

Sensor Specifications
(America)

LAUNCH Tech Co.,Ltd.
[Http://www.launch-tech.com](http://www.launch-tech.com)

1990-97 FORD

1. 1990

Applicable Vehicle Types:

Ford: All Vehicle Types

1) Water Temperature Sensor, Intake Air Temperature Sensor Resistance And Voltage (Except 2.2l Probe)

Temperature (°C)	Voltage (V)	Resistance(Kw)
120	0.27	1.18
110	0.35	1.55
100	0.46	2.07
90	0.60	2.80
80	0.78	3.84
70	1.02	5.37
60	1.33	7.70
50	1.70	10.97
40	2.13	16.15
30	2.60	24.27
20	3.07	37.30
10	3.51	58.75

2) Vane Type Intake Air Temperature Sensor Resistance Specification (Probe 2.2l)

Temperature (°C)	Voltage (V)	Ohm(Kw)
120	0.38	0.11
110	0.46	0.14
100	0.56	0.19
90	0.76	0.25
80	0.95	0.33
70	1.19	0.44
60	1.49	0.60
50	1.84	0.83
40	2.23	1.18
30	2.65	1.70
20	3.07	2.50
10	3.46	3.77

3) Water Temperature Sensor, Vane Type Intake Air Temperature Sensor(Vat) Resistance And Voltage Specification (2.2l Probe)

Temperature (°C)	Voltage (V)	Ohm (Ω)
-20	4.70	10-20
0	3.40	4-7
20	2.50	2-3
40	2.00	0.9-1.3
60	1.20	0.4-0.7
80	0.70	0.2-0.4

4) EGR Valve Position Sensor Voltage Specification
(Except 2.2l Probe)

EGR Valve Throttle Opening(%)	Volt
0	0.40
10	0.75
20	1.10
30	1.45
40	1.80
50	2.15
60	2.50
70	2.85
80	3.20
90	3.55
100	3.90

5) EGR Valve Position Sensor Voltage Specification
(2.2l Probe)

Manifold Vacuum Limiter (Inch-Hg)	Volt
0	0.867
1	0.893
2	0.923
3	1.434
4	1.84
5	2.09
6	3.86
7	4.93
8	4.93

6) Quality Air Flow Sensor Signal Voltage

Velocity (Mile/Hr.)	Volt
Idle	0.60
20	1.10
40	1.70
60	2.10

7) Manifold Absolute Pressure Sensor Frequency Specification

Atmospheric Pressure (Inch-Hg)	Frequency (Hz)
17.1	122.4
18.3	125.5
19.5	128.7
20.7	131.9
21.8	135.1
23.0	138.3
24.2	141.8
25.4	145.4
26.6	148.9
27.7	152.5
28.9	156.1
30.1	159.6
31.0	162.4

8) Manifold Absolute Pressure Sensor Frequency Specification

Manifold Vacuum Limiter (Inch-Hg)	Frequency (Hz)
0	159
3	150
6	141
9	133
12	125
15	117
18	109
21	102
24	95
27	88
30	80

9) Oxygen Sensor Voltage Specification(2.2l Probe)

Status	Voltage
Acceleration	Raising
Deceleration	Depression
Idle	0.2-0.8

10) Throttle Position Sensor Voltage Specification

Sensor Setting Value (KOEO&KOER)			Signal Voltage Scope	
Applicable Models	Pivot Angle (°)	Voltage Scope	Min	Max
1.9l PFI	4-13.0	0.80-1.20	0.24	4.84
1.9l MA PFI	3-13.0	0.70-1.20	0.20	4.84
1.9l TBI				
Off	0-12.0	0.49-1.15	0.39	4.84
Running	2.5-14.0	0.71-1.25	0.39	4.84
2.3l OHC PFI	0-13.5	0.59-1.22	0.20	4.84
2.3l HSC PFI	0-13.5	0.73-1.22	0.20	4.84
3.0l PFI	0-13.5	0.59-1.22	0.34	4.84
3.0l SHO MA PFI	0-4.5	0.38-0.82	0.23	4.84
3.8l PFI	3-13.5	0.73-1.22	0.39	4.84
3.8l MA PFI	0-13.5	0.49-1.22	0.39	4.84
5.0l PFI	3-13.5	0.73-1.22	0.39	4.84
5.0l MA PFI	0-13.5	0.49-1.22	0.39	4.84

