REPORT NUMBER 124-GTL-10-002

SAFETY COMPLIANCE TESTING FOR FMVSS 124 ACCELERATOR CONTROL SYSTEMS

TOYOTA MOTOR CORPORATION
2010 SCION tC PASSENGER CAR
NHTSA NO. CA5106

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

April 21, 2010

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE., SE
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Approval Date: 04/21/10

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Accepted By:

Acceptance Date: 4/21/10

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16. Abstract Compliance tests were conducted on the subject 2010 Scion tC 2-door passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-124-06 for the determination of FMVSS 124 compliance. Test failures identified were as follows: None		
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SECTION 1
PURPOSE OF COMPLIANCE TEST

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

SECTION 2
TEST PROCEDURES AND DISCUSSION OF RESULTS

Compliance testing was conducted on a 2010 Scion tC Passenger Car, NHTSA No. CA5106 in accordance with the National Highway Traffic Safety Administration (NHTSA) Laboratory Procedure TP-124-06.

Output from the vehicle throttle position sensor on the air throttle plate shaft was used to measure throttle position and data was recorded at 100 HZ with GTL' s data acquisition system. Testing was conducted to simulate the normal removal of the driver's foot from the accelerator pedal. This was performed by depressing the accelerator with a control rod which incorporated an electrical contact strip in the depressing end. The accelerator was depressed to the required amount and then the control rod was quickly removed from the pedal, releasing the accelerator and activating the contact strip for time zero. Failures (excluding spring disconnect) were induced simultaneously with release of the accelerator pedal. Testing was performed with the vehicle in drive and the engine running. Testing could not be conducted in neutral as throttle plate movement in this condition was limited upon accelerator pedal application.

Return to idle times were determined for four throttle plate positions (25%, 50%, 75% and 100%) with the accelerator control system complete and with each of the three return springs in the accelerator pedal assembly independently disconnected and disconnection of the throttle body return spring #4 and #5. With each of the wires to the APS and throttle plate position sensor disconnected and shorted to ground, return to idle times were determined at the worst case condition – wide open throttle (100%).

In addition, tests were conducted with the APS and TPS connectors disconnected.

A number of induced failures resulted in the throttle plate return to or below the idle state then shifting to a Limp-Home mode position which allows the vehicle to be removed from the roadway.

This testing was performed at mid ambient temperature of 10º C to 46º C, in accordance with the NHTSA Test Procedure TP-124-06.

SECTION 3
COMPLIANCE TEST DATA

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

DATA SHEET 1
VEHICLE DESCRIPTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
VEHICLE VIN: JTKDE3B79AD308521
DATE OF TEST: APRIL 13-16, 2010
TEST LAB: GENERAL TESTING LABORATORIES
VEHICLE ENGINE TYPE: GAS GVWR: 1790 KG
VEHICLE ENGINE SIZE: 2.4 L
VEHICLE ACCEL. CONTROL SYSTEM (ACS) (Air or Fuel Throttled): AIR
MAX. BHP ENGINE SPEED: 161 HP
MFR. IDLE RPM: 670 RPM
FUEL METERING DEVICE (Carburetor, fuel injection, etc): FUEL INJECTION

REMARKS:

RECORDED BY: G. FARRAND DATE: 04/13/10

APPROVED BY: D. MESSICK

DATA SHEET 2
NORMAL OPERATION TEST
(fully operational system)

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 13, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

SYSTEM CONDITION: COMPLETE (no modifications) Normal Operation

GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6397	100%	99%	670	188	65	10%-20%	220	P
6398	75%	73%	670	187	65	10%-20%	180	P
6399	50%	54%	670	180	65	10%-20%	60	P
6400	25%	26%	670	184	65	10%-20%	40	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS:

RECORDED BY: G. FARRAND DATE: 04/13/10

APPROVED BY: D. MESSICK

DATA SHEET 3 (1 of 4)
FAIL-SAFE OPERATION
DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 13, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

SYSTEM CONDITION: #1 SPRING DISCONNECTED (OUTER SPRING) ON ACCELERATOR PEDAL ASSEMBLY

GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6401	100%	96%	670	180	62	16%-20%	170	P
6402	75%	74%	670	181	62	16%-20%	210	P
6403	50%	54%	670	182	62	16%-20%	100	P
6404	25%	29%	670	182	62	16%-20%	60	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS:

RECORDED BY: G. FARRAND DATE: 04/13/10

APPROVED BY: D. MESSICK

DATA SHEET 3 (2 of 4)
FAIL-SAFE OPERATION
DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 14, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

SYSTEM CONDITION: #2 SPRING DISCONNECTED (INNER SPRING) ON ACCELERATOR PEDAL ASSEMBLY

GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6408	100%	99%	670	185	66	16%-20%	220	P
6409	75%	74%	670	184	66	16%-20%	170	P
6410	50%	52%	670	184	66	16%-20%	190	P
6411	25%	25%	670	186	66	16%-20%	140	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS:

RECORDED BY: G. FARRAND DATE: 04/14/10

APPROVED BY: D. MESSICK

DATA SHEET 3 (3 of 4)
FAIL-SAFE OPERATION
DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 15, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

SYSTEM CONDITION: #3 SPRING DISCONNECTED (ACCELERATOR) ON APS

GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6412	100%	99%	670	182	66	16%-20%	220	P
6413	75%	77%	670	182	66	16%-20%	190	P
6414	50%	52%	670	185	66	16%-20%	350	P
6415	25%	26%	670	184	66	16%-20%	60	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS:

RECORDED BY: G. FARRAND DATE: 04/15/10

APPROVED BY: D. MESSICK

DATA SHEET 3 (4 of 4)
FAIL-SAFE OPERATION
DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 16, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

SYSTEM CONDITION: #4 & #5 SPRINGS DISCONNECTED ON TPS

GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6442	100%	98%	670	182	75	16%-20%	250	P
6443	75%	74%	670	182	75	16%-20%	190	P
6444	50%	52%	670	185	75	16%-20%	250	P
6445	25%	27%	670	184	75	16%-20%	80	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS: Throttle body was constructed so that both springs had to be disabled at the same time. The throttle body is constructed as a non-severance item and cutting was required to remove the springs.

RECORDED BY: G. FARRAND DATE: 04/16/10

APPROVED BY: D. MESSICK

DATA SHEET 4
FAIL-SAFE OPERATION
DISCONNECTION

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 15, 2010

Check one:

Mid Temp. Test: X Low Temp. Test: High Temp. Test:

	SYSTEM CONDITION: SEVERANCE OF APS CONNECTOR							
GTL #	ACCELERATOR POSITION % WIDE OPEN THROTTLE (WOT)	THROTTLE POSITION SENSOR READING	RPM	TEMPERATURE (ºC)		THROTTLE POSITION SENSOR READING @ IDLE (BASELINE)	RETURN TIME TO IDLE (Msec)	PASS/ FAIL
				ENGINE COOLANT	AMBIENT			
6416	100%	100%	670	181	67	16%-20%	20*	P

RETURN TIME REQUIREMENTS:

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

PASS X FAIL

REMARKS: *Engine stopped running when connector was removed.

RECORDED BY: G. FARRAND DATE: 04/15/10

APPROVED BY: D. MESSICK

DATA SHEET 5
FMVSS 124

VEHICLE MY/MAKE/MODEL/BODY STYLE: 2010 SCION tC PASSENGER CAR
VEHICLE NHTSA NO.: CA5106
DATE OF TEST: APRIL 15, 2010

GTL #	CONNECTOR	WIRE/PIN DESCRIPTION	FAULT CONDITION	ENGINE TEMP. ºC	% THROTTLE/ RETURN TIME (MS)	PASS/FAIL/NOTES
6417	APS	#1/Red	OPEN	182	100/220	P
6418	APS	#2/Black	OPEN	183	100/220	P
6419	APS	#3/Green	OPEN	185	100/200	P
6420	APS	#4/White	OPEN	190	100/230	P
6421	APS	#5/Brown	OPEN	188	100/210	P
6422	APS	#6/Blue	OPEN	190	100/210	P
6423	APS	#1/Red	SHORT	190	100/230	P
6424	APS	#2/Black	SHORT	190	100/60	P
6425	APS	#3/Green	SHORT	191	100/220*	P
6426	APS	#4/White	SHORT	190	100/210	P
6427	APS	#5/Brown	SHORT	188	100/200	P
6428	APS	#6/Blue	SHORT	188	100/10*	P
6429	TPS	#1/Red	OPEN	181	100/20**	P
6430	TPS	#2/Black	OPEN	180	100/150**	P
6431	TPS	#3/Dark Green	OPEN	181	100/20**	P
6432	TPS	#4/White	OPEN	183	100/230**	P
6433	TPS	#5/Brown	OPEN	180	100/90**	P
6434	TPS	#6/Blue	OPEN	180	100/120**	P
6435	TPS	#1/Red	SHORT	180	100/450	P
6436	TPS	#2/Black	SHORT	183	100/390**	P
6437	TPS	#3/Green	SHORT	184	100/10*	P
6438	TPS	#4/White	SHORT	184	100/210**	P
6439	TPS	#5/Brown	SHORT	183	100/10**	P
6440	TPS	#6/Blue	SHORT	185	100/140**	P
6441	TPS	Pins 1-6	Severance	186	100/390*	P

*Engine stopped running.
**Limp Home Mode at 1180 RPM.

REMARKS: Control of Throttle Plate Motor is through TPS connector.

RECORDED BY: G. FARRAND DATE: 04/15/10

APPROVED BY: D. MESSICK

SECTION 4
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
THERMOCOUPLES	OMEGA	43P136P	08/09	08/10
ENGINE RECORDING	GTL COMPUTER	CPU1	BEFORE USE	BEFORE USE
TACHOMETER	MONARCH	1444664	05/09	05/10

SECTION 5
PHOTOGRAPHS

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.1
FRONT VIEW OF VEHICLE

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

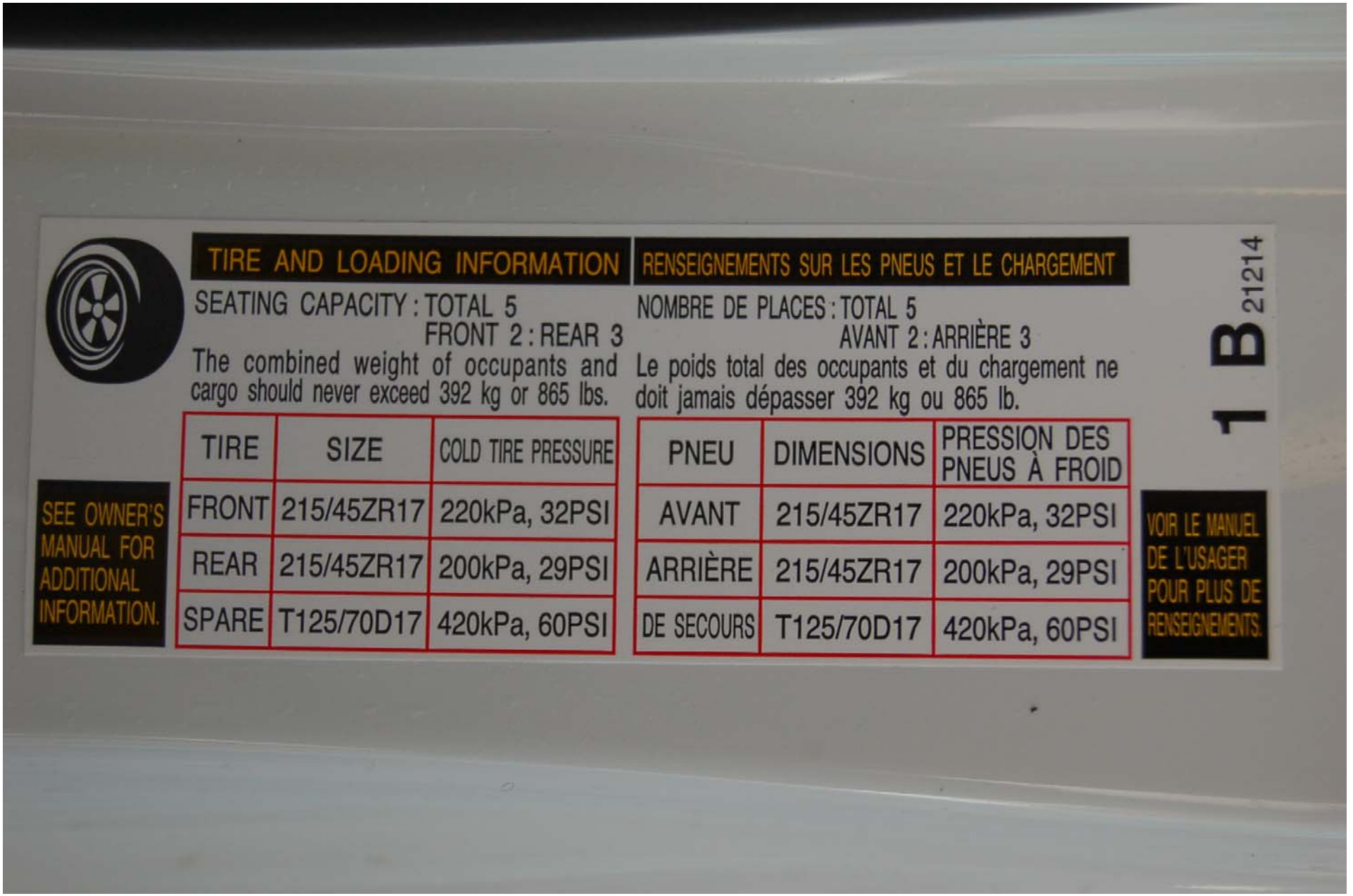
FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.4
CLOSE-UP VIEW OF VEHICLE CERTIFICATION LABEL



2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.5
CLOSE-UP VIEW OF VEHICLE PLACARD

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.6
ACCELERATOR PEDAL ASSEMBLY

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.7
CLOSE-UP OF SPRINGS 1 & 2

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.8
CLOSE-UP OF SPRING 3

2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

FIGURE 5.9
TEST SET-UP

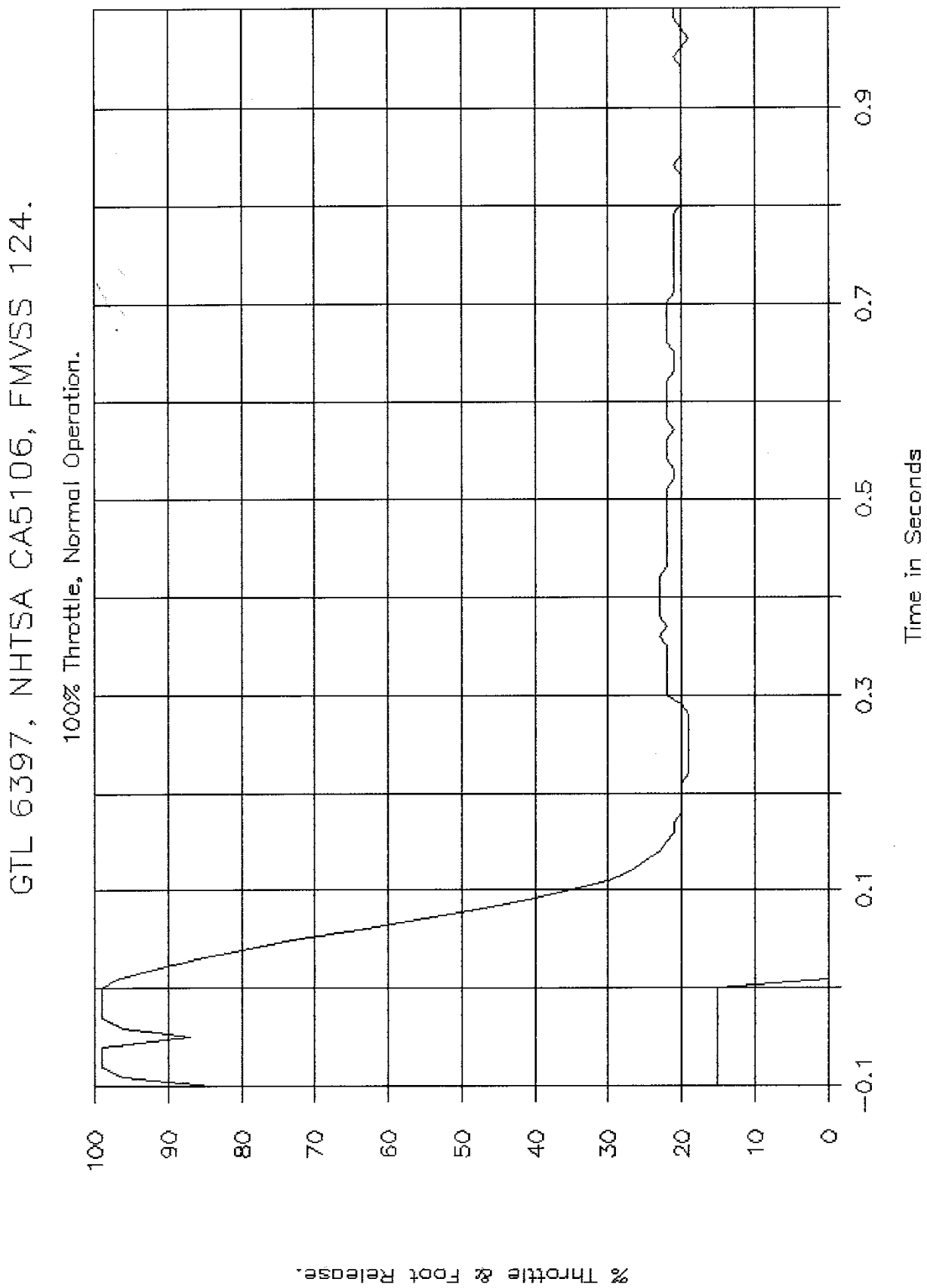
2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

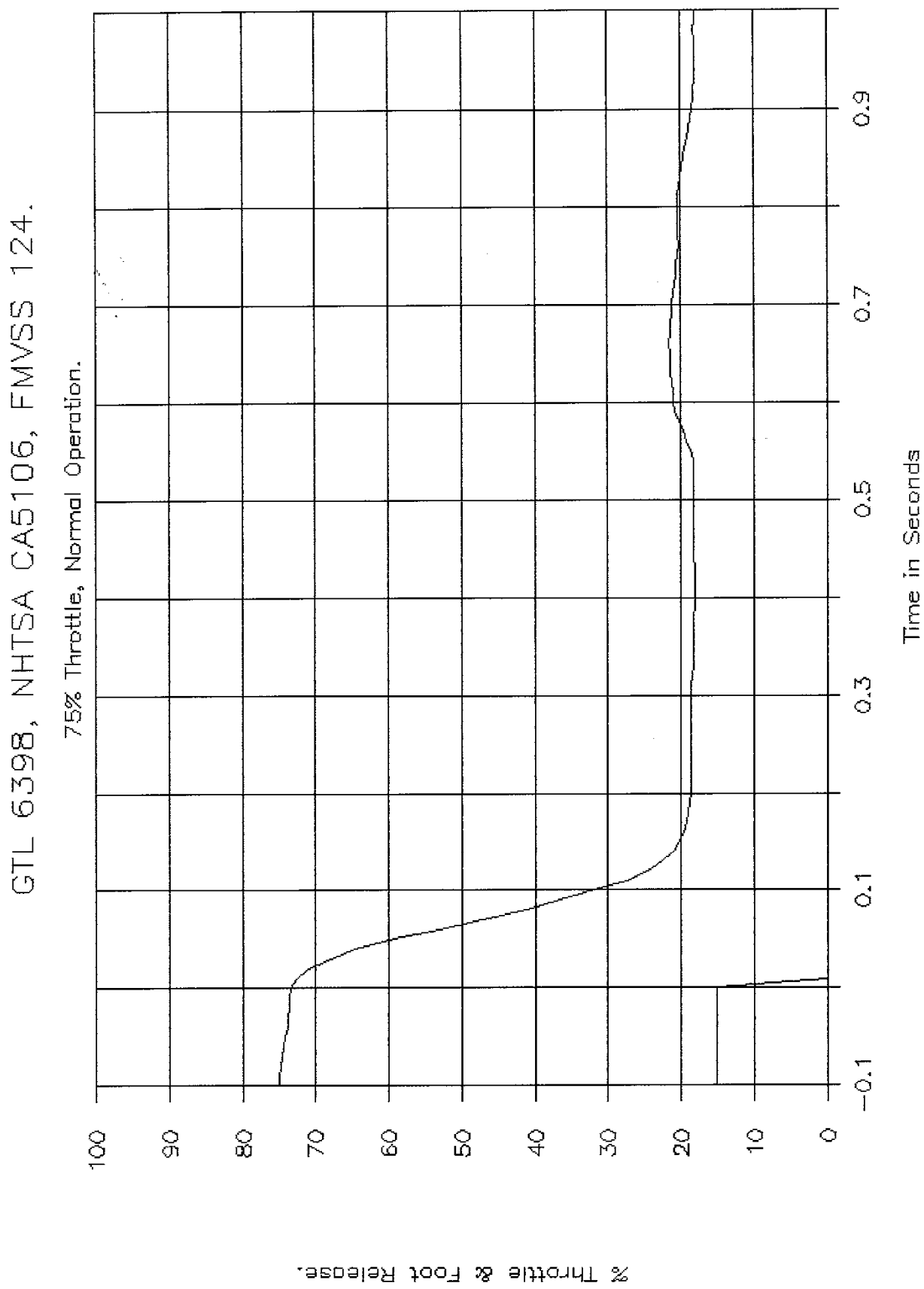
FIGURE 5.10
TEST SET-UP AT THROTTLE BODY

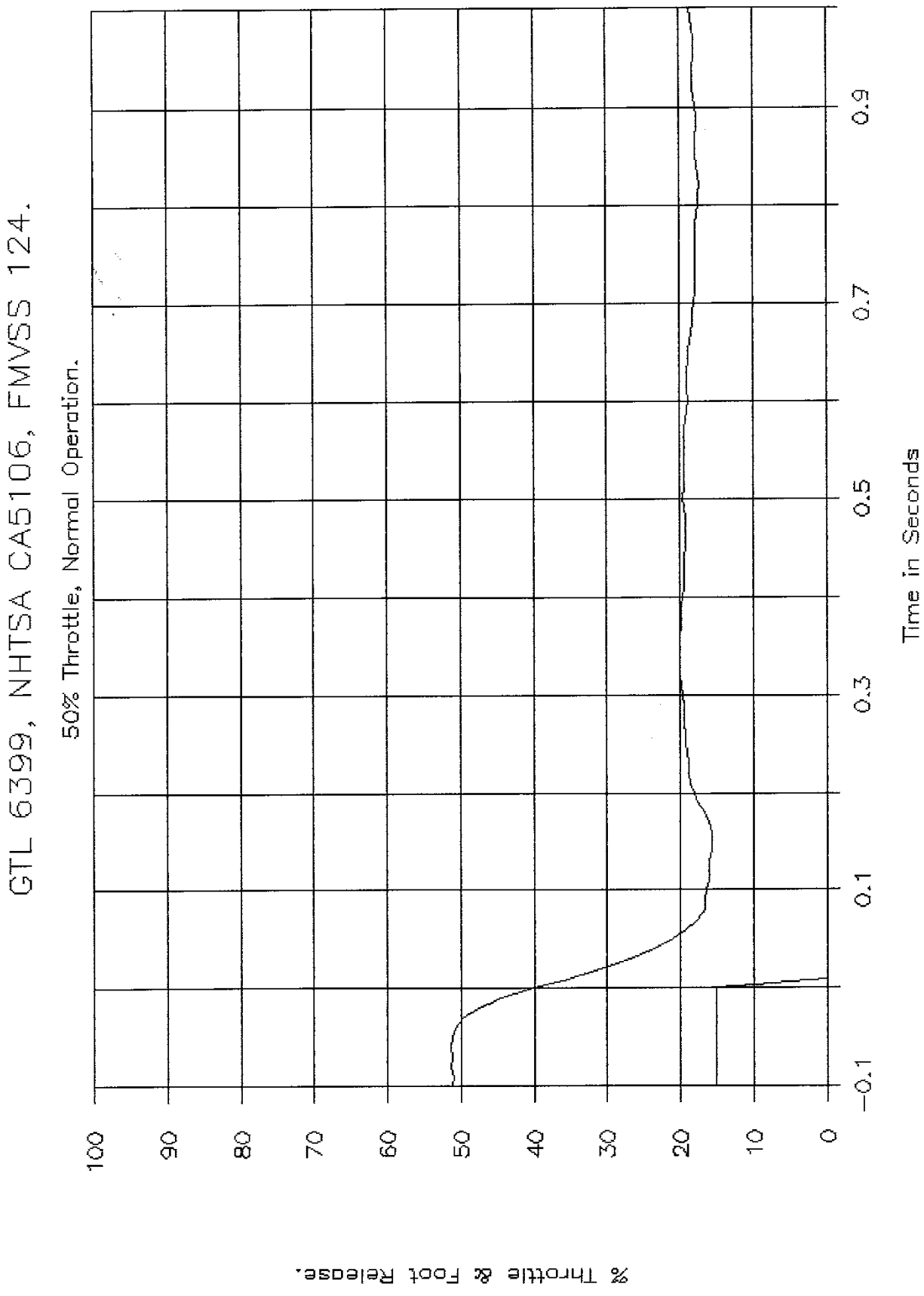
2010 SCION tC
NHTSA NO. CA5106
FMVSS NO. 124

