

**FAULT DIAGNOSIS PROCEDURES**

Faults in the system are detected automatically. Each time the system is switched on it goes through a start up self test which lasts about 2-3 seconds. During normal operation a self-test can be initiated by pressing the TEST button on the display.

Fault conditions in external sensors are detected without the need for a system self-test.

If faults are detected in the system during a self-test they are indicated on the display in the following way:

- The word FAULT will appear in the information area of the left display.
- The RED LAMP will illuminate and the AUDIBLE ALARM will sound.

When faults occur in the system they can be diagnosed by use of the display.

Details of the fault locations are obtained by pressing and holding the test button. Holding the test button will cause the system to go through a self test during which faults will be detected. On completion of the self-test, if the test button continues to be pressed, the fault screen will appear. The fault screen will remain visible for as long as the test button is pressed. Information will be displayed on the screen in four groups.

- Group A Sensor faults
- Group B I/O faults
- Group C Memory faults
- Group D General faults

AAA		
000		NO FAULTS
001	AIN0	PISTON PRESSURE TRANSDUCER
002	AIN1	ROD PRESSURE TRANSDUCER
004	AIN2	EXTENSION SENSOR
008	AIN3	BOOM ANGLE SENSOR
016	AIN4	S'STRUCTURE ANGLE SENSOR
032	AIN5	SWING POTENTIOMETER "A"
064	AIN6	SWING POTENTIOMETER "B"

*GROUP "B" INPUTS AND OUTPUTS*  
CODE

BB		FAULT
00		NO FAULTS
01	1	DIGITAL INPUT AND OUTPUT
02	2	ANALOG INPUT AND OUTPUT
04	4	DISPLAY UNIT

*GROUP "C" MEMORY*  
CODE

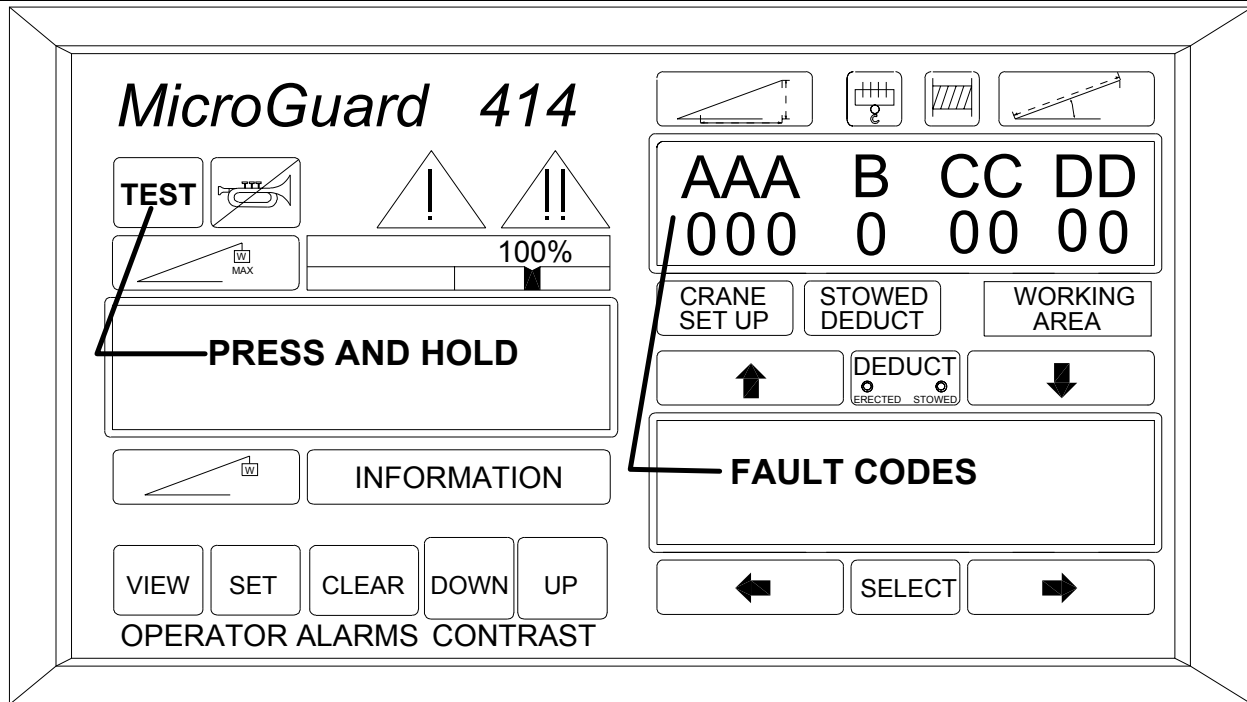
CC		
00		NO FAULTS
01	1	EXECUTIVE ROM
02	2	DUTY ROM
04	4	SCRATCHPAD RAM
08	8	PERSONALITY ROM