11) Throttle Position Sensor Voltage And Resistance Specification (Probe 2.2l)

Throttle Opening	Volt	Ohm (Ω)
1/8	0.998	0.989
2/8	1.60	1.104
3/8	2.37	1.278
4/8	2.74	1.462
5/8	3.15	1.480

6/8	3.43	1.459
7/8	3.60	1.144
8/8	4.02	1.072

12) Vane Type Air Flow Sensor Voltage Specification
(Probe 2.2I)

Vane Throttle Opening	Volt(Change Range 15%)
1/8	3.24
2/8	5.60
3/8	5.62
4/8	5.83
5/8	6.02
6/8	6.57
7/8	7.46
8/8	7.87

13) Vane Type Air Flow Sensor Voltage Specification
(Probe 2.2I)

Air Flux (M ³ /Hr.)	Volt
9	0.80
16	1.35
26	1.85
40	2.25
60	2.65
100	3.15
160	3.60
240	4.0
380	4.5

14) Crankshaft Position Sensor Resistance Value: 210-250 ω

15) Cylinder Identification Sensor Resistance Value: 210-260 ω

16) Heated Oxygen Sensor Voltage Value: 0.2-0.8 V

17) Knock Sensor Resistance Value(Except 2.2I Probe) :
>10 ω

18) Knock Sensor Resistance Value(2.2I Probe) : About 0.03 ω

19) Torque Convertor RPM sensor resistance Value(2.2I Probe) : 210-260 ω

20) Vehicle Speed Sensor Voltage Value: 1.5-6.5v

21) Throttle Position Sensor Voltage Specification
(Except 2.2I Probe)

Applicable Types	Close	Full Open
4 Cylinder	0.9-1.1v	4.0v

22) Throttle Position Sensor Voltage Specification(2.2I Probe)

Red Line (Re.) Voltage	White Line (Throttle Close) Voltage	White Line (Throttle Full Open) Voltage
---------------------------	---	---

4.50-4.59	0.37-0.54	3.58-4.23
4.60-4.69	0.38-0.55	3.66-4.32
4.70-4.79	0.39-0.56	3.74-4.41
4.80-4.89	0.40-0.57	3.82-4.51
4.90-4.99	0.40-0.58	3.90-4.60
5.00-5.09	0.41-0.60	3.97-4.70
5.10-5.19	0.42-0.61	4.05-4.79
5.20-5.29	0.43-0.62	4.13-4.88
5.30-5.39	0.44-0.63	4.21-4.98
5.40-5.49	0.44-0.64	4.29-5.07
5.50	0.44-0.66	4.29-5.17

2. 1991

Applicable Vehicle Types:

Ford: Crown Victoria, Escort, Mustang, Probe, Taurus, Tempo, Thunderbird

Lincoln: Continental, Mark Vii, Town Car

Mercury: Cougar, Grand Marquis, Sable, Topaz, Tracer

1) Water Temperature Sensor Resistance Value Specification

Temperature (°C)	Ohm (Ω)
20	2200-2700
40	1000-1300
60	500-650
80	250-350

2) EGR Valve Position Sensor Voltage Specification

EGR Valve Throttle Opening (%)	Volt
0	0.40-0.83
10	0.75-1.18
20	1.10-1.52
30	1.45-1.87
40	1.80-2.22
50	2.15-2.57
60	2.50-2.91
70	2.85-3.26
80	3.20-3.61
90	3.55-3.95
100	3.90-4.30

