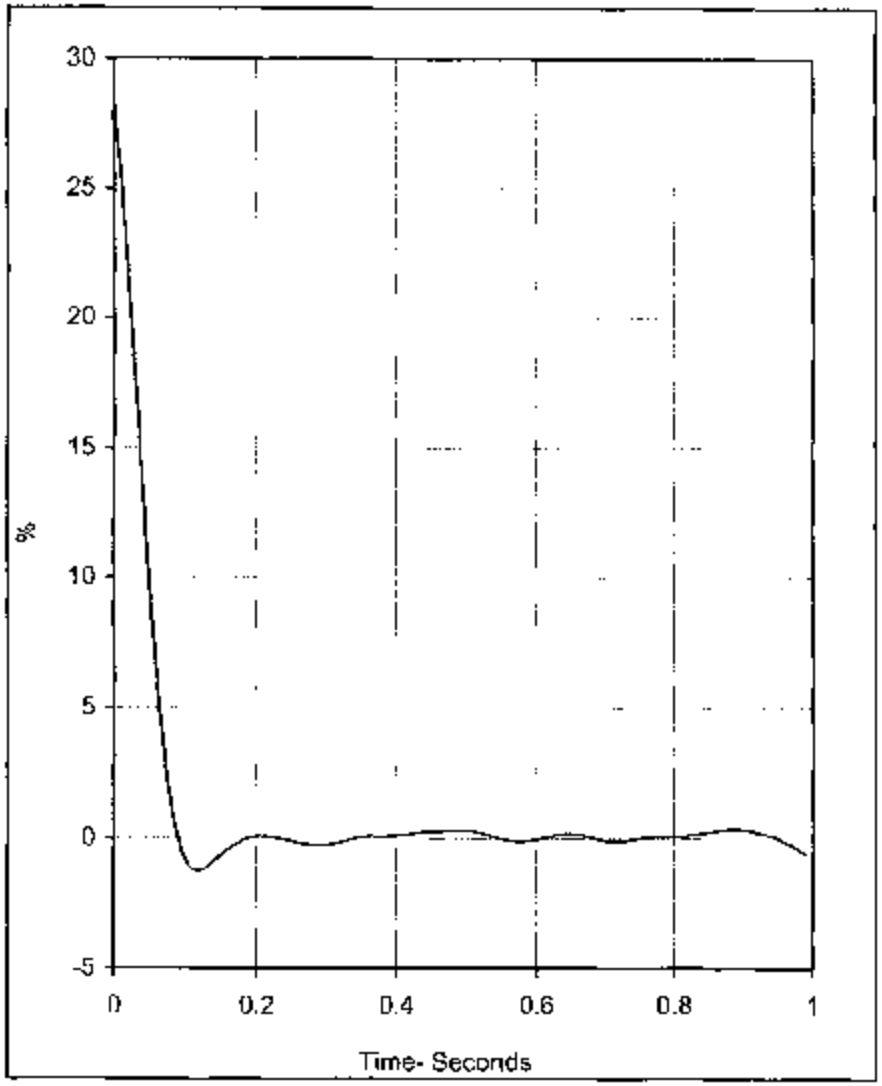
Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	3993.2	0.0	881.8	4.9	5

Test Program: FMVSS 124 (Normal Operation)
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

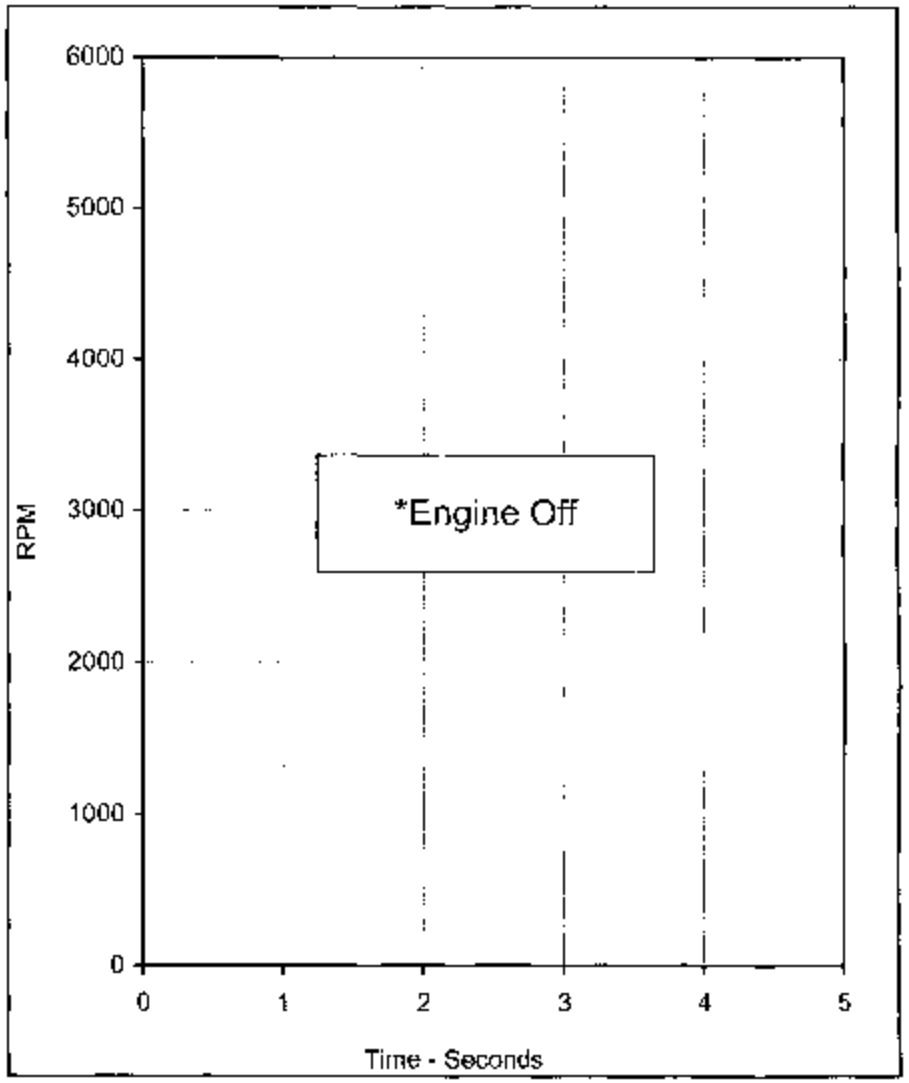
Test Date: 7/22/03
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	28.3	0.0	90.0	5



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

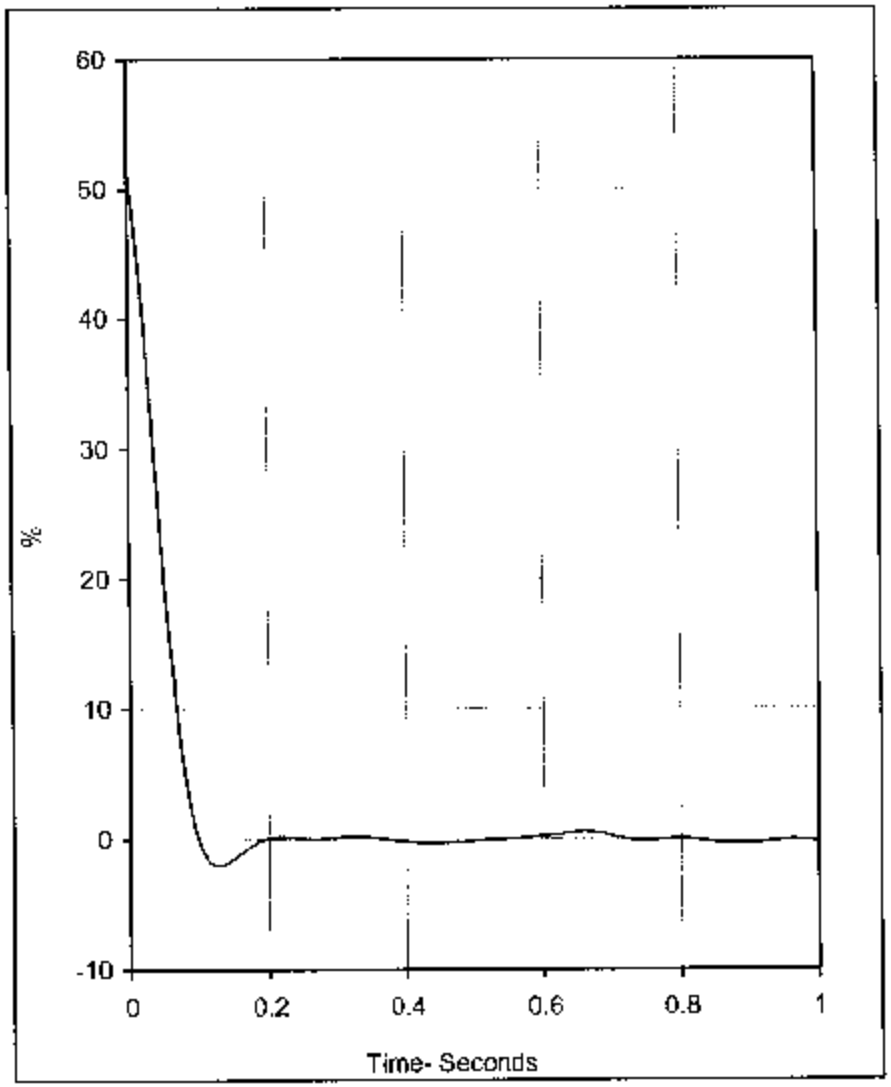
Test Program: FMVSS 124 (Normal Operation)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

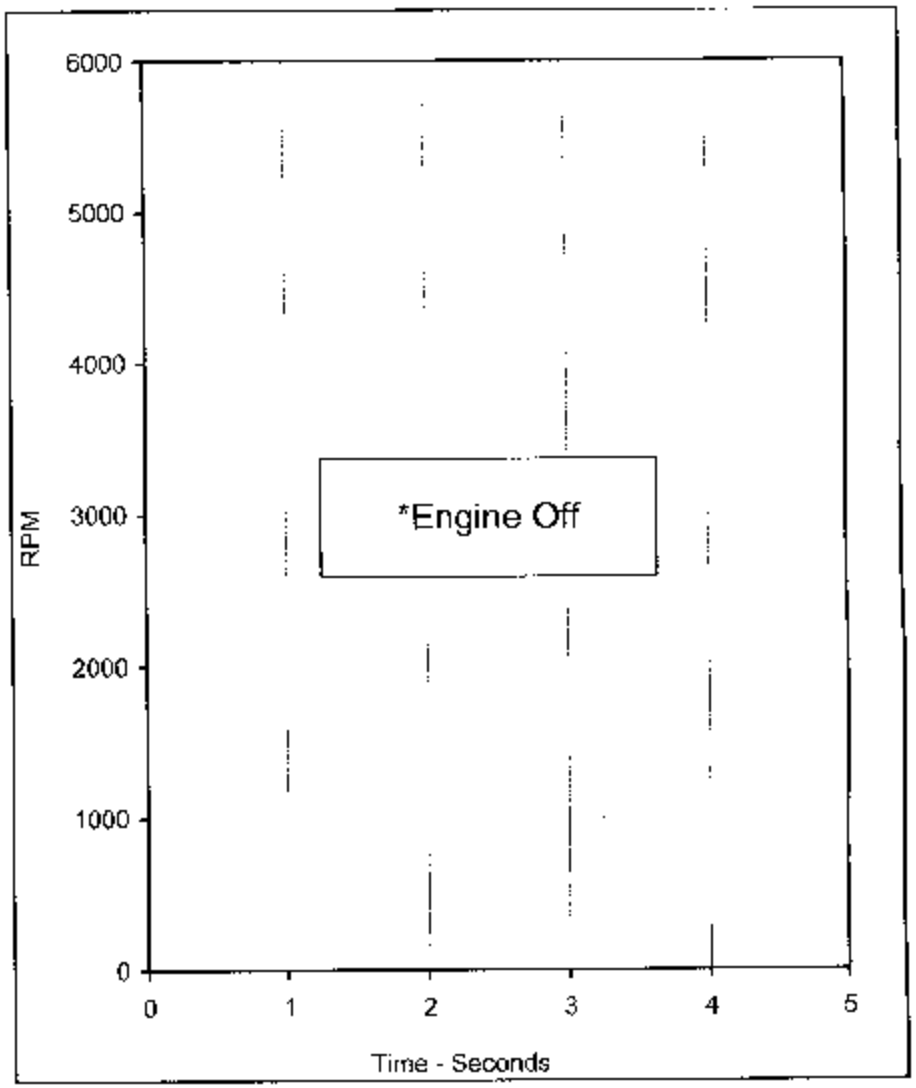
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	51.4	0.0	100.0	5