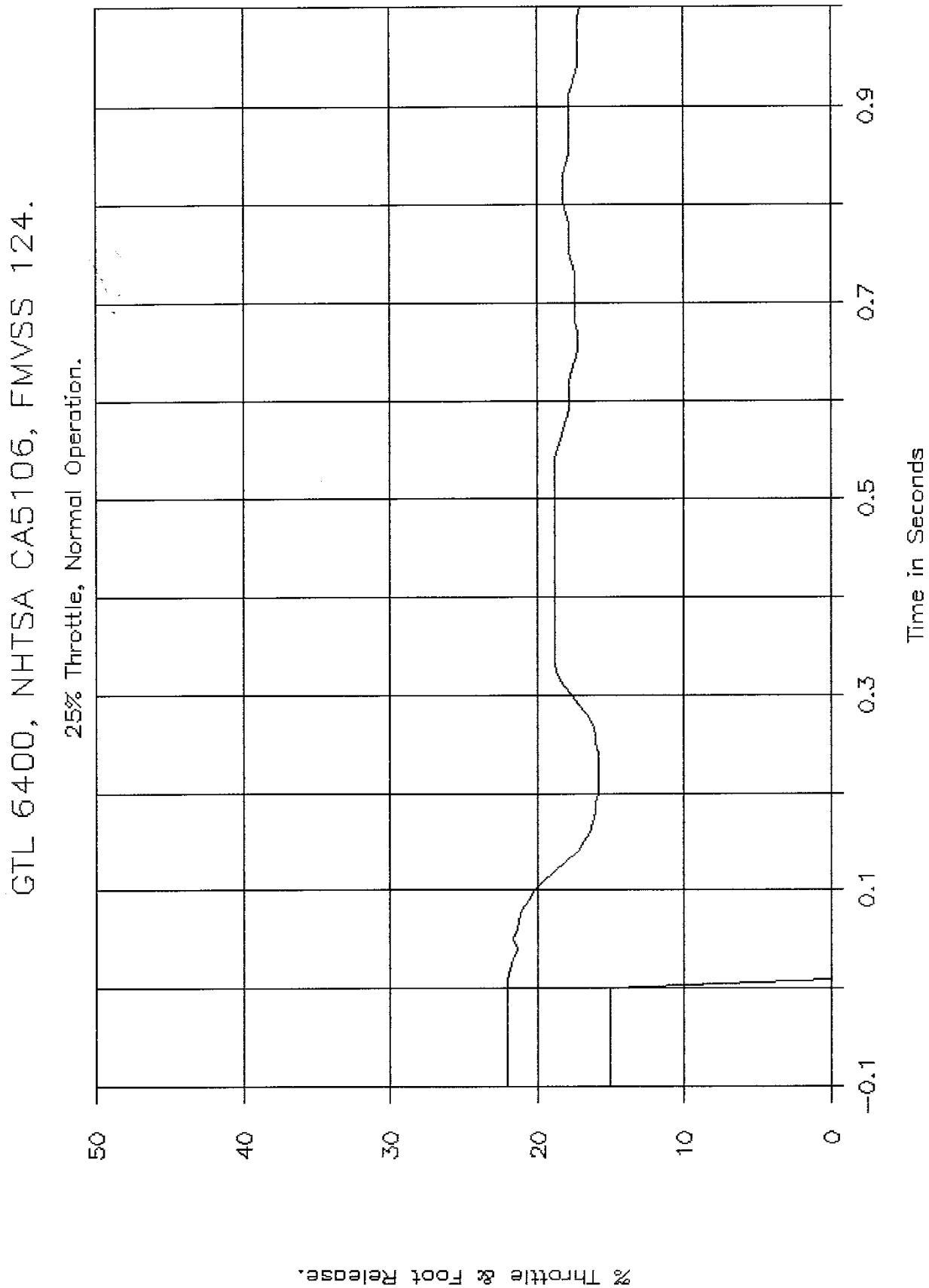
FIGURE 5.11
THROTTLE POSITION SENSOR WITH SPRINGS 4 & 5

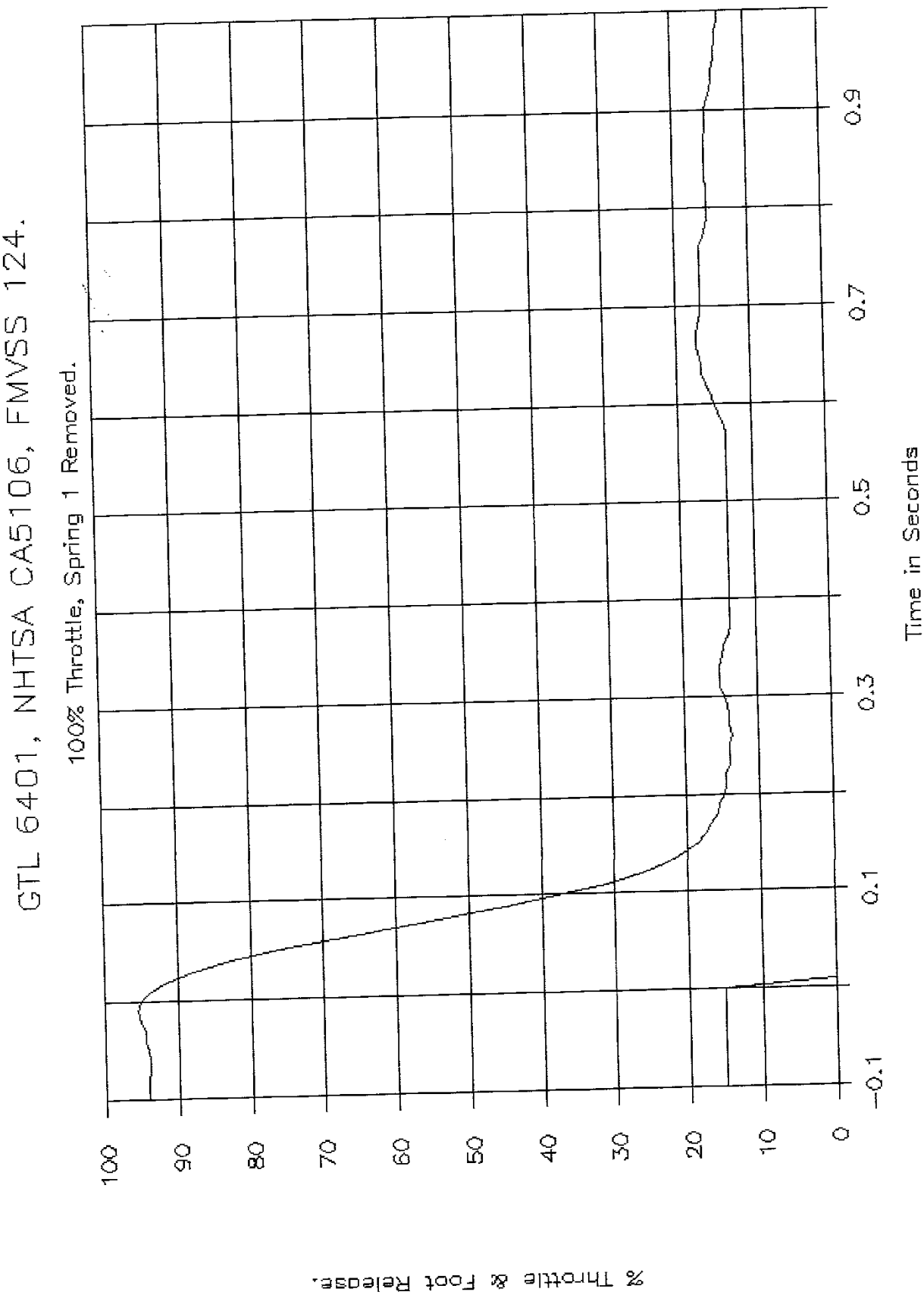
SECTION 6
PLOTS

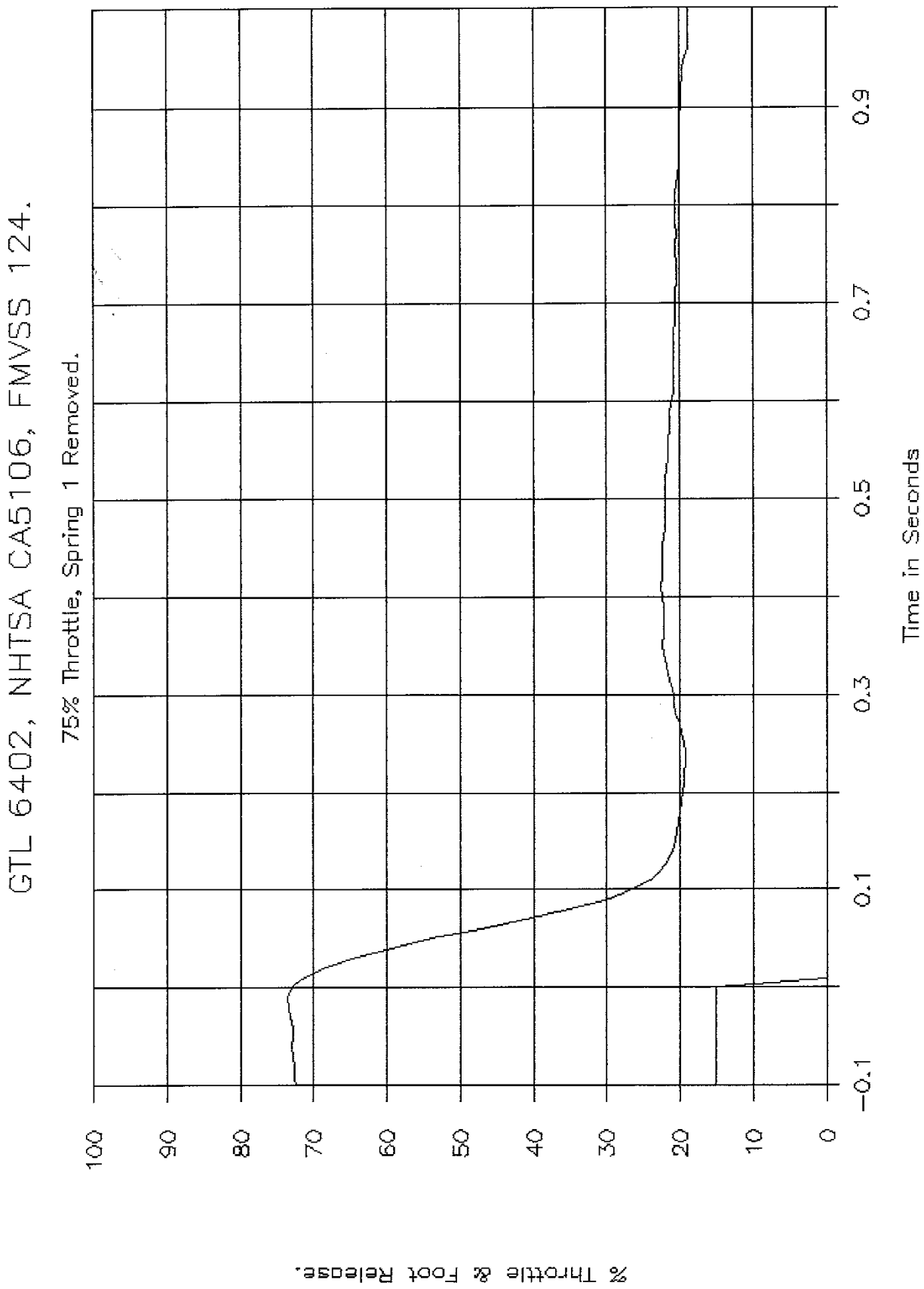

GTL 6397, NHTSA CA5106, FMVSS 124.
100% Throttle, Normal Operation.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

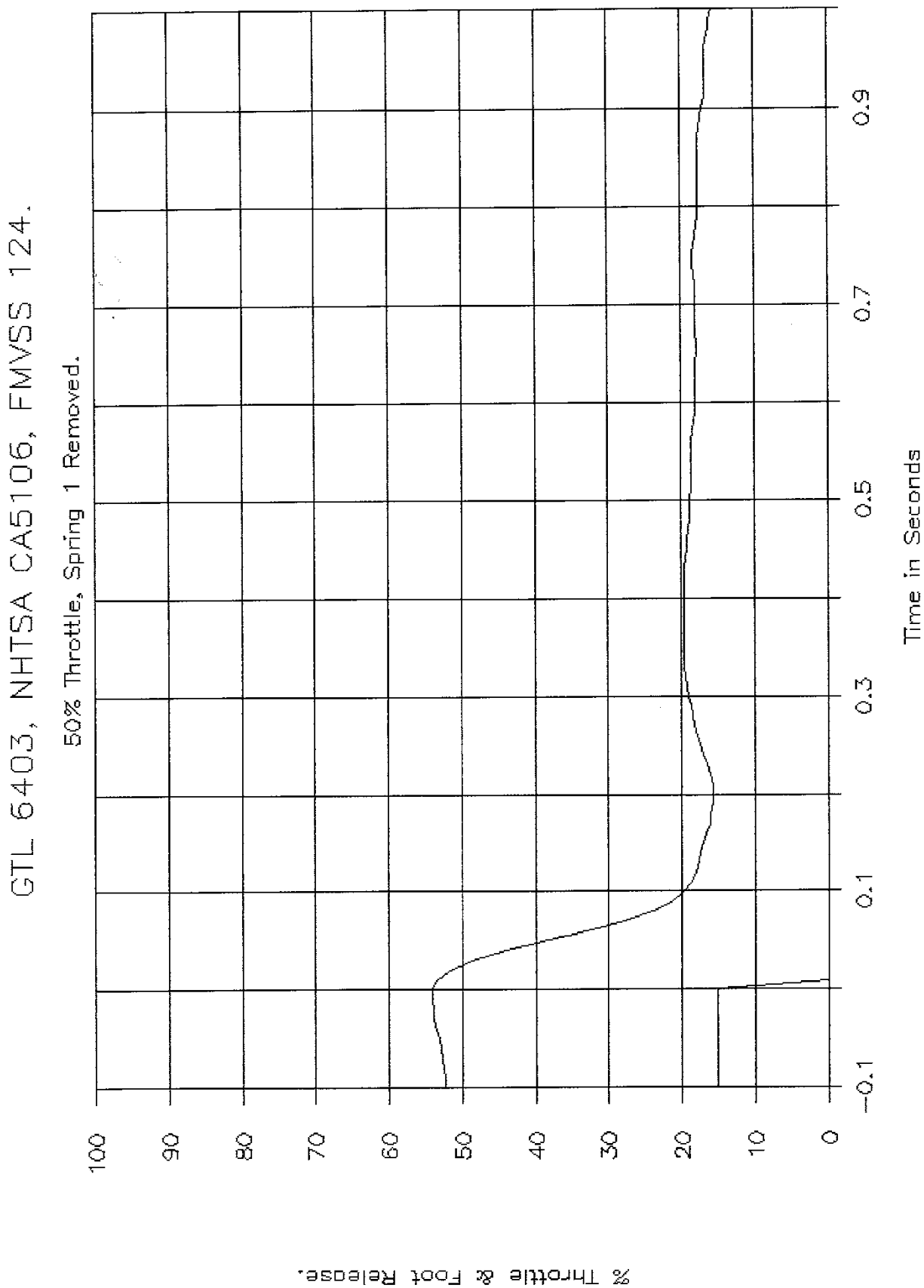

GTL 6398, NHTSA CA5106, FMVSS 124.
75% Throttle, Normal Operation.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

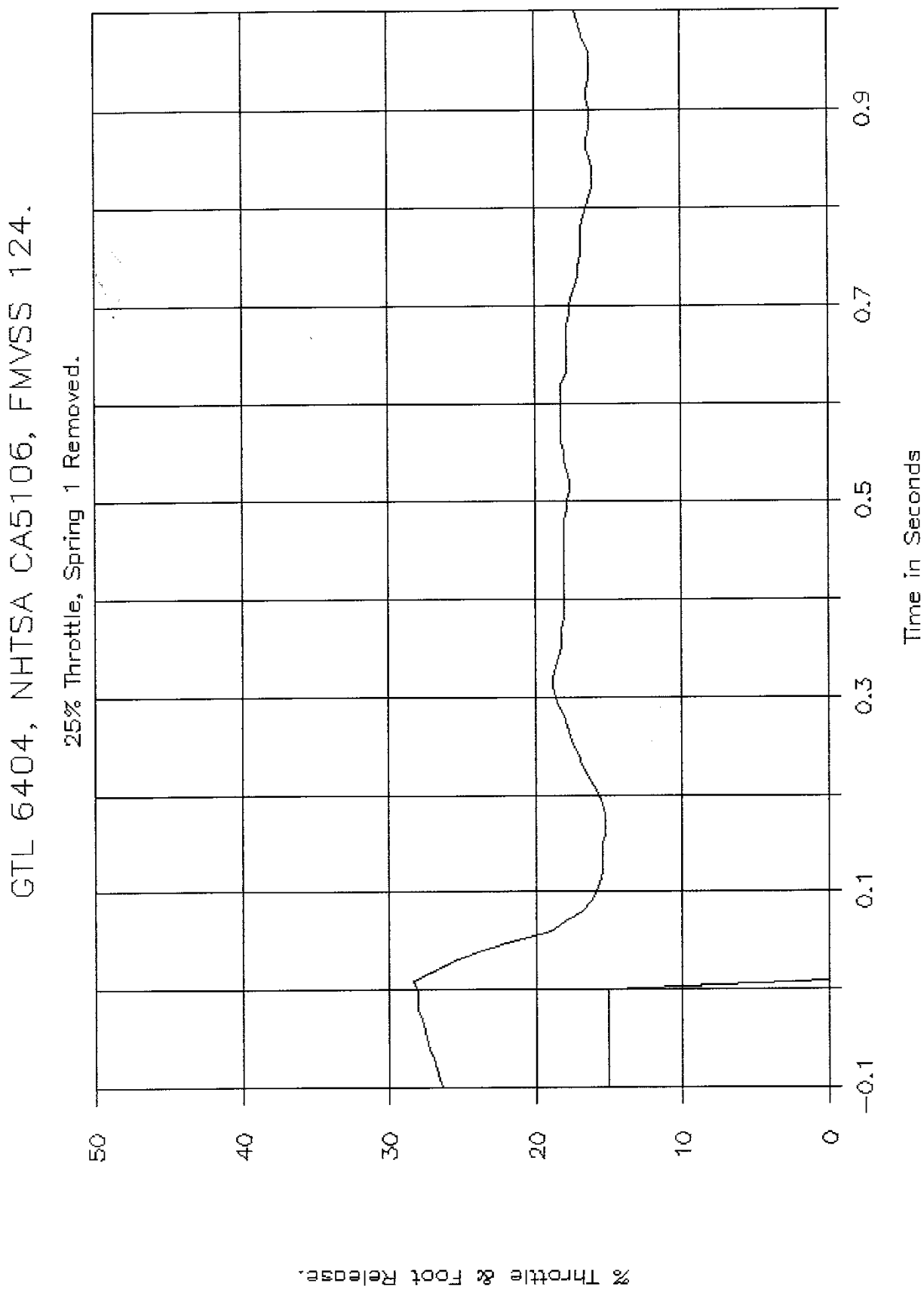

GTL 6399, NHTSA CA5106, FMVSS 124.
50% Throttle, Normal Operation.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

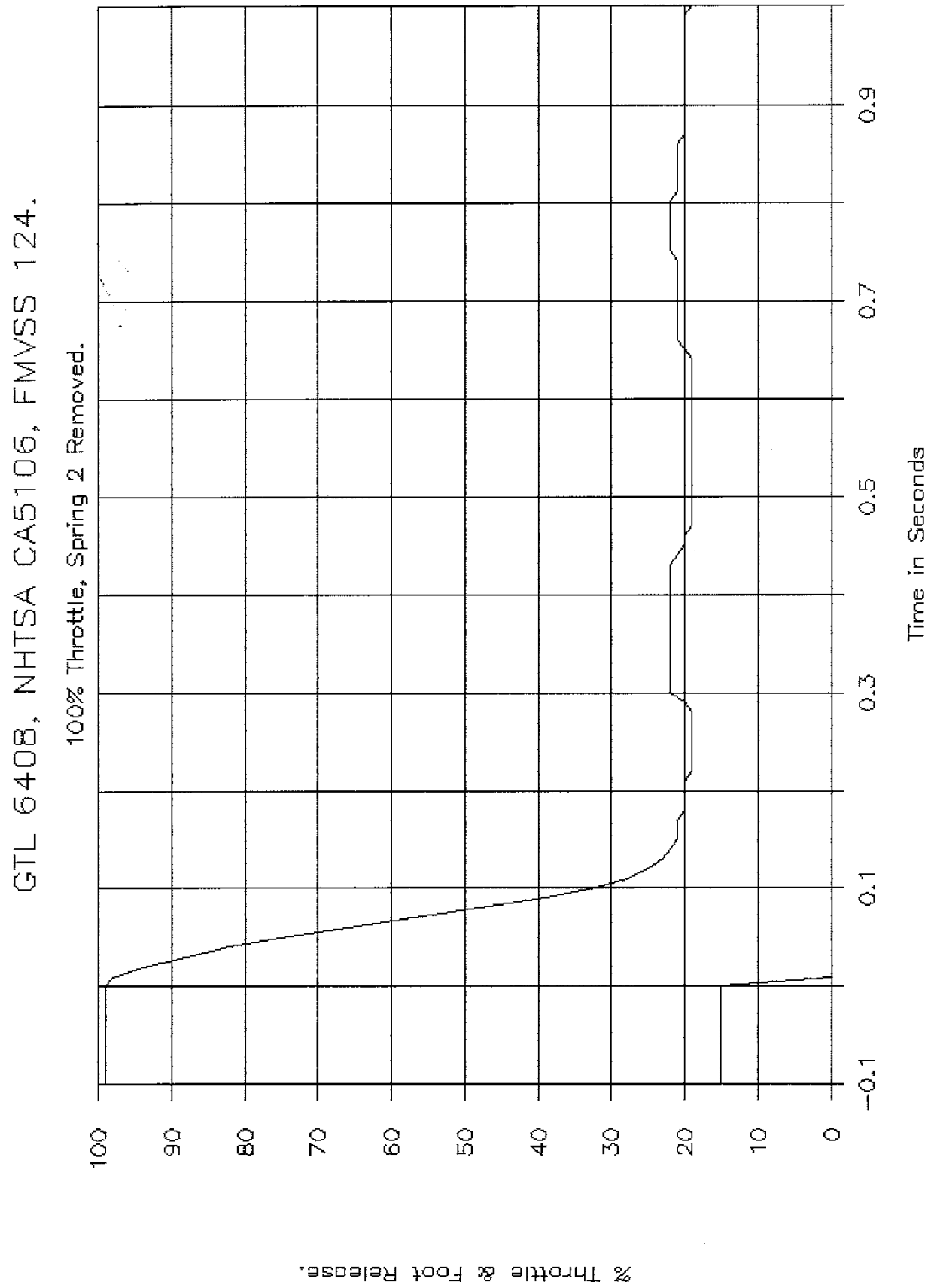

GTL 6400, NHTSA CA5106, FMVSS 124.
25% Throttle, Normal Operation.
% Throttle & Foot Release.
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