3) Oxygen Sensor Voltage Value

Status	Voltage
Acceleration	Raising
Deceleration	Depression
Idle	0.2-0.8

4) Vane Type Air Flow Sensor Voltage Value

Vane Throttle Opening	Volt(Change Range 15%)
All Close	3.90
1/8	3.24
2/8	5.60
3/8	5.62
4/8	5.83
5/8	6.02
6/8	6.57
7/8	7.46
8/8	7.87

5) Vane Type Intake Air Temperature Sensor Voltage Value
(Change Range 15%)

Temperature (°C)	Voltage (V)
-6	3.64
-1	3.36
4	3.05
7	2.79
10	2.29
16	2.61
21	2.35
27	2.05
32	1.76
38	1.57

6) Water Temperature Sensor, Intake Air Temperature Sensor Resistance And Voltage Specification
(Except 1.8/2.2/5.8l)

Temperature (°C)	Voltage (V)	Ohm(Kw)
100	0.46	2.07
90	0.60	2.80
80	0.78	3.84
70	1.02	5.37
60	1.33	7.70
50	1.70	10.97
40	2.13	16.15
30	2.60	24.27
20	3.07	37.30
10	3.51	58.75

7) EGR Valve Position Sensor Voltage Specification
(2.2l Probe& California)

Manifold Vacuum Limiter (Inch-Hg)	Volt
0	0.867
1	0.893
2	0.923
3	1.434
4	1.84
5	2.09
6	3.86
7	4.93

8	4.93
---	------

8) Quality Air Flow Sensor Signal Voltage

Velocity (Mile/Hr.)	Volt
Idle	0.60
20	1.10
40	1.70
60	2.10

9) Manifold Absolute Pressure Sensor Frequency Specification

Atmospheric Pressure (Inch-Hg)	Frequency (Hz)
17.1	122.4
18.3	125.5
19.5	128.7
20.7	131.9
21.8	135.1
23.0	138.3
24.2	141.8
25.4	145.4
26.6	148.9
27.7	152.5
28.9	156.1
30.1	159.6
31.0	162.4

10) Manifold Absolute Pressure Sensor Frequency Specification

Manifold Vacuum Limiter (Inch-Hg)	Frequency (Hz)
0	159
3	150
6	141
9	133
12	125
15	117
18	109
21	102
24	95
27	88
30	80

11) Throttle Position Sensor Voltage Value Specification

Throttle Opening	Volt
0	0.50
10	0.97
20	1.44
30	1.90
40	2.37
50	2.84
60	3.31
70	3.78

80	4.24
----	------

12) Manifold Absolute Pressure Sensor Voltage Output Specification

Altitude (Feet)	Volt
0	1.55-1.63
1000	1.52-1.60
2000	1.49-1.57
3000	1.46-1.54
4000	1.43-1.51
5000	1.40-1.48
6000	1.37-1.45
7000	1.35-1.43

13) Pressure Feedback EGR Sensor Voltage Specification
(Change Range 15%)

Pressure (PSI)	Volt
1.82	4.75
1.36	4.38
0.91	4.00
0.46	3.63
0.0	3.25
-2.47	1.22
-3.63	0.25

14) Triangle Pressure Feedback EGR Sensor Voltage Specification (Change Range 15%)

Pressure (PSI)	Volt
4.34	4.56
3.25	3.54
2.17	2.51
1.08	1.48
0.0	0.45

15) Cylinder Identification Sensor No.2 Resistance Value
(2.2l Turbo) : 210-260 ω

16) Heated Oxygen Sensor Voltage Value Specification

Status	Voltage
Rev Increase	Raising
Rev Decrease	Depression
Idle	0.2-0.6

17) Knock Sensor Voltage Value(2.2l Turbo) : >0.03 V

18) Manual Joy Stick Position Sensor Voltage And Resistance Specification
(Change Range 15%)