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

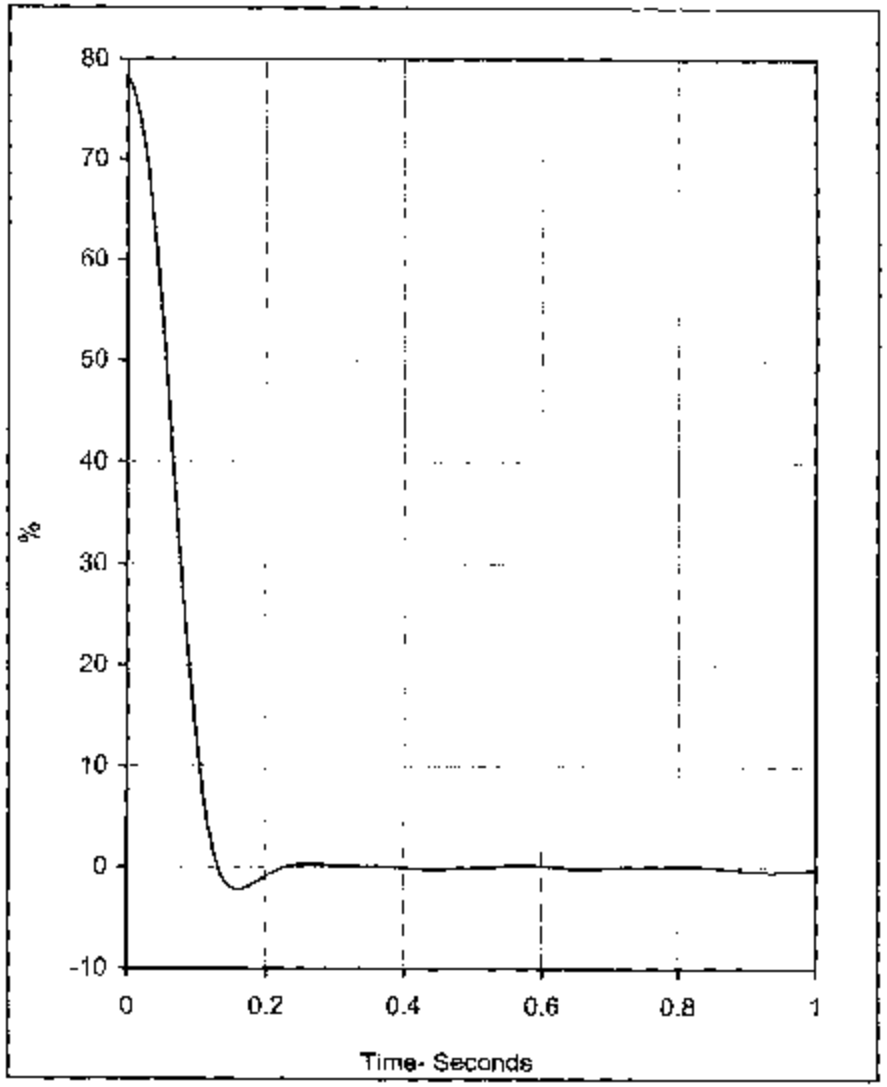
Test Program: FMVSS 124 (Normal Operation)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

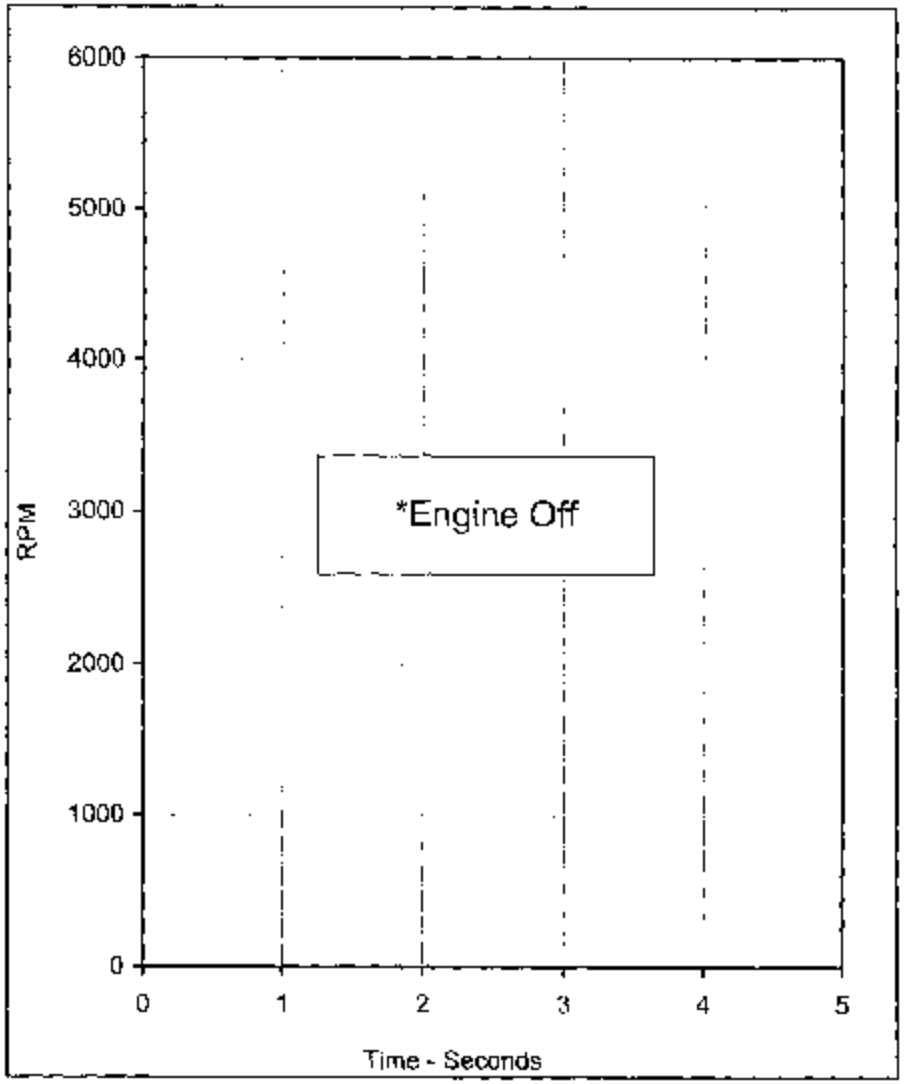
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	78.2	0.0	130.0	5



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

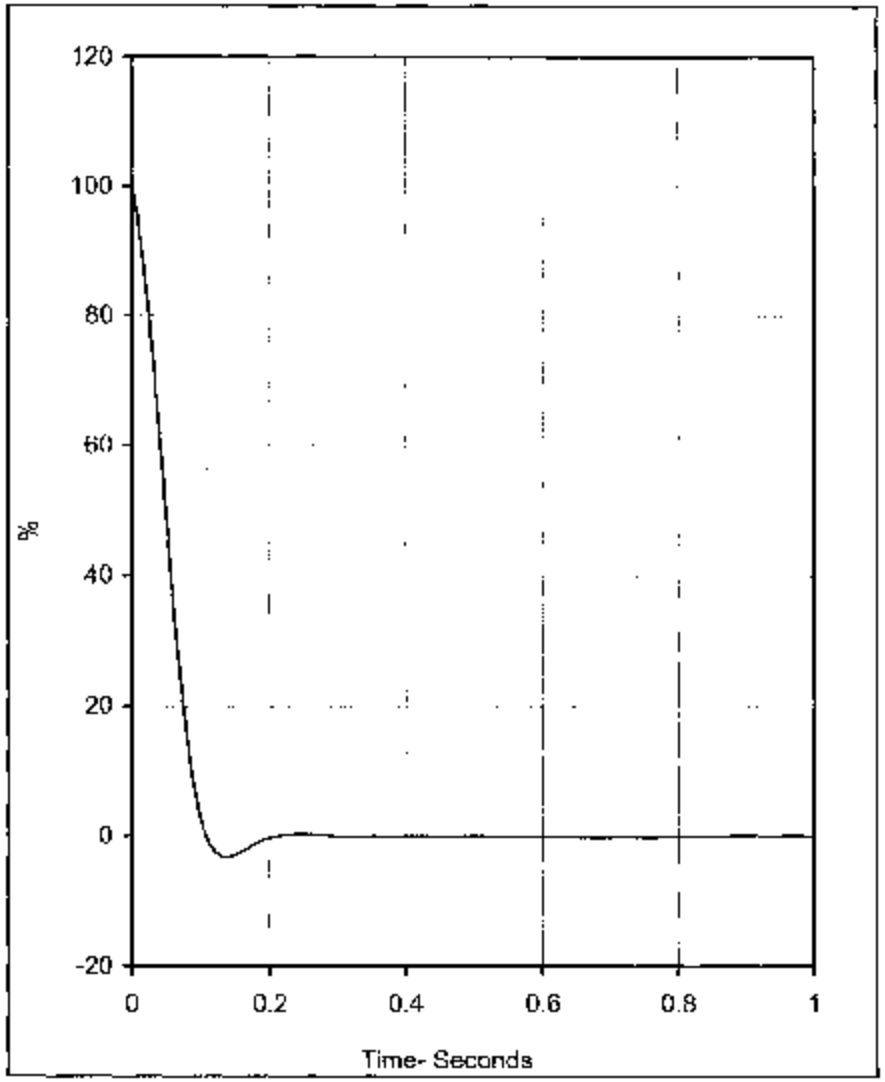
Test Program: FMVSS 124 (Normal Operation)

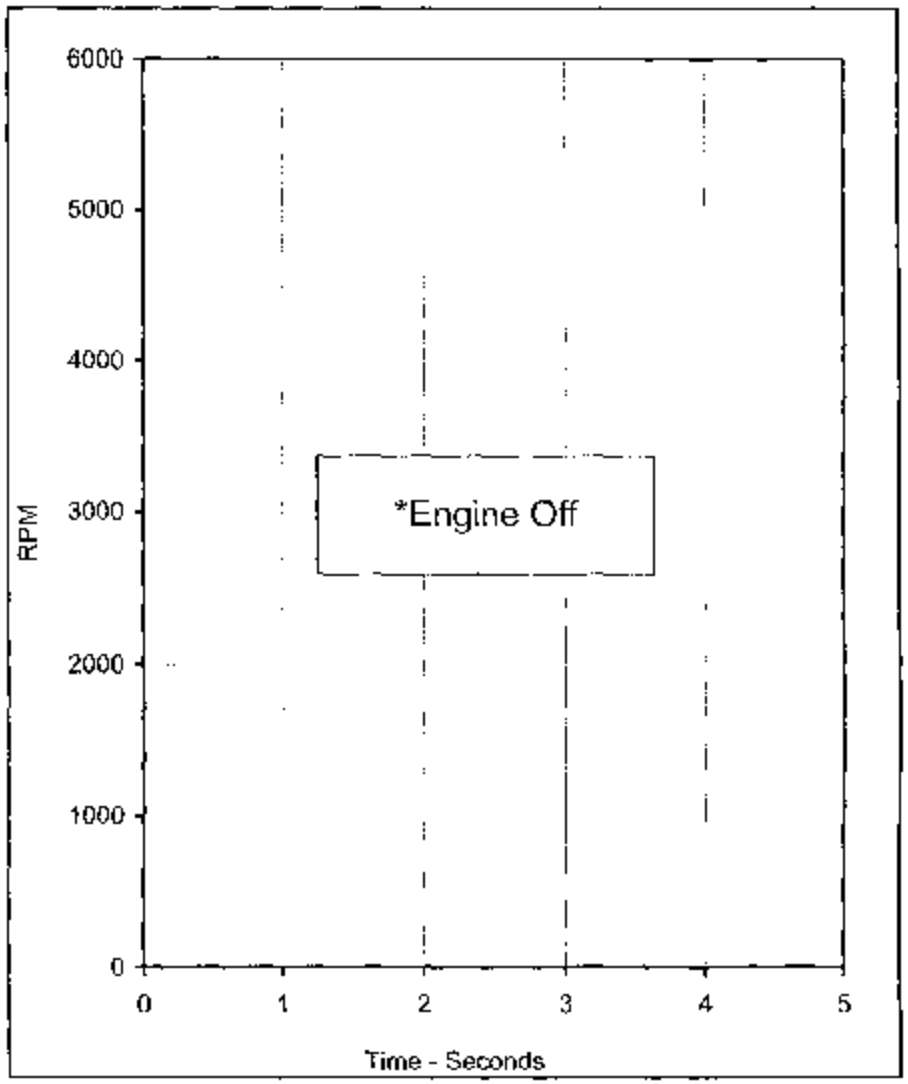
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	100.1	0.0	110.0	5

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

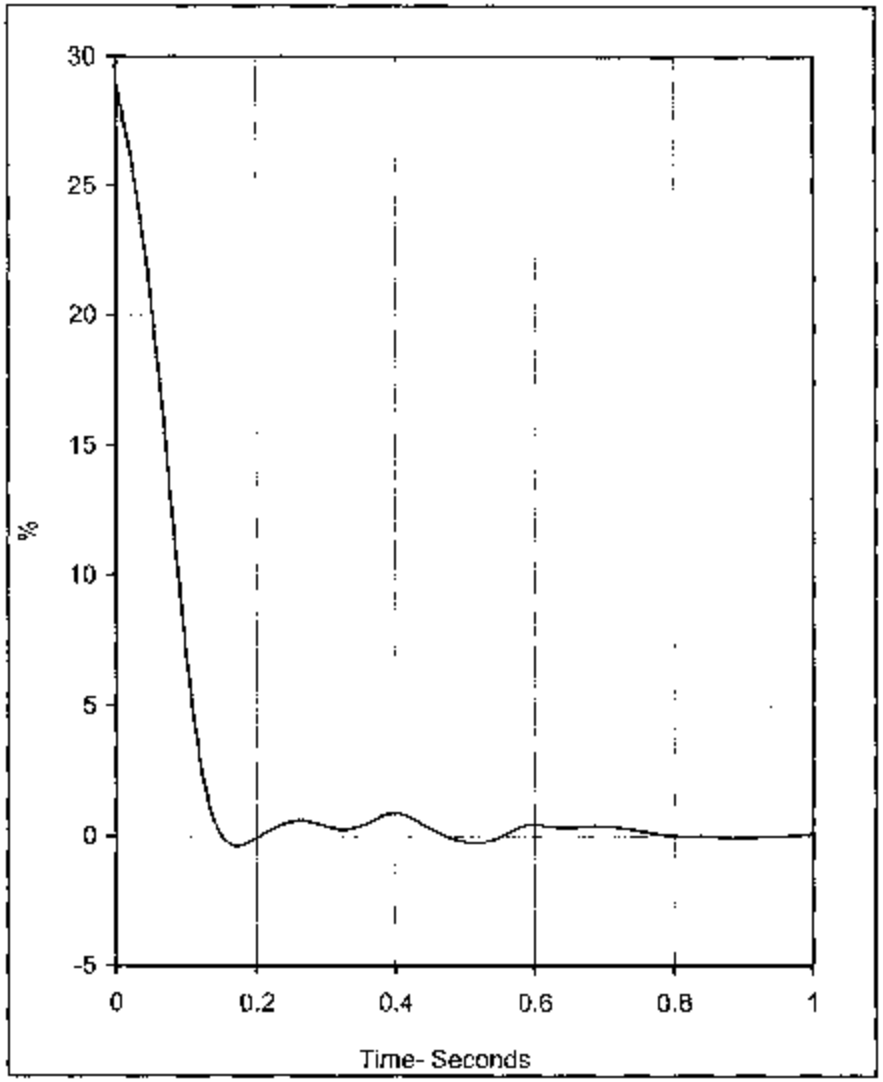
Test Program: FMVSS 124 (*Normal Operation*)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

