

A.M.S (Advanced Management System)

Operation

The JCB A.M.S system is a whole machine electronic control system. The system controls engine speed, pump power, transmission, excavator functions, lights, wiper, auxiliary circuits, warning lamps, etc. The system is a 'CAN BUS' system which links Electronic Control Units (ECUs) on the vehicle. This stands for 'Controlled Area Network' and uses a special cable in the vehicle harness which consists of two signal wires twisted together covered by a metal foil to prevent any electrical interference. These signal wires form the CAN -BUS. The CAN - BUS is used to send text and fault codes between the ECUs. The electronic units receive inputs from switches and sensors and drive outputs such as solenoids, lamp bulbs and motors. The outputs of the ECUs are rated to the current requirement of the actuator.

The system comprises of the following main electronic components.

- A** Electronic Control Unit -1 (ECU-1)
- B** Electronic Monitoring System (EMS)
- C** Fascia switch panel (FSP).

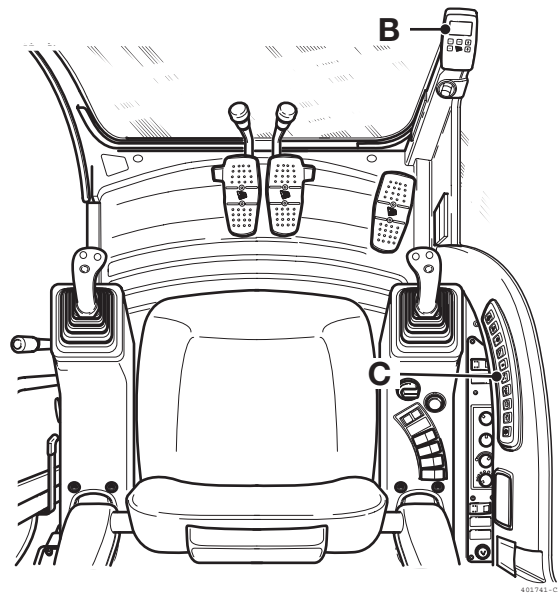


Fig 7.

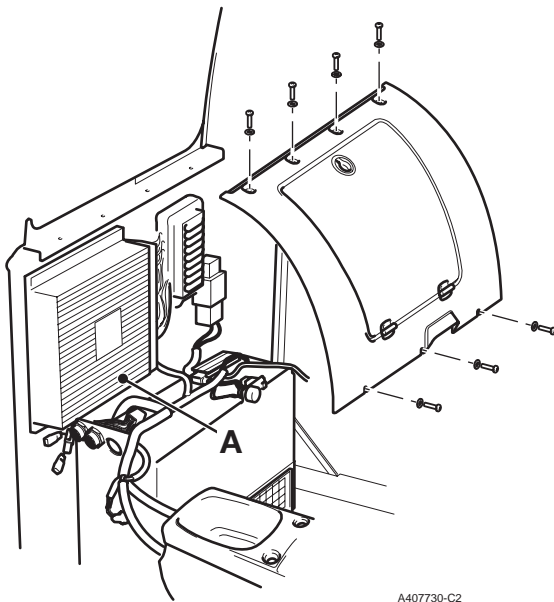
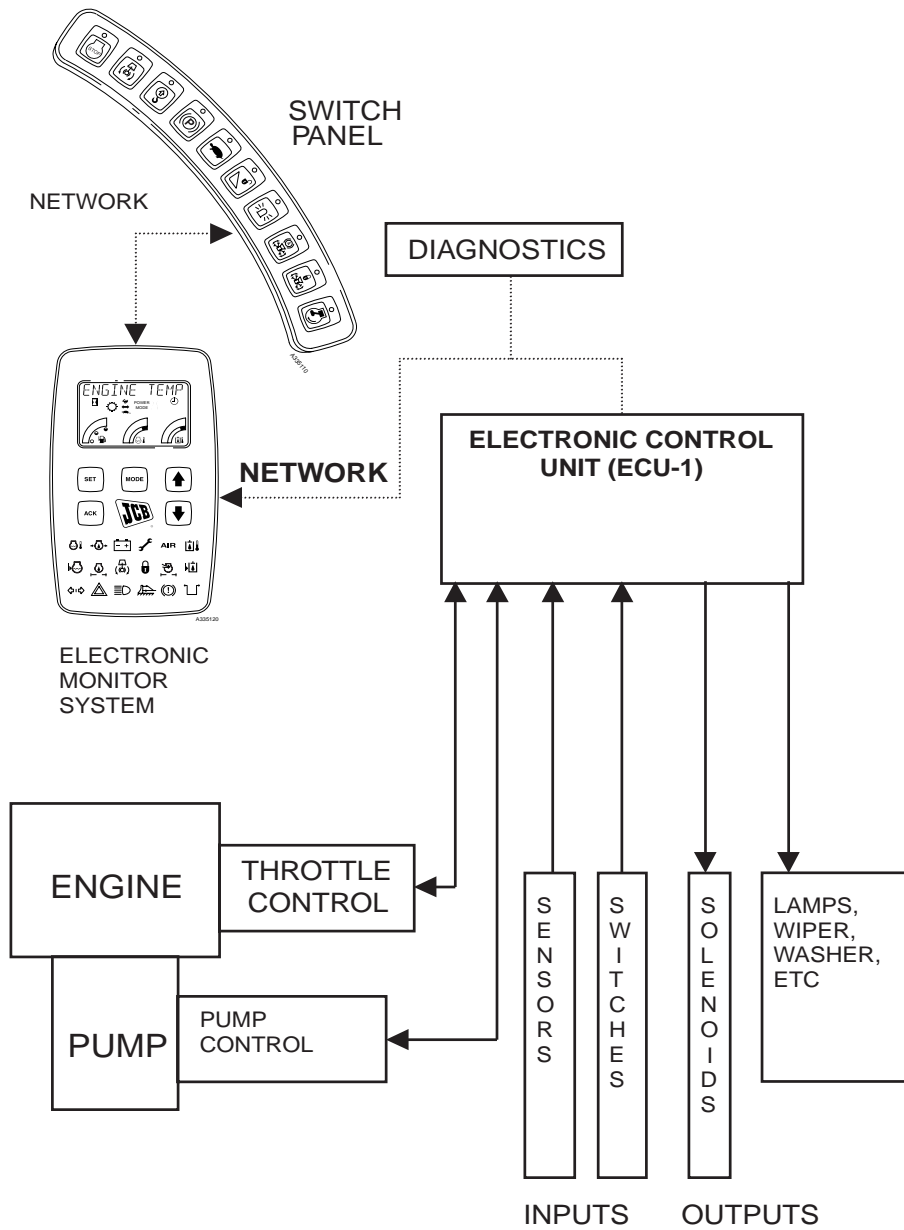