Position	Volt	Ohm (Ω)
P	4.41	4160
R	3.60	1440
N	2.83	2733
D	2.09	401
1	0.68	81

19) Transmission Oil Temperature Sensor Voltage And Resistance Specification (Change Range 15%)

Temperature (°C)	Voltage (V)	Ohm (Ω)
0	3.88	96255
5	3.71	75201
10	3.53	59175
15	3.32	46883
20	3.10	37387
25	2.86	30000
30	2.62	24215
35	2.38	19657
40	2.15	16043
45	1.92	13161
50	1.71	10050
55	1.51	8990
60	1.33	7387
65	1.17	6265
70	1.03	5260
75	0.90	4450
80	0.78	3775
85	0.69	3215
90	0.60	2750
95	0.52	2361

20) Electron Vacuum Adjustment Sensor Resistance Value

Displacement	Ohm (Ω)
5.8l	20-45

21) Throttle Position Sensor Voltage Specification
(Except 2.2l Probe)

Applicable Types	Close	Full Open
1.8l A/T&2.2l	0.99v	4.02v
1.9l	0.34v	4.84v
2.3l HSC	0.20 V	4.84 V
2.3l OHC	0.34 V	4.84 V
2.5l	0.39 V	4.84 V

22) Knock Sensor Voltage Value(2.2l Turbo) : > 0.03v

3. 1992

Applicable Vehicle Types:

Ford: Crown Victoria, Escort, Mustang, Probe, Taurus, Tempo, Thunderbird

Lincoln: Continental, Mark Vii, Town Car

Mercury: Cougar, Grand Marquis, Sable, Topaz, Tracer

1) Water Temperature Sensor Resistance Value Specification

Temperature (°C)	Ohm (Ω)
20	2200-2700
40	1000-1300

60	500-650
80	250-350

2) EGR Valve Position Sensor Voltage Specification
(Change Range 15%)

EGR Valve Throttle Opening(%)	Volt
0	0.40
10	0.75
20	1.10
30	1.45
40	1.80
50	2.15
60	2.50
70	2.85
80	3.20
90	3.55
100	3.90

3) Oxygen Sensor Voltage Value Specification

Status	Voltage
Acceleration	Raising
Deceleration	Depression
Idle	0.2-0.8

4) Vane Type Air Flow Sensor Voltage Value

Vane Throttle Opening	Volt(Change Range 15%)
All Close	3.90
1/8	3.24
2/8	5.60
3/8	5.62
4/8	5.83
5/8	6.02
6/8	6.57
7/8	7.46
8/8	7.87

5) Vane Type Intake Air Temperature Sensor Voltage Value
(Change Range 15%)

Temperature (°C)	Voltage (V)
-6	3.64
-1	3.36
4	3.05
7	2.79
10	2.29
16	2.61
21	2.35
27	2.05
32	1.76
38	1.57

6) Water Temperature Sensor, Intake Air Temperature Sensor Resistance And Voltage Specification

(Change Range 15%)

Temperature (°C)	Voltage (V)	Ohm(K ω)
100	0.46	2.07
90	0.60	2.80
80	0.78	3.84
70	1.02	5.37
60	1.33	7.70
50	1.70	10.97
40	2.13	16.15
30	2.60	24.27
20	3.07	37.30
10	3.51	58.75

7) EGR Valve Position Sensor Voltage Specification

Manifold Vacuum Limiter (Inch-Hg)	Volt
0	0.867
1	0.893
2	0.923
3	1.434
4	1.84
5	2.09
6	3.86
7	4.93
8	4.93

8) Quality Air Flow Sensor Signal Voltage

Velocity (Mile/Hr.)	Volt
Idle	0.60
20	1.10
40	1.70
60	2.10

9) Manifold Absolute Pressure Sensor Frequency Specification (Change Range 15%)

Atmospheric Pressure (Inch-Hg)	Frequency (Hz)
17.1	122.4
18.3	125.5
19.5	128.7
20.7	131.9
21.8	135.1
23.0	138.3
24.2	141.8
25.4	145.4
26.6	148.9
27.7	152.5
28.9	156.1
30.1	159.6
31.0	162.4