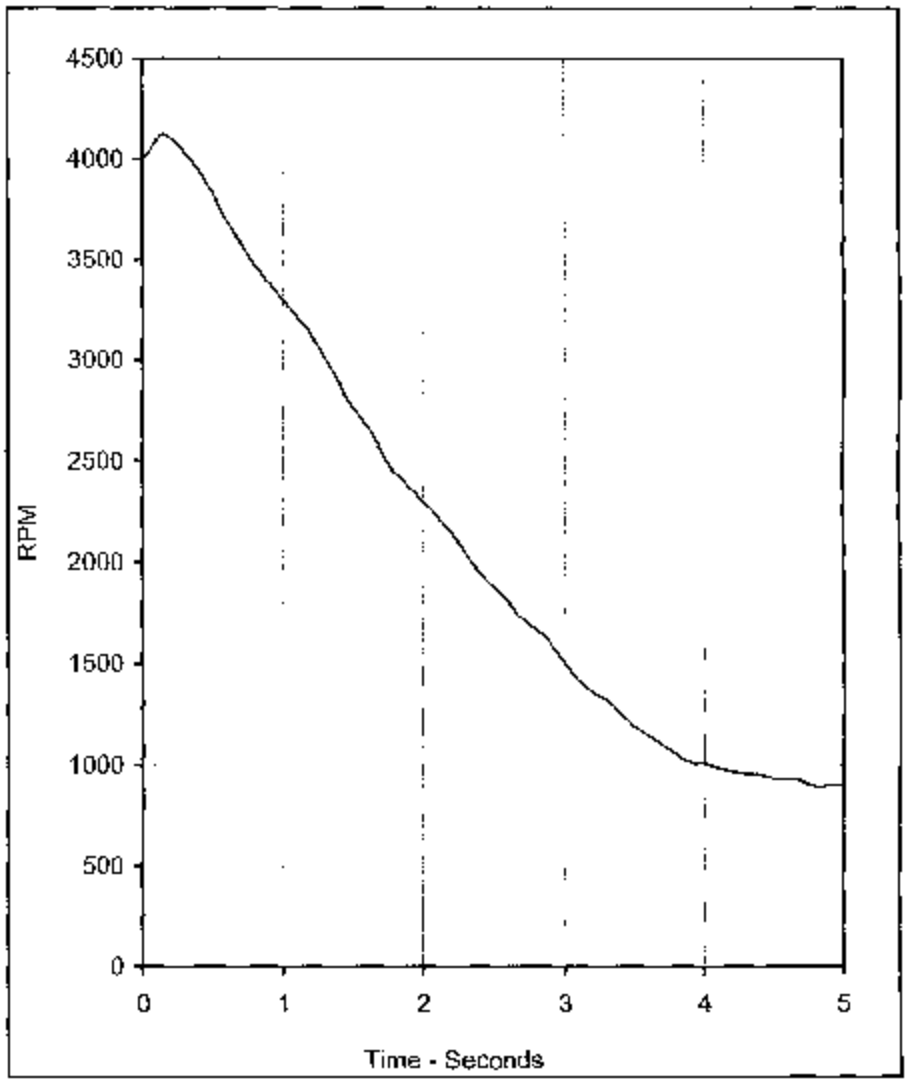
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	29.0	0.0	150.0	5



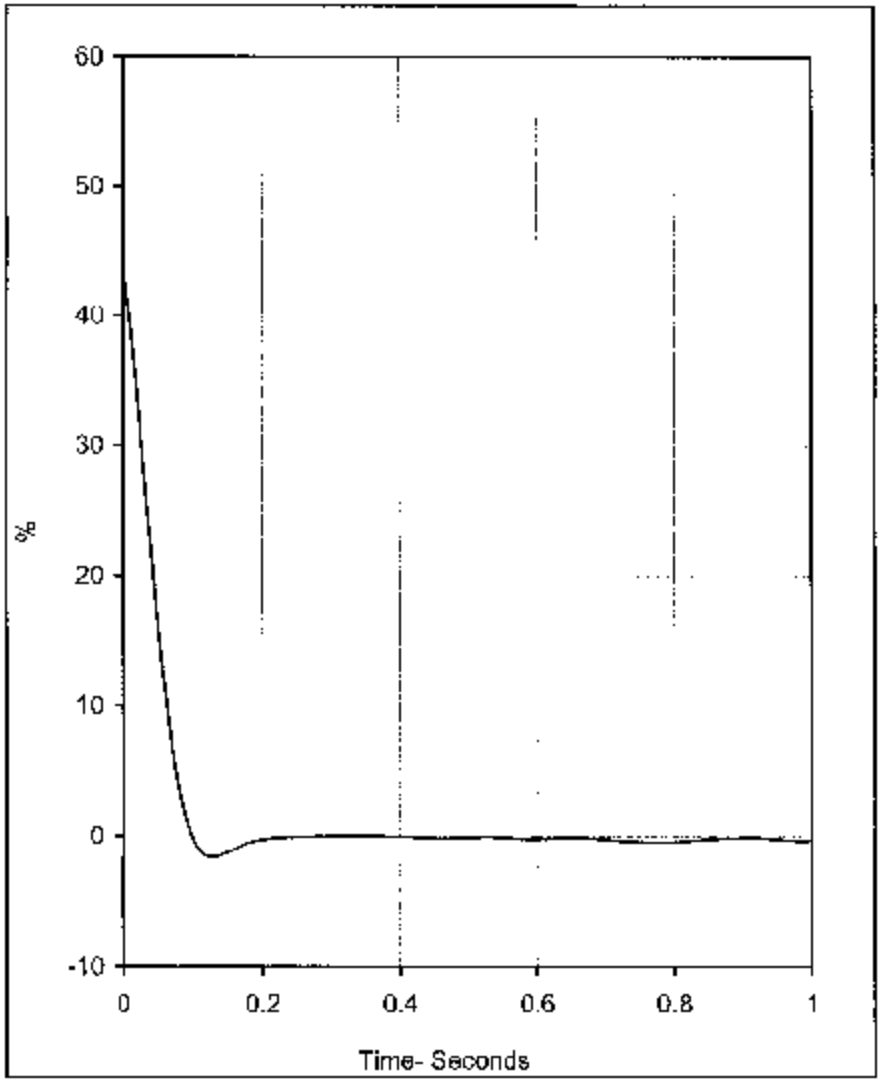
Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

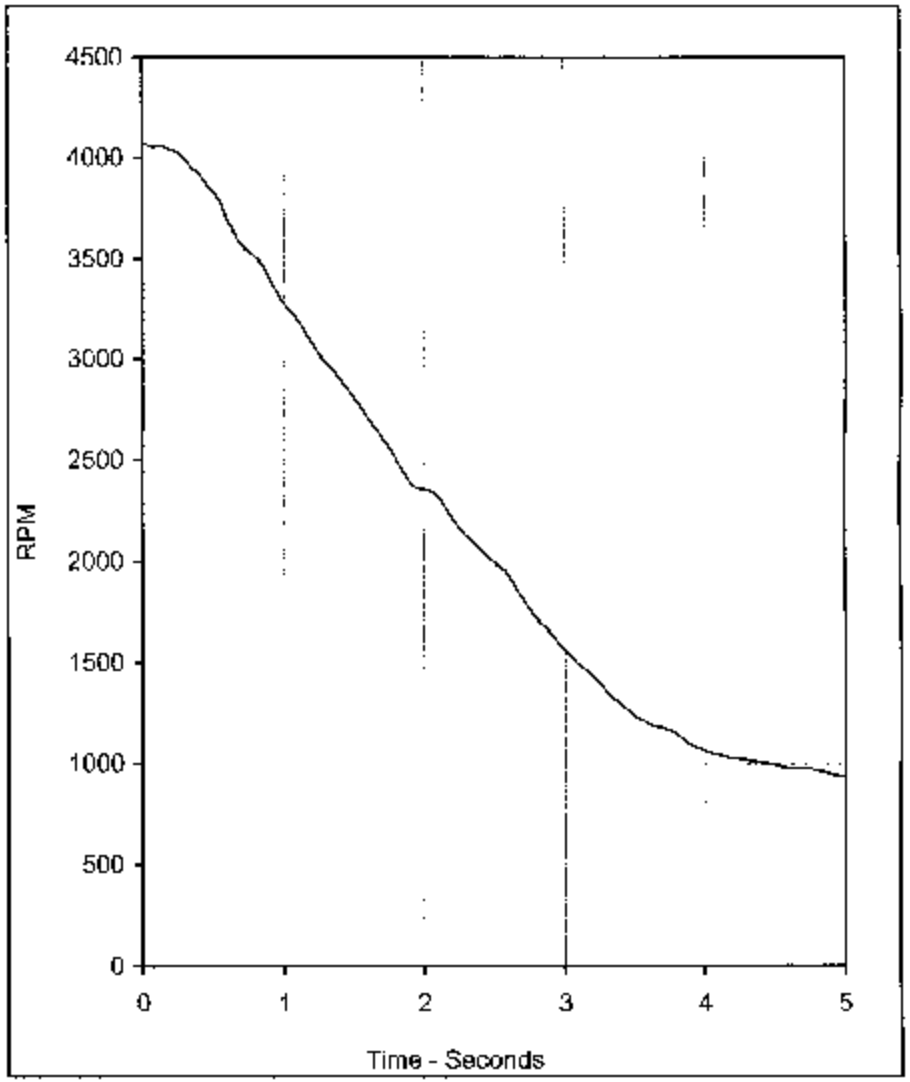
Units	Max	Time	Min	Time	Filter (Hz)
RPM	4124.1	0.2	894.8	4.8	5

Test Program: FMVSS 124 (#1 Spring Disconnected)
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03
NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	43.7	0.0	100.0	5

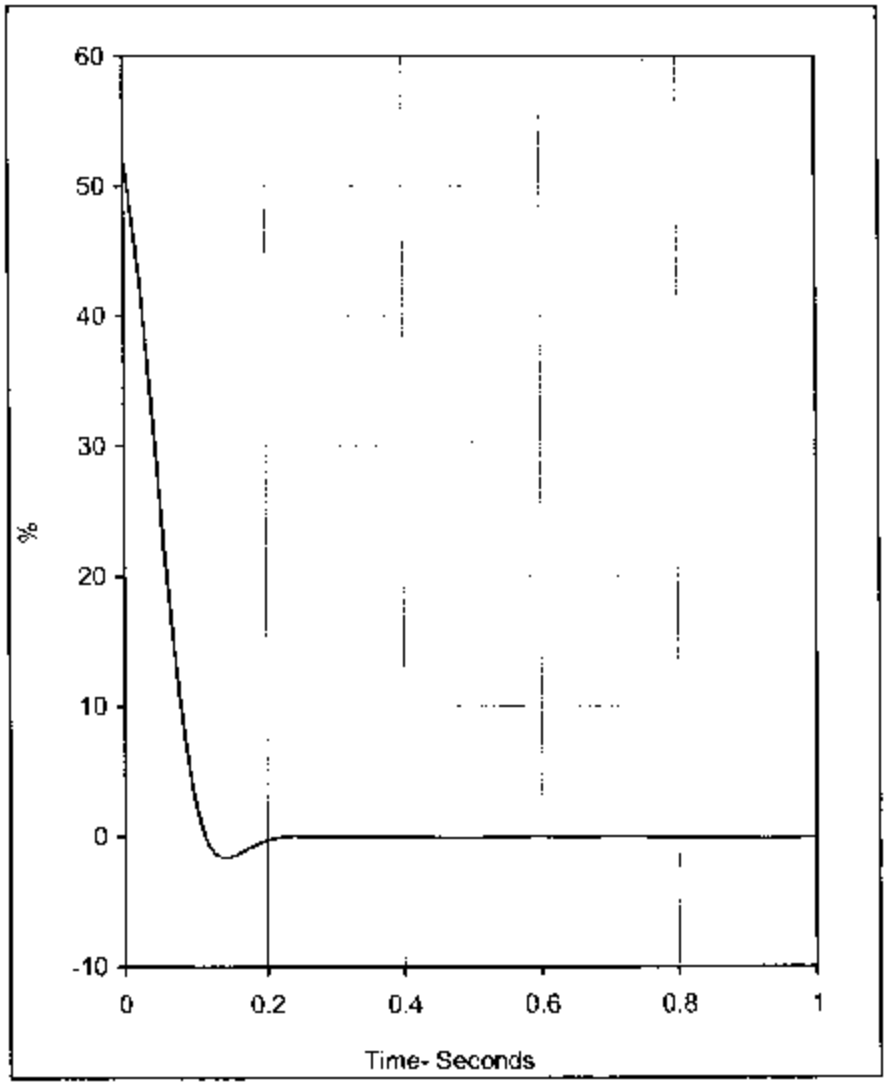
Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	4072.0	0.0	940.4	5.0	5

