

13. A laser cutting machine is used to cut sheet steel, as shown in the photograph below.



The laser is positioned by motors A and B which are operated by a microcontroller.

Input and output connections to the microcontroller are shown in the table below.

Input connection	Pin	Output connection
	7	Motor A forward (move right)
	6	Motor A reverse (move left)
	5	Motor B forward (move forward)
	4	Motor B reverse (move back)
	3	Laser on
	2	
	1	
	0	

The cutter is required to perform the following sequence of operations:

- 1: Switch on the laser
- 2: Move right for 0.5 seconds
- 3: Move forward for 0.5 seconds
- 4: Repeat steps 2 and 3 four times
- 5: Switch off laser and motors

13. (continued)

- (a) Complete the system flowchart below, to produce the required sequence of operations. The flowchart must include appropriate pin numbers. You may use information from the National 4/ 5 Data Booklet provided.

7

