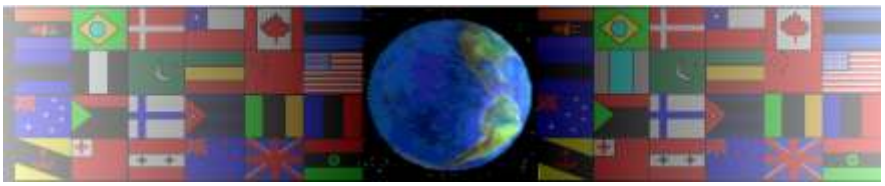
EXAMINATION QUESTION - JIGS

On behalf of The World Association of Technology Teachers

W.A.T.T.

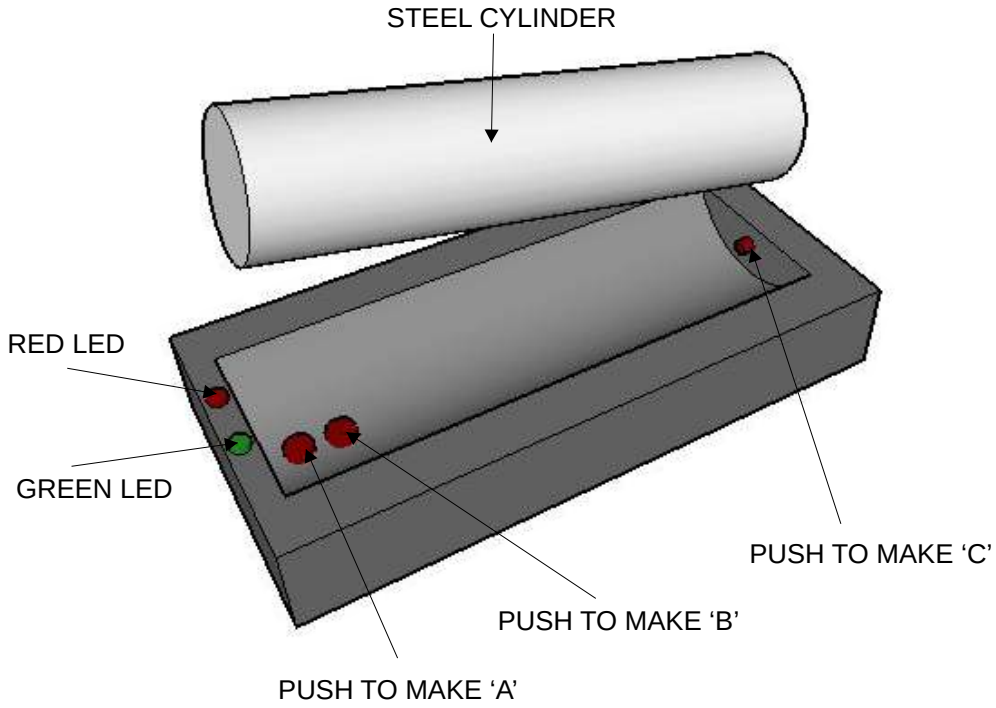


World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

EXAMINATION QUESTION - JIGS

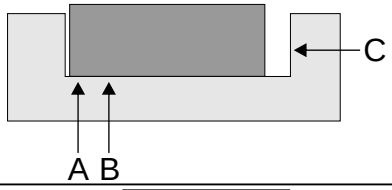
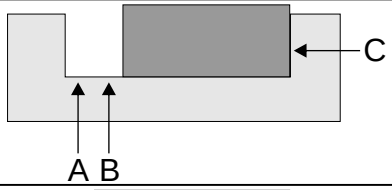
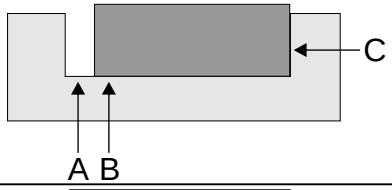
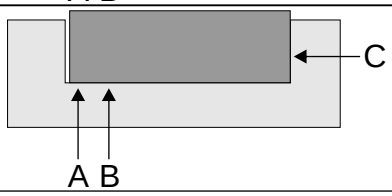
1. The diagram below shows a jig used on a production line to check the length of a component (the steel cylinder).
When the steel cylinder is inserted into the test jig, the green LED lights. This shows that the steel cylinder is the correct length.



The push to make switches control the LEDs.

If switch 'C' is not pressed none of the LEDs should light.

The red and green LEDs indicate whether the cylinder is the correct length, too short or too long.
If the cylinder is too long it will press switches A, B and C. The RED and GREEN LEDs will light.
If the cylinder is too short it will not press switches A and B.
If the cylinder is the correct length both switches B and C should be pressed.

	SWITCH A	SWITCH B	SWITCH C	SKETCH	RED LED	GREEN LED
BAR NOT AGAINST SWITCH 'C'	1	1	0		0	0
BAR TOO SHORT'	0	0	1		0	0
BAR CORRECT LENGTH	0	1	1		0	1
BAR TOO LONG	1	1	1		1	1

1a. In the space below draw a circuit that shows how switches A, B and C can be connected to make the jig and its LEDs work correctly.

include all three switches, the green and red LEDs and appropriate resistors (include values)

+9v

0v

1b. Explain the purpose of the resistors.

1c. What is the advantage of using a 9 volt power source for the jig?

1d. In the space below draw a ‘push to make switch’ and describe how it works.

1e. Draw and label two other types electro-mechanical switch.

NAME: _____

NAME: _____