10) Manifold Absolute Pressure Sensor Frequency Specification (Change Range 15%)

Manifold Vacuum Limiter (Inch-Hg)	Frequency (Hz)
0	159
3	150
6	141
9	133
12	125
15	117
18	109
21	102
24	95
27	88
30	80

11) Throttle Position Sensor Voltage Value Specification
(Except 1.8l&2.2l)

Throttle Opening	Volt
0	0.50
10	0.97
20	1.44
30	1.90
40	2.37
50	2.84
60	3.31
70	3.78
80	4.24

12) Manifold Absolute Pressure Sensor Voltage Output Specification

Altitude (Feet)	Volt
0	1.55-1.63
1000	1.52-1.60
2000	1.49-1.57
3000	1.46-1.54
4000	1.43-1.51
5000	1.40-1.48
6000	1.37-1.45
7000	1.35-1.43

13) Pressure Feedback EGR Sensor Voltage Specification
(Change Range 15%)

Pressure (PSI)	Volt
1.82	4.75
1.36	4.38
0.91	4.00
0.46	3.63
0.0	3.25
-2.47	1.22
-3.63	0.25

14) Triangle Pressure Feedback EGR Sensor Voltage Specification(Change Range 15%)

Pressure (PSI)	Vacuum (Inch-Hg)	Volt
----------------	------------------	------

4.34	8.83	4.56
3.25	6.62	3.54
2.17	4.41	2.51
1.08	2.21	1.48
0.0	0	0.45

15) Cylinder Identification Sensor No.2 Resistance Value (2.2l Turbo) : 210-260 ω

16) Heated Oxygen Sensor Voltage Value Specification

Status	Voltage
Acceleration	Raising
Deceleration	Depression
Idle	0.2-0.6

17) Knock Sensor Voltage Value(2.2l Turbo) : >0.03 V

18) Manual Joy Stick Position Sensor Resistance Specification

Position	Ohm (Ω)
R	3770-4607
P	1304-1593
N	660-807
D(Overspeed Gear)	361-442
D	190-232
1	78-95

19) Transmission Oil Temperature Sensor Voltage And Resistance Specification (Change Range 15%)

Temperature ($^{\circ}\text{C}$)	Voltage (V)	Ohm (Ω)
0	3.88	96255
5	3.71	75201
10	3.53	59175
15	3.32	46883
20	3.10	37387
25	2.86	30000
30	2.62	24215
35	2.38	19657
40	2.15	16043
45	1.92	13161
50	1.71	10050
55	1.51	8990
60	1.33	7387
65	1.17	6265
70	1.03	5260
75	0.90	4450
80	0.78	3775
85	0.69	3215
90	0.60	2750
95	0.52	2361

20) Vane Type Intake Air Temperature Sensor Resistance Value(Change Range 15%)

Temperature ($^{\circ}\text{C}$)	Ohm (Ω)
-20	15000
0	5210

20	2500
40	1100
60	600
80	300

21) Throttle Position Sensor Voltage And Resistance Specification (1.8l A/T&2.2l)

Throttle Opening	Volt	Ohm (Ω)
1/8	0.998	0.989
2/8	1.60	1.104
3/8	2.37	1.278
4/8	2.74	1.462
5/8	3.15	1.480
6/8	3.43	1.459
7/8	3.60	1.144
8/8	4.02	1.072

22) Knock Sensor Voltage Value(2.2l Turbo) : > 0.03v

4. 1993

Applicable Vehicle Types:

Ford: Crown Victoria, Escort, Mustang, Probe, Taurus, Tempo, Thunderbird

Lincoln: Continental, Mark VIII, Town Car

Mercury: Cougar, Grand Marquis, Sable, Topaz, Tracer

1) Water Temperature Sensor Resistance Value Specification

Temperature ($^{\circ}\text{C}$)	Ohm (Ω)
20	2200-2700
40	1000-1300
60	500-650
80	250-350

