




### Ignition System ECI, ME-SFI Fault Code Description - AD07.61-P-4001-03M

1	Fault code	P20E7 ECI ignition module, right bank of cylinders (N92/1) (P0300)
	(Fault code according to OBD)	P20E8 ECI ignition system power pack (N91), right channel (P0300) P20F3 ECI ignition module, left bank of cylinders (N92/2) (P0300) P20F4 ECI ignition system power pack (N91), left channel (P0300)
2	Fault storage	After expiry of test duration and fault
	Actuation of engine diagnosis indicator lamp (EURO4) or CHECK ENGINE (MIL) 	Following two successive driving cycles with faults
3	Checking frequency	Continuous
4	Checked signal or status	Transmission of both ion current signals of the ECI ignition module to ME control unit
5	<b>Fault setting conditions</b>	
	◦ ECI ignition module	<ul style="list-style-type: none"> <li>◦ The direct voltage part (offset voltage) for transmission of ion current signals of 3 cylinders each to the ME control unit must be between 0.1 V and 6 V (depending on load and rpm). The voltages are generated in the ECI ignition module. If one ECI ignition modules is missing one of the two offset voltages, the fault will be recognized in ECI ignition module on the left or right.</li> </ul>
	◦ ECI power pack	<ul style="list-style-type: none"> <li>◦ If both offset voltages are missing on an ECI ignition module the fault will recognized as a fault on the ECI power pack in the left or right channel.</li> </ul>
6	Check prerequisites	<ul style="list-style-type: none"> <li>◦ Engine speed between 1000 up to 4000 rpm</li> <li>◦ engine load more than 30 %</li> </ul>
7		<ul style="list-style-type: none"> <li>◦ Check the corresponding ECI ignition module (battery voltage, ground, auxiliary voltage 23 V, voltage 180 V and lines for ion current signal with ground line for discontinuity). If the lines are OK, replace the ECI ignition module.</li> </ul>

	<ul style="list-style-type: none"> <li>◦ Check ECI power pack (battery voltage, ground, auxiliary voltage 23 V and voltage 180 V on channels). If a voltage is missing although the voltage supply is OK, replace ECI power pack. The engine will not start if there is a fault in both channels.</li> <li>◦ In case of a fault additional misfires which are damaging to the emissions limit or TWC are recognized on the effected cylinders.</li> <li>◦ If one of the 12 lines with the ignition trigger signals between the ME-SFI [ME] control unit and the ECI ignition module is interrupted only misfires effecting the emission limit or which are</li> </ul> <p>TWC damaging are recognized on the effected cylinder.</p> <p> To prevent damage to the die-cast housing, only remove and install the ECI ignition modules according to the instructions! Replace sealing on the spark plug connectors at each removal/installation of the ignition module!</p>
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ECI ignition module, left cylinder bank (N92/2)		ME-SFI [ME] control unit N3/10 Coupling 3		ECI ignition module, right cylinder bank N92/1	
Ion current signal for cylinders 7 to 9	Pin 6 →	Pin 32	Pin 33 ←	Pin 6	Ion current signal for cylinders 1 to 3
Ion current signal for cylinders 10 to 12	Pin 7 →	Pin 45	Pin 46 ←	Pin 7	Ion current signal for cylinders 4 to 6
Ground, ion current signals	Pin 5 -	Pin 44	Pin 47 -	Pin 5	Ground, ion current signals
Ignition trigger signal, cylinder 7	Pin 1 ←	Pin 37	Pin 49 →	Pin 1	Ignition trigger signal, cylinder 1
Ignition trigger signal, cylinder 8	Pin 2 ←	Pin 2	Pin 1 →	Pin 2	Ignition trigger signal, cylinder 2
Ignition trigger signal, cylinder 9	Pin 3 ←	Pin 35	Pin 24 →	Pin 3	Ignition trigger signal, cylinder 3
Ignition trigger signal, cylinder 10	Pin 4 ←	Pin 14	Pin 28 →	Pin 4	Ignition trigger signal, cylinder 4
Ignition trigger signal, cylinder 11	Pin 13 ←	Pin 38	Pin 50 →	Pin 13	Ignition trigger signal, cylinder 5
Ignition trigger signal, cylinder 12	Pin 12 ←	Pin 36	Pin 51 →	Pin 12	Ignition trigger signal, cylinder 6
		← Pin 29	Pin 15 →		

Ignition offset for cylinders 7 to 12	Pin 10			Pin 10	Ignition offset for cylinders 1 to 6
Ignition change (ignition circuit a/b)	Pin 11 ←	Pin 30	Pin 43 →	Pin 11	Ignition change (ignition circuit a/b)
<b>ECI ignition system power pack N91</b>					
Battery voltage, terminal 87	Pin 15 ←	Pin 13	Pin 12 →	Pin 15	Battery voltage, terminal 87
Ground	Pin 8 -	Pin 14	Pin 11 -	Pin 8	Ground
Auxiliary voltage approx. 23 V	Pin 14 ←	Pin 8	Pin 7 →	Pin 14	Auxiliary voltage approx. 23 V
Voltage approx. 180 V	Pin 16 ←	Pin 16	Pin 9 →	Pin 16	Voltage approx. 180 V
<b>Voltage supply</b>					
Power supply	→ Pin 4		⊥		
Terminal 87	→ Pin 5				

Fig 1: Identifying Cylinder Configuration And Firing Order