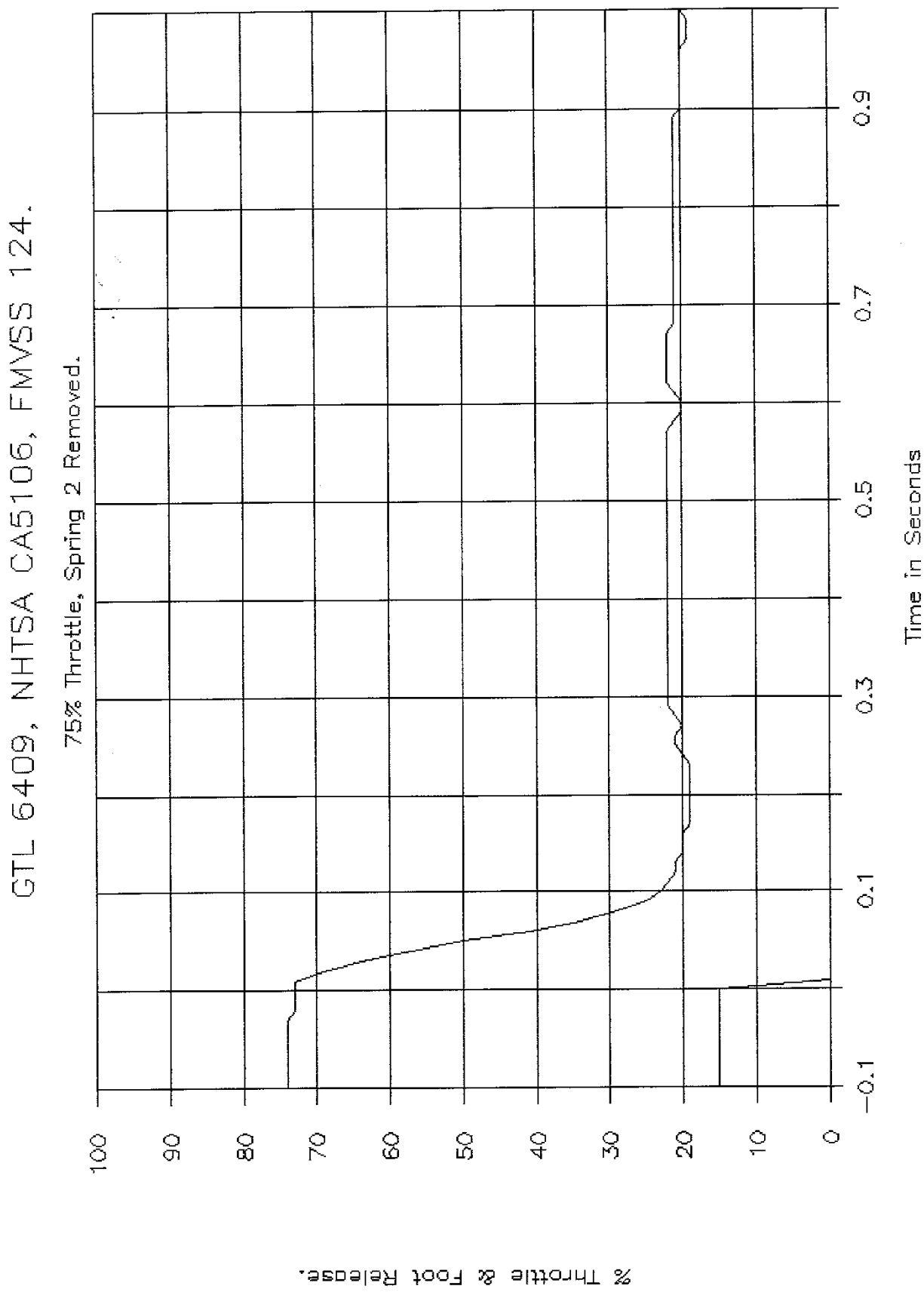

GTL 6401, NHTSA CA5106, FMVSS 124.
100% Throttle, Spring 1 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

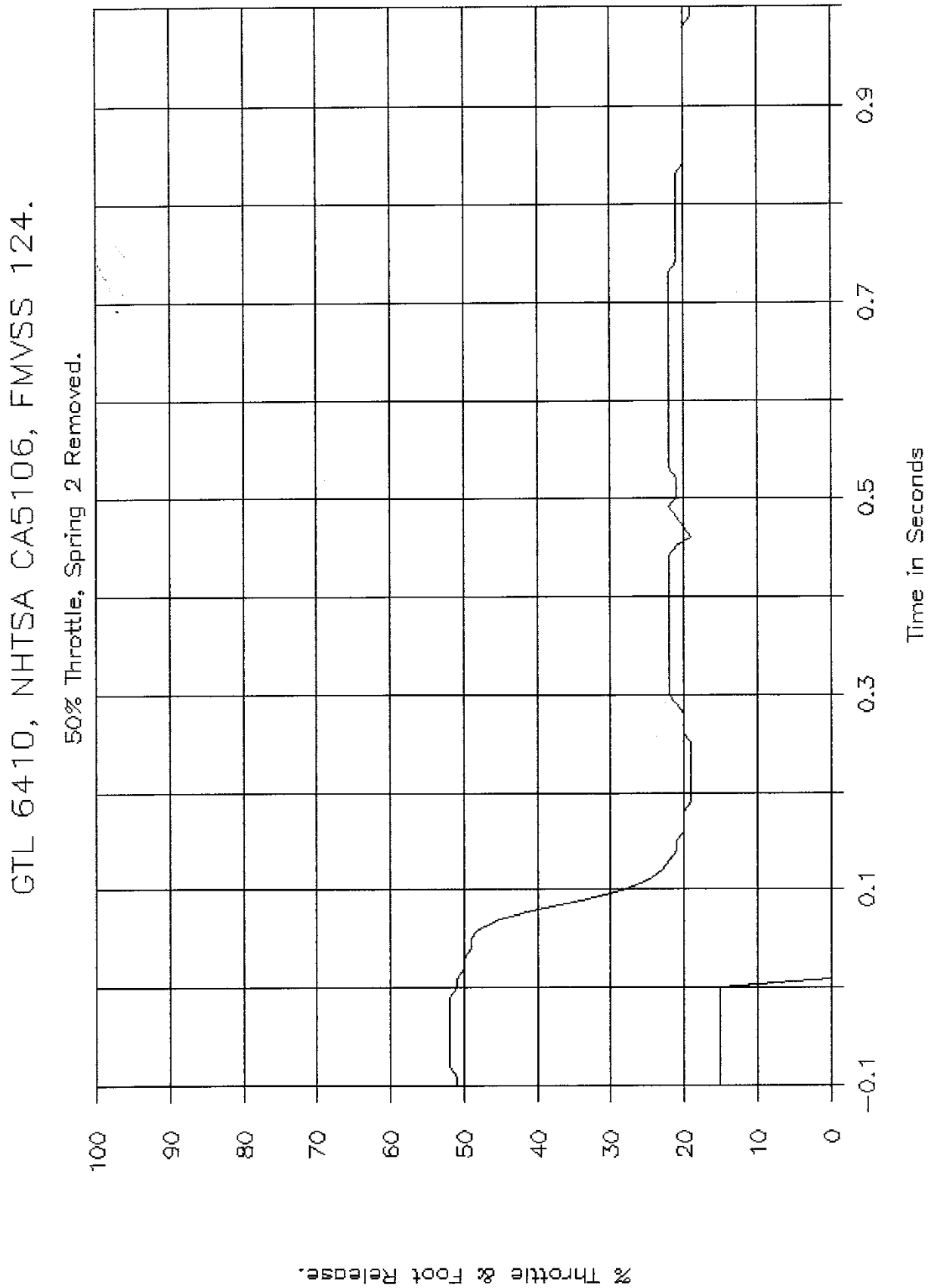

GTL 6402, NHTSA CA5106, FMVSS 124.
75% Throttle, Spring 1 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

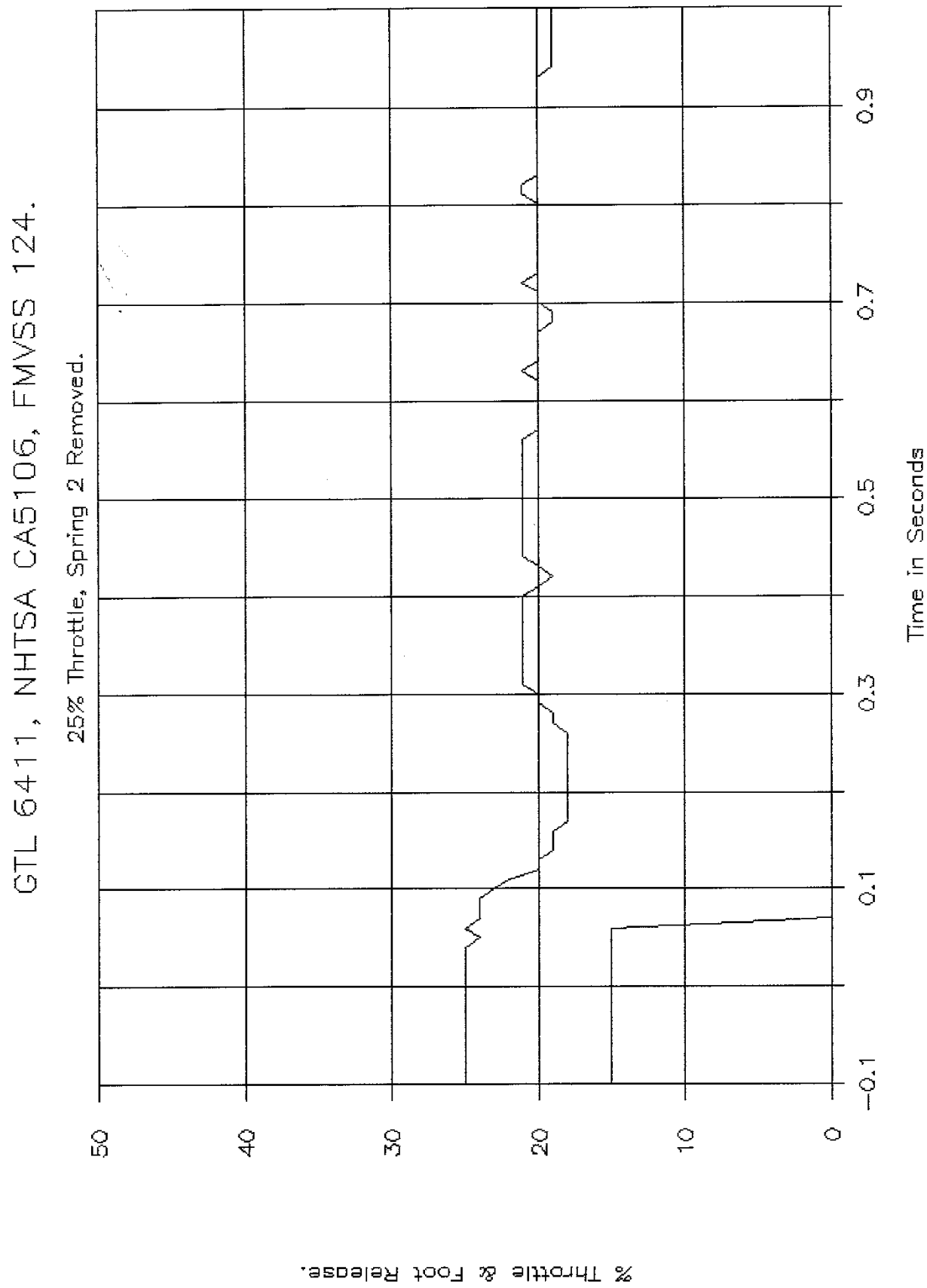

GTL 6403, NHTSA CA5106, FMVSS 124.
50% Throttle, Spring 1 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

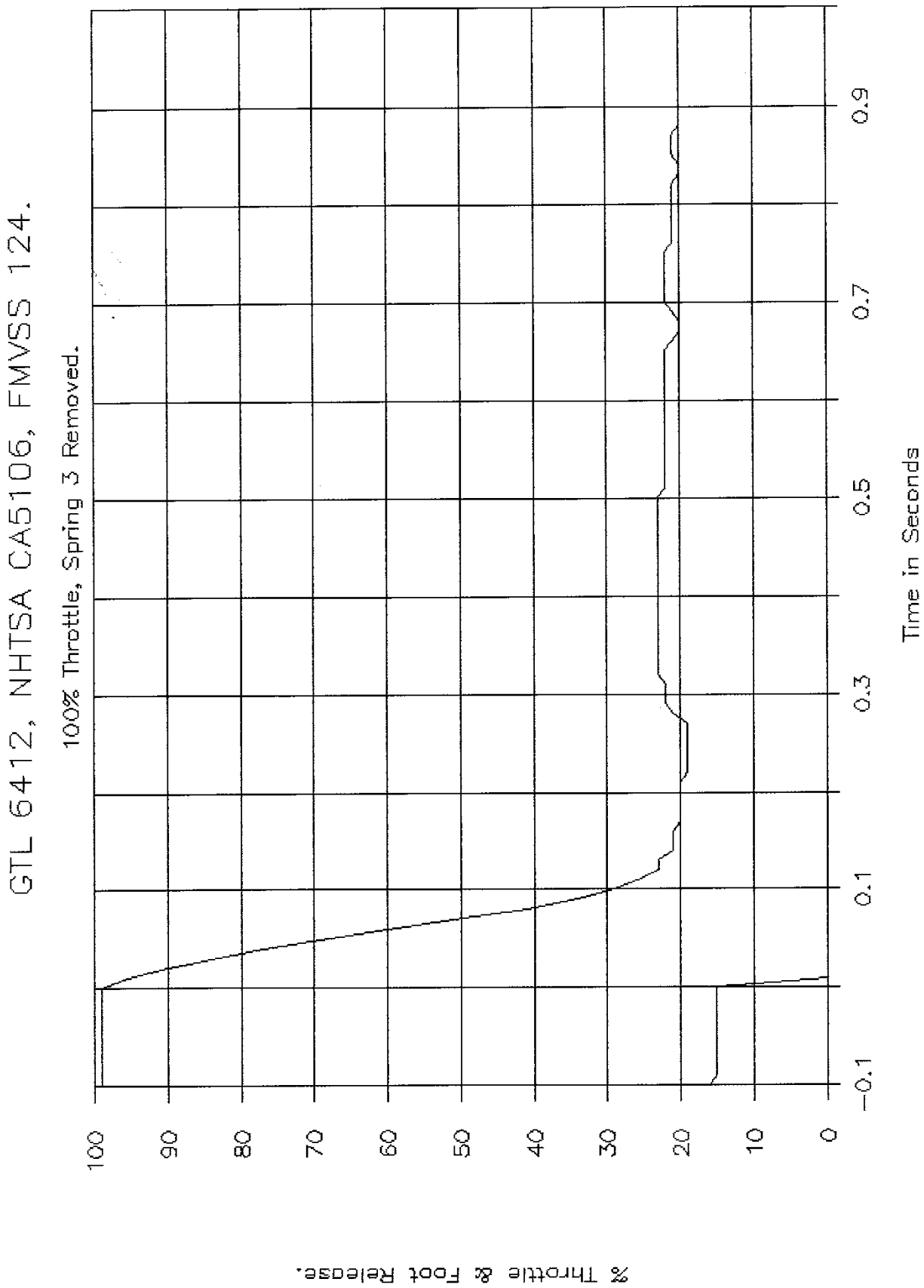

GTL 6404, NHTSA CA5106, FMVSS 124.
25% Throttle, Spring 1 Removed.
% Throttle & Foot Release.
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

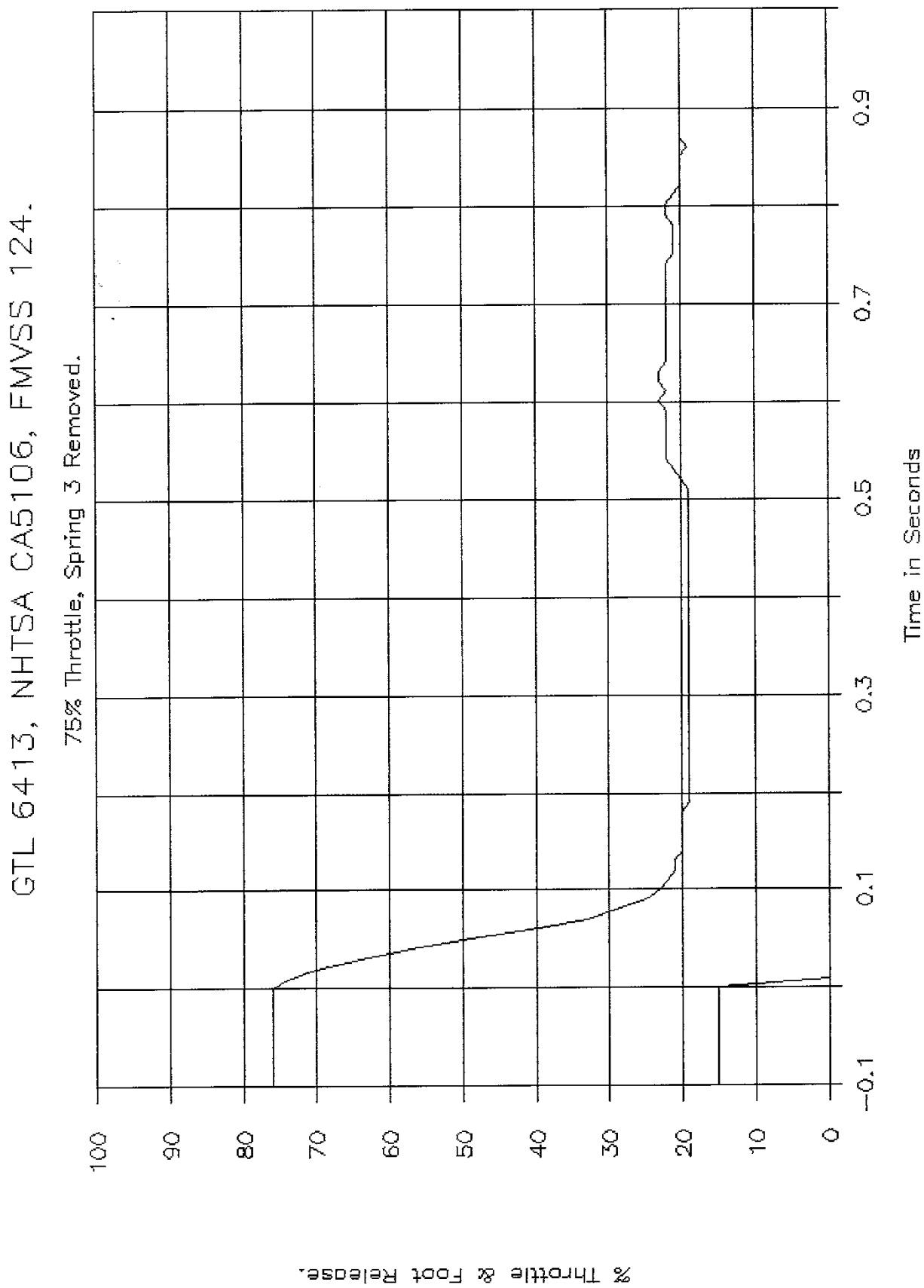

GTL 6408, NHTSA CA5106, FMVSS 124.
100% Throttle, Spring 2 Removed.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

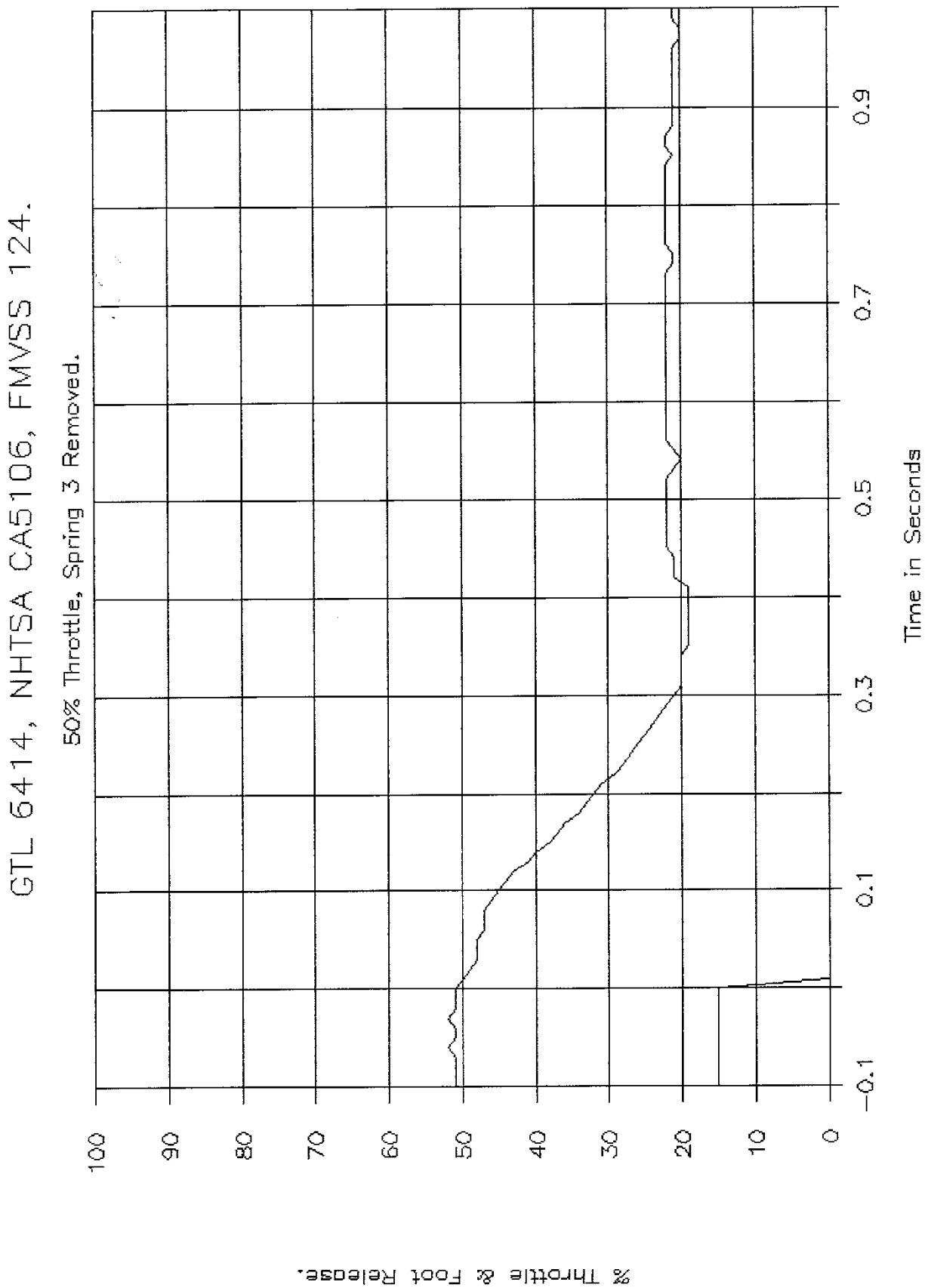

GTL 6409, NHTSA CA5106, FMVSS 124.
75% Throttle, Spring 2 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

