



Refer to Parts Microfiche Gr. 54 to identify control modules.

**Engines 120.982/983 as of Model Year 1996**

Engine	120.982/983
Models	140.057/076, 129.076
ME-SFI system designation	1.0
<b>Closed throttle (idle) position, check, adjust</b> (07-2053 or 07-2056) <sup>15)</sup>	
Engine oil temperature ..... ° C	>60
Selector lever position .....	P/N
Engine speed ..... rpm	P/N: 600 – 750      D: <650
CTP recognition (accelerator pedal not depressed) ..... HHT display	<b>ON</b>
On-off ratio before right TWC ..... %	0±25 <sup>1)</sup>
On-off ratio before left TWC ..... %	0±25 <sup>1)</sup>
Engine coolant temperature ..... ° C approx.	>80

<sup>1)</sup> In case of complaint, on-off ratio must be measured at idle speed and at 2500 rpm with purge line to engine disconnected and plugged.

<sup>15)</sup> Time Guide operation no. and/or SMS job no.

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Engine	120.982/983
Models	140.057/076, 129.076
ME-SFI system designation	1.0
<b>Engine, check, adjust</b> (07-1100) <sup>15)</sup>	Page 1
Engine oil level	HHT display OK
Fuel tank level	HHT display OK
Engine oil temperature	° C >60
Engine speed (selector lever in P/N position)	rpm 600 – 750
Air mass	kg/h 12 – 18
MAF voltage (increasing rpm = increasing voltage)	V 0.6 – 0.9
Ignition timing with premium unleaded gasoline (91 posted/95 RON) <sup>1)</sup>	° CKA 5 – 20
Injection duration right	ms 3 – 5
Injection duration left	ms 3 – 5
Adjustable camshaft timing solenoid	HHT display <b>OFF</b>
Camshaft Hall-effect sensor, value jumps	HHT display 55-AA
ECT	° C >80
Intake air temperature (IAT)	° C >20
Purge valve on-off ratio	% 10 ± 5
Battery voltage	V 10
Actuator	
Actual value potentiometer r1	V 4.0 – 4.6
Actual value potentiometer r2	V 0.3 – 0.9
Pedal value sensor	
Nominal value potentiometer r1	V 0.2 – 0.5
Nominal value potentiometer r2	V 0.1 – 0.4
CTP recognition (accelerator pedal not depressed)	HHT display <b>ON</b>
WOT recognition	HHT display <b>OFF</b>

<sup>1)</sup> In case of complaint, check ignition timing at full load.

<sup>15)</sup> Time Guide operation no. and/or SMS job no.

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Models	140.057/076, 129.076	
ME-SFI system designation	1.0	
<b>Engine, check, adjust</b>	07-1100	Page 2
Torque	Nm	–
Throttle valve angle	°	0.3 – 2
Throttle valve stop learned	HHT display	<b>YES</b>
On-off ratio before right or left TWC ECT >70°C	%	0 ± 25 <sup>2)</sup> oscillates
Right O2S 1 voltage before TWC	mV	– 200 to + 1000 <sup>12)</sup>
Left O2S 1 voltage before TWC	mV	– 200 to + 1000 <sup>12)</sup>
Self adaptation at partial load, right	Factor	0.77 – 1.28 <sup>5)</sup>
Self adaptation at partial load, left	Factor	0.77 – 1.28 <sup>5)</sup>
Self adaptation at idle speed, right	ms	– 1 to + 1 <sup>4)</sup>
Self adaptation at idle speed, left	ms	– 1 to + 1 <sup>4)</sup>
Driving range (selector lever position)	HHT display	<b>P/N</b>
A/C compressor, EC pushbutton depressed	HHT display	<b>OFF</b>
Purge system	HHT display	<b>OFF/ON</b>
Safety fuel shut off	HHT display	<b>OFF</b>

2) In case of complaint, on-off ratio must be measured at idle speed and at 2500 rpm with purge line to engine disconnected and plugged.  
 4) Base setting at idle, 0.0 kg/h (Bosch) or 0.0% (VDO). Mixture tendency "**rich**" < 0.0 kg/h or 0.0%. Mixture tendency "**lean**" > 0.0 kg/h or 0.0%.  
 5) Base setting partial load = 1.0. Mixture tendency "**rich**" < 1.0, mixture tendency "**lean**" = > 1.0.  
 12) Oscillates around 300 mV after 2 minutes at idle.

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<b>Cold start</b> 07-2321	
Engine rpm while cranking .....	rpm > 200
Battery voltage .....	V 10
Safety fuel shut off .....	HHT display <b>OFF</b>
Engine oil level .....	HHT display OK
Fuel tank level .....	HHT display OK
ECT .....	° C 7)
IAT .....	° C 7)
ECT at starting .....	° C 7)
CTP recognition (accelerator pedal not depressed) .....	HHT display <b>ON</b>

7) Proceed complaint related or temperature related.