Test Program: FMVSS 124 (#1 Spring Disconnected)
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

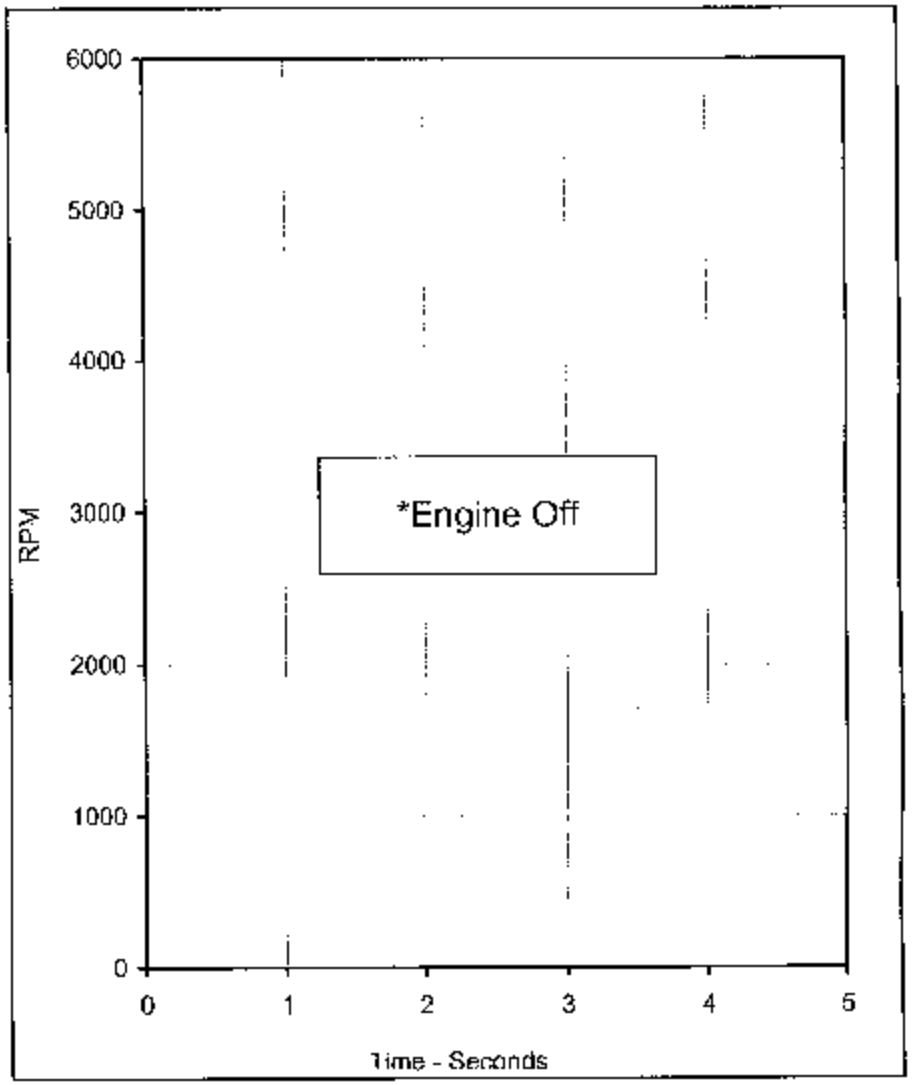
Test Date: 7/22/03
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	52.0	0.0	120.0	5



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

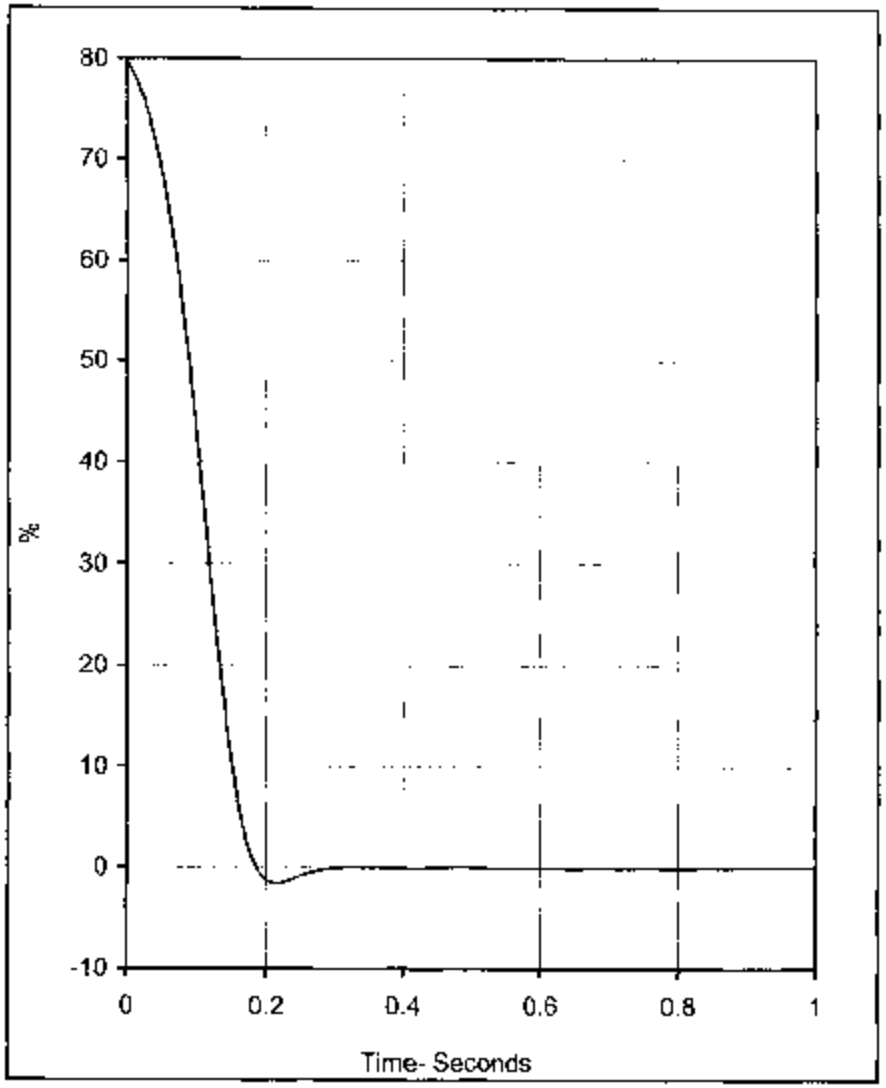
Test Program: FMVSS 124 (#2 Spring Disconnected)

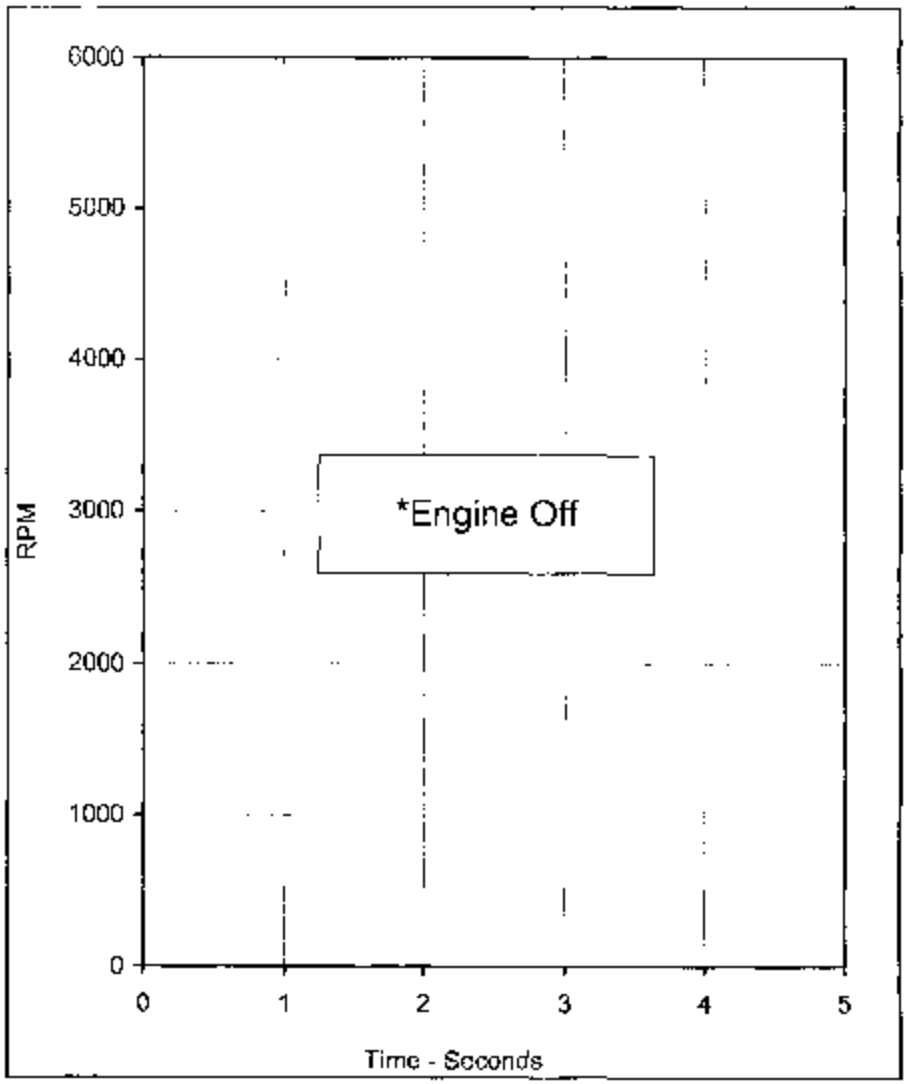
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	79.7	0.0	190.0	5

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

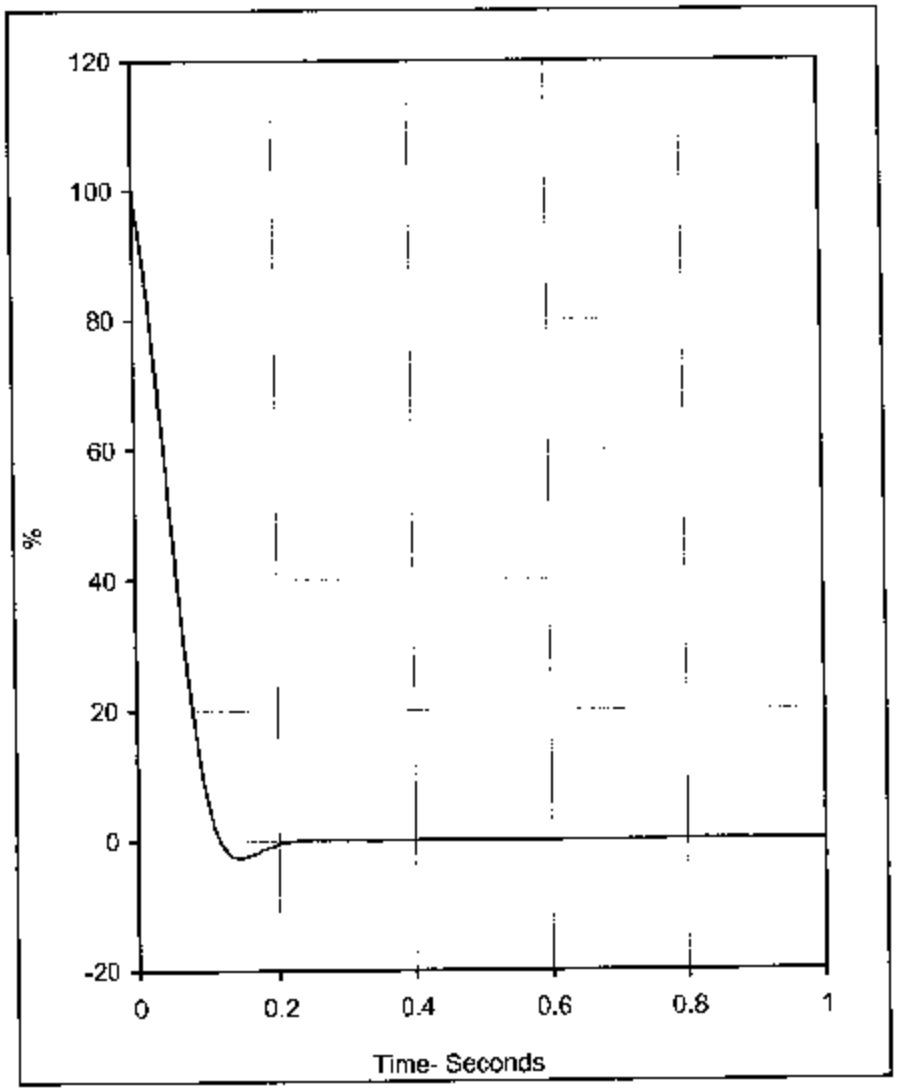
Test Program: FMVSS 124 (#2 Spring Disconnected)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

