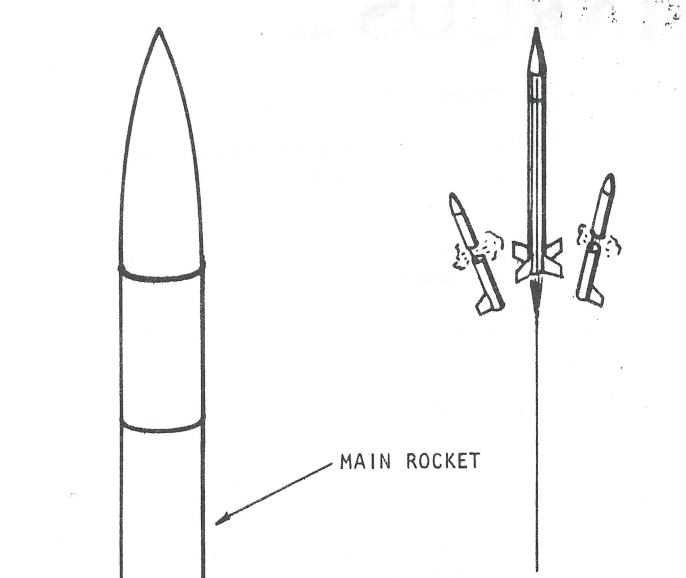
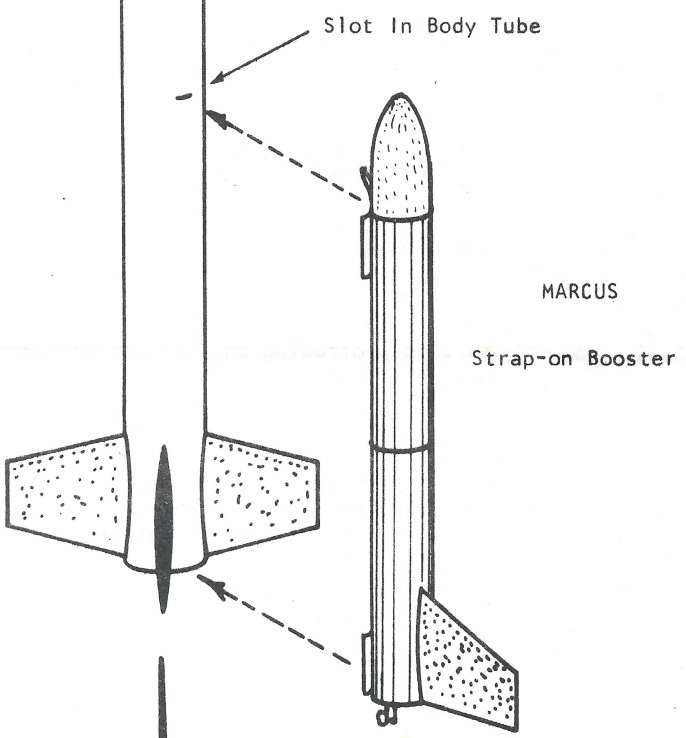
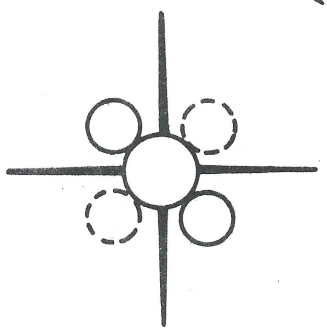


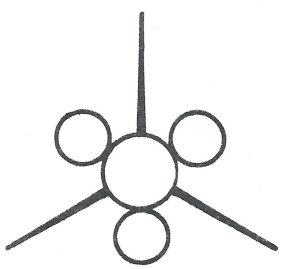




BOOSTER LOCATIONS

FOR FOUR FIN ROCKETS

2 or 4 Boosters



BOOSTER LOCATION

FOR THREE FIN ROCKET

3 Boosters Only

The strap-on booster is a method of parallel staging and is used to augment the main engine on a single stage rocket to provide additional power to lift-off heavy payloads. A minimum of 2 or a maximum of 4 strap-on boosters can be used with a 4 fin rocket while 3 boosters must be used with a 3 fin rocket. The booster is designed to provide the additional power required to lift-off then separate from the main rocket. This reduces the weight and drag of the rocket providing higher altitudes than obtained with an ordinary cluster rocket.

To prepare the main rocket to accept the Marcus, hook the finished booster at the bottom between the fins of the rocket and mark where the bend in the wire intersects the body tube at top. Cut a small slot to fit the top wire. Bend slot out slightly to allow the wire to be inserted. Check operation by hooking the booster over the bottom of body tube and inserting wire in slot in top. A slight push on the nose cone should make booster drop off. Adjust as necessary by bending wires until the booster is firmly attached to the main rocket but comes off easily by pushing on nose cone.

FLYING INSTRUCTIONS:

The Marcus is prepared like any ordinary streamer recovered rocket except that the same type engine must be used in each booster and it must be a 0 delay engine. It is recommended that a long delay engine with a long thrust duration be utilized as the main engine. Best performance is obtained by using lower thrust engines in the Marcus boosters than in the main rocket. For example, 1/2A type engines in the Marcus with A type in the main rocket or A type with B type in the main rocket. In this way the booster will burn out first and eject while the main rocket is still thrusting, providing a more efficient flight. By varying the engines, almost any payload may be lifted to any altitude requirement.

If a rocket with a payload is to be flown with the Marcus strap on boosters, it is recommended that at least 1 oz. of additional weight be added to the nose cone or payload compartment to provide additional stability. When the strap on boosters are used with an existing rocket it may be necessary to move the launch lug to a new location. Place the launch lug on a new bird after the Marcus locations have been determined. A 3/16" launch rod is recommended to reduce rod whip.

Install an igniter into each engine. Wrap the engine with masking tape and insert it into the booster body tube until it fits tight. Pack flameproof wading into body until it rests against engine. Make sure the streamer is attached to the shock cord with masking tape. Roll the streamer into a cylinder and insert it into the upper body tube. Put the body tubes together. Hook the Marcus over the lower edge of the body tube of the main rocket and insert the wire into the upper slot and slide upward into place. Use same procedure for all boosters. Because of rod whip when using heavy rockets, 3/16" dia. rod is recommended. Place rocket on rod and attach igniter clips using standard cluster techniques. Whip leads with all clips in parallel attached to each igniter are recommended with a heavy duty 12 volt auto battery for ignition. Check igniter clips, countdown and fire. The rocket will leave the pad fast and the boosters will drop off while the main rocket continues upward. The rocket will appear to come apart and the effect is unusual the first time it is seen.