Building the basic launch pad

Materials:

- **Formica double-sink countertop cutout.** This can be easily and cheaply obtained from a local company that manufactures and/or installs countertops. Usually this is a throw-away item that is headed to the dumpster. One cutout will make eight 1x4x16 inch base plates for the basic launch pad.

- **1 foot of 3/16" steel Rod** This is used to secure the rocket to the electric box prior to launch and usually comes in three foot rod.

- **1 GM or Ford tire valve stem.** Used on the end of the hose to pressurize the system.
- **1 Large diameter (Ford) valve stem.** Two be used for the alternative launch pad design.
- **1 Four inch square metal electrical box** Use the design that has two holes on each side of the box.

- **2 3x1/4 inch bolts with nuts and washers** to fasten the stop block to the pad.

- **2 2x2x6 inch wooden blocks** to be used for the legs to elevate the pad off of the ground.

- **1 2x3x4 inch wooden block** that stops the U shaped rocket clamp from flying off the launch pad when the rope is pulled.

- **2 One inch wood screws** to fasten the electrical box to the Formica table top.
-2 5/8 inch Large metal washers. These may not be necessary if the pad has a good seal.

-1 Ten foot length of nylon chord 1/4 inch diameter to be used to launch the rocket.

-1 1x1x6 inch piece of wood for the handle.

-1 10 inch x 1/2 inch diameter nail to secure the pad to the ground during launch.

-1 5/8 inch inside diameter 4 foot section of garden hose.

-1 1/2 inch diameter PVC 90° elbow attached to the garden hose & pad.

-1 1/2 inch EMT Conduit Strap to hold the elbow and hose to pad.

-2 hose clamps to secure the garden hose to the PVC elbow and the valve stem in the opposite end.

-1 #10 flat 1 inch wood screws to secure the conduit strap & PVC elbow to the pad.

-1 9/16 inside diameter cone slip joint washer to provide the seal between the rocket and the PVC elbow.

**Tools:**

Saw, flat blade screw driver, Phillips head screw driver, electric drill, 7/32" bit, 5/8" bit, hack saw, 1/4" open end wrench, 1/4 " socket and ratchet. (This list will be greatly expanded if an assembly line approach is used for mass production.)