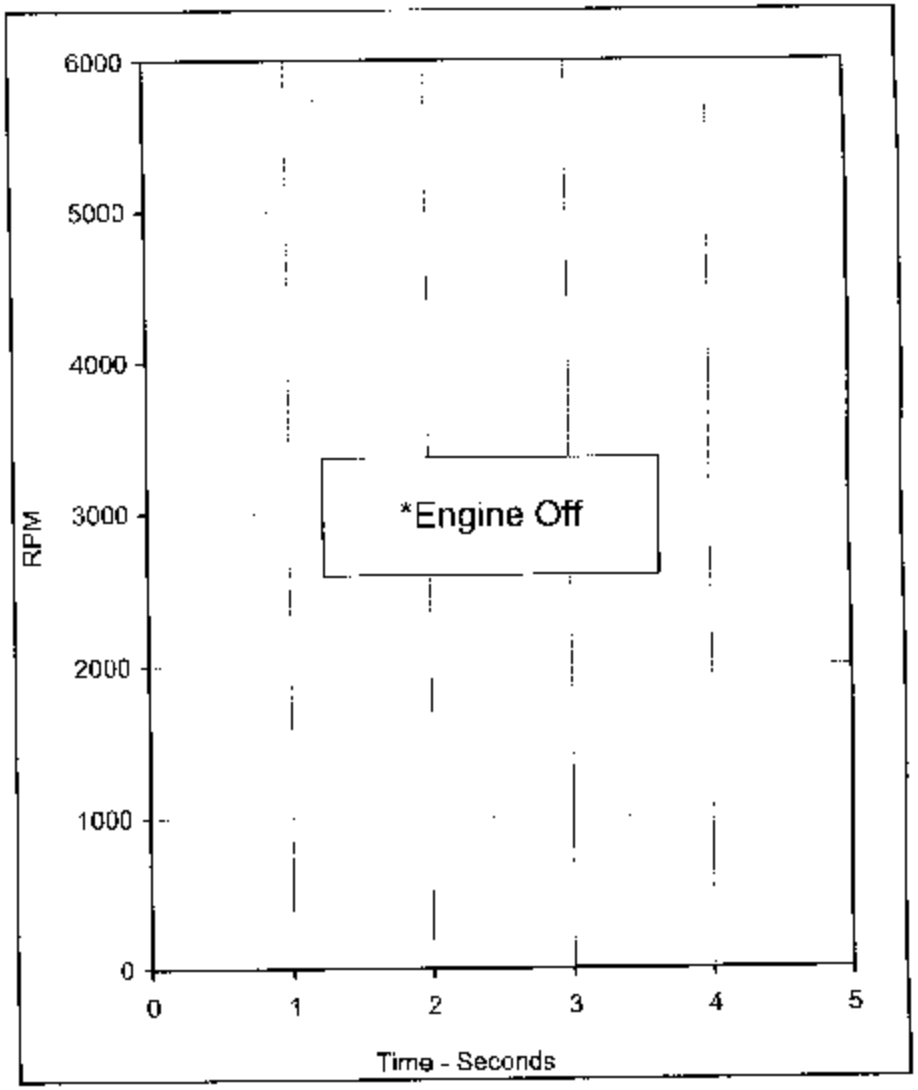
NHTSA No.: C30204

KARCO Engineering



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	100.3	0.0	130.0	5



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

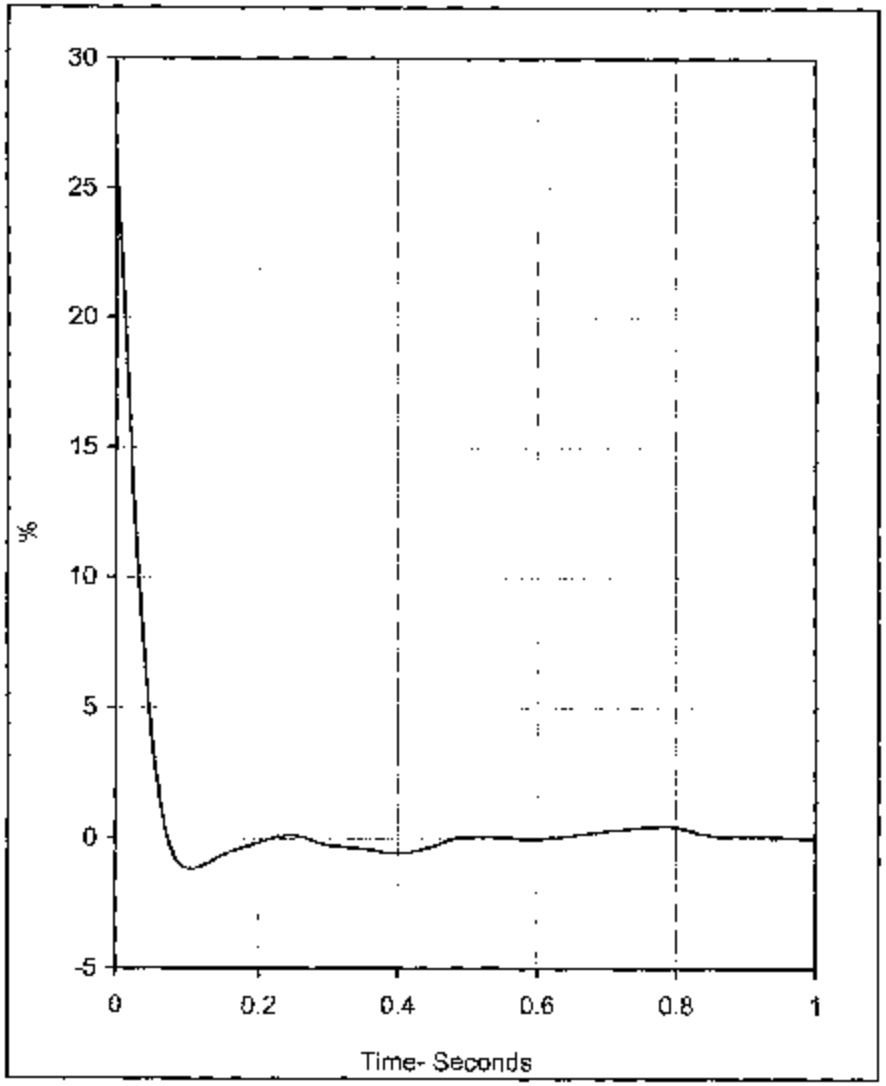
Test Program: FMVSS 124 (#2 Spring Disconnected)

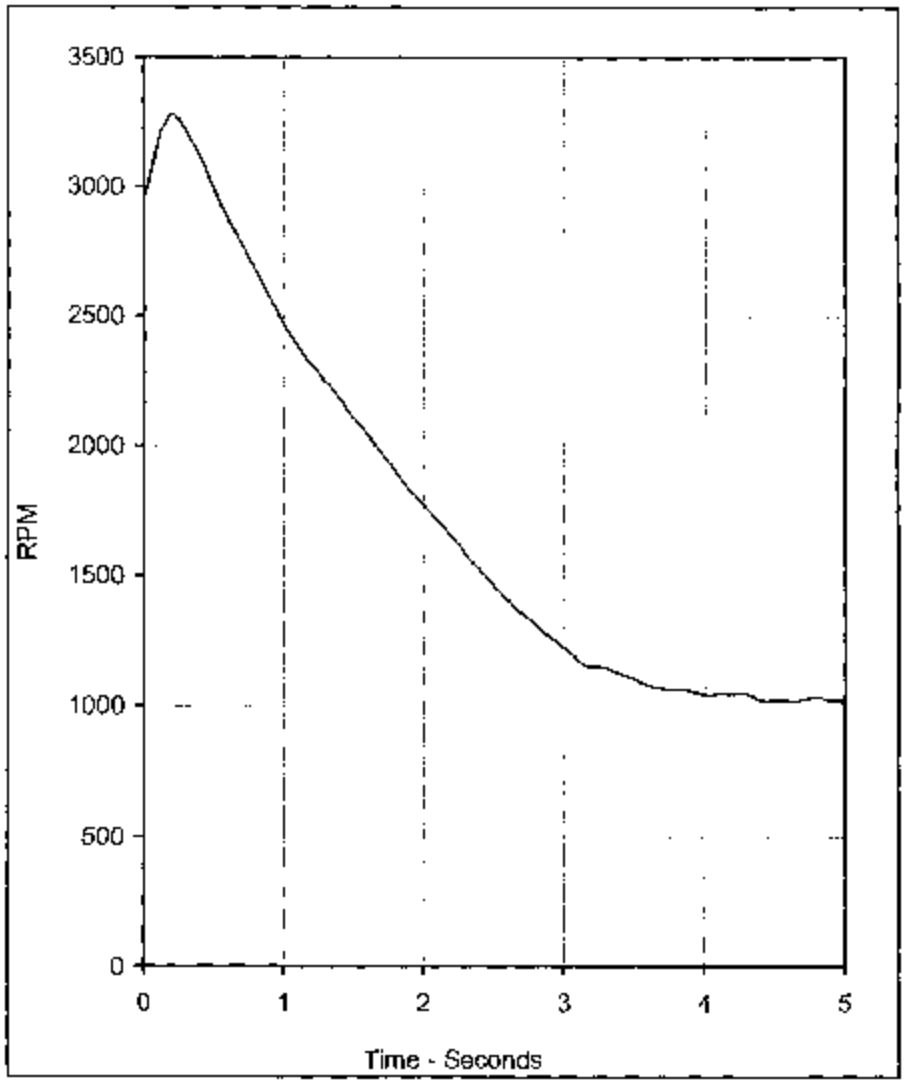
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	26.7	0.0	80.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	3279.0	0.2	691.4	5.0	5

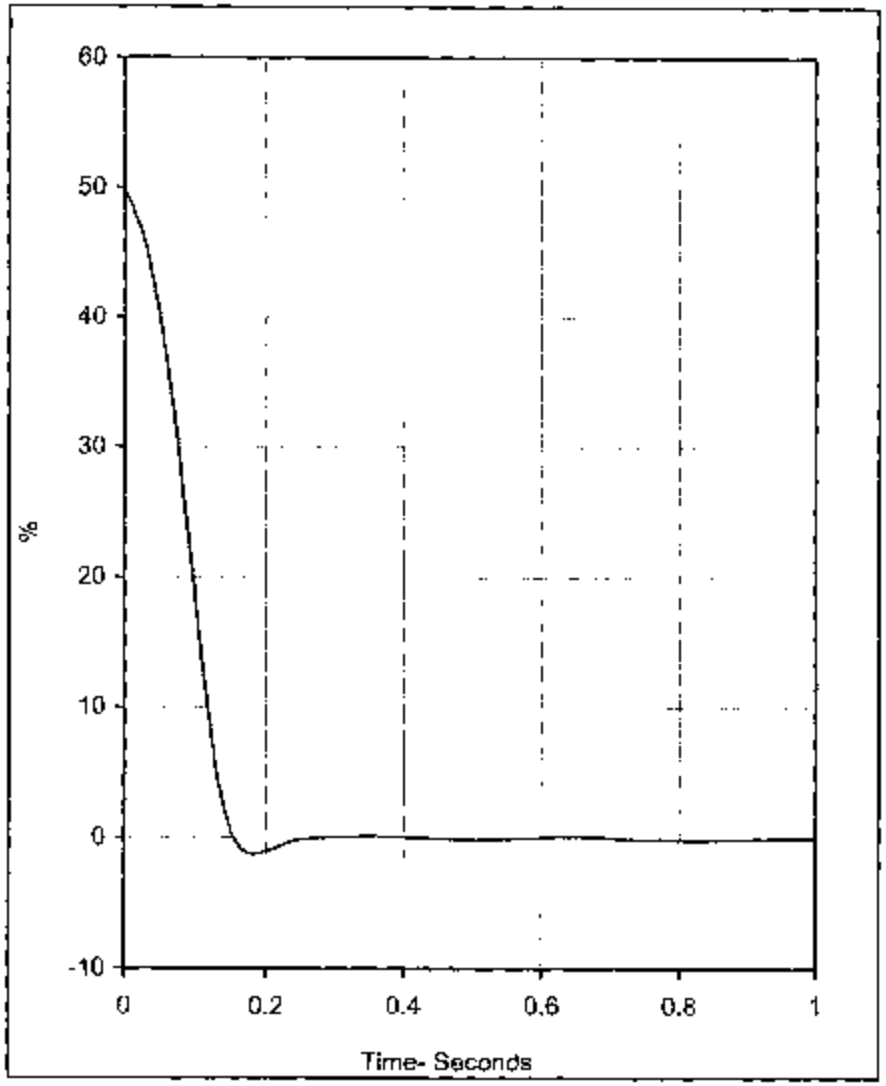
Test Program: FMVSS 124 (Severance Of Throttle Cable)