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Engine	120.982/983		
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ME-SFI system designation	1.0		
<b>Warmup</b>	07-2023		
Warmup speed <sup>12)</sup> ECT < 40 °C	rpm	approx. 1000 – 1300	
Warmup speed <sup>12)</sup> ECT > 40 °C	rpm	approx. 800	
Engine rpm (raised idle speed temperature dependent)			
ECT approx. -10 °C	rpm	P/N: 800 ± 50	D: 700 ± 50
ECT approx. +15 °C	rpm	P/N: 700 ± 50	D: 650 ± 50
ECT approx. > 50 °C	rpm	P/N: 600 – 750	D: < 650
CTP recognition (accelerator pedal not depressed)	HHT display	<b>ON</b>	
After start enrichment < 70 °C maximum 50 seconds	HHT display	<b>ON</b>	
TWC heating at idle < 30 °C maximum 25 seconds	HHT display	<b>ON</b>	
O2S 1 heater before TWC	V	-	
A/C compressor	HHT display	<b>OFF</b>	

<sup>12)</sup> Raised idle speed for max. approx. 50 seconds after starting.

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Engine	120.982/983		
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ME-SFI system designation	1.0		
<b>Engine performance</b> <sup>7)</sup>	07-1203 or 1206	Page 1	
Engine oil level .....		HHT display	OK
Fuel tank level .....		HHT display	OK
Engine speed .....		rpm	4000
Air mass .....		kg/h	360 – 460
MAF sensor voltage .....		V	–
Ignition timing with premium unleaded gasoline (91 posted/95 RON) .....		°CKA	18 – 22
Injection duration, right .....		ms	11 – 14
Injection duration, left .....		ms	11 – 14
Camshaft timing adjustment 4000 rpm .....		HHT display	<b>ON</b>
Camshaft timing adjustment > 4300 rpm .....		HHT display	<b>OFF</b>
Camshaft Hall-effect sensor, value jumps .....		HHT display	55 – AA
ECT .....		°C	80 – 100
IAT .....		°C	< 30
Purge valve on-off ratio .....		%	–
Battery voltage .....		V	10
Driving range 3 .....		hp	237
Altitude (correction value) .....		Factor	–
Exhaust gas back pressure .....		mbar	< 200

<sup>7)</sup> These are minimum performance values. Do not exceed speed of 80 mph.  
 Simulating engine coolant temperature and intake air temperature is not possible with ME-SFI. When testing WOT position be sure to use an external cooling fan to ensure adequate engine cooling.

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ME-SFI system designation	1.0	
<b>Engine performance</b> <sup>7)</sup>	07-1203 or 1206	Page 2
Actuator	Actual value potentiometer r1 .....	V -
	Actual value potentiometer r2 .....	V -
Pedal value sensor	Nominal value potentiometer r1 .....	V -
	Nominal value potentiometer r2 .....	V -
Throttle valve angle .....		° -
CTP recognition .....	HHT display	<b>OFF</b>
WOT recognition .....	HHT display	<b>ON</b>
Torque .....	Nm	-
Knock control approved .....	HHT display	<b>OFF/ON</b> <sup>14)</sup>
Knock ignition angle/cylinder .....	°CKA	0
Right knock sensor .....	V	> 0.5
Left knock sensor .....	V	> 0.5
Driving range (selector lever position) .....	HHT display	<b>R, D - 1</b>
A/C compressor .....	HHT display	<b>OFF</b>
Transmission overload protection .....	HHT display	<b>OFF</b>
Deceleration shut-off .....	HHT display	<b>OFF</b>
Front axle VSS .....	mph (km/h)	-
Rear axle VSS .....	mph (km/h)	> 62 (100)

<sup>7)</sup> These are minimum performance values. Do not exceed speed of 80 mph. Simulating engine coolant temperature and intake air temperature is not possible with ME-SFI. When testing WOT position be sure to use an external cooling fan to ensure adequate engine cooling.

<sup>14)</sup> HHT display ON if knock control is required.

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Engine	120.982/983
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ME-SFI system designation	1.0
<b>Cruise control</b> Brake switch, brake pedal not depressed ..... HHT display Stop lamp switch, brake pedal not depressed ..... HHT display Move CC switch to corresponding position ..... HHT display Safety contact, CC switch actuated ..... HHT display Safety contact, CC switch not actuated ..... HHT display Cruise control ..... HHT display Maintain transmission range ..... HHT display Cruise control shut-off, function ..... HHT display Cruise control shut-off, safety ..... HHT display	OFF OFF V/SP/B/A ON OFF - - - -
<b>Drive authorization system (DAS)</b> DAS and ME-SFI control modules compatible ..... HHT display Engine control module identified ..... HHT display Engine control module locked ..... HHT display Drive authorization activated ..... HHT display Vehicle locked with RCL ..... HHT display Number of starts with not locked control module ..... Number	YES YES YES YES NO 0



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<b>Idle Quality</b>	
Rpm deviation/cylinder . . . . .	revolution/s <sup>2</sup> 1)
Rpm deviation cut out threshold . . . . .	revolution/s <sup>2</sup> 0.5 2)
Acceleration sensor up to 01/96 . . . . .	V 2.35 – 2.65
Idle quality failure counter as of 02/96 . . . . .	Number 0
<b>On-off ratio</b>	
Idle speed . . . . .	rpm 600 – 750
Engine speed . . . . .	rpm 2500
On-off ratio at WOT and transmission selector lever position 3 . . . . .	% 0±25 constant
On-off ratio at upper partial load and transmission selector lever position “D”, 75 mph (120 km/h), 32 hp (24 kW) . . . . .	% 0±25 oscillating
On-off ratio at lower partial load and transmission selector lever position “D”, 31 mph (50 km/h), 9 hp (7 kW), . . . . .	% 0±25 oscillating
Exhaust gas back pressure . . . . .	mbar <200

1) Entry if value is larger than cut out threshold.  
 2) Temporary test value.