2) Engine Cooling Fan Coolant Temperature Sensor Resistance Specification

Temperature ($^{\circ}\text{C}$)	Ohm (Ω)
91	1700-1840
97	1420-1530
108	1030-1110

3) Heated Oxygen Sensor Voltage Value Specification

Status	Voltage
Acceleration	0.5-1.0
Rev Decrease	0-0.5
Idle(cold engine)	0
Idle(heat engine)	0-1
Ignition Switch On, Engine Turn Off	0

4) Vane Type Air Flow Sensor Voltage Value

Vane Throttle Opening	Volt(Change Range 15%)
-----------------------	------------------------

All Close	3.90
1/8	3.24
2/8	5.60
3/8	5.62
4/8	5.83
5/8	6.02
6/8	6.57
7/8	7.46
8/8	7.87

5) Barometric Pressure Sensor Voltage Value

Vacuum (Inch-Hg)	Volt
0	3.9
4	3.6
8	3.1
12	2.5
16	2.0
20	1.5
24	0.9
28	0.4

6) Water Temperature Sensor, Intake Air Temperature Sensor Resistance And Voltage Specification(Change Range 15%)

Temperature (°C)	Voltage (V)	Ohm(K ω)
100	0.46	2.07
90	0.60	2.80
80	0.78	3.84
70	1.02	5.37
60	1.33	7.70
50	1.70	10.97
40	2.13	16.15
30	2.60	24.27
20	3.07	37.30
10	3.51	58.75

7) Intake Air Temperature Sensor Resistance Value Specification

Temperature (°C)	Ohm (Ω)
1.8I&2.5I	
0	10000-20000
20	2000-3000
40	900-1300
2.0I A/T	
0	72100-79400
13	54300-58600
25	29700-36300
43	17900-19300

8) Quality Air Flow Sensor Voltage

Status	Volt
--------	------

Engine Running	1.5-5.0
Ignition Switch On	1.0-1.5
Idle	0.6
20 Mile/Hr.	1.1
40 Mile/Hr.	1.7
60 Mile/Hr.	2.1

9) Manifold Absolute Pressure Sensor Frequency Specification (Change Range 15%)

Atmospheric Pressure (Inch-Hg)	Frequency (Hz)
17.1	122.4
18.3	125.5
19.5	128.7
20.7	131.9
21.8	135.1
23.0	138.3
24.2	141.8
25.4	145.4
26.6	148.9
27.7	152.5
28.9	156.1
30.1	159.6
31.0	162.4

10) Manifold Absolute Pressure Sensor Frequency Specification (Change Range 15%)

Manifold Vacuum Limiter (Inch-Hg)	Frequency (Hz)
0	159
3	150
6	141
9	133
12	125
15	117
18	109
21	102
24	95
27	88
30	80

11) Throttle Position Sensor Voltage Value Specification
(Except 1.8l&2.2l)

Throttle Opening	Volt
0	0.50
10	0.97
20	1.44
30	1.90
40	2.37
50	2.84
60	3.31
70	3.78

80	4.24
----	------

12) Manifold Absolute Pressure Sensor Voltage Output Specification

Altitude (Feet)	Volt
0	1.55-1.63
1000	1.52-1.60
2000	1.49-1.57
3000	1.46-1.54
4000	1.43-1.51
5000	1.40-1.48
6000	1.37-1.45
7000	1.35-1.43

13) Pressure Feedback EGR Sensor Voltage Specification (Change Range 15%)

Pressure (PSI)	Vacuum (Inch-Hg)	Volt
1.82	3.70	4.75
1.36	2.79	4.38
0.91	1.85	4.00
0.46	0.94	3.63
0.0	0	3.25
-2.47	-5.03	1.22
-3.63	-7.40	0.25

