



2002 Edition

SCENARIO:

You are a team of highly trained experts in the field of Explosive Materials Handling. Your firm has been commissioned to design a controlled hydraulic-powered device that will safely move containers of highly explosive material between two storage areas that lie across a deadly canyon.

THE CHALLENGE:

The assignment for your team is to design and build a model that picks up containers from one storage area (1), rotates to a position facing a second storage area (2), and then deposits the containers into the second area. Dropped containers can't be recovered. Your task will be to transport as many containers as possible between the two storage areas in a time frame of three (3) minutes.

The storage areas 1 and 2 will be standing at a height of 14 cm. They will have a rectangular base with a length of 31 cm, a width of 25 cm and 3 walls, each 7 cm high, and with no roof. The distance between the device and the storage areas will be a minimum of 15 cm, i.e. the device cannot come within 15 cm of either storage area. Empty film canisters with their lids on will be used to represent the containers of highly explosive material.

All movements of the device should be controlled using hydraulics. Rotation can be accomplished manually or by hydraulics. However, highest marks will be given to devices that control the largest number of actions by hydraulics (see rubric).

Materials Available	
Wood, 1 cm x 1 cm x 40 cm	Wheels, MDF, 74 mm w/4 mm hole
Card corner gussets	Screw eyes, 7/32"
Wood glue, non toxic	Syringe holders
Low Temp. glue sticks	Coroplast, 24" x 24"
Syringes, 60 mL	Spatulas, wooden
Syringes, 30 mL	Rubber bands, #18 size
Syringes, 10 mL	Paper fasteners
Plastic tubing, 6 mm	Double sided sticky pads
Tee and straight connectors	Mini-washers
Wood dowel, 3/16"	