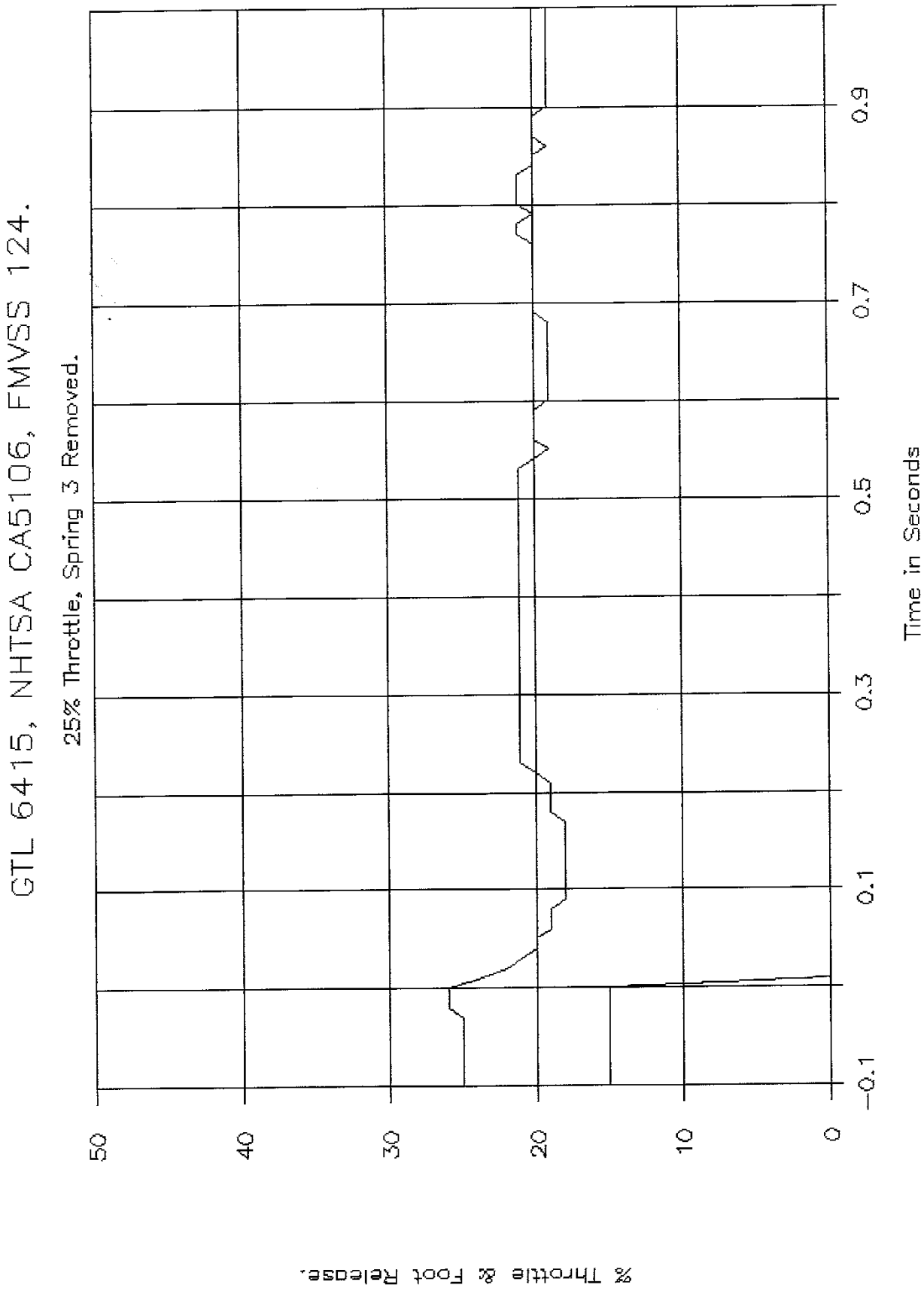

GTL 6410, NHTSA CA5106, FMVSS 124.
50% Throttle, Spring 2 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

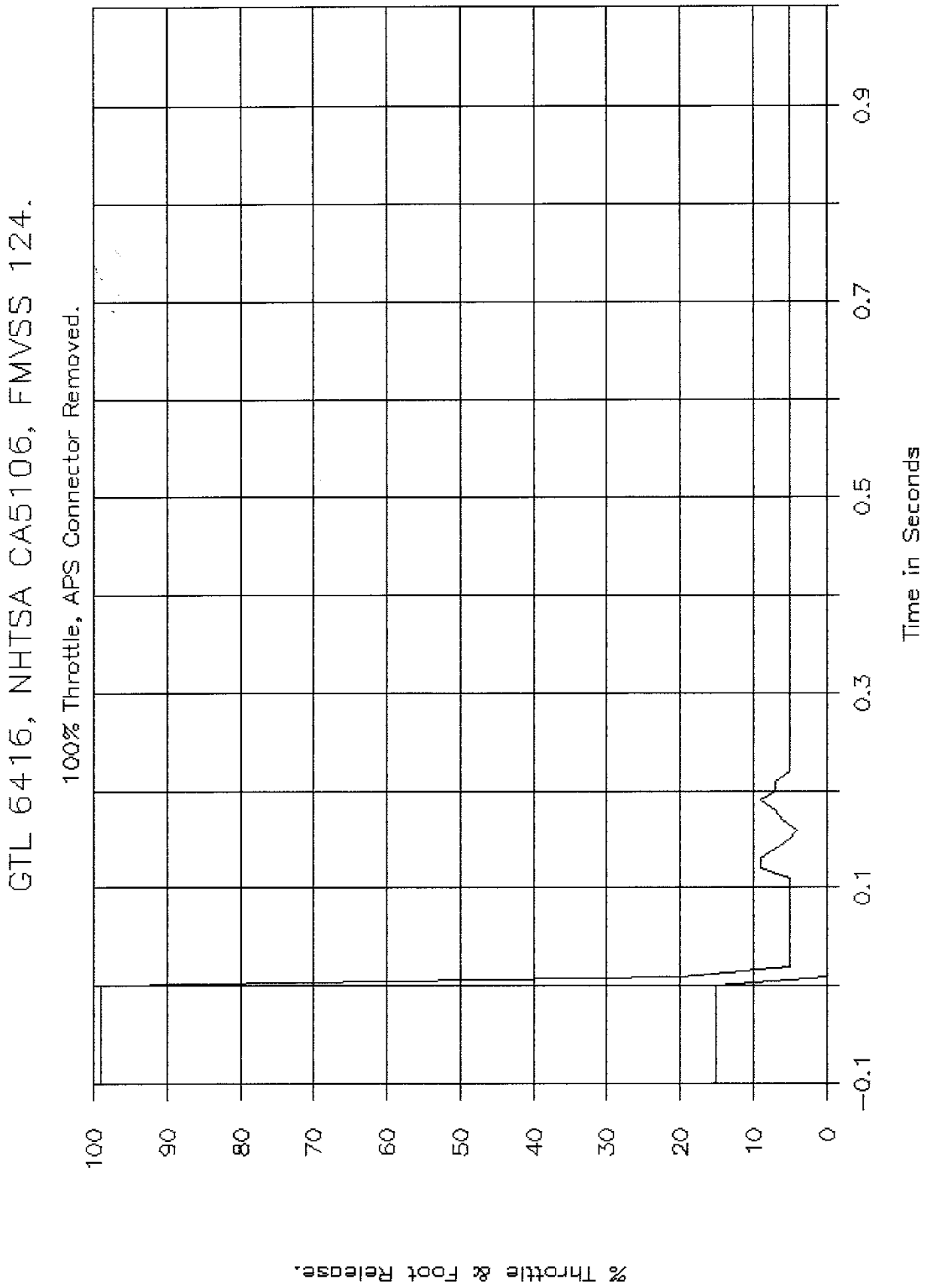

GTL 6411, NHTSA CA5106, FMVSS 124.
25% Throttle, Spring 2 Removed.
% Throttle & Foot Release.
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

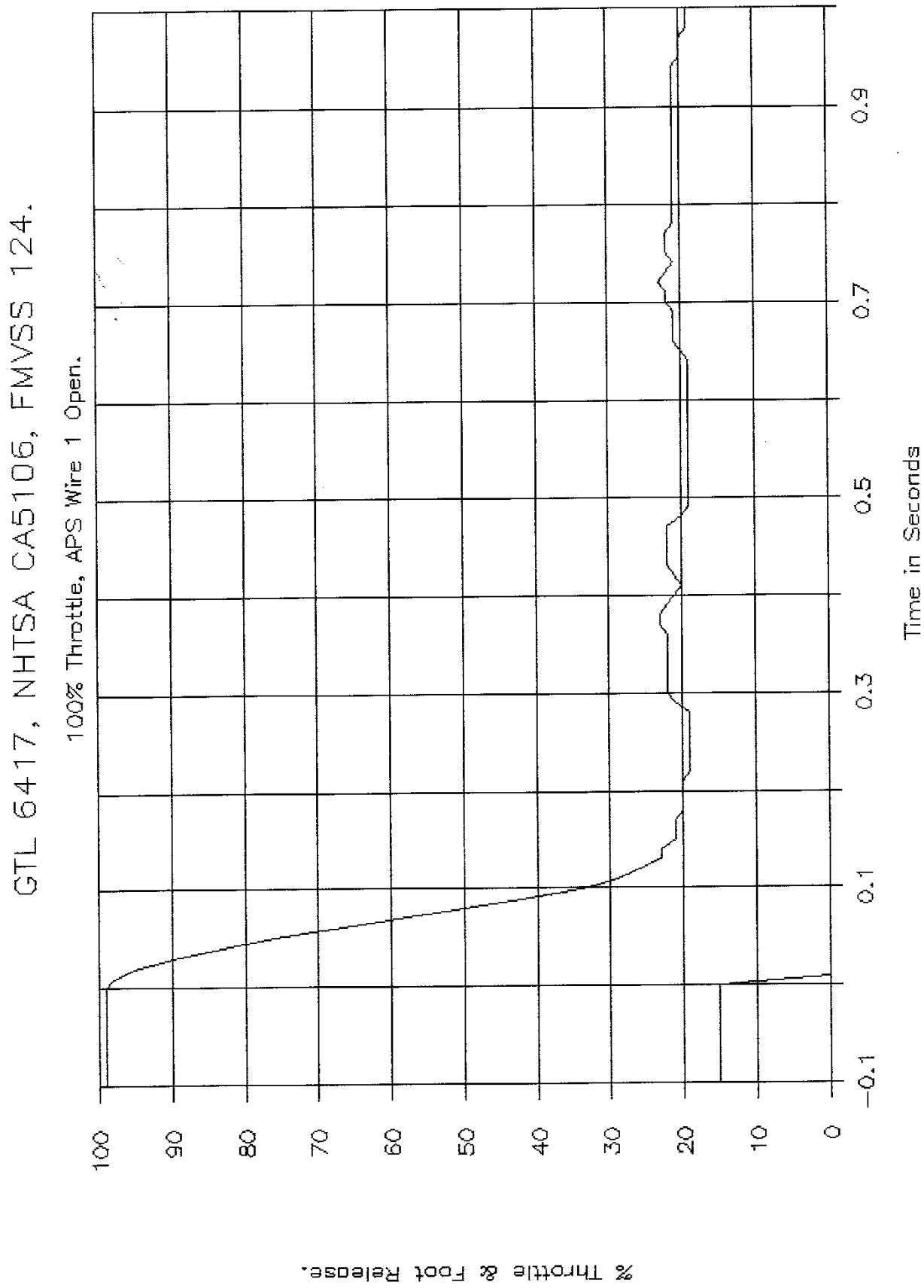

GTL 6412, NHTSA CA5106, FMVSS 124.
100% Throttle, Spring 3 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

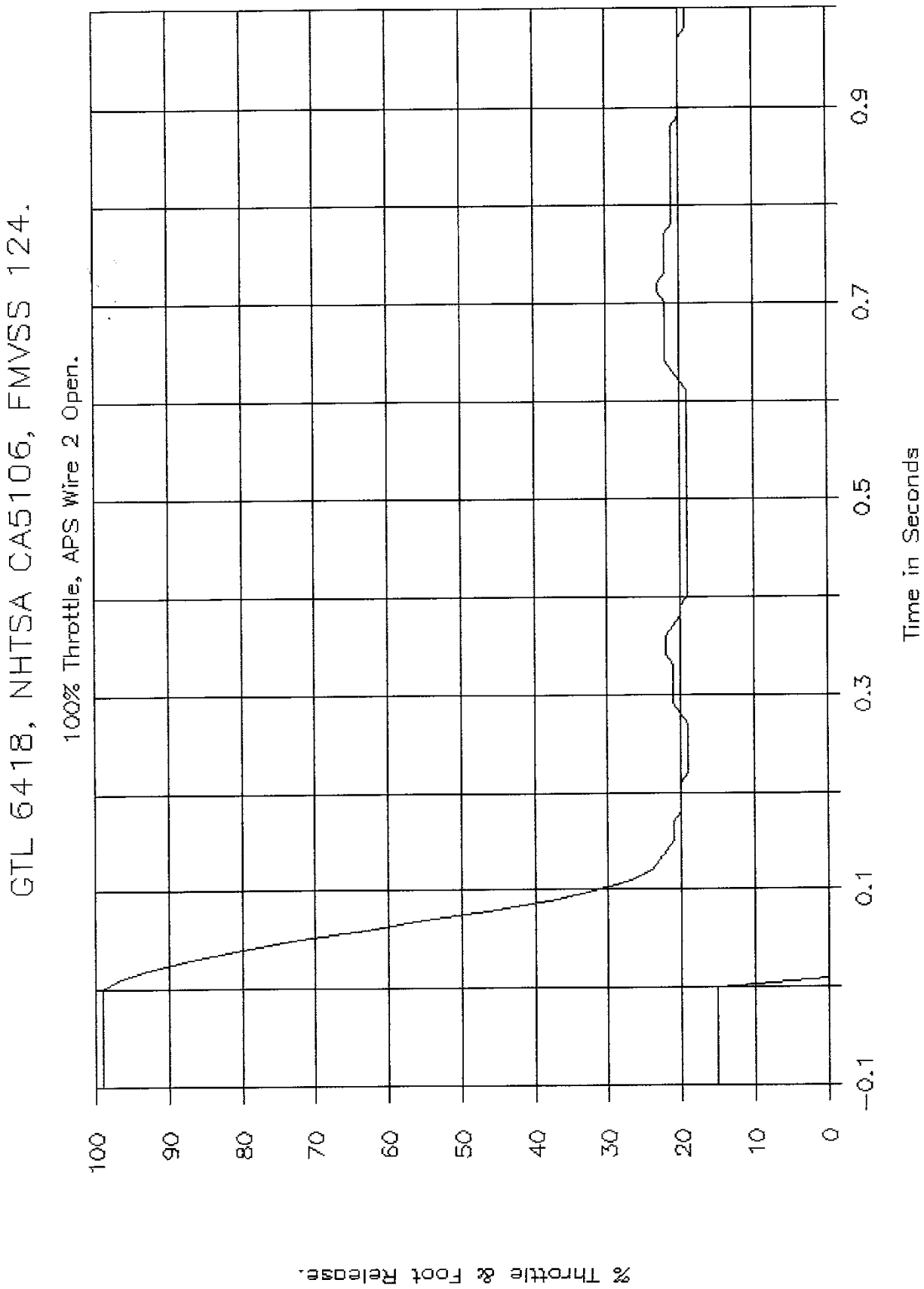

GTL 6413, NHTSA CA5106, FMVSS 124.
75% Throttle, Spring 3 Removed.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

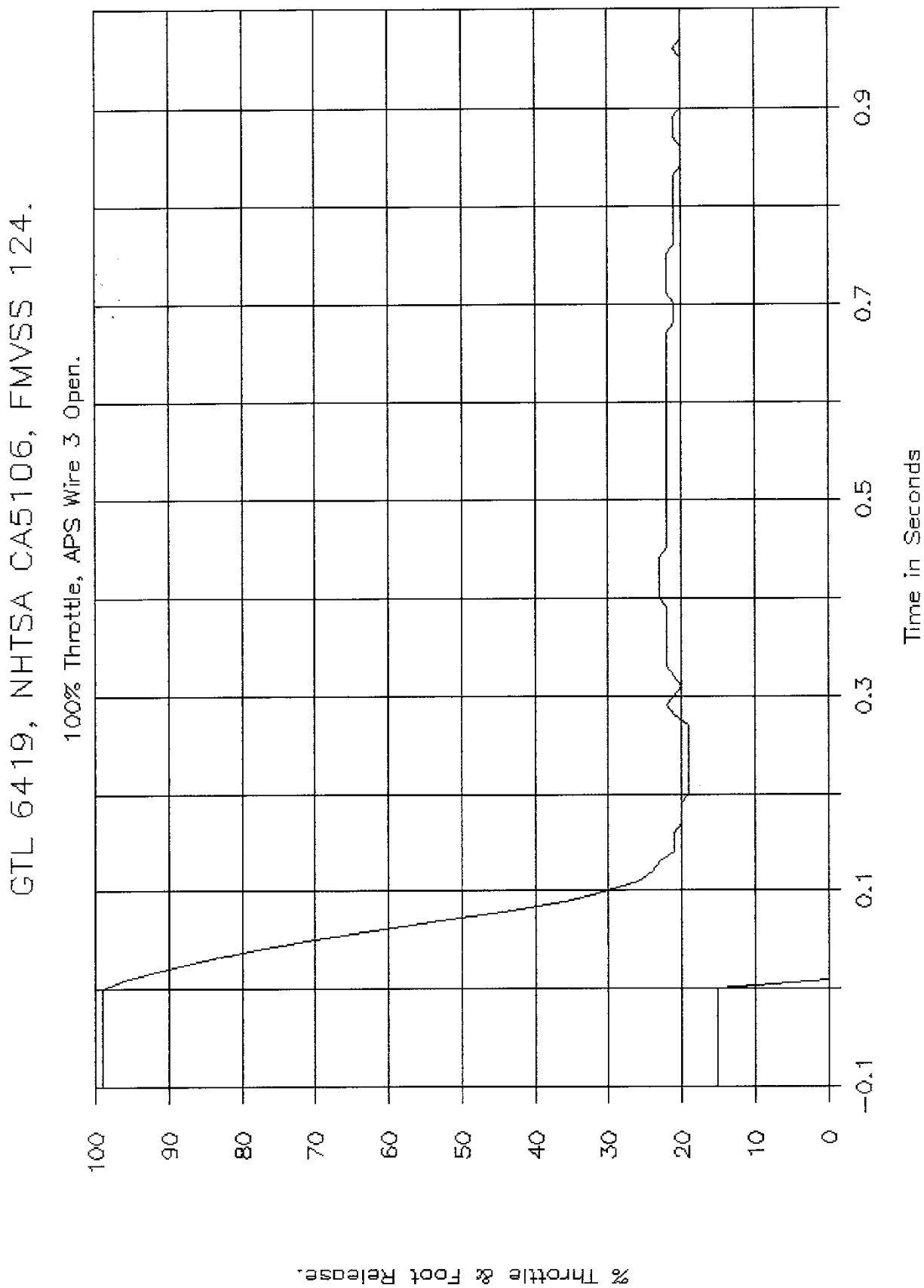

GTL 6414, NHTSA CA5106, FMVSS 124.
50% Throttle, Spring 3 Removed.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

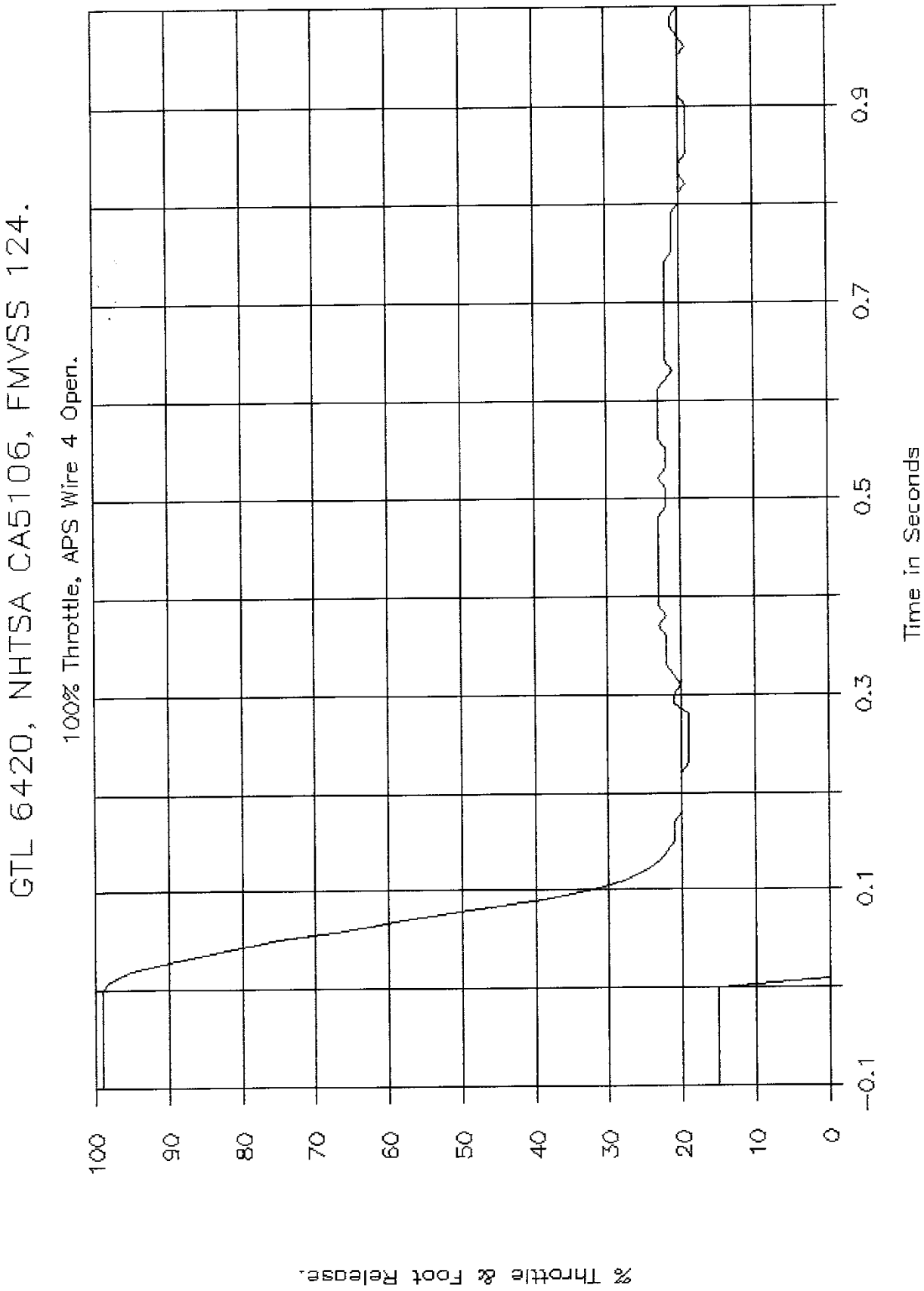

GTL 6415, NHTSA CA5106, FMVSS 124.
25% Throttle, Spring 3 Removed.
% Throttle & Foot Release.
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