14) Triangle Pressure Feedback EGR Sensor Voltage Specification(Change Range 15%)

Pressure (PSI)	Vacuum (Inch-Hg)	Volt
4.34	8.83	4.56
3.25	6.62	3.54
2.17	4.41	2.51
1.08	2.21	1.48
0.0	0	0.45

15) Activity Fuel Sensor Voltage Output Frequency Specification

Methanol Percentage	Frequency
0	30-70
10	40-80
20	50-80
30	60-100
40	70-110
50	80-120
60	90-130
70	100-140
80	110-150
90	120-160
100	130-170

16) Manual Joy Stick Position Sensor Resistance Specification

Position	Ohm (Ω)
R	3770-4607
P	1304-1593
N	660-807
D(Overspeed Gear)	361-442
D	190-232

1	78-95
---	-------

17) EGR Temperature Sensor Resistance Specification

Temperature (°C)	Ohm (Ω)
20	182000-336000
30	112000-165000
41	41300-47600
52	7500-10500

18) EGR Valve Position Sensor Voltage Specification

Vacuum (Inch-Hg)	Volt
0	0.8
6	5.0

19) Transmission Oil Temperature Sensor Voltage And Resistance Specification (Change Range 15%)

Temperature (°C)	Voltage(V)	Resistance(Ohm)
Escort&Tracer		
0	4.82	52000
20	4.61	23000
40	4.26	11000
60	3.74	5600
100	2.40	1710
All Other Vehicle Types		
0	3.88	96255
15	3.32	46883
40	2.15	16043
70	1.03	5260
90	0.60	2750

20) Vane Type Intake Air Temperature Sensor Resistance Value (Change Range 15%)

Temperature (°C)	Ohm (Ω)
-20	15000
0	5210
20	2500
40	1100
60	600
80	300

21) Throttle Position Sensor Voltage And Resistance Specification(Change Range 15%)

Throttle Opening	Volt	Ohm (Ω)
1.8I A/T		
1/8	0.998	0.989
2/8	1.60	1.104
3/8	2.37	1.278
4/8	2.74	1.462
5/8	3.15	1.480
6/8	3.43	1.459
7/8	3.60	1.144
8/8	4.02	1.072

2.0l A/T&2.5l		
All Close	0.5	0.4
1/4	1.3	0.6
1/2	2.2	1.6
3/4	2.9	2.2
Full Open	3.7	3.0

5. 1994

Applicable Vehicle Types:

Ford: Crown Victoria, Escort, Mustang, Probe, Taurus, Tempo, Thunderbird

Lincoln: Continental, Mark VIII, Town Car

Mercury: Cougar, Grand Marquis, Sable, Topaz, Tracer

1) Water Temperature Sensor Resistance Value Specification

Temperature (°C)	Ohm (Ω)
20	2200-2700
40	1000-1300
60	500-650
80	250-350

2) Oxygen Sensor Voltage Value Specification

Status	Voltage
Acceleration	0.5-1.0
Rev Decrease	0-0.5
Idle(cold engine)	0
Idle(heat engine)	0-1
Ignition Switch On, Engine Turn Off	0

3) Vane Type Air Flow Sensor Voltage Value

Vane Throttle Opening	Volt(Change Range 15%)
All Close	3.90
1/8	3.24
2/8	5.60
3/8	5.62
4/8	5.83
5/8	6.02
6/8	6.57
7/8	7.46
8/8	7.87

4) Barometric Pressure Sensor Output Frequency

Atmospheric Pressure (Inch-Hg)	Frequency (Hz)
17.1	122.4
18.3	125.5
19.5	128.7
20.7	131.9
21.8	135.1

23.0	138.3
24.2	141.8
25.4	145.4
26.6	148.9
27.7	152.5
28.9	156.1
30.1	159.6
31.0	162.4

5) Water Temperature Sensor, Intake Air Temperature Sensor Resistance And Voltage Specification(Change Range 15%)