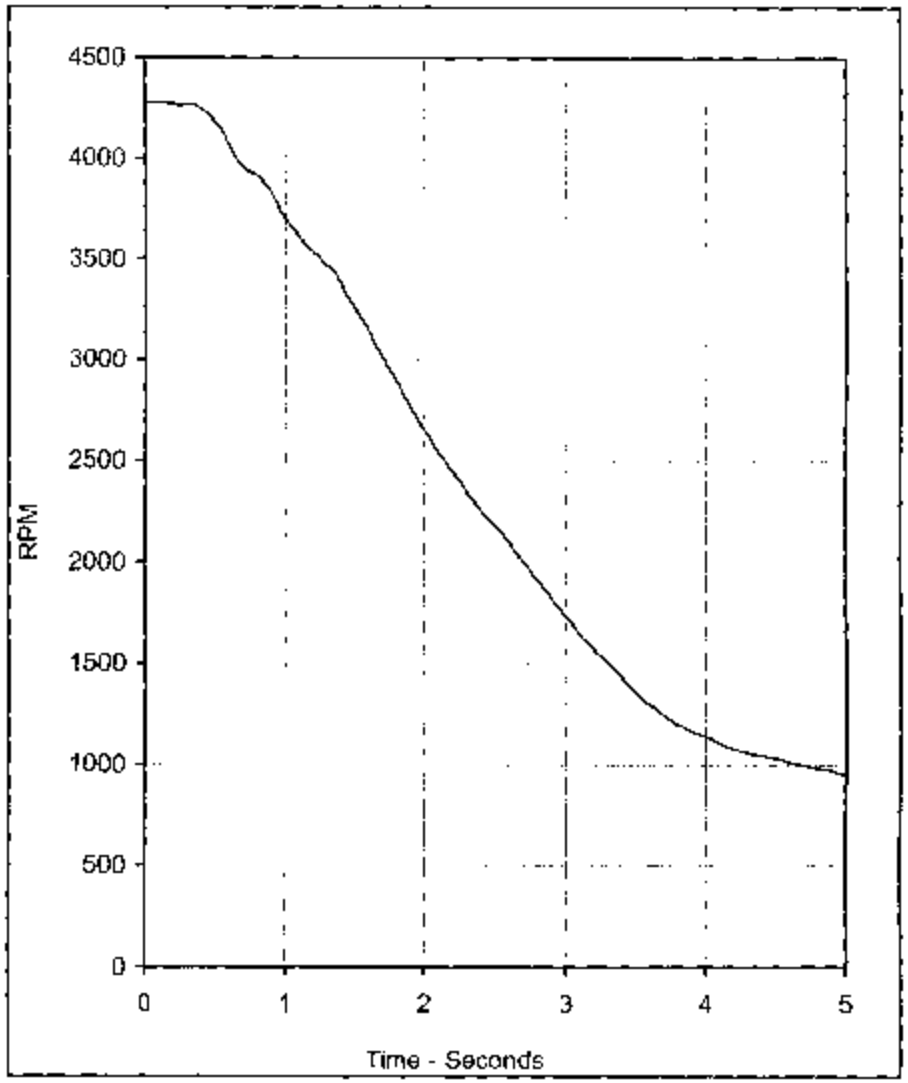
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	49.7	0.0	160.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	4280.7	0.1	954.9	5.0	5

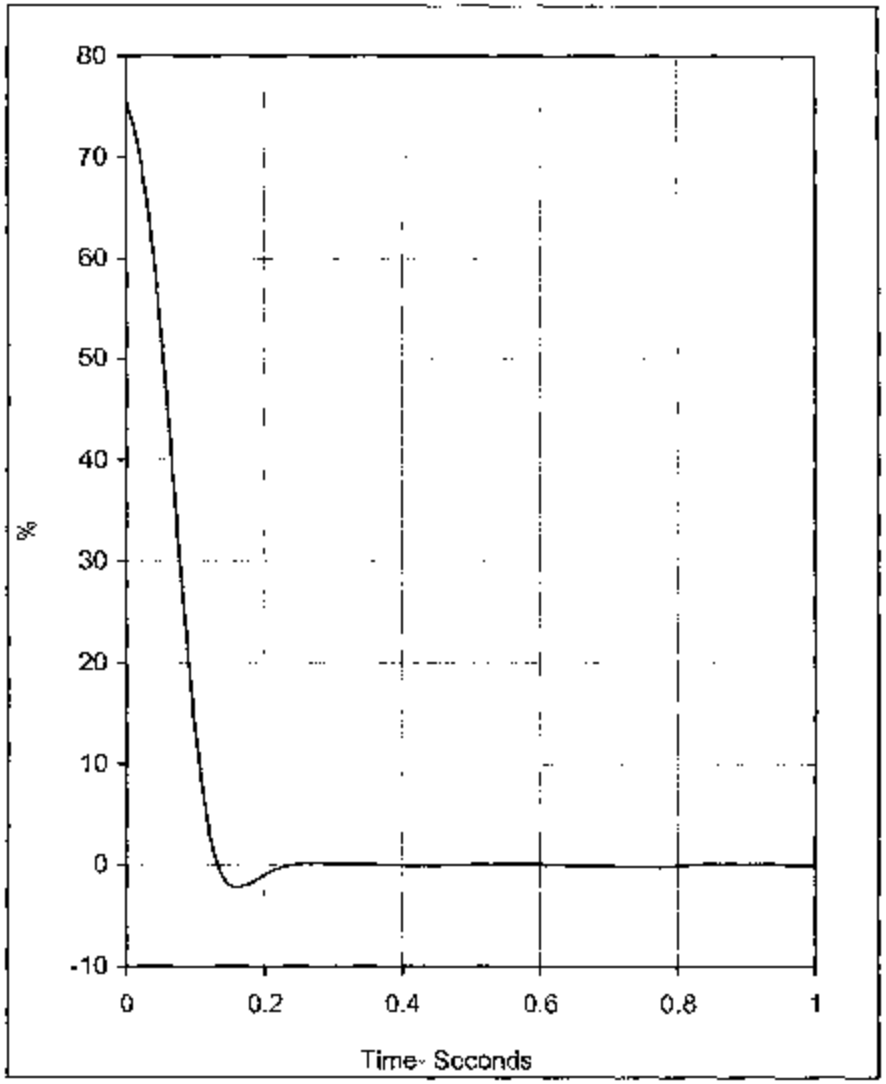
Test Program: FMVSS 124 (Severance Of Throttle Cable)

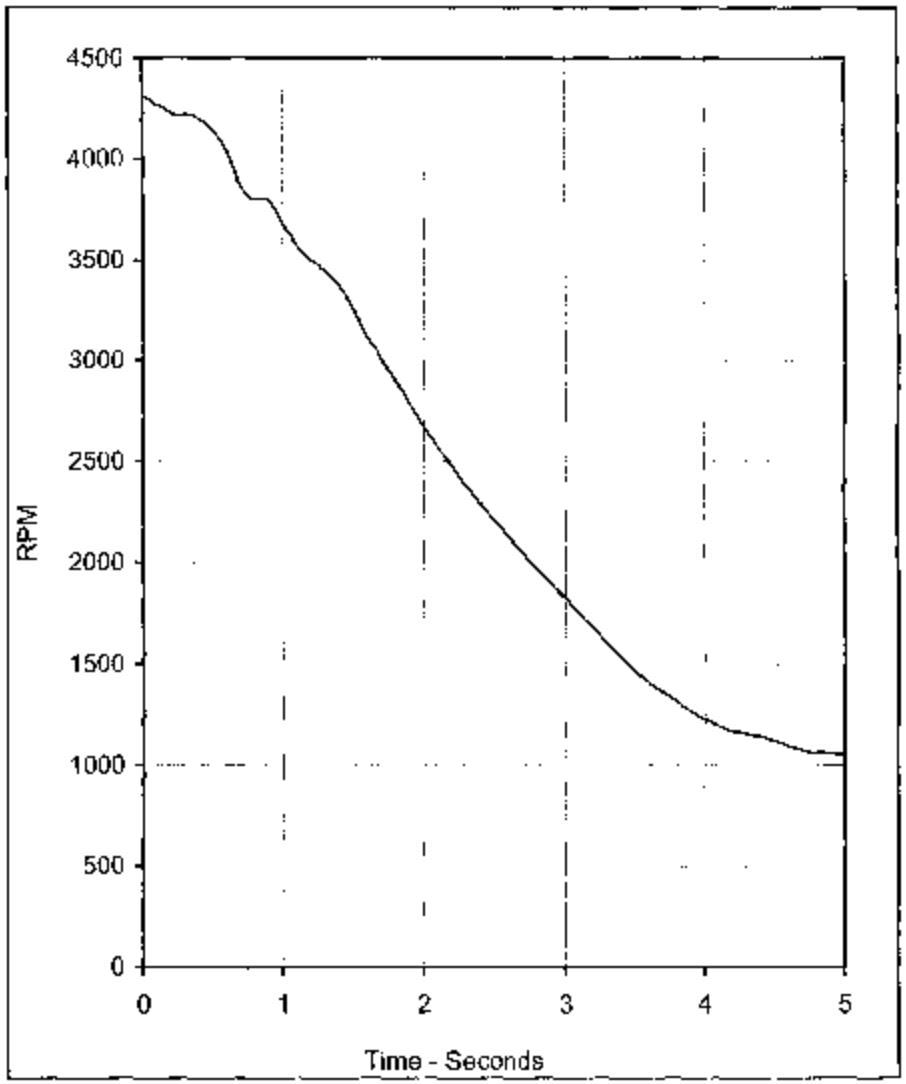
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	75.7	0.0	140.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	4314.5	0.0	1054.4	5.0	5

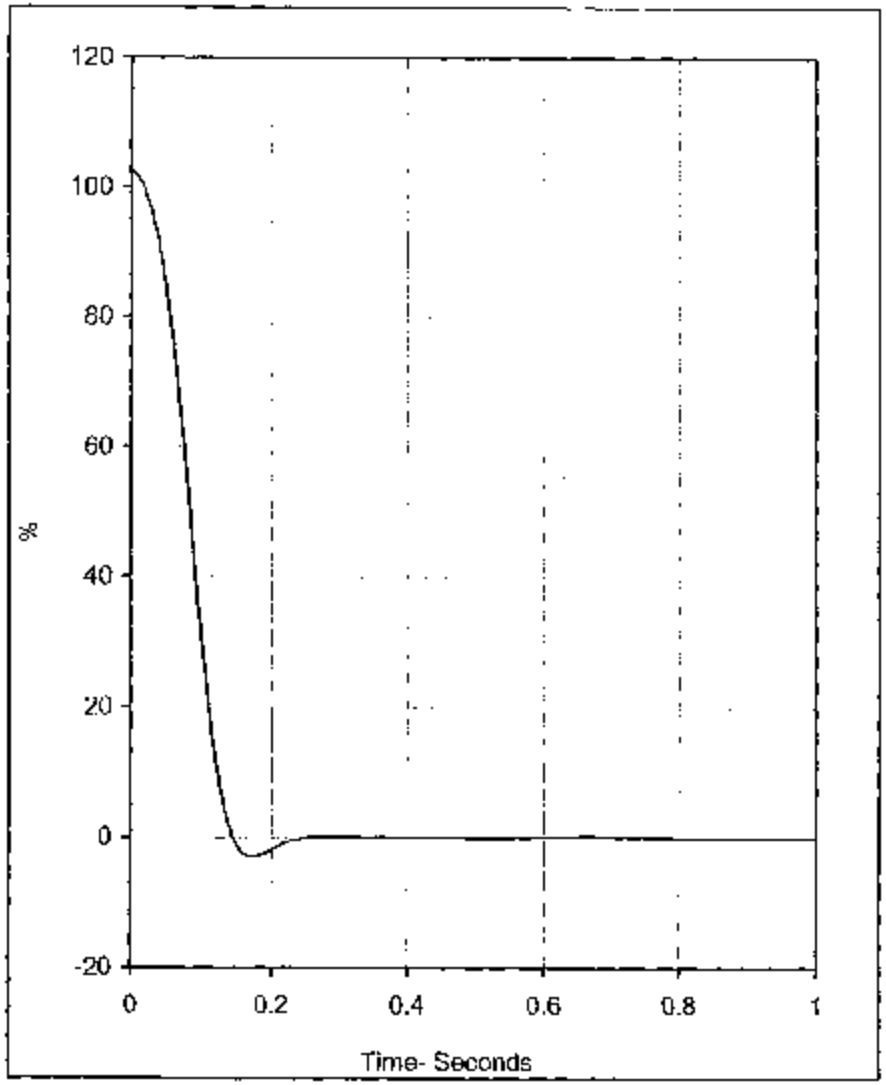
Test Program: FMVSS 124 (Severance Of Throttle Cable)

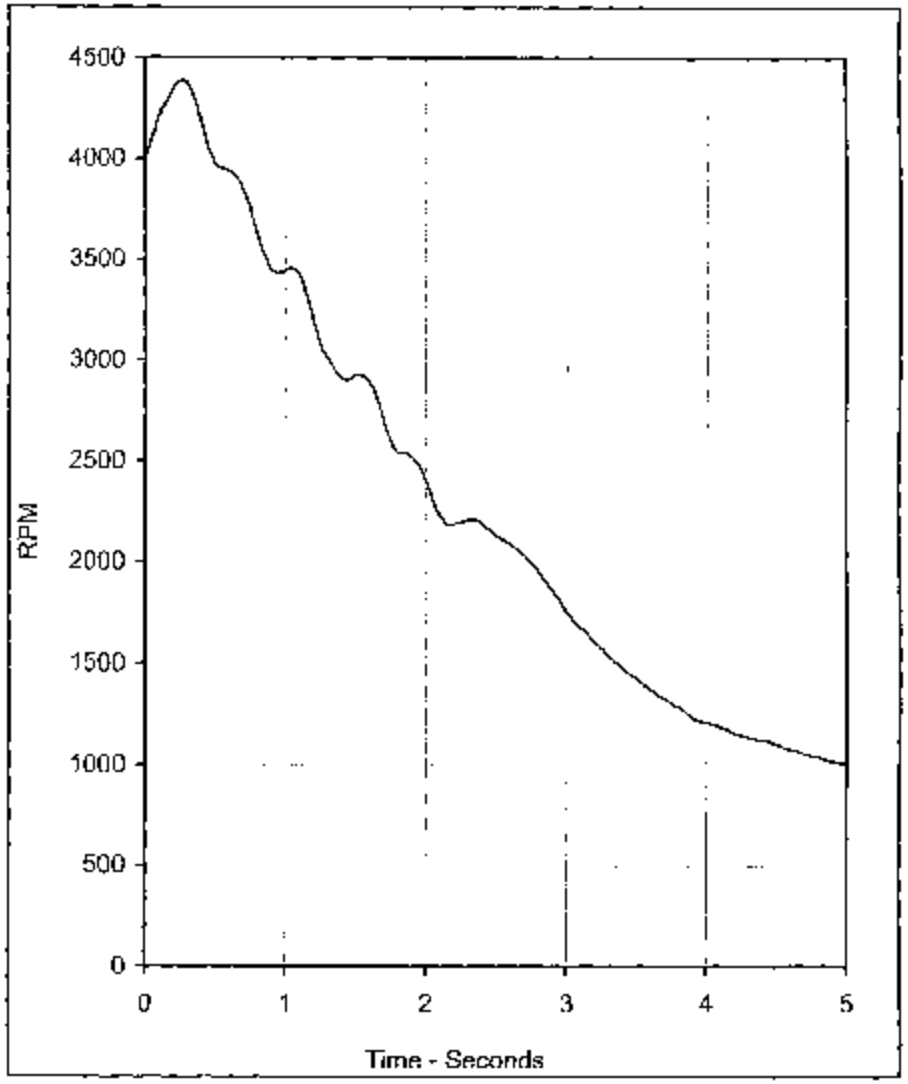
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

