

Tilt switch

Donald Wendel (TX) is looking for a device to detect a tilt from the vertical. Unfortunately he didn't mention the intended application, so we don't know if a simple switching arrangement will suffice—or if the device is to be used to determine the degree of tilt. So we'll take a look at both.

Let's consider the switching device first since it's the simpler of the two. The easiest approach would be to use a mercury switch such as the "position-determining" type available from Radio Shack. If you can't get those, several standard mercury switches can be arranged so that the contacts close whenever they are moved from the horizontal.

A second possible switching arrangement is one that you can build. It consists of a hanging metal wire (braided for flexibility) with a weight on the free end. The wire hangs through a metal ring, as shown in Fig. 3, and completes a circuit when it touches the ring. The size of the ring and its distance from the supported end of the wire can be adjusted to increase or decrease the sensitivity of the device.

If the device is to show the degree of

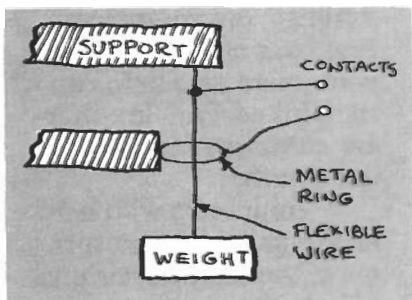


FIG. 3

tilt, that complicates matters considerably. One method that comes to mind uses a joystick (the kind that use potentiometers, not the ones that contain switches). The joystick is supported upside down and a suitable weight is attached to the handle. When the joystick (or the device it's attached to) is tilted in any direction, the resistance of its potentiometer (which you can read on an ohmmeter) will change. That reading will be in direct proportion to the degree of tilt. One supplier of the type of joystick mentioned above is Jameco Electronics (1355 Shoreway Road Belmont, CA 94002). Check the ads in the back of this magazine for other sources.

Perhaps another reader will come up with a better idea. If not, those suggestions should get you going in the right direction.