*GROUP "D" GENERAL*  
CODE

DD		
00		NO FAULTS
01	1	NO DUTY FOUND
02	2	CURRENT DUTY BAD
04	4	CONFIGURATION UNCALIBRATED
08	8	2 HZ OSCILLATOR

**FAULT CODES**

*GROUP "A" ANALOG SENSORS*  
CODE



**GROUP 'A' FAULT CODES**

If a fault is detected by the system a number will appear under one or more of the four group headings A through D. This number will correspond to one or more fault diagnosis numbers. The meaning of these numbers can be determined by looking at the appropriate code in the fault interpretation table.

Group A fault codes relate to analog sensors. Each sensor is allocated a number and this number is also the number of the channel to which it is connected in the system.

- Sensor 0 Piston Pressure
- Sensor 1 Rod Pressure
- Sensor 2 Extension Sensor
- Sensor 3 Boom Angle
- Sensor 4 Superstructure Angle
- Sensor 5 Swing Potentiometer "A"
- Sensor 6 Swing Potentiometer "B"

Each sensor is allocated a FAULT CODE and this is the number which appears under the group heading in the fault code display.

- 001** Sensor 0 Piston Pressure
- 002** Sensor 1 Rod Pressure
- 004** Sensor 2 Extension Sensor
- 008** Sensor 3 Boom Angle
- 016** Sensor 4 S'tructure Angle
- 032** Sensor 5 Swing Pot'r "A"
- 064** Sensor 6 Swing Pot'r "B"

When there are no faults detected in the system '000' will appear under all group headings indicating that there are no detected faults in the system. When there are faults in only one sensor then the code will be one of the codes listed above. When there are faults in more than one sensor then the codes indicated will be the sum of the fault codes.

**EXAMPLES OF FAULT CODES:**

**Fault 0**

<b>AAA</b>	<b>B</b>	<b>CC</b>	<b>DD</b>
<b>000</b>	<b>0</b>	<b>00</b>	<b>00</b>

No faults detected.

**Fault 1**

<b>AAA</b>	<b>B</b>	<b>CC</b>	<b>DD</b>
<b>001</b>	<b>0</b>	<b>00</b>	<b>00</b>

Piston pressure transducer.

**Fault 2**

<b>AAA</b>	<b>B</b>	<b>CC</b>	<b>DD</b>
<b>002</b>	<b>0</b>	<b>00</b>	<b>00</b>

Rod pressure transducer

**Fault 3**

AAA	B	CC	DD
003	0	00	00

Piston pressure transducer  
Rod pressure transducer

**Fault 4**

AAA	B	CC	DD
004	0	00	00

Extension Sensor

**Fault 5**

AAA	B	CC	DD
005	0	00	00

Piston pressure transducer  
Extension sensor

**Fault 6**

AAA	B	CC	DD
006	0	00	00

Rod pressure transducer  
Extension sensor  
Rod pressure transducer

**Fault 7**

AAA	B	CC	DD
007	0	00	00

Piston pressure transducer  
Rod pressure transducer  
Extension sensor

**Fault 8**

AAA	B	CC	DD
008	0	00	00

Boom angle sensor

**Fault 9**

AAA	B	CC	DD
009	0	00	00

Piston pressure transducer  
Boom angle sensor

**Fault 10**

AAA	B	CC	DD
010	0	00	00

Boom angle sensor  
Rod pressure transducer

**Fault 11**

AAA	B	CC	DD
009	0	00	00

Boom angle sensor  
Piston pressure transducer  
Rod pressure transducer

**Fault 32**

AAA	B	CC	DD
032	0	00	00

Swing potentiometer "A"

**Fault 64**

AAA	B	CC	DD
064	0	00	00

Swing potentiometer "B"

**Fault 96**

AAA	B	CC	DD
096	0	00	00

Swing potentiometer "A"  
Swing potentiometer "B"

This sequence continues up to the maximum fault code of 127 which is the sum of all group "A" fault codes.

**Fault 127**

AAA	B	CC	DD
127	0	00	00

All analog sensors.

This fault condition is seldom caused by the simultaneous failure of all sensors. It is more usually the result of the failure of the analog drive voltage which is the supply voltage for all sensors. This power supply fault may be due to the failure of the power supply or may be due to damage to the cable which connects the sensor to the computer.

When this fault occurs carry out Power Supply Voltage checks before checking individual sensors.