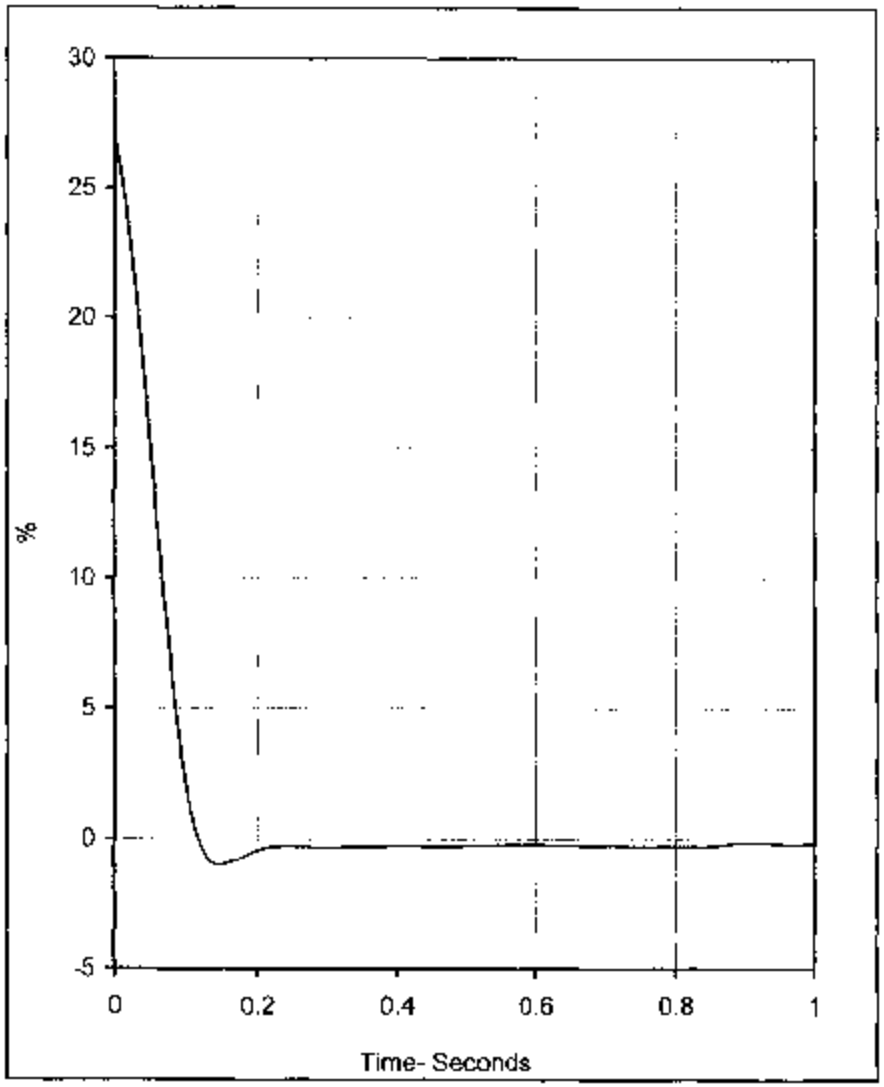
Units	Max	Time	Return Time (msec)	Filter (Hz)
%	102.7	0.0	150.0	5

Curve Description	CURNO	Type
Engine RPM vs. Time	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
RPM	4396.1	0.3	1009.3	5.0	5

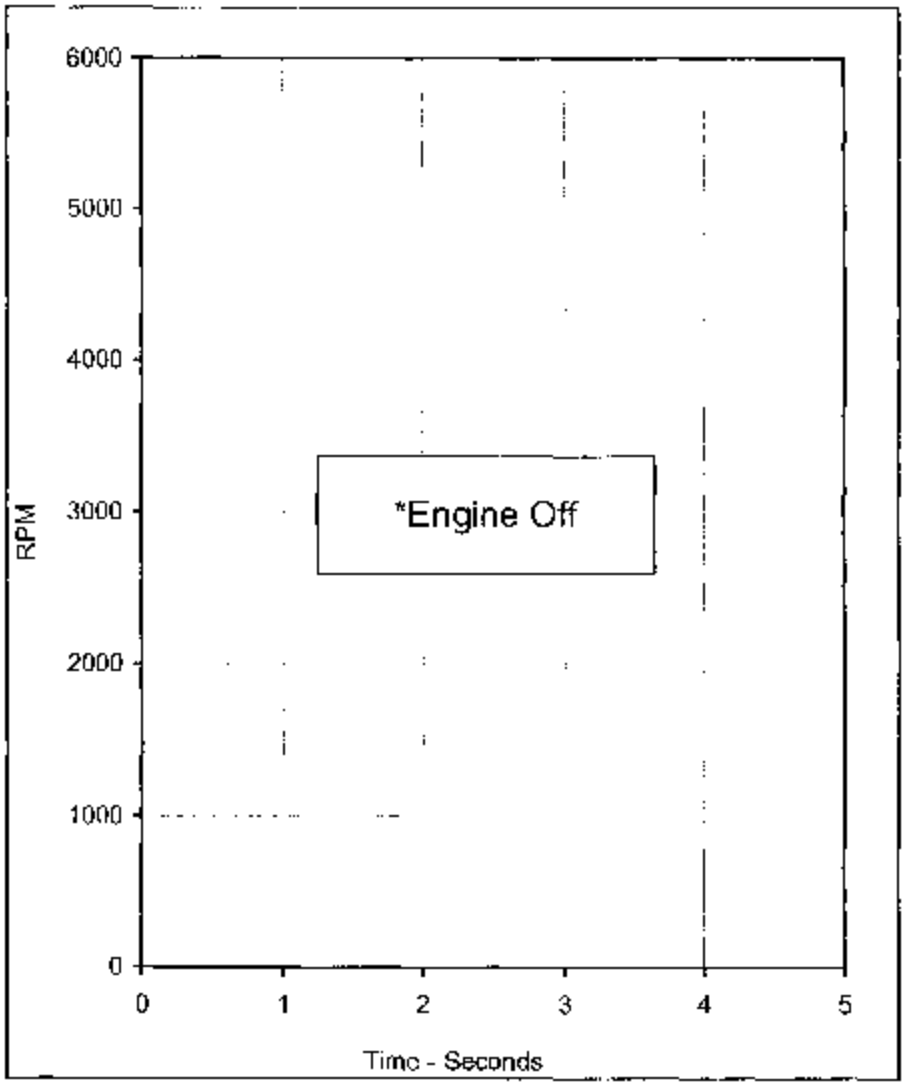
Test Program: FMVSS 124 (Severance Of Throttle Cable)
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03
NHTSA No.: C30204



Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	27.2	0.0	130.0	5



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

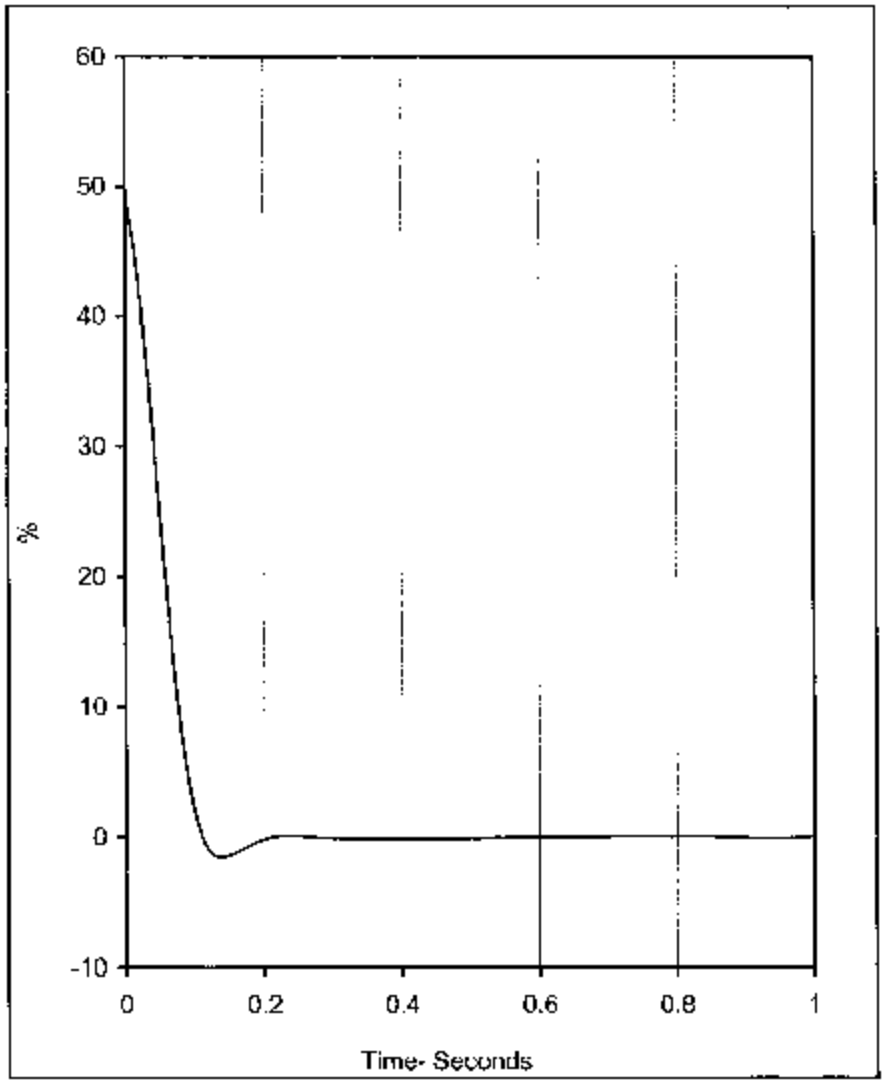
Test Program: FMVSS 124 (Severance Of Throttle Cable)

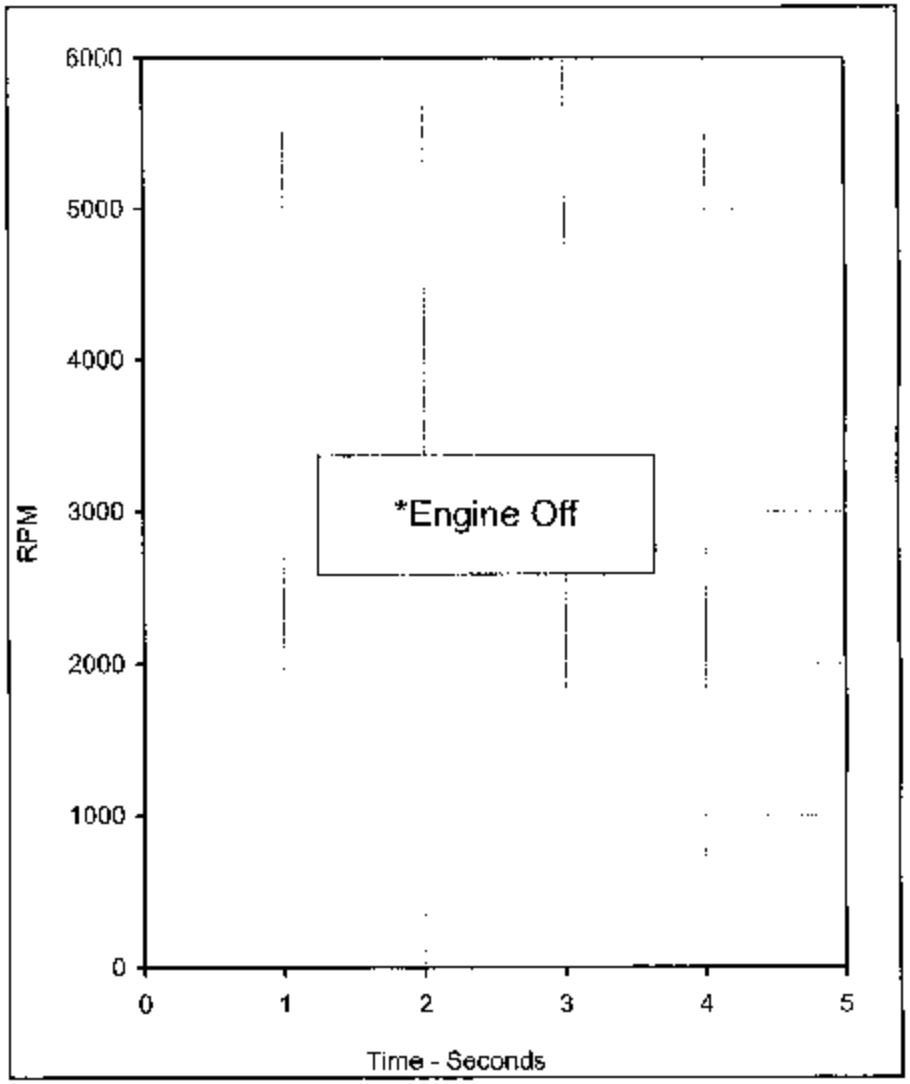
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	49.3	0.0	110.0	5