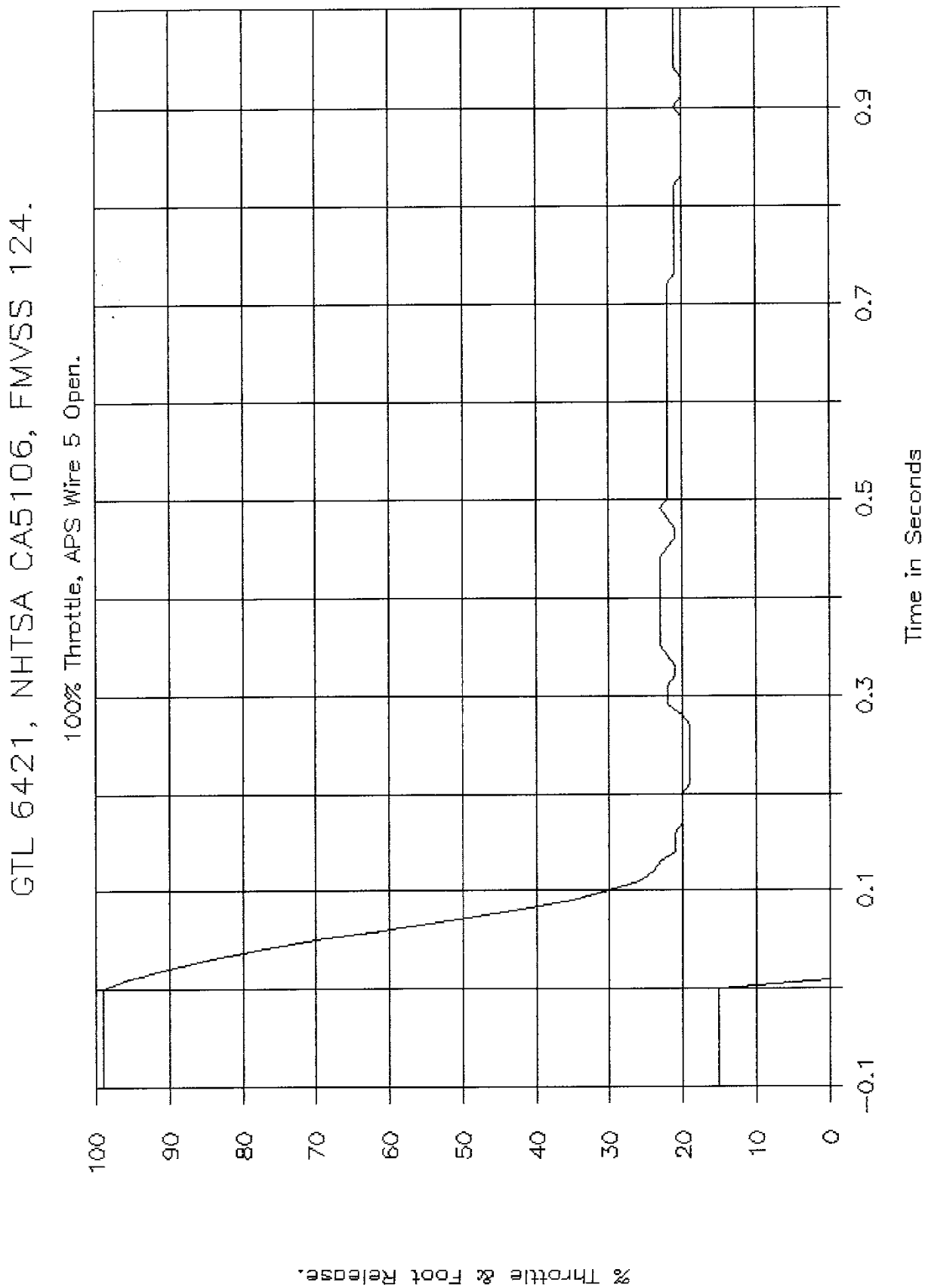

GTL 6416, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Connector Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

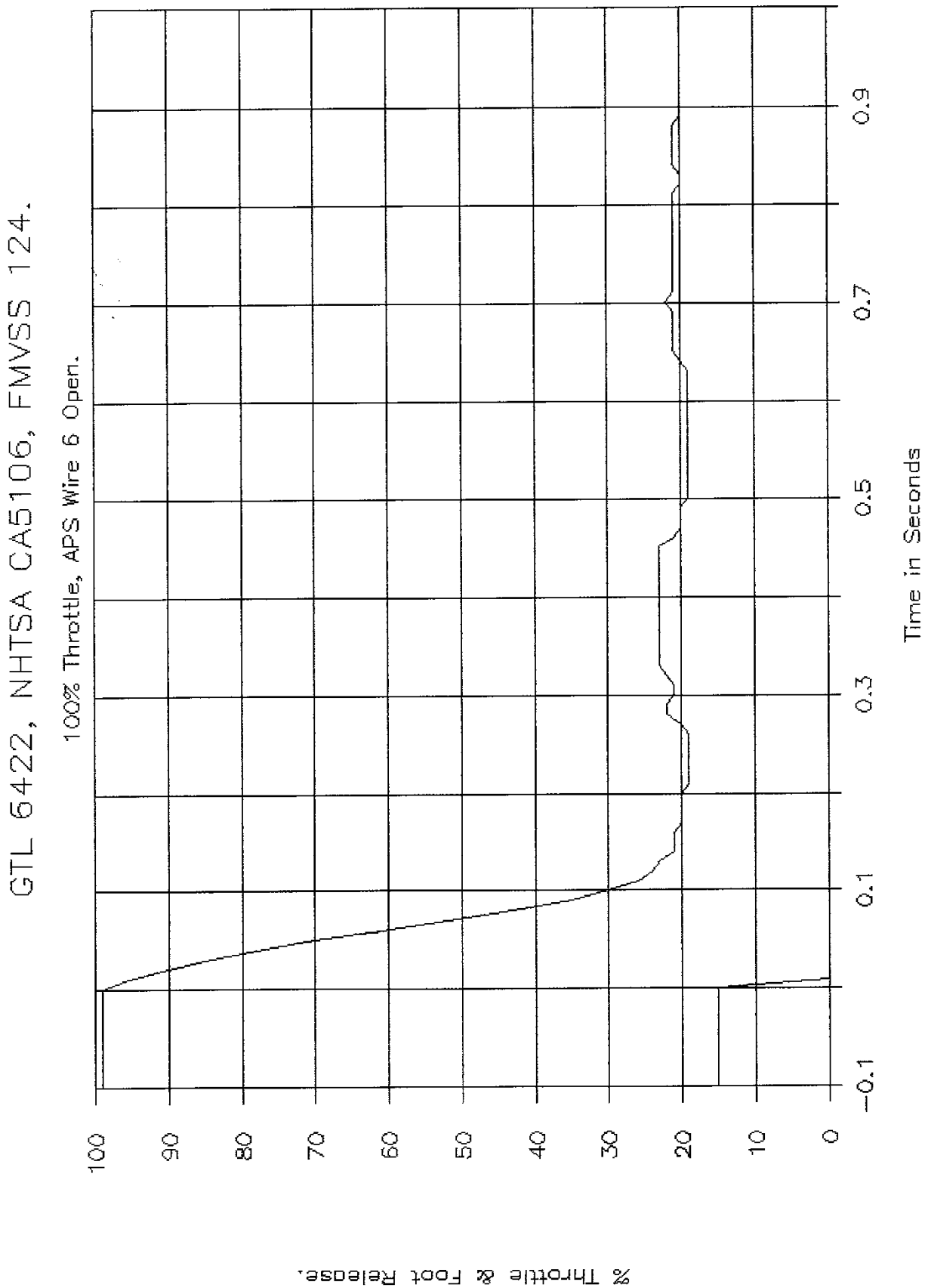

GTL 6417, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 1 Open.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

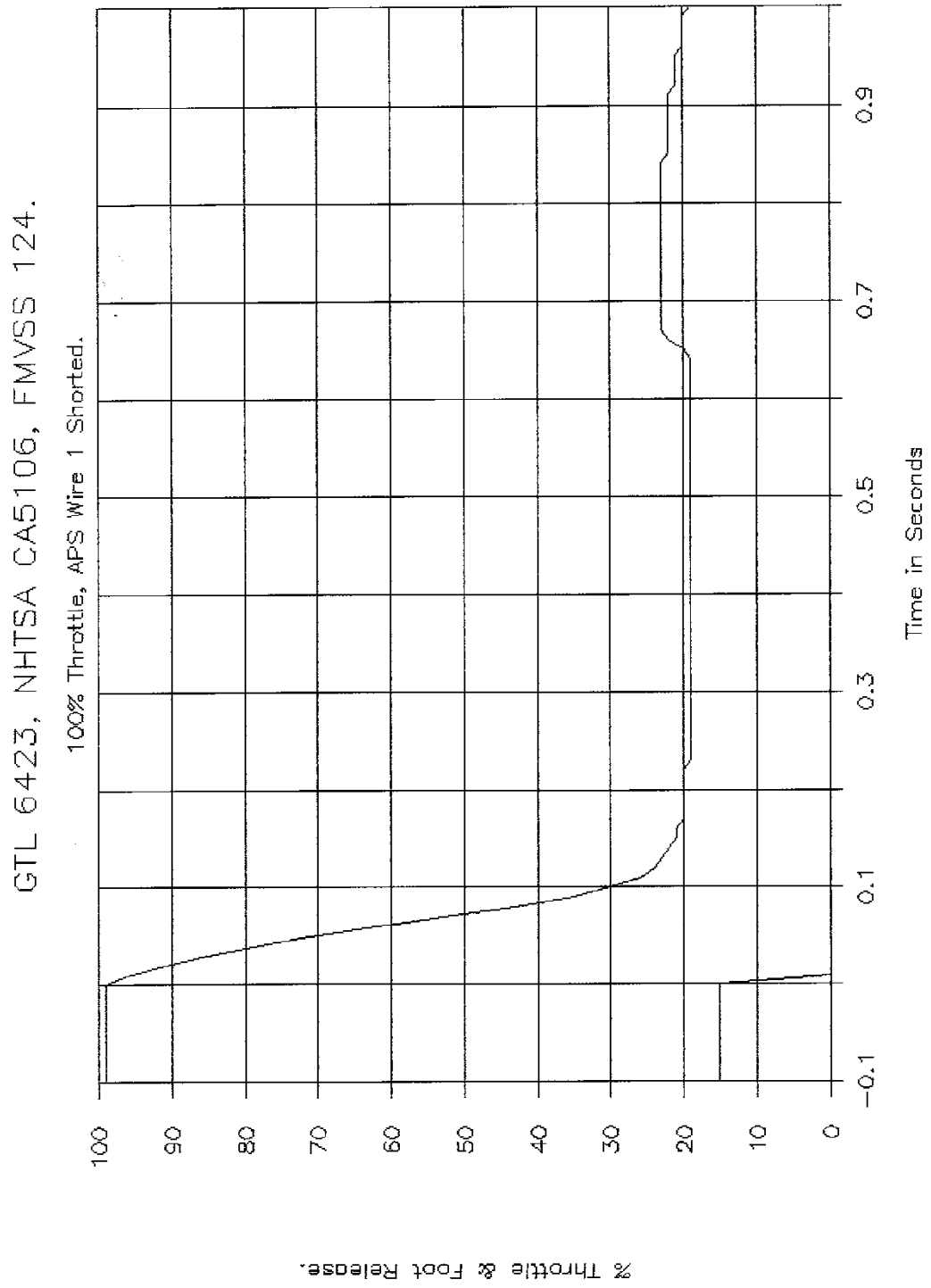

GTL 6418, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 2 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

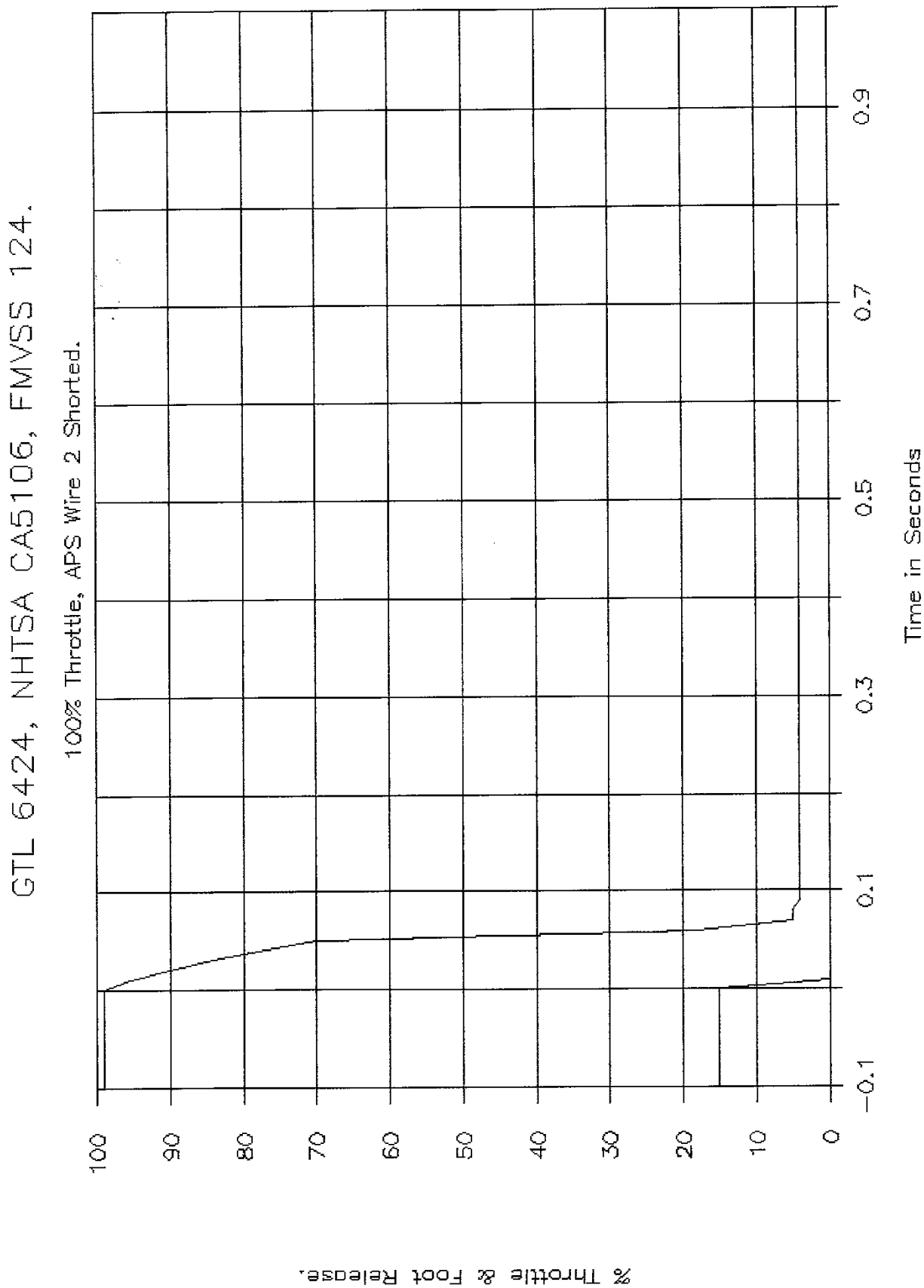

GTL 6419, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 3 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

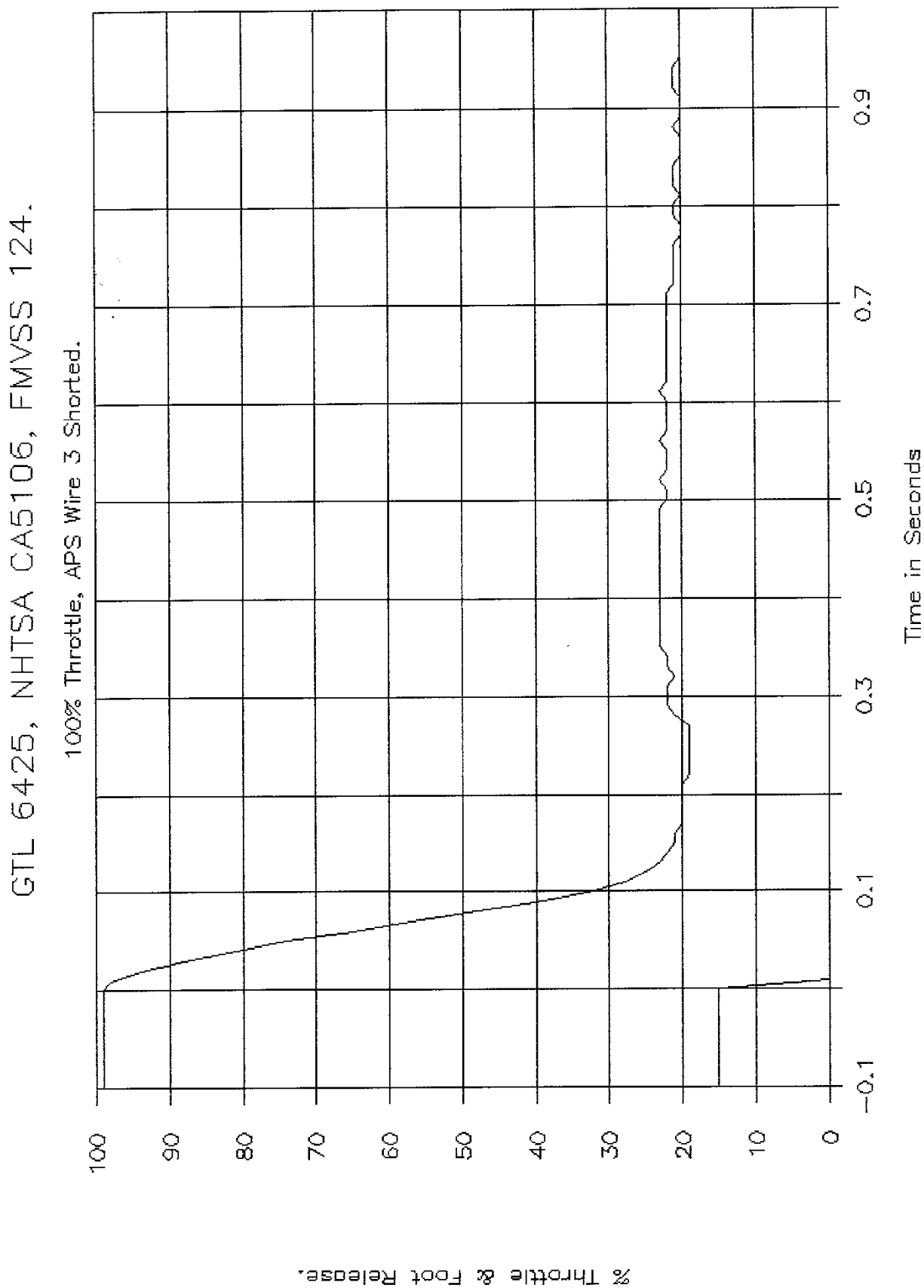

GTL 6420, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 4 Open.
% Throttle & Foot Release
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

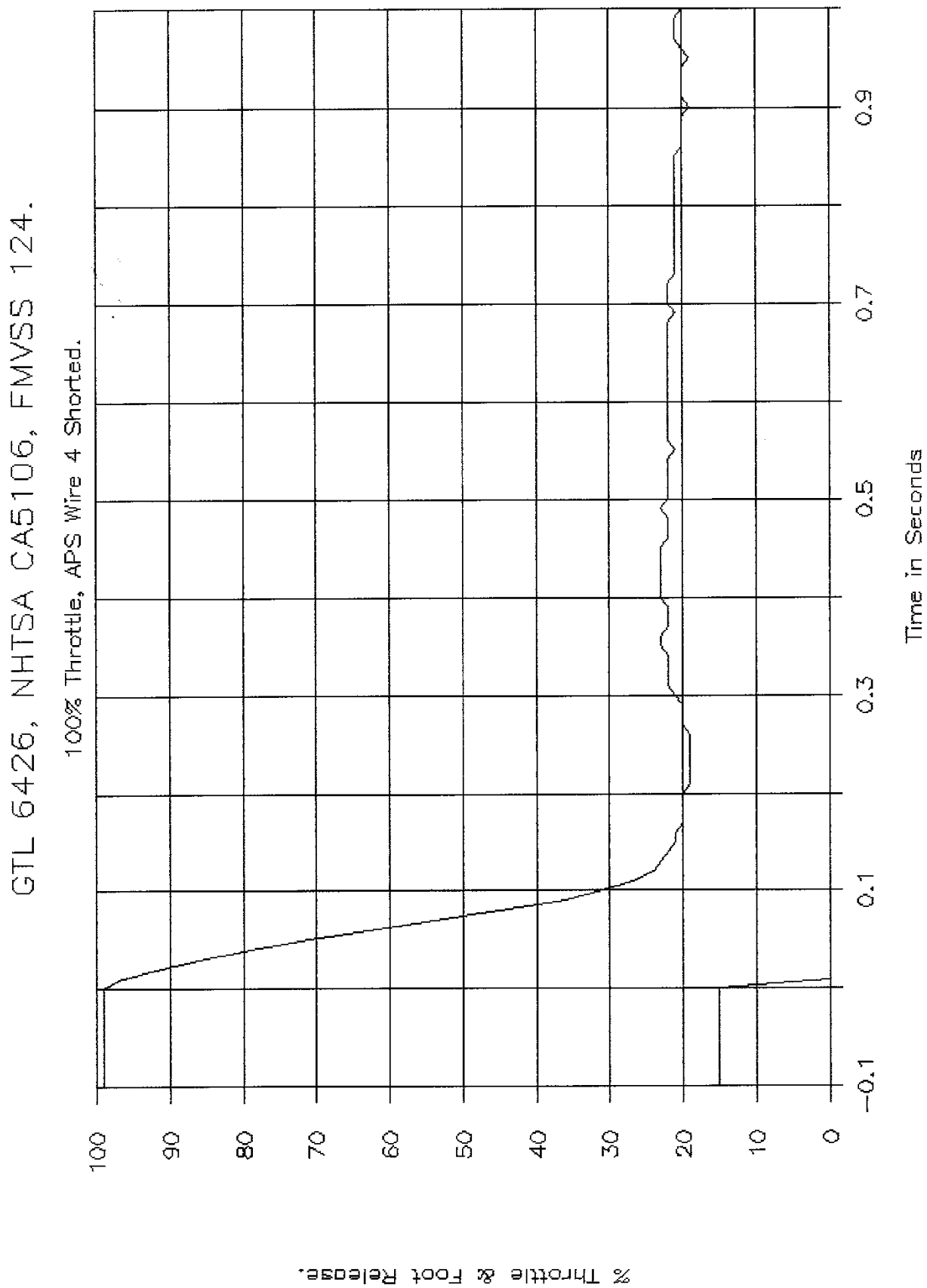

GTL 6421, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 5 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

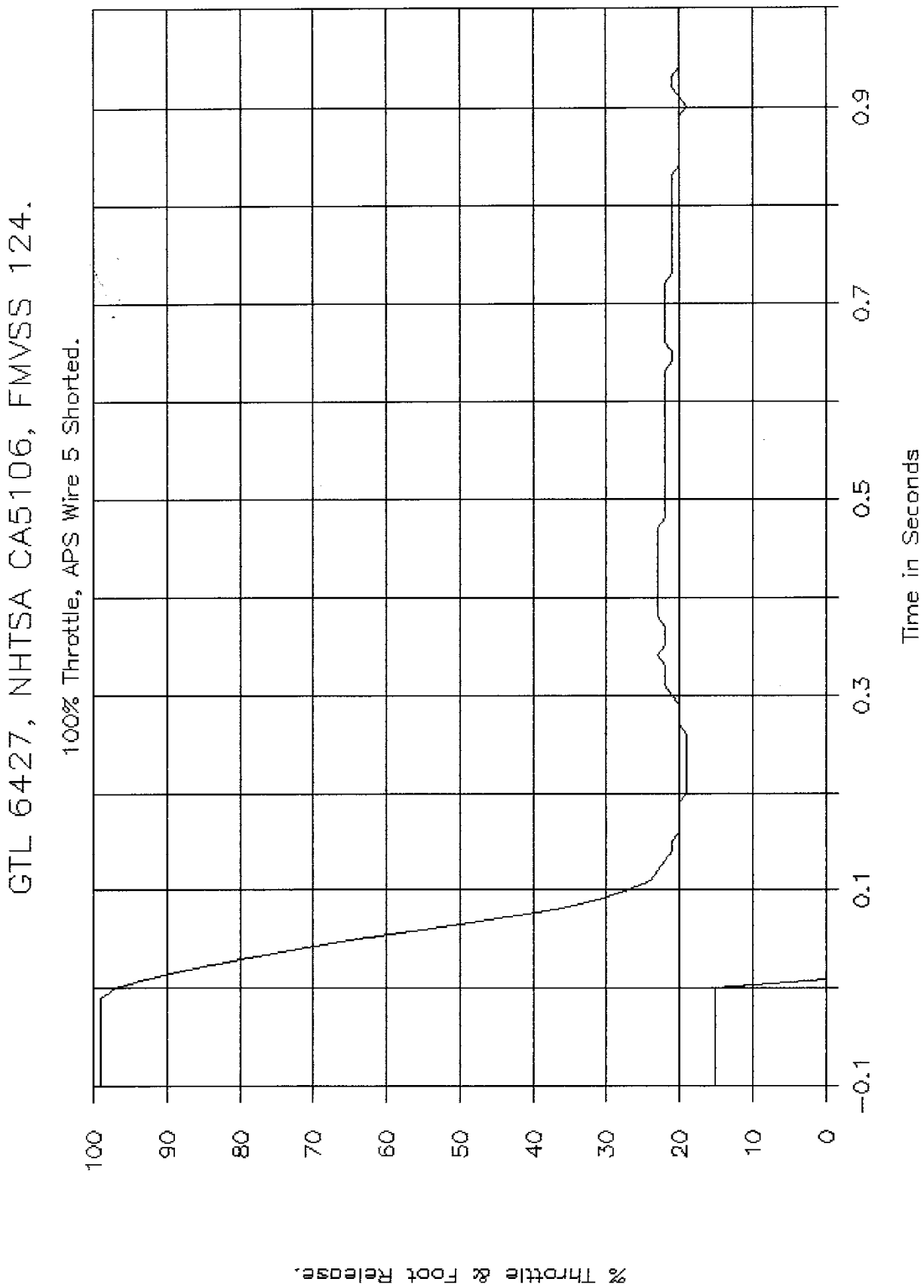

GTL 6422, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 6 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

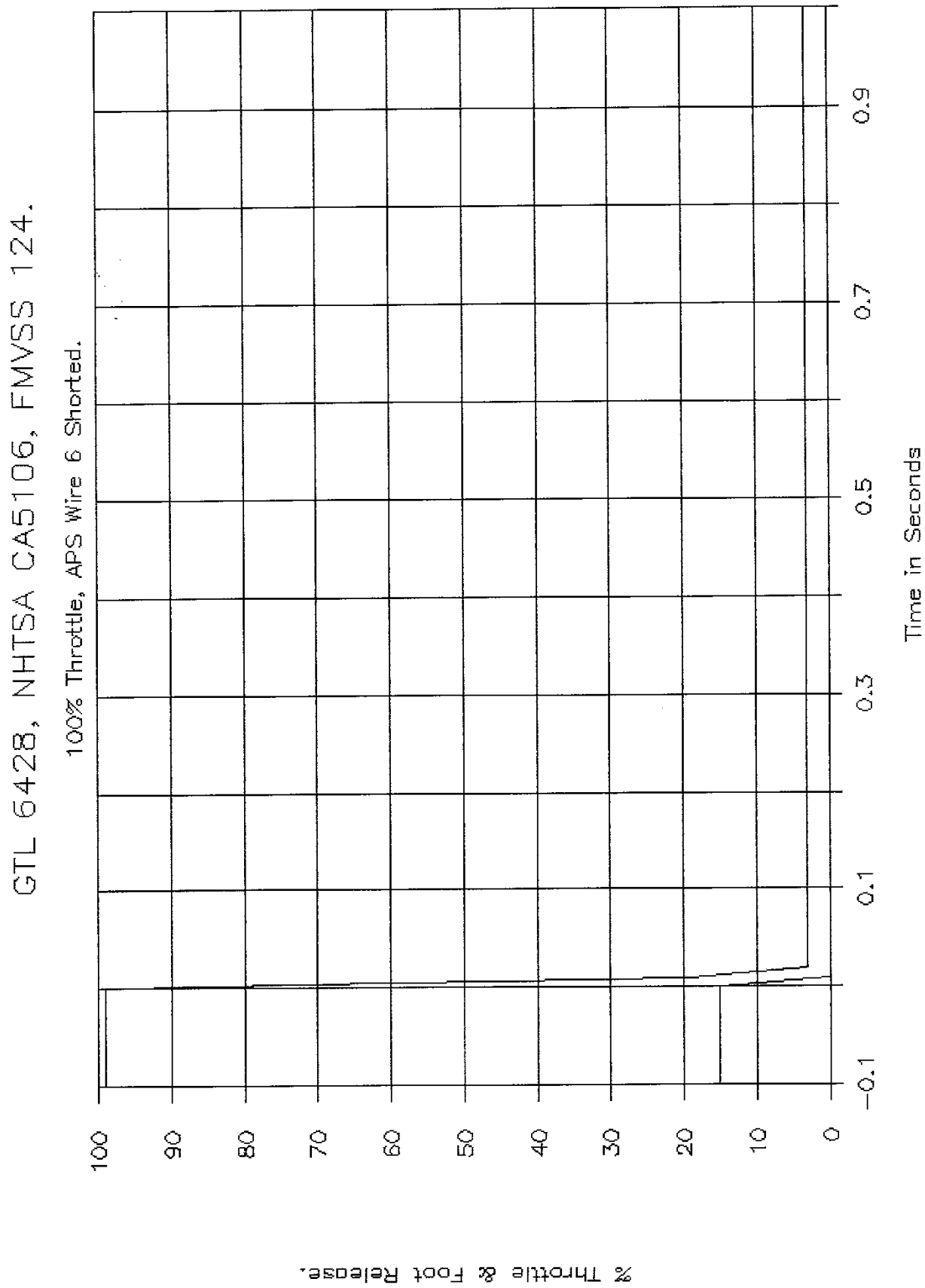

GTL 6423, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 1 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9


GTL 6424, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 2 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

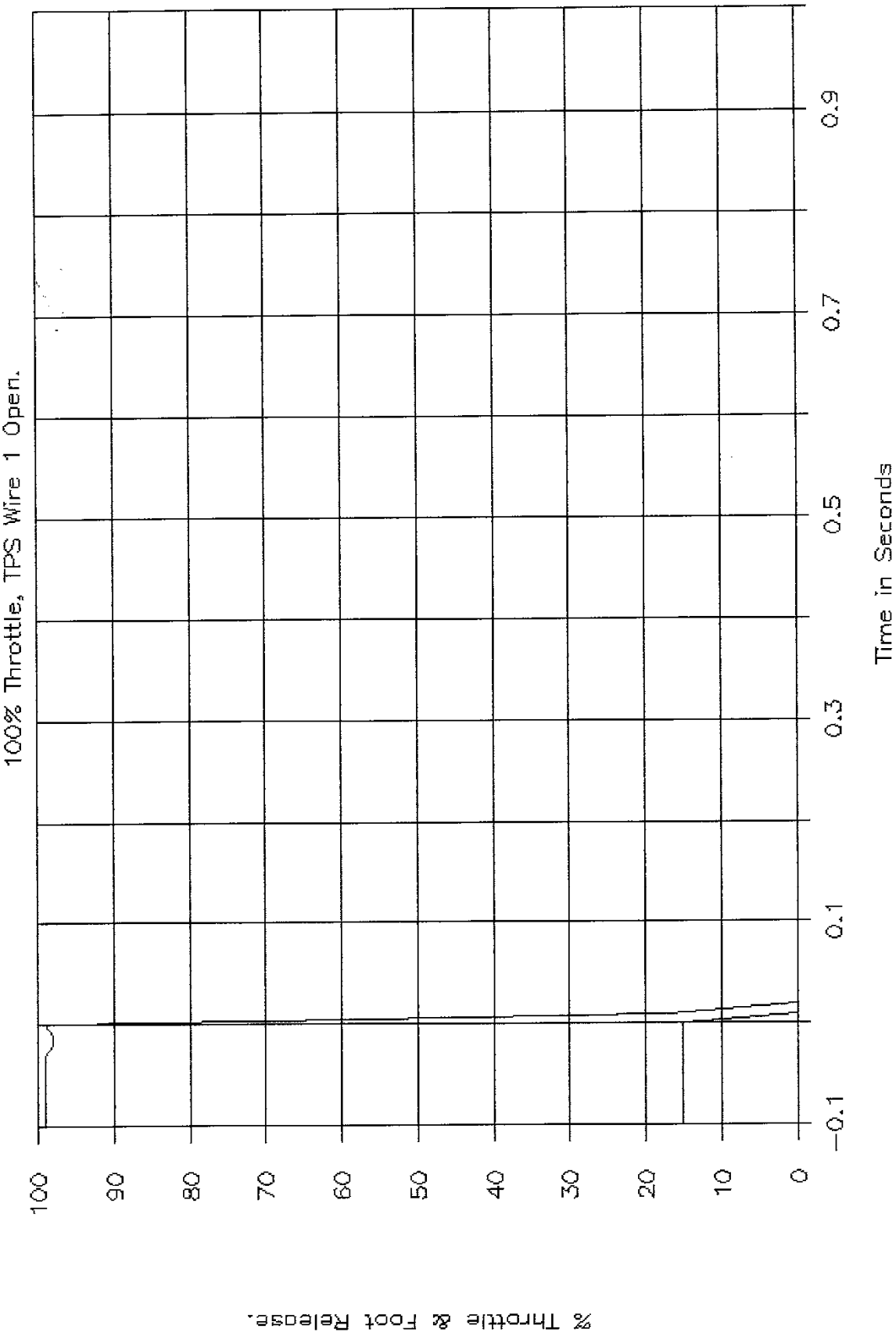

GTL 6425, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 3 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

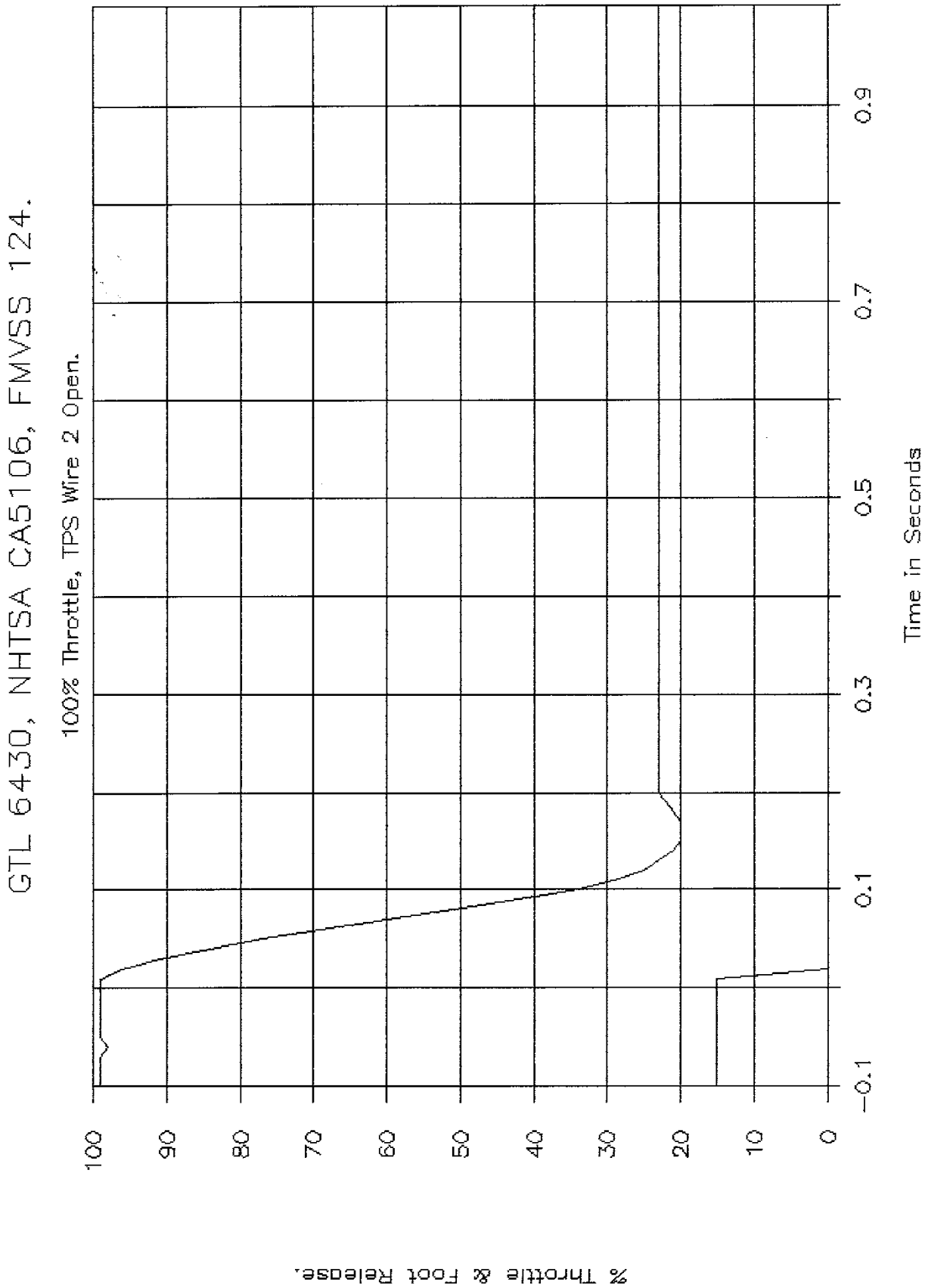

GTL 6426, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 4 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

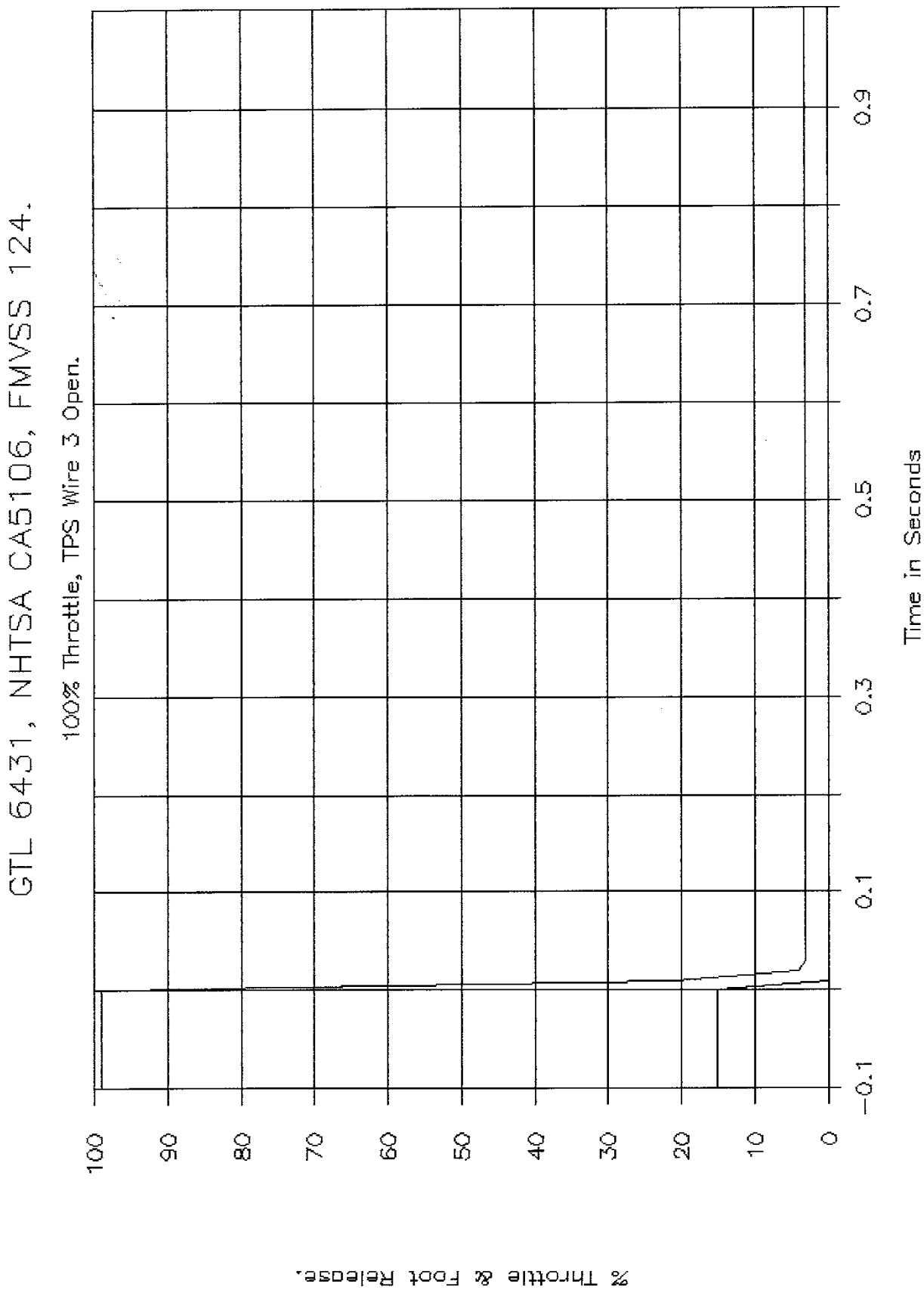

GTL 6427, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 5 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

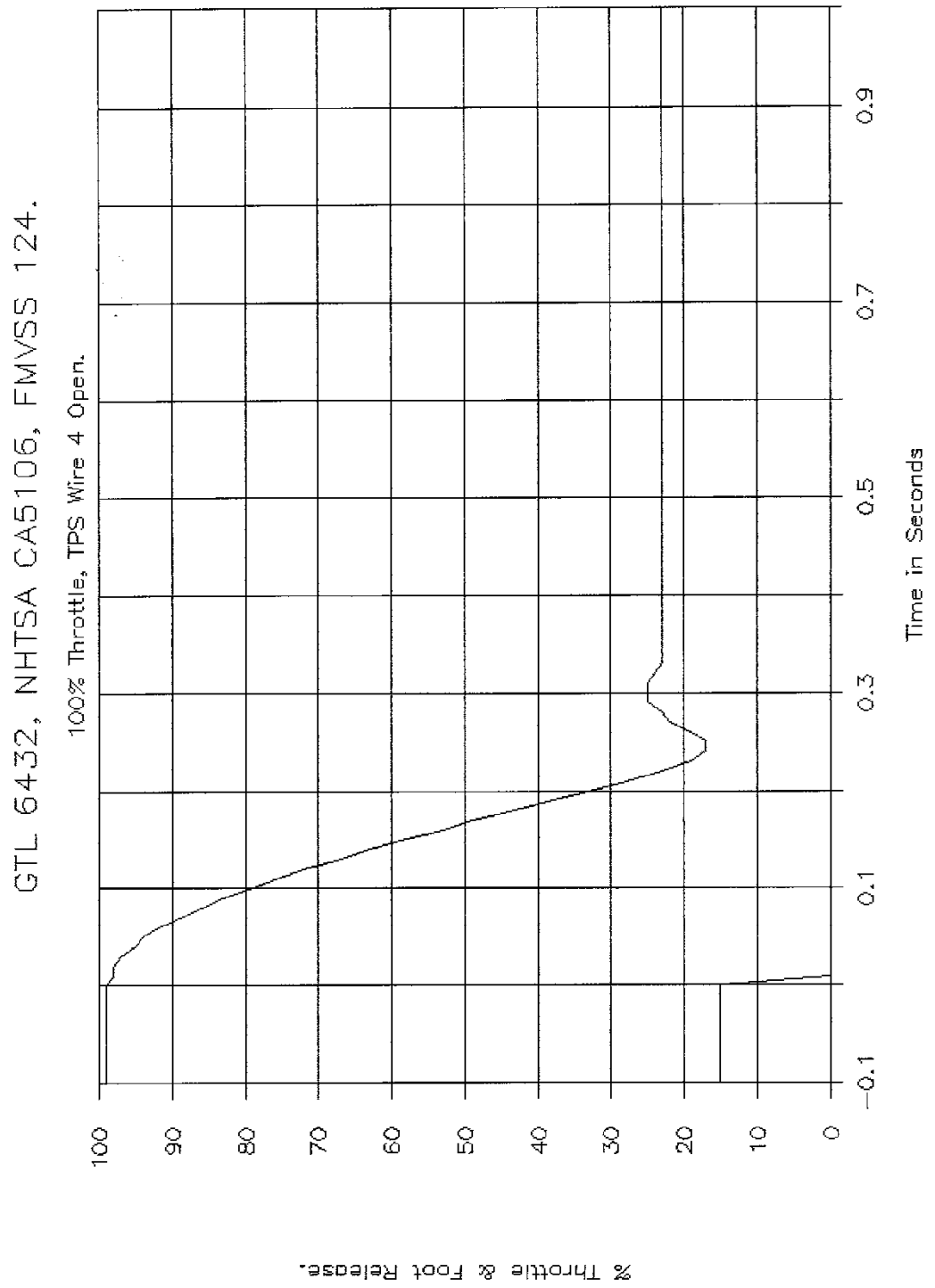

GTL 6428, NHTSA CA5106, FMVSS 124.
100% Throttle, APS Wire 6 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

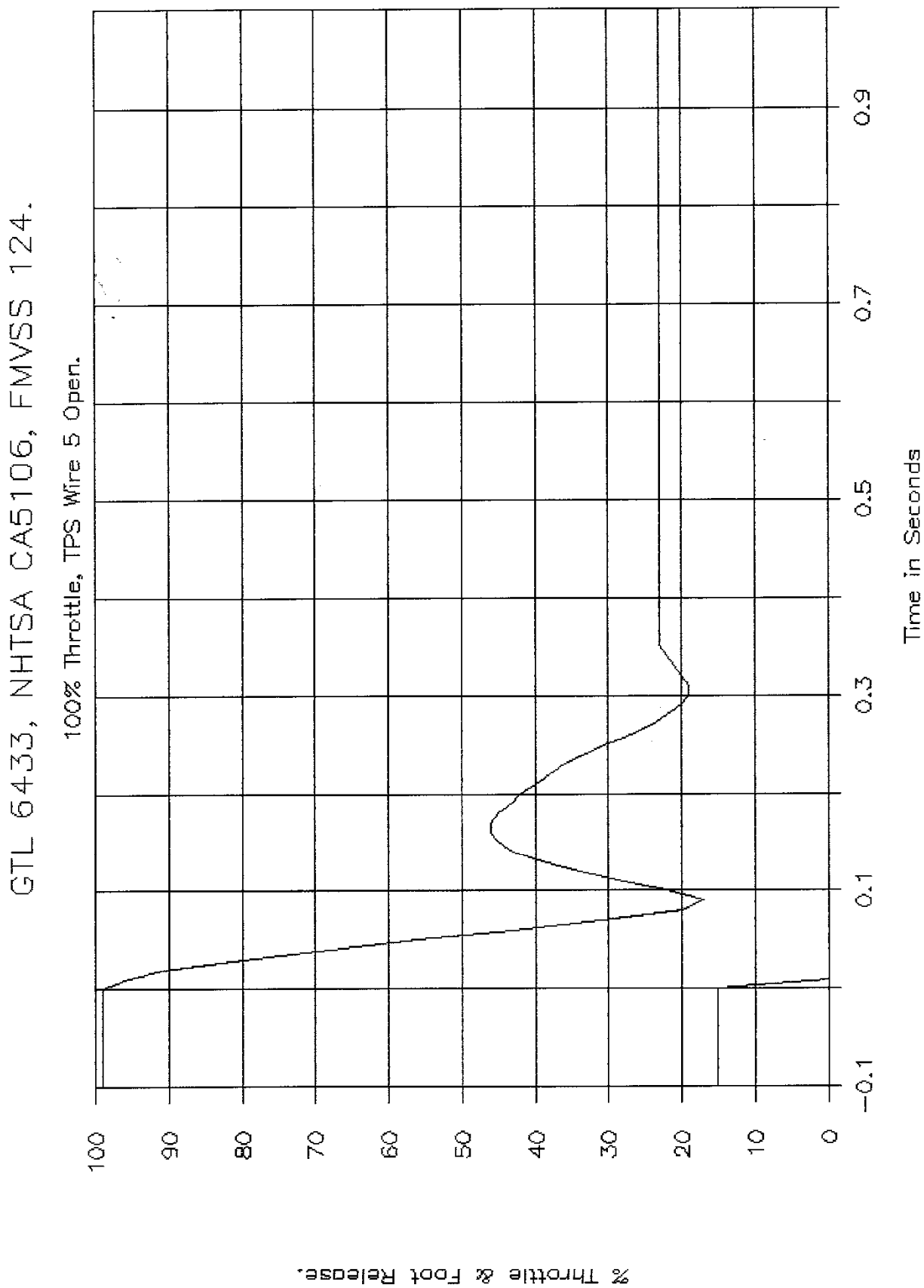
GTL 6429, NHTSA CA5106, FMVSS 124.

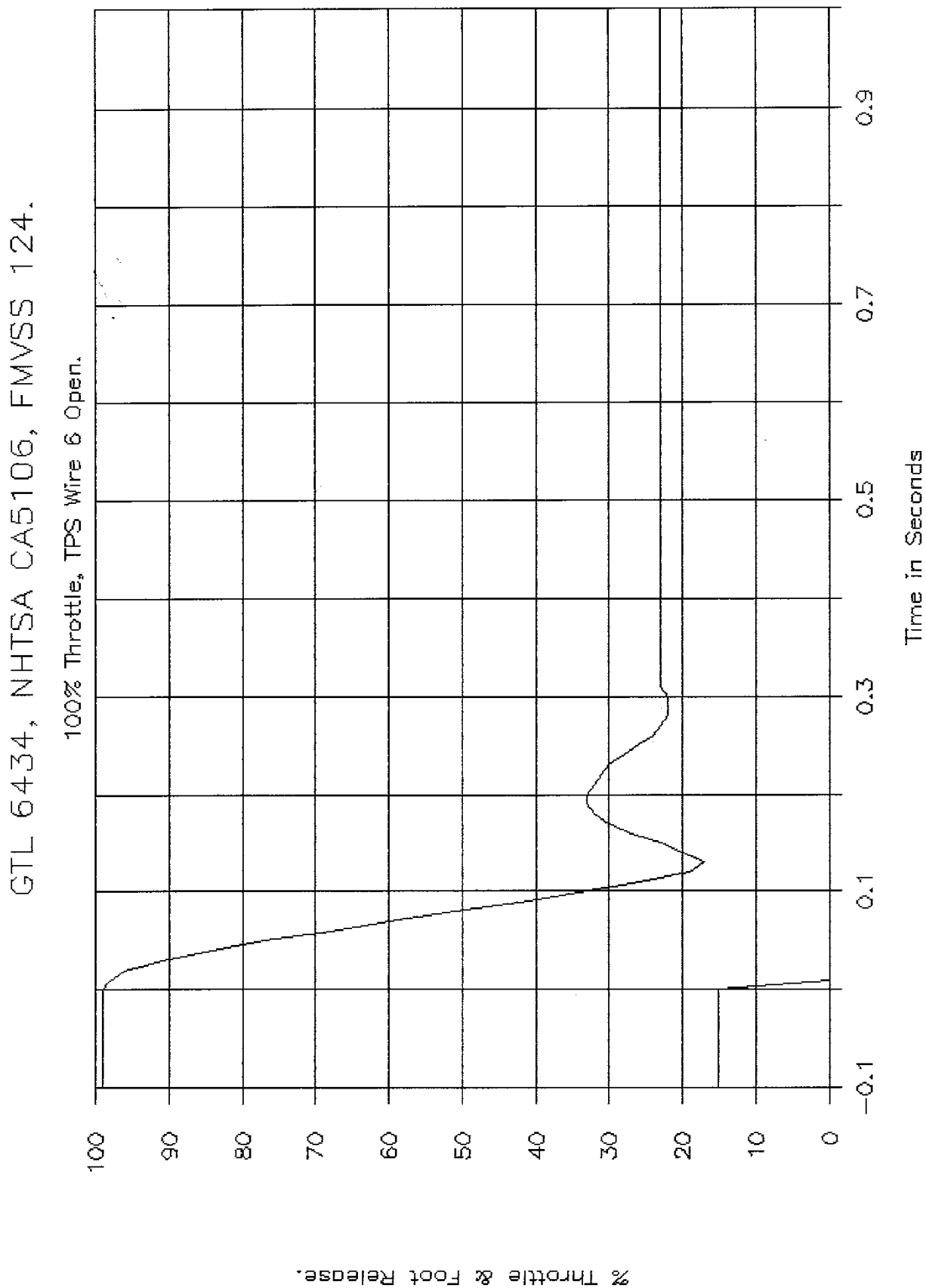


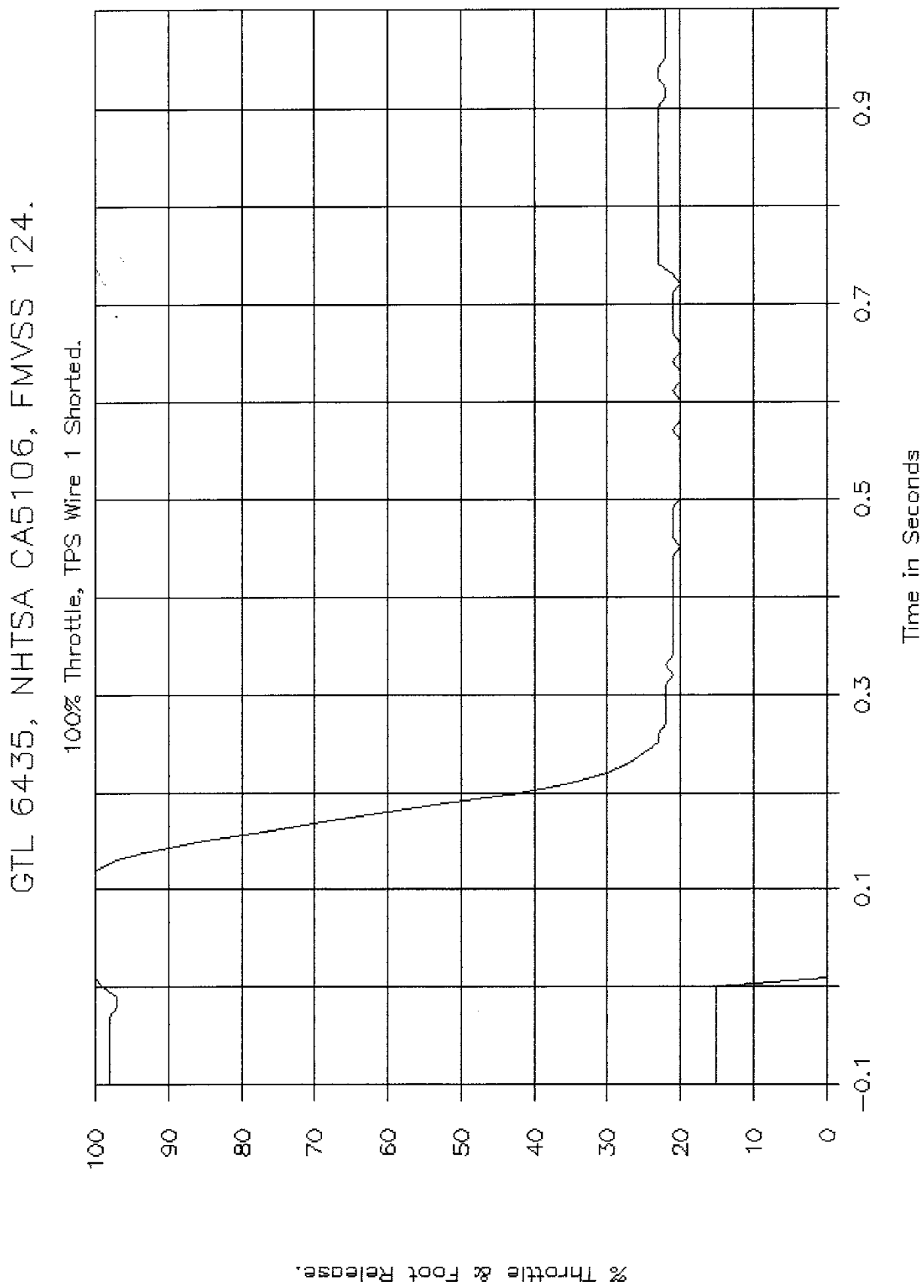

GTL 6430, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 2 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

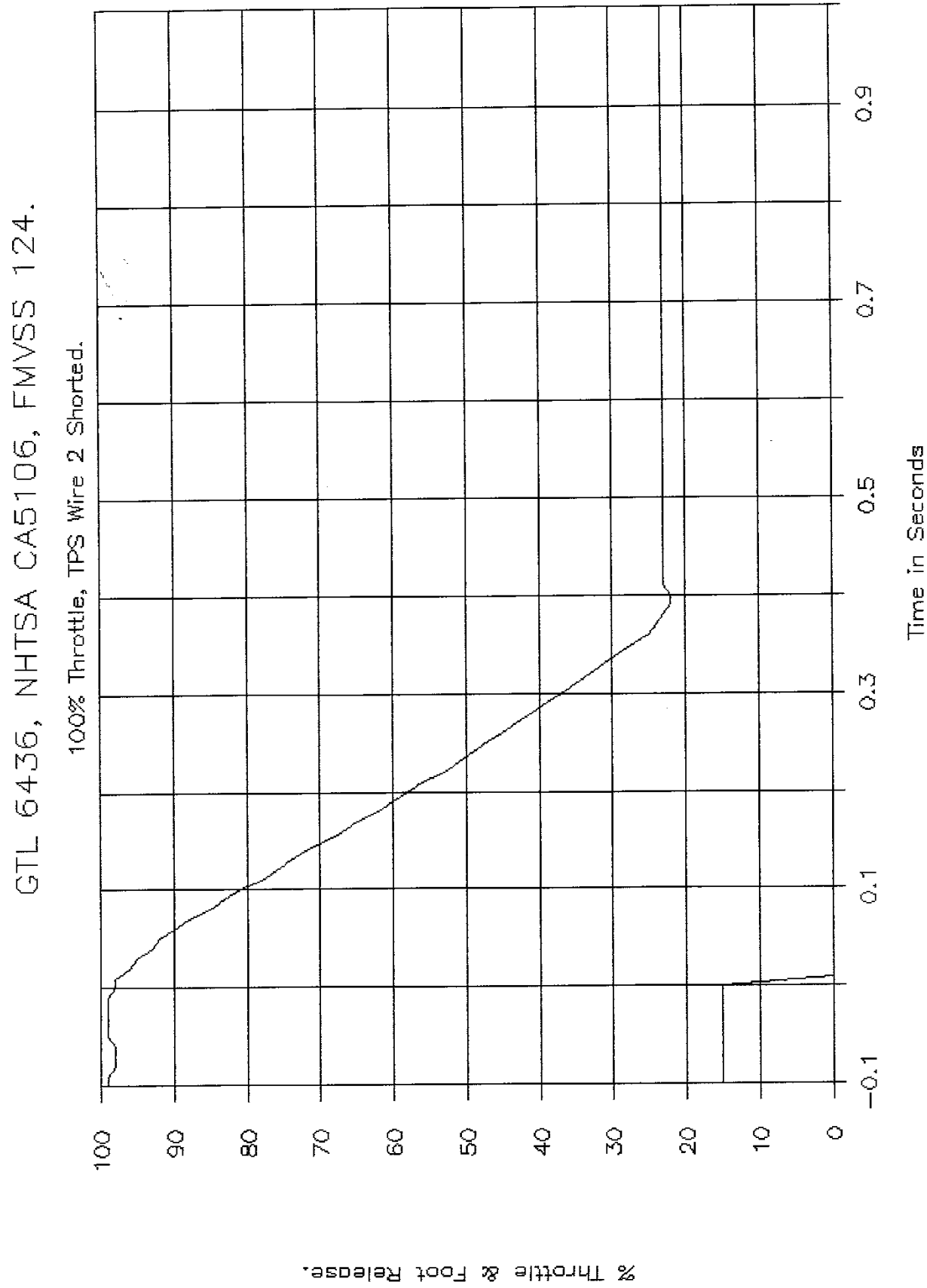

GTL 6431, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 3 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

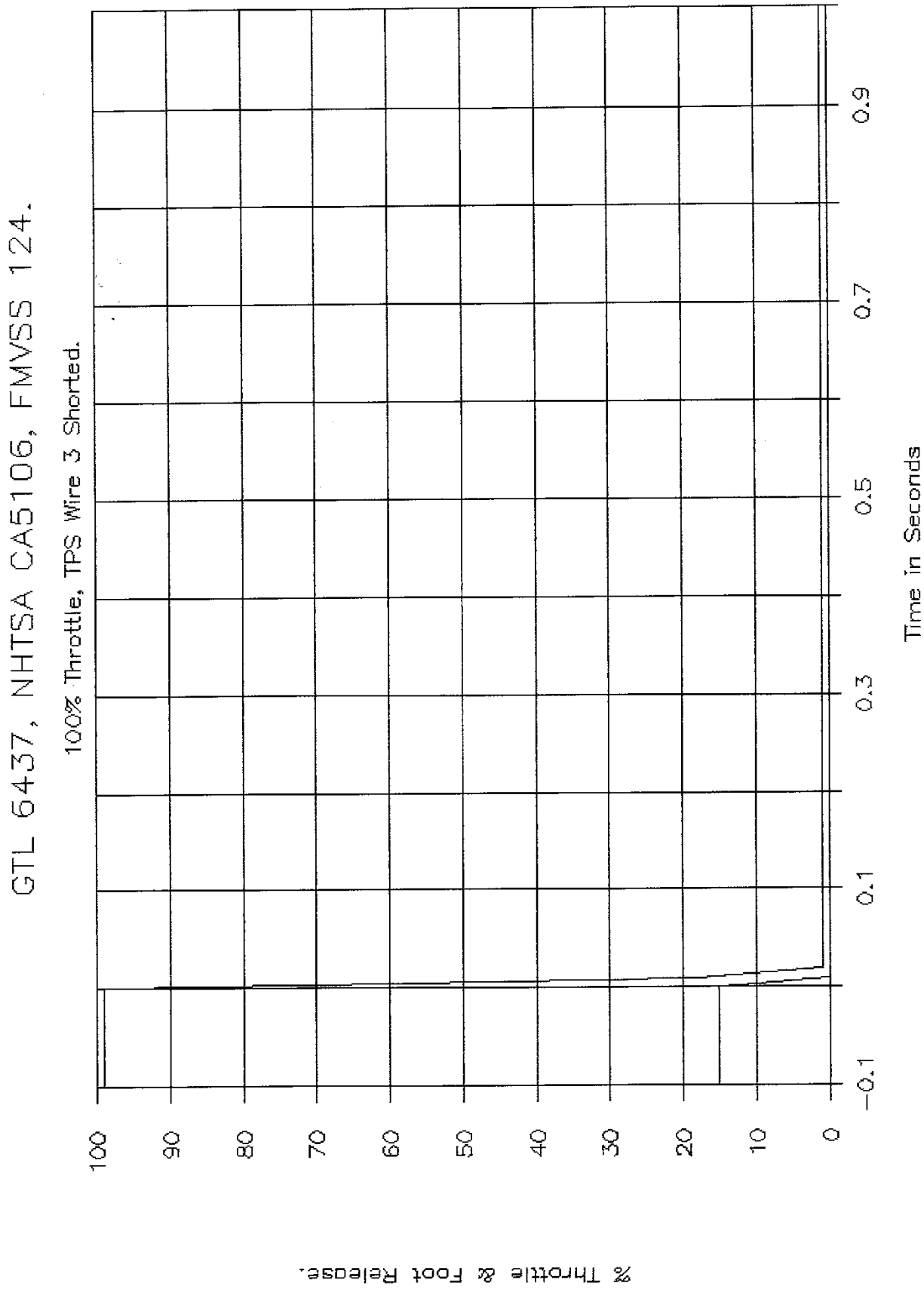

GTL 6432, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 4 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

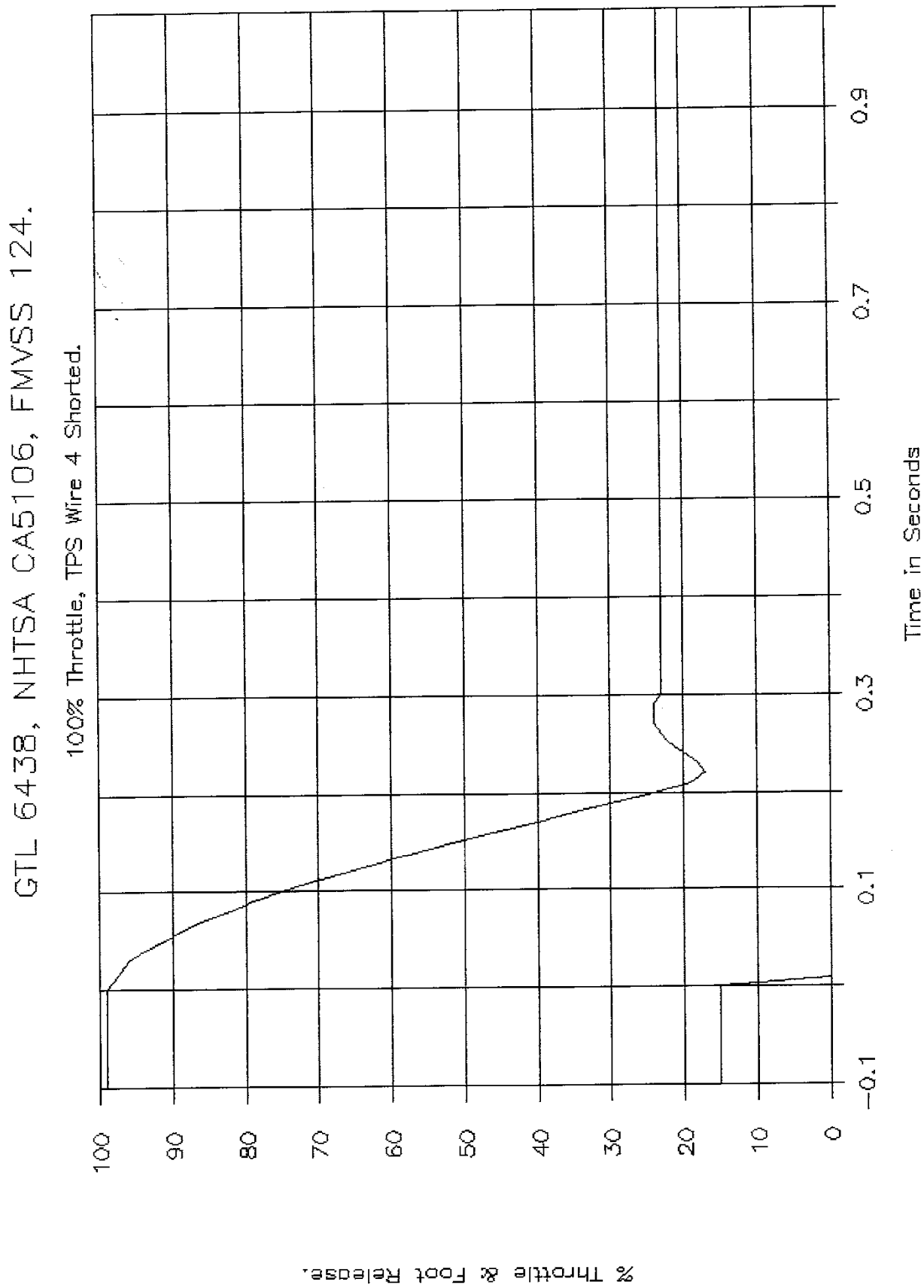

GTL 6433, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 5 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

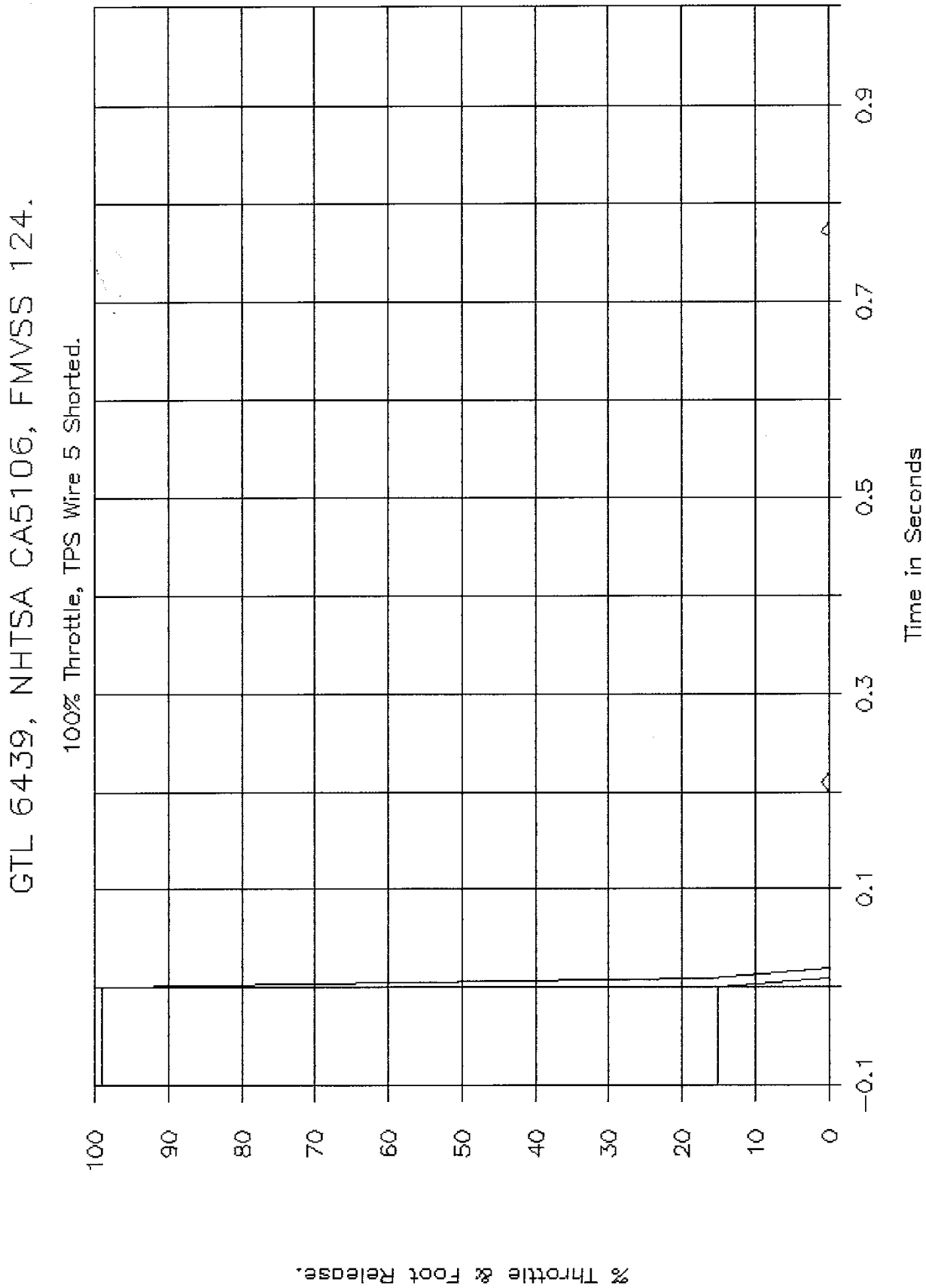

GTL 6434, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 6 Open.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