Fig 6.

The AMS System



A405630-C1

Fig 8.

Circuit Concepts

Inputs

There are two main types of input, Digital and Analogue.

Digital type inputs are on/off type inputs (i.e. switches) and can be Low side inputs or High side inputs. Low side inputs are inputs that provide a ground to the ECU. High side inputs are inputs that provide a positive feed to the ECU.

Analogue Inputs are sensor type inputs that provide a varying type input to the ECU, this input could be a resistance or frequency type input.

Digital inputs (on/off switch type inputs)

- 1 Low side input. The low side input is the most frequently used input on the A.M.S system. The low side input can be in the form of rocker switches or pressure switches.

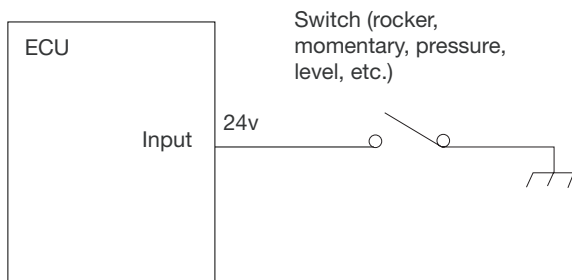


Fig 9.

- 2 High side input. The high side input is used on circuits that require a positive feed when the ignition is switched off, i.e. sidelights or hazard lights. The high side input is also used on the engine preheat circuit.

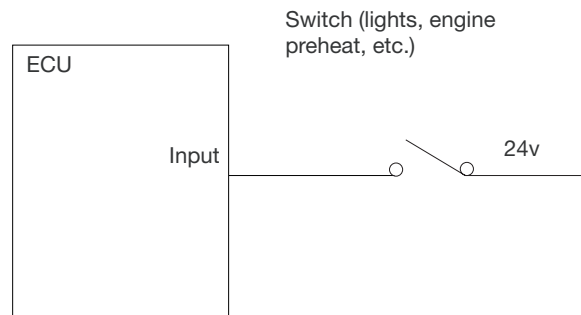


Fig 10.

Analogue input (i.e. sensor type inputs)

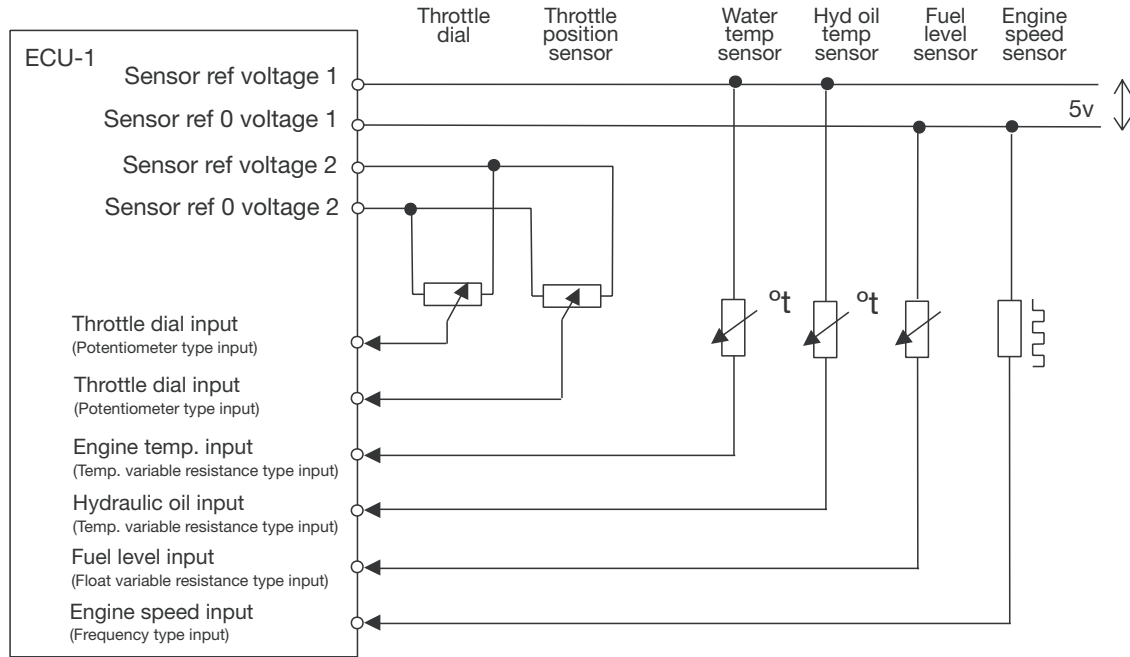


Fig 11.