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

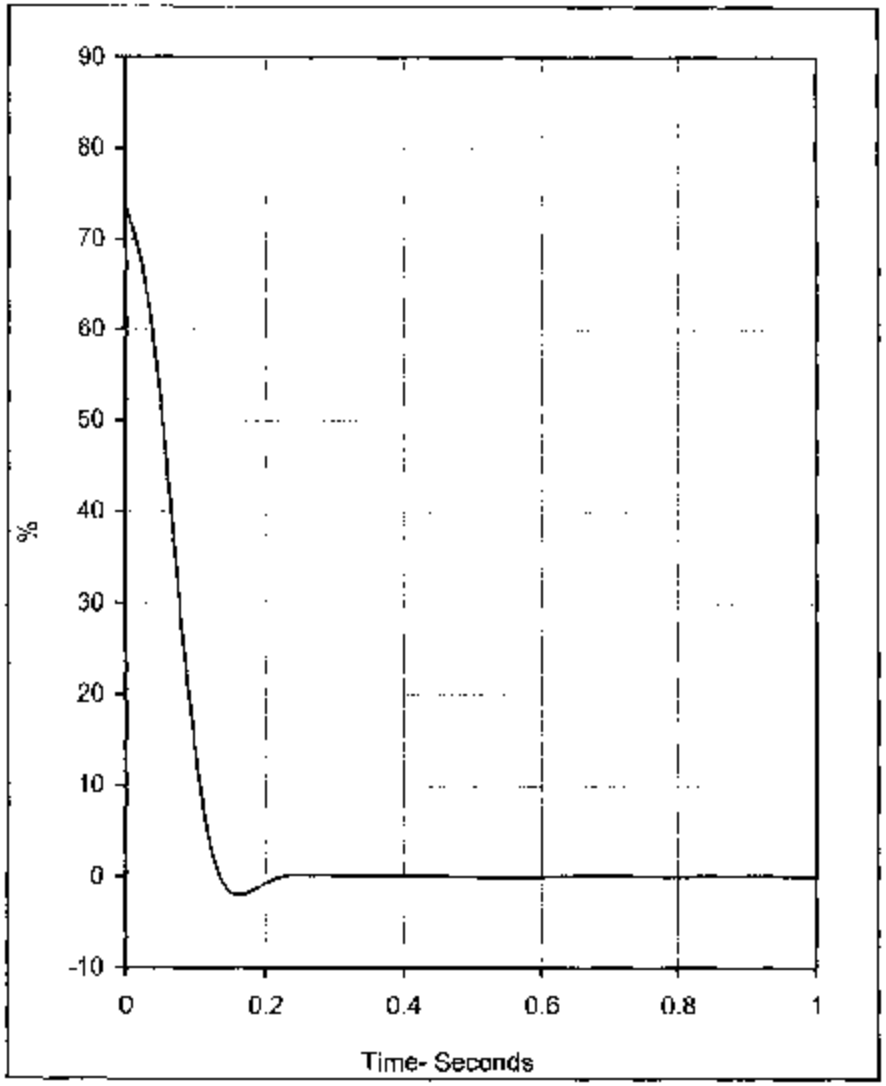
*Engine Off

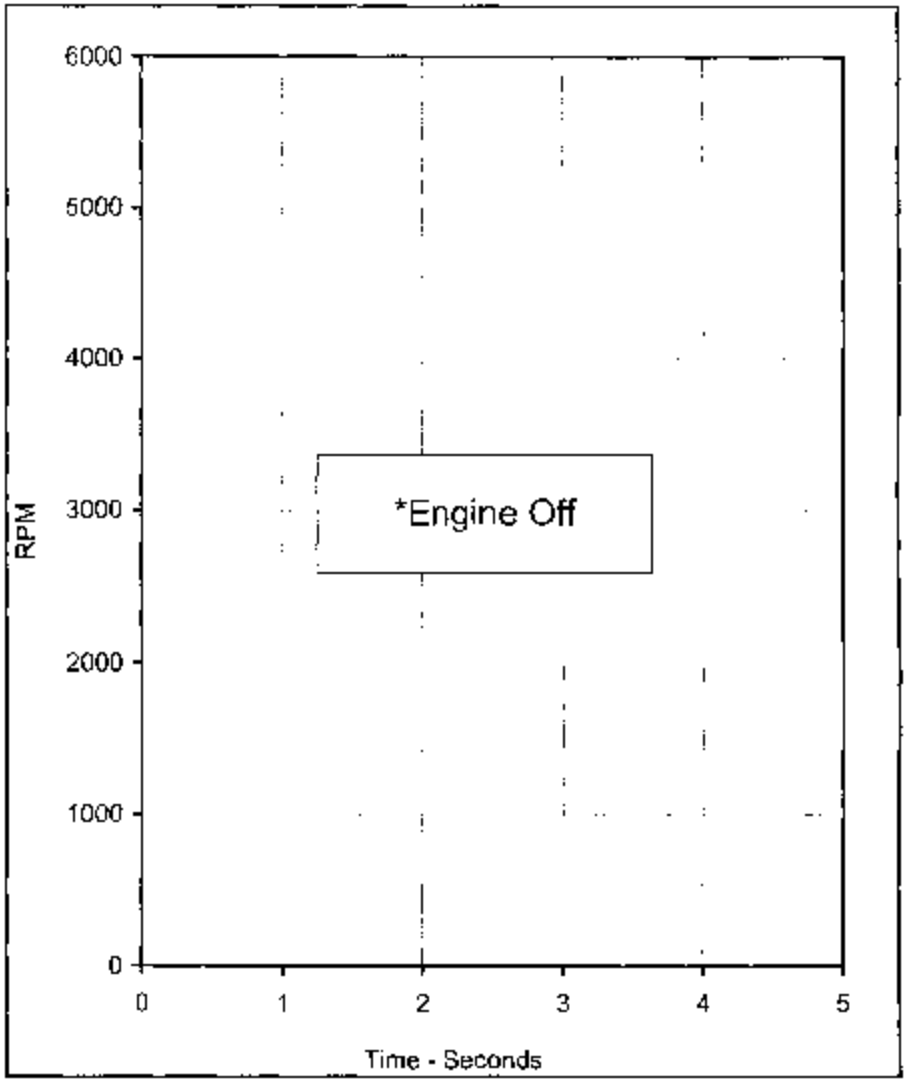
Test Program: FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204





Curve Description	CURNO	Type
Throttle Position vs. Time	001	FIL

Units	Max	Time	Return Time (msec)	Filter (Hz)
%	73.5	0.0	140.0	5

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

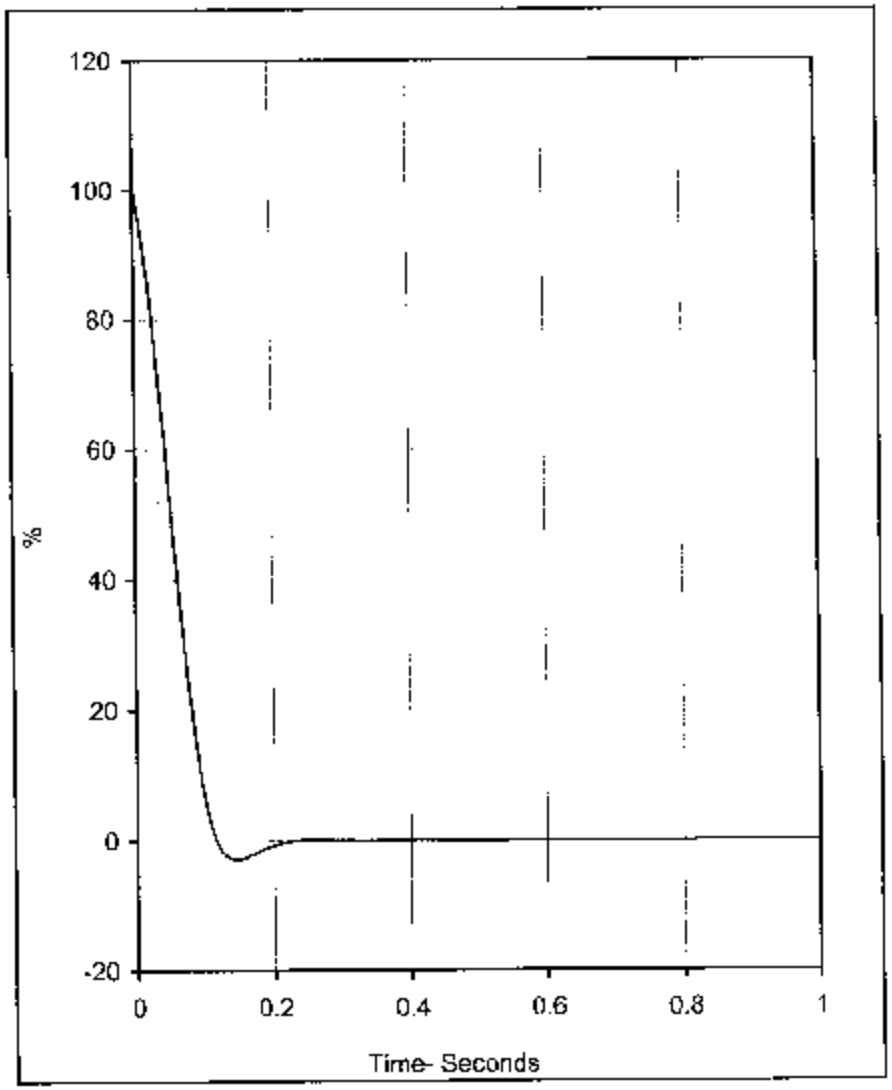
Test Program: FMVSS 124 (Severance Of Throttle Cable)

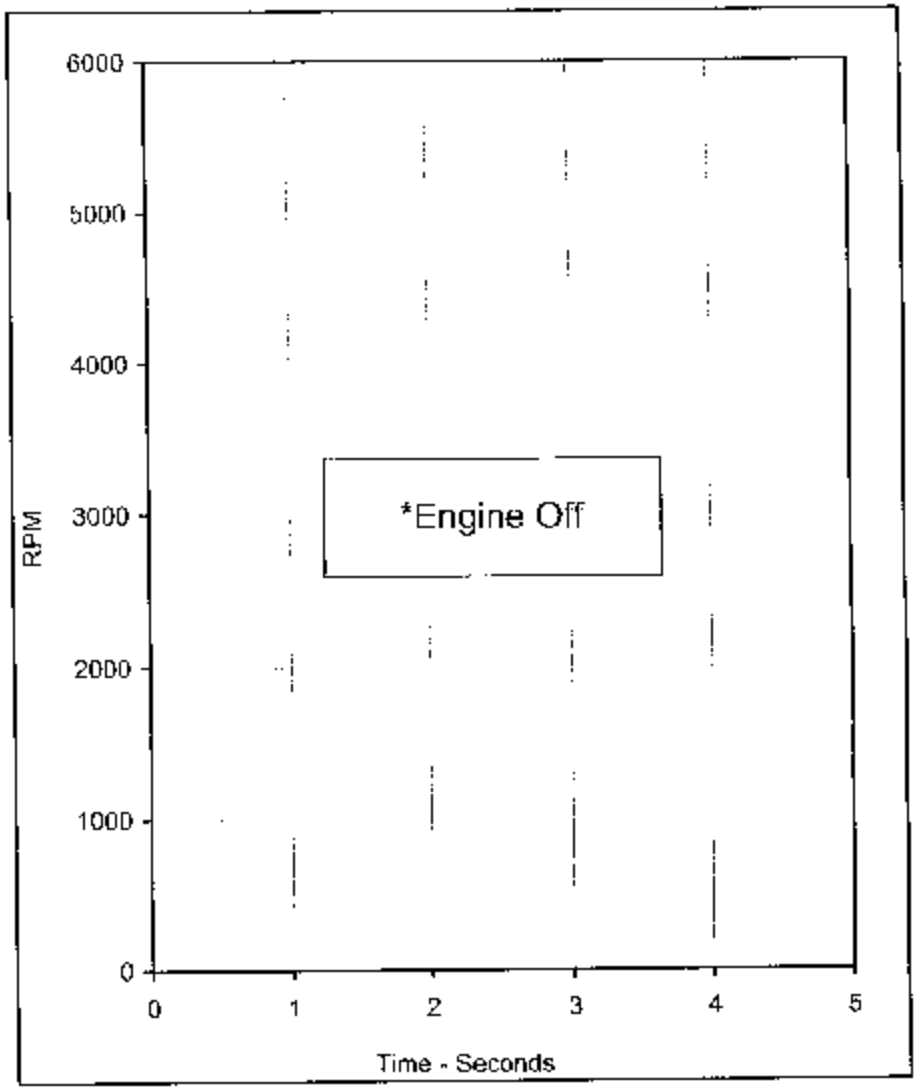
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

KARCO Engineering





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

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 Program: FMVSS 124 (Severance Of Throttle Cable)

Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

Test Date: 7/22/03

NHTSA No.: C30204

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APPENDIX C

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 124 Accelerator Control Systems

Test Equipment List

7/28/03

2003 Chrysler PT Cruiser 4 Door Hatchback

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

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