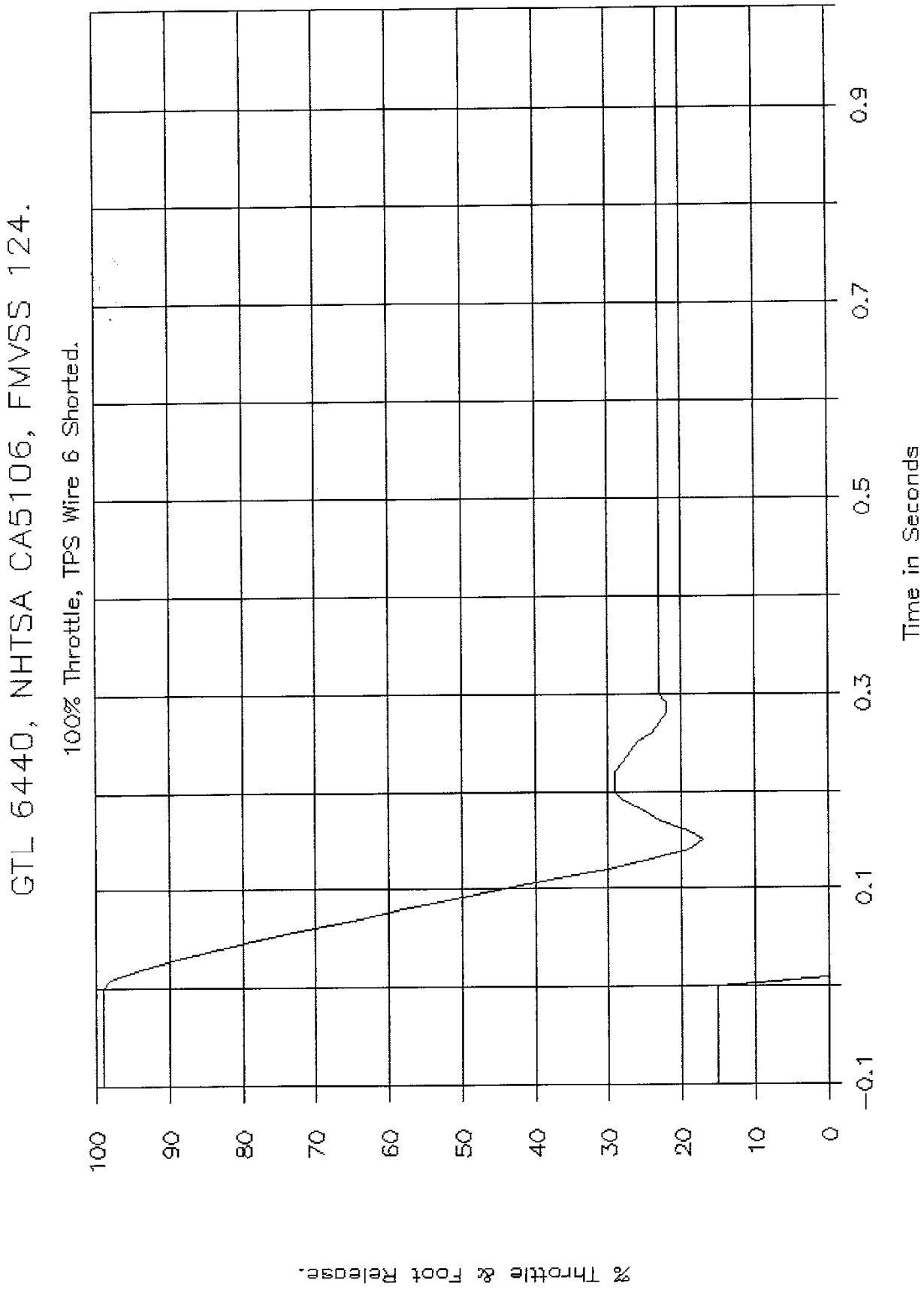

GTL 6435, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 1 Shorted.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

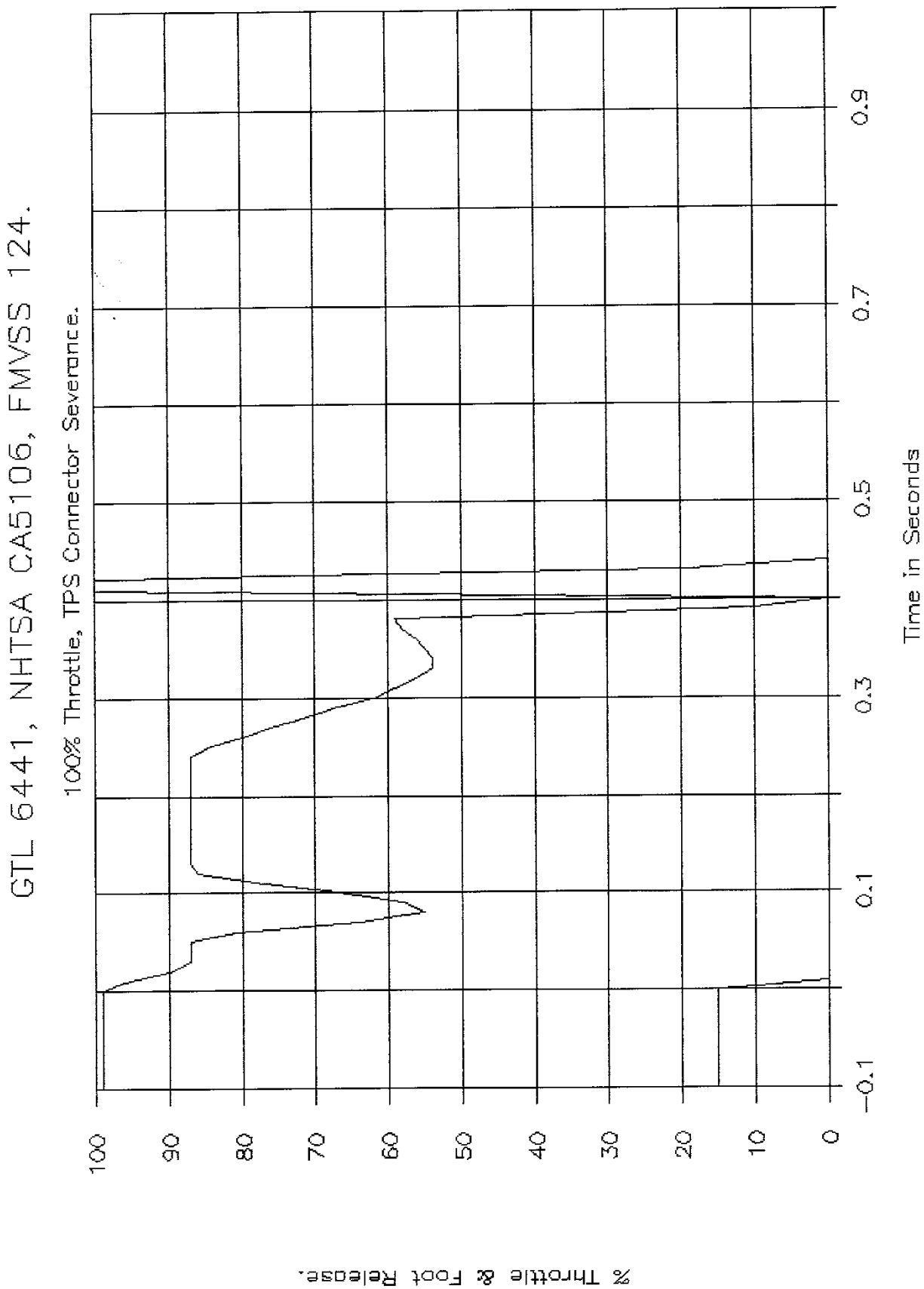

GTL 6436, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 2 Shorted.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

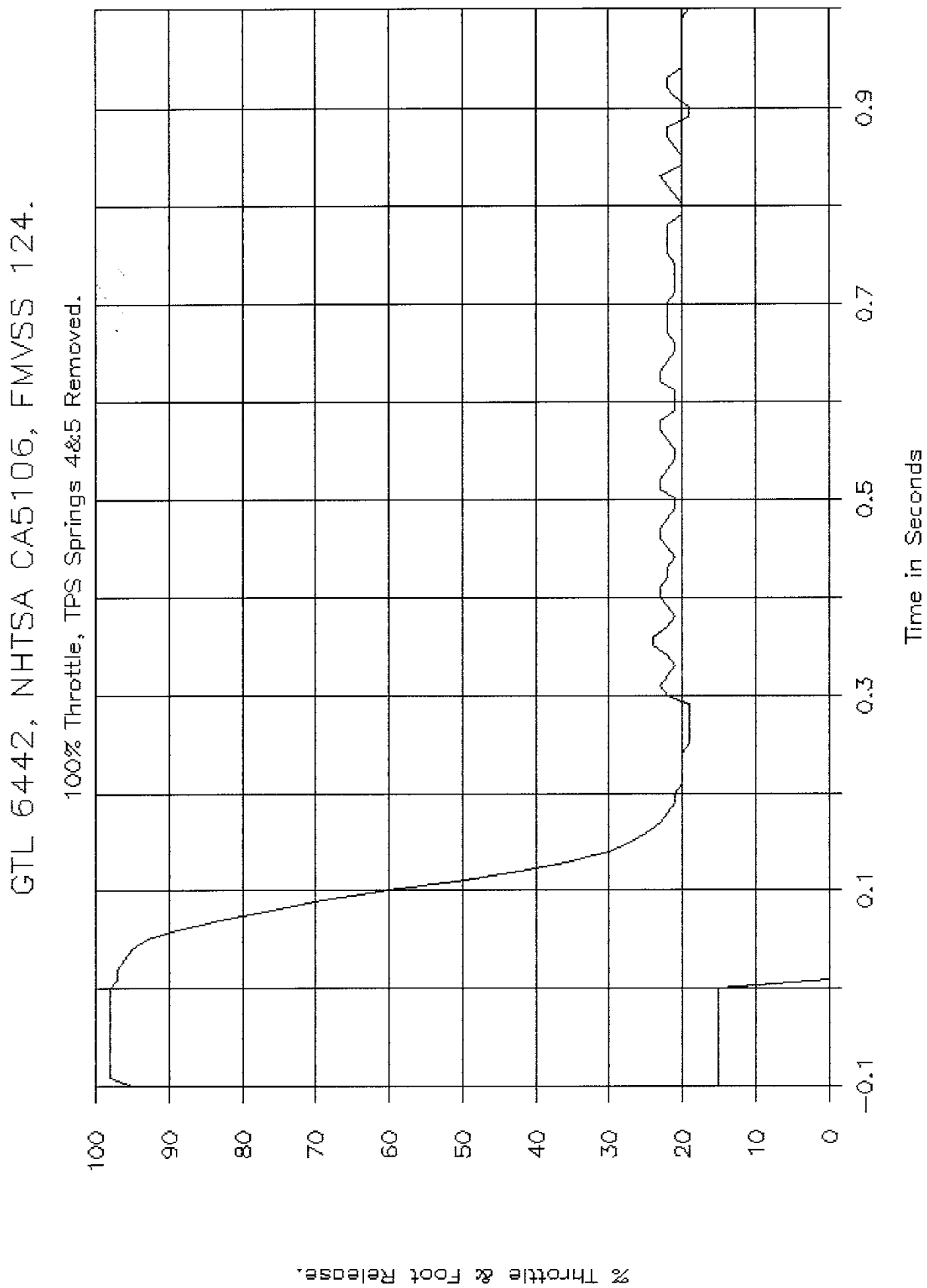

GTL 6437, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 3 Shorted.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

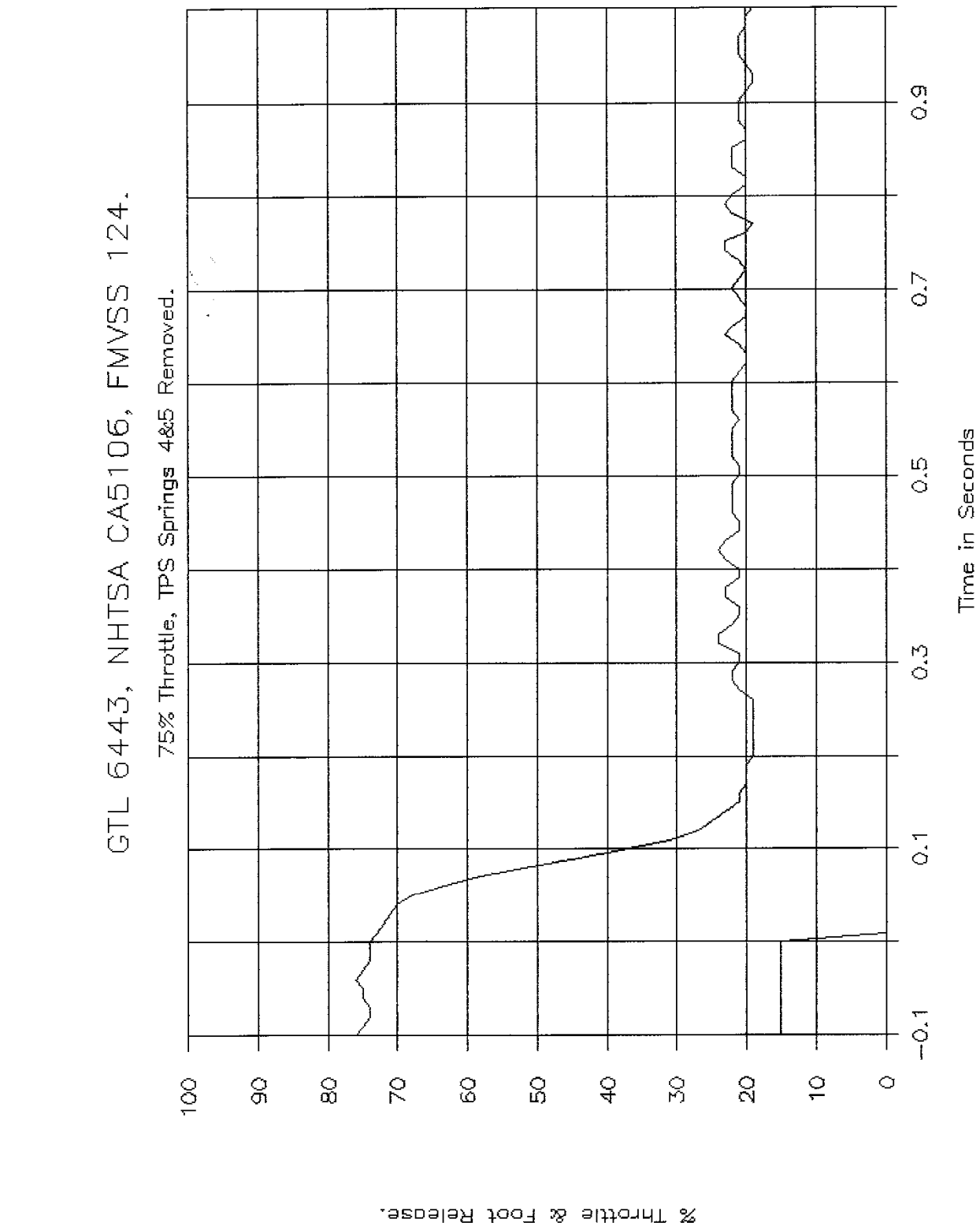

GTL 6438, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 4 Shorted.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds

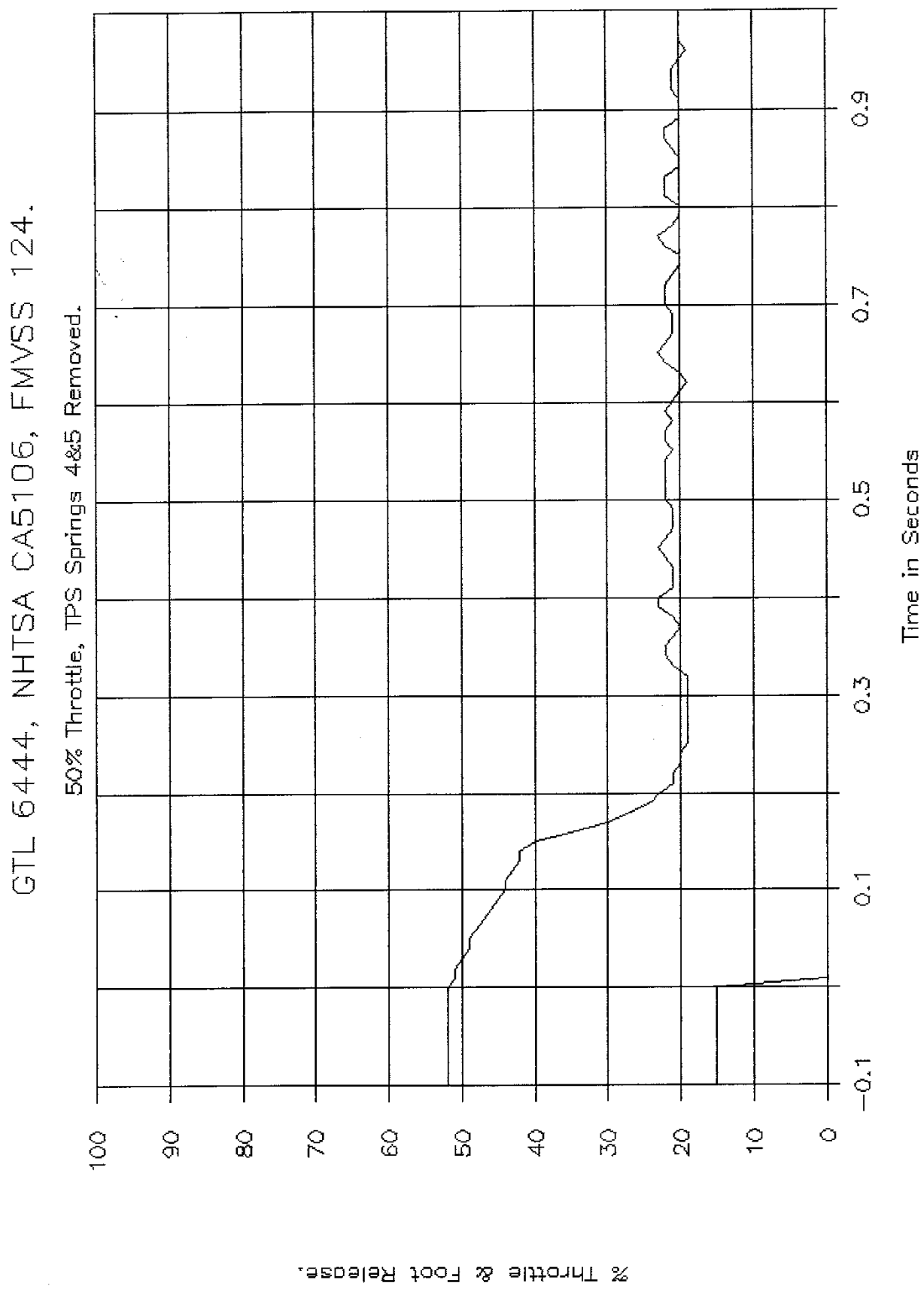

GTL 6439, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 5 Shorted.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9

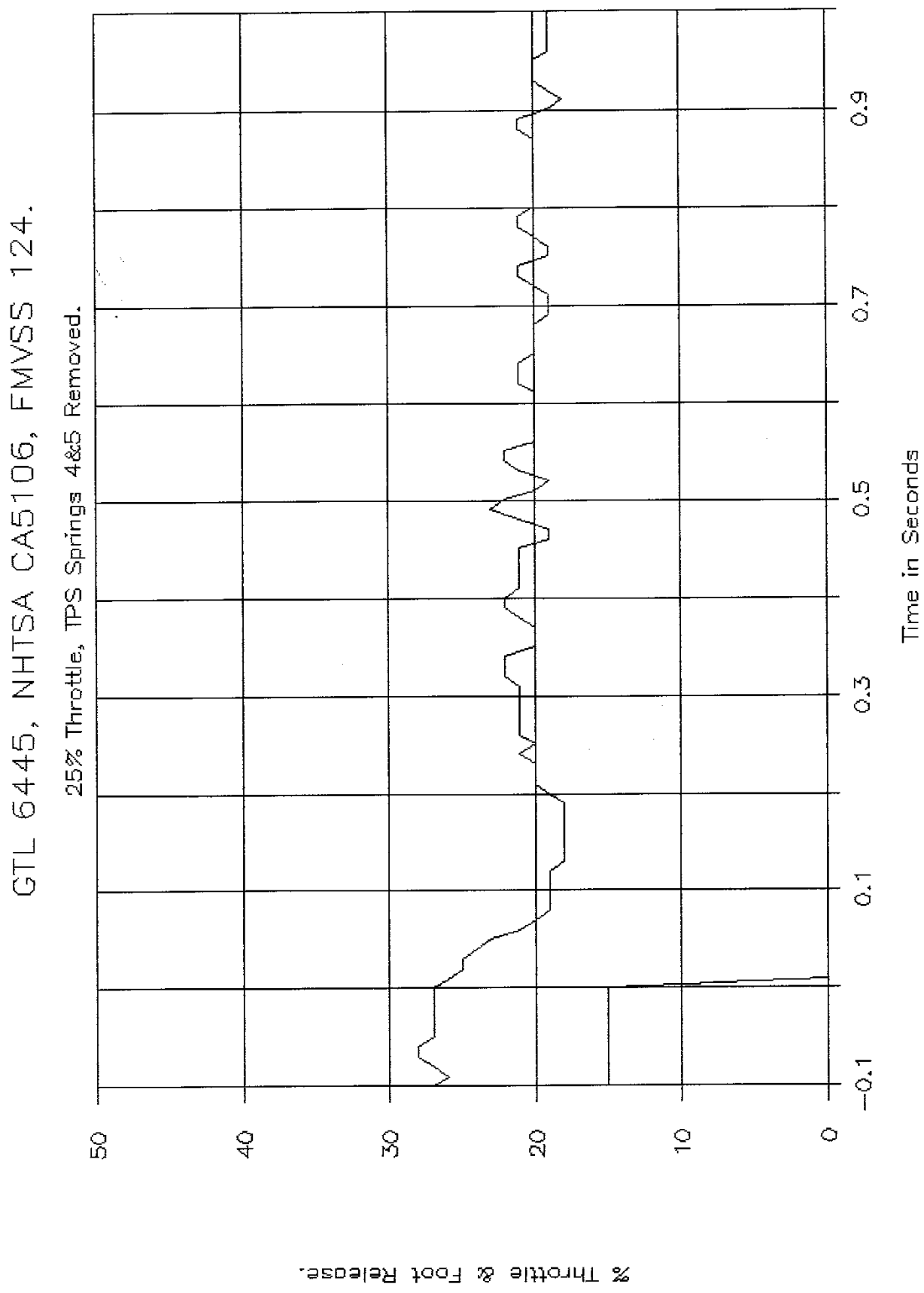

GTL 6440, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Wire 6 Shorted.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds


GTL 6441, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Connector Severance.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9


GTL 6442, NHTSA CA5106, FMVSS 124.
100% Throttle, TPS Springs 4&5 Removed.
% Throttle & Foot Release.
Time in Seconds
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9


GTL 6443, NHTSA CA5106, FMVSS 124.
75% Throttle, TPS Springs 4&5 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds


GTL 6444, NHTSA CA5106, FMVSS 124.
50% Throttle, TPS Springs 4&5 Removed.
% Throttle & Foot Release.
100
90
80
70
60
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds


GTL 6445, NHTSA CA5106, FMVSS 124.
25% Throttle, TPS Springs 4&5 Removed.
% Throttle & Foot Release.
50
40
30
20
10
0
-0.1
0.1
0.3
0.5
0.7
0.9
Time in Seconds