Figure B4-36

'On-board' fault diagnosis codings

'On-board' diagnostic check

This procedure should be followed if

a) The 'Check Engine' warning panel situated on the facia, illuminates during normal engine operation.

b) A routine 'on-board' diagnostic check is required.

Note There are four possible faults in the K-Motronic engine management system that are not externally registered by the illumination of the 'Check Engine' warning panel. These faults will however, be revealed by a blink code during an 'on-board' diagnostic check.

Procedure

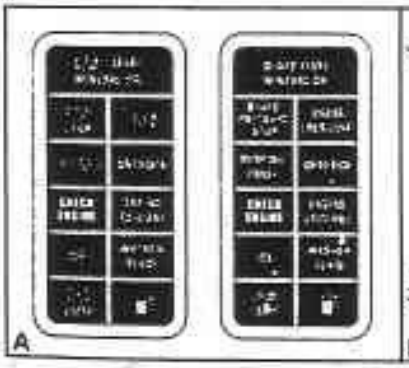
Initiate an 'on-board' diagnostic check to reveal any of the listed fault codes that have been stored within the K-Motronic ECU buffer RAM (random-access memory).

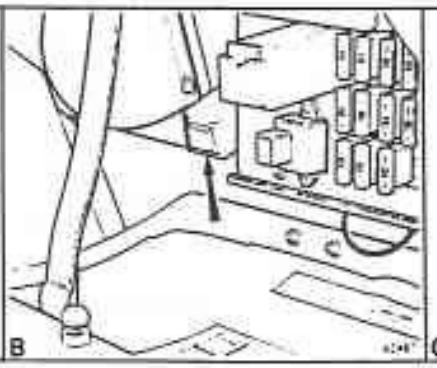
1. Ensure that the usual workshop precautions are carried out.
2. Turn the ignition key to the RUN position on the switchbox, so that the 'Check Engine' warning panel illuminates (see illustration A).
3. Depress the 'on-board' diagnostic button (see illustration B) for a minimum of 4 seconds and then release.
4. Monitor the blink code on the 'Check Engine' warning panel, after the initial period of 2.5 seconds lamp on and 2.5 seconds lamp off. Refer to illustration C for an example of the initial period of 'Check Engine' warning panel operation, followed by the blink code 4.4.3.1.
5. Once a blink code has been initiated, it will keep repeating the information (with initiation periods identifying blink code commencement), until the 'on-board' diagnostic button is depressed for another 4 seconds period.

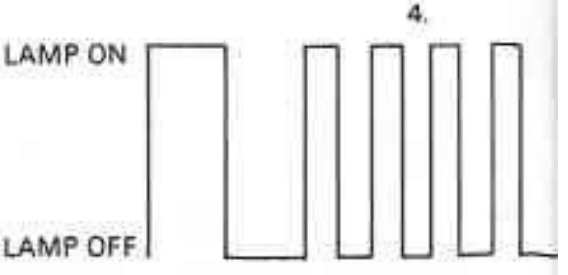
   This procedure must be repeated until all stored blink codes have been extracted from the K-Motronic ECU buffer RAM.
6. If there are no more fault codes stored, the condition is identified by the unique code 1.1.1.1. Warning panel on/off periods for this code are of 2.5 seconds duration.
7. To reset the buffer RAM following fault extraction and/or rectification, isolate the vehicle battery using the master switch located in the vehicle luggage compartment (see illustration D). To ensure complete K-Motronic ECU buffer RAM reset, the battery should be switched off for at least 4 seconds.
8. If there are no faults stored, then the blink code 4.4.4.4. will register on the 'Check Engine' facia warning panel.

Fault codes

Blink code	'Check Engine' panel illuminated	Fault description
2.3.1.2.	Yes	Coolant temperature se operating range
2.2.3.2.	Yes	Incorrect air flow signal
2.1.2.1.	No	Idle switch fault. Idle co recognised
2.1.2.3.	Yes	Full load switch fault Full load control maps r
2.1.1.3.	Yes	Engine speed sensor an the ECU defective. Air s mechanism or fuel distr stuck
4.4.3.1.	No	Idle speed actuator con or short circuit
2.3.4.2.	Yes	Lambda sensor and/or
2.3.4.1.	Yes	Lambda control outside
2.3.4.3.	No	Basic idle mixture stren mixture control unit set
2.3.4.4.	No	Basic idle mixture stren mixture control unit set
4.3.1.2.	Yes	Engine reference senso connection to the ECU

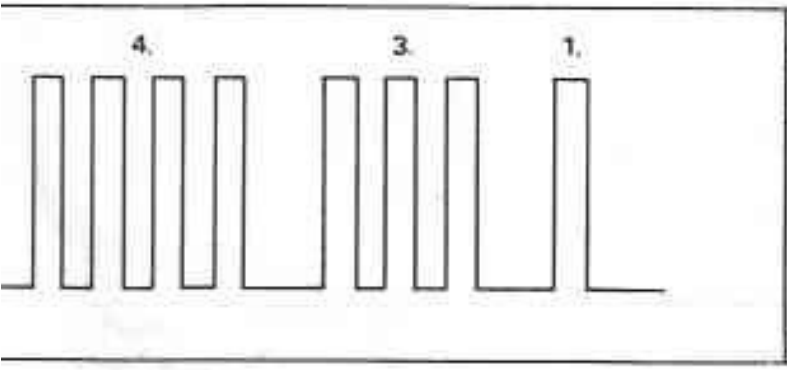

A


B



C

	System method of recognition	Limp home facility
ısor output outside	Coolant temperatures less than –46°C (–50.8°F) or more than + 186°C (+ 366.8°F)	K-Motronic ECU provides EHA with mA compensation equivalent to + 80°C (176°F) coolant temperature for all operational modes other than starting which is set to + 20°C (68°F)
	Volumetric air flow rate outside pressure upper and lower threshold limits (i.e. less than 5m³/hr or more than 1200 m³/hr)	Ignition and fuelling switched to full load map
ntrol maps not	Idle switch closed. Air flow greater than 166m³/hr with switch closed for more than 0.3 seconds	Ignition and fuelling switched to part load map
ot recognised	Full load switch closed but ECU recognises part load engine operation for more than 0.3 seconds	Ignition and fuelling switched to part load map
d/or connection to ensor plate butor plunger	Ignition switched on, volumetric air flow rate more than 5m³hr but no engine speed signal	None
jecting plug open	End stage within K-Motronic ECU	Engine idle speed may drift from 580 ± 20 rev/min. Normal engine operation under all conditions except idle mode
connection failure	End stage within K-Motronic ECU	Resort to 'open loop' engine operation
threshold limits	EHA current is less than – 14 mA or more than + 21 mA for more than 2 minutes	Once threshold limits are exceeded, further compensation/correction is not available and engine control system effectively resorts to 'open loop'
gth adjustment on to its lean limit	Adaptive Lambda pre-control increases EHA current more than 10 mA	Engine management system will continue to compensate until threshold limit of + 21 mA is exceeded
gth adjustment on to its rich limit	Adaptive Lambda pre-control reduces EHA current more than – 5 mA	Engine management system will continue to compensate until threshold limit of – 14 mA is exceeded
and/or its defective	Synchronisation lost	Dependent upon ECU data update prior to engine reference sensor failure



A2655