Temperature (°C)	Voltage (V)	Ohm(K ω)
100	0.46	2.07
90	0.60	2.80
80	0.78	3.84
70	1.02	5.37
60	1.33	7.70
50	1.70	10.97
40	2.13	16.15
30	2.60	24.27
20	3.07	37.30
10	3.51	58.75

6) Quality Air Flow Sensor Voltage

Status	Volt
Idle	0.6
20 Mile/Hr.	1.1
40 Mile/Hr.	1.7
60 Mile/Hr.	2.1

7) Throttle Position Sensor Voltage Value Specification

Throttle Opening	Volt
0	0.50
13	1.21
26	1.82
39	2.43
52	3.03
65	3.65
78	4.26

8) Pressure Feedback EGR&Pressure Difference Feedback Sensor Voltage Specification(Change Range 15%)

Pressure (PSI)	Vacuum (Inch-Hg)	Volt
4.34	8.83	4.56
3.25	6.62	3.54
2.17	4.41	2.51
1.08	2.21	1.48
0.0	0	0.45

9) Activity Fuel Sensor Output Frequency Specification

Methanol Percentage	Frequency
0	30-70
10	40-80
20	50-80
30	60-100
40	70-110
50	80-120
60	90-130
70	100-140
80	110-150
90	120-160
100	130-170

10) Manual Joy Stick Position Sensor Resistance Specification

Position	Ohm (Ω)
R	3770-4607
P	1304-1593
N	660-807
D(Overspeed Gear)	361-442
D	190-232
1	78-95

11) EGR Temperature Sensor Resistance Specification

Temperature ($^{\circ}\text{C}$)	Ohm (Ω)
20	182000-336000
30	112000-165000
41	41300-47600
52	7500-10500

12) EGR Valve Position Sensor Voltage Specification

Vacuum (Inch-Hg)	Volt
0	0.8
6	5.0

13) Transmission Oil Temperature Sensor Voltage And Resistance Specification(Change Range 15%)

Temperature ($^{\circ}\text{C}$)	Voltage (Volt)	Resistance (Ohm)
Escort&Tracer		
0	4.82	52000
20	4.61	23000
40	4.26	11000
60	3.74	5600
100	2.40	1710
All Other Vehicle Types		
0	3.88	96255
15	3.32	46883
40	2.15	16043
70	1.03	5260
90	0.60	2750

14) Throttle Position Sensor Voltage And Resistance Specification(Change Range 15%)

Throttle Opening	Volt	Ohm (Ω)
1.8l A/T		
1/8	0.998	0.989
2/8	1.60	1.104
3/8	2.37	1.278
4/8	2.74	1.462
5/8	3.15	1.480
6/8	3.43	1.459
7/8	3.60	1.144
8/8	4.02	1.072
2.0l A/T&2.5l		
All Close	0.5	0.4
1/4	1.3	0.6
1/2	2.2	1.6
3/4	2.9	2.2
Full Open	3.7	3.0

15) Intake Air Temperature Sensor Resistance Value Specification

Temperature ($^{\circ}\text{C}$)	Ohm (Ω)
0	4000-7000
20	2000-3000
40	900-1300
60	400-700

16) Quality Air Flow Sensor Voltage : 0.36-1.50 V

17) Vehicle Speed Sensor Resistance Value: 190-250 ω

18) Throttle Position Sensor Resistance And Voltage Value(1.8l,2.0l&2.5l)

Throttle Opening	Volt	Ohm (Ω)
All Close	0.5	400
1/4	1.3	600
1/2	2.2	1600
3/4	2.9	2200
Full Open	3.7	3000

19) Throttle Position Sensor Resistance And Voltage Value
(Except 1.8l,2.0l&2.5l)

Throttle Opening	Volt(Change Range 15%)
0	0.50
10	0.97
20	1.44
30	1.90
40	2.37
50	2.84
60	3.31
70	3.78
80	4.24

6. 1995

Applicable Vehicle Types: