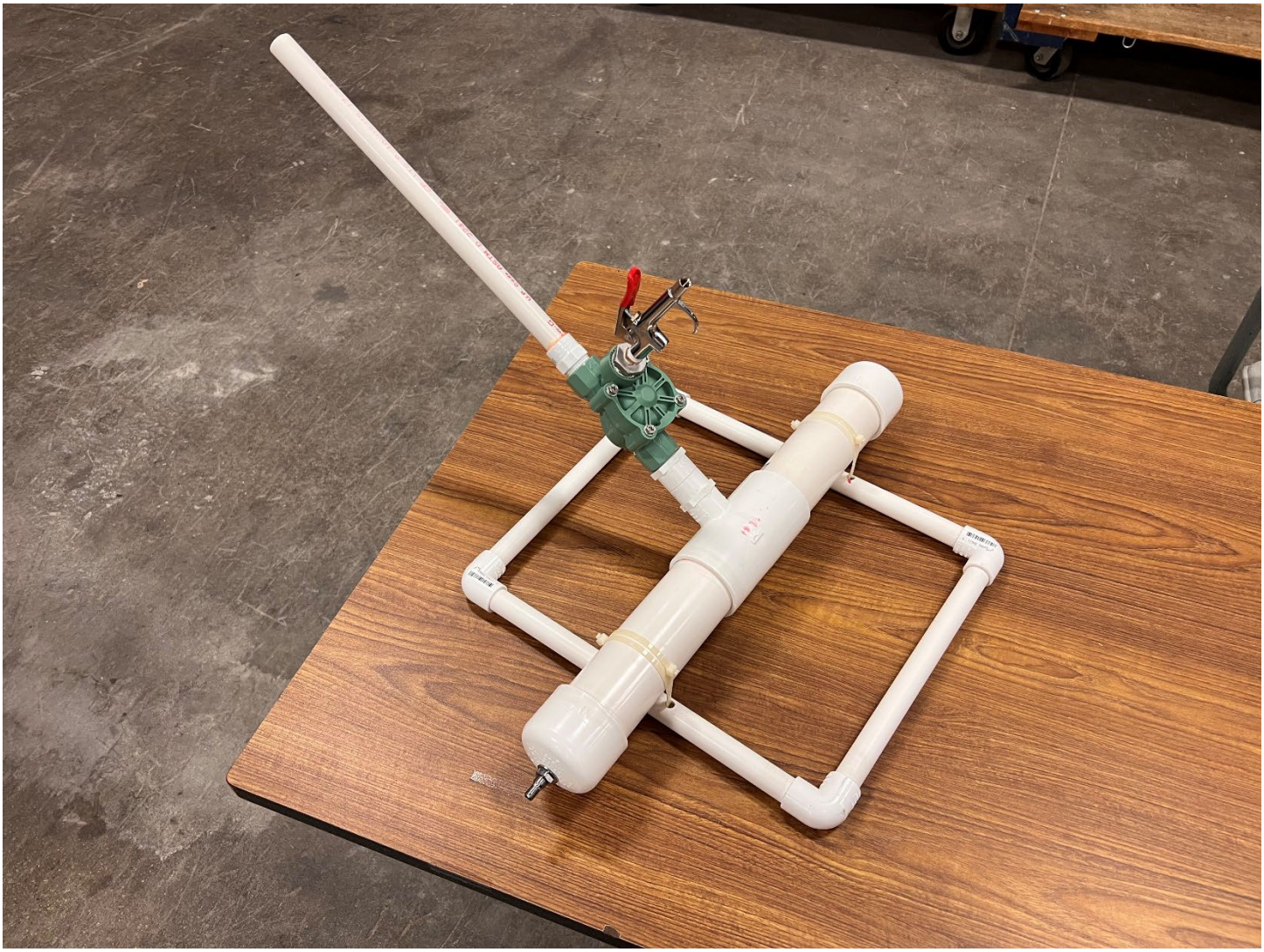
Build a Compressed Air Rocket Launcher

Detailed instructions and parts list



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Compressed Air Rocket Launcher Parts List

Sprinkler Valve

1 – Orbit sprinkler valve with ¾ in. fittings (Model 57280L) X

PVC

1 – 5 ft. section of ½ in. PVC pipe. 1 - 14 in. G (Barrel), 2 - 10 in. T 2 - 8 in. U (Base)

1 – short section ¾ in PVC D (1 in. piece for Air tank to valve)

1 – 2 ft. section of 2 in. diameter PVC pipe. Cut into two 8 in. pieces B, C (Air tank)

2 – 2 in. PVC pipe end caps. H, I

1 – 2 in. PVC Tee with 3/4 in. center tap (all slip joints). A (Air tank)

PVC Fittings

1 – ¾ in. thread male to ½ in. female slip (Output side of valve to barrel) F

1 – ¾ in. thread male to ¾ in. female slip (Input side of valve) E

4 – ½ in. 90 degree elbow slip both ends (Base) V

Brass/metal Fittings

1 – Brass/metal 3/4 in. male thread to ¼ in. female thread adapter R

1 – Brass ¼ in. male to male nipple Q

Misc.

1 – Tire Valve (threaded with rubber gasket and nut) J

1 – Air blow gun with ¼ in. threads P

4 – Long nylon wire ties

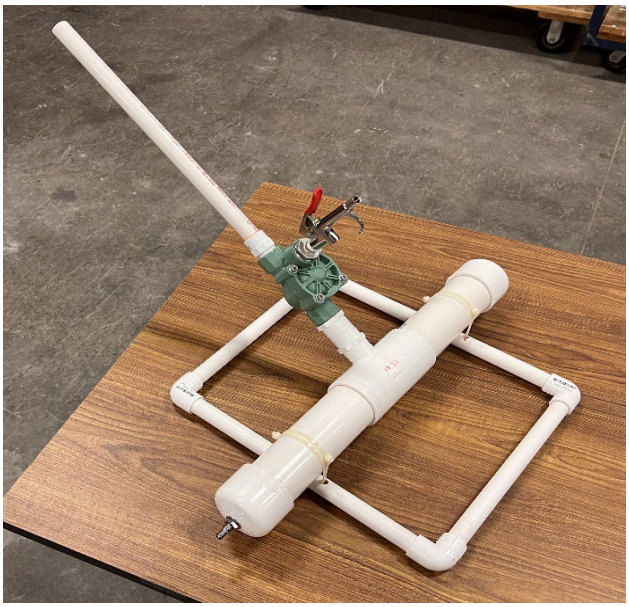
1 – container PVC Cement

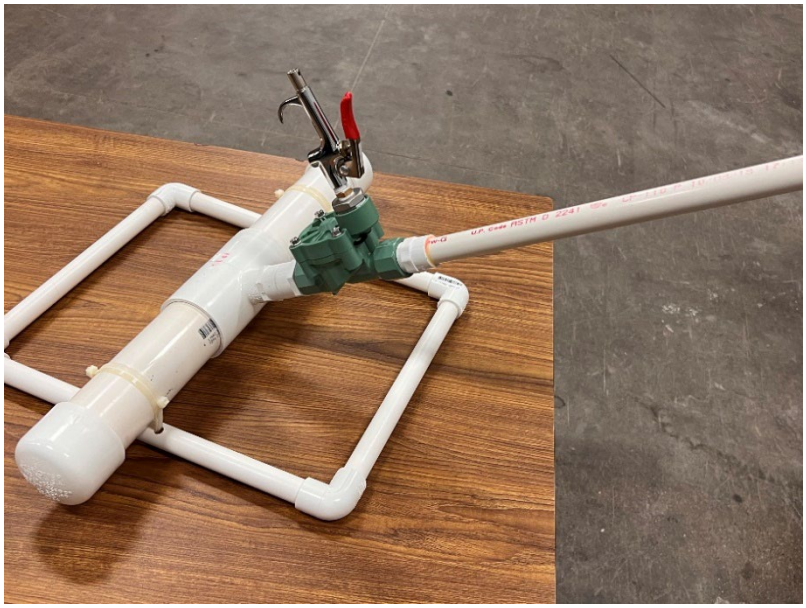
1 – package epoxy

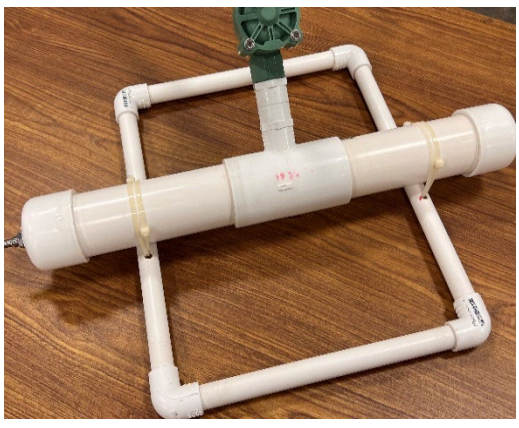
1 – Roll Teflon Tape

Assembly

1. Prior to assembly, ensure all epoxy in the solenoid opening is fully cured.
2. Before assembly, drill the proper size hole through one end cap for the tire valve. Insert the tire valve into the end cap from the inside. Tighten nut securely from the outside
3. Next, place all pieces on a table and lightly dry fit. If everything fits properly, lightly sand the areas to prepare for PVC cement.
4. All threaded fittings should be wrapped with Teflon tape. Use enough tape to seal tightly.
5. When assembling the base, it may be necessary to twist the base into shape before the cement dries. Lay the base on a flat surface to check if twisting is needed.
6. Fold or bend the pointed ends of the wire ties so they thread easily from one hole in the base to the other.
7. Two wire ties on each side will properly secure the launcher to the base (tighten and place side by side).
8. After completing, connect a tire pump to the valve and add air to 25 - 40 psi. This is a safe pressure and will easily propel a paper rocket up to 300 feet at a firing speed of nearly 100 MPH.
9. If you hear air escaping, it is most likely at a threaded fitting. Remove the fitting and place additional Teflon tape on the threads and retest.
10. If a cement joint leaks, carefully apply additional cement to the area. Make sure there is no air in the launcher prior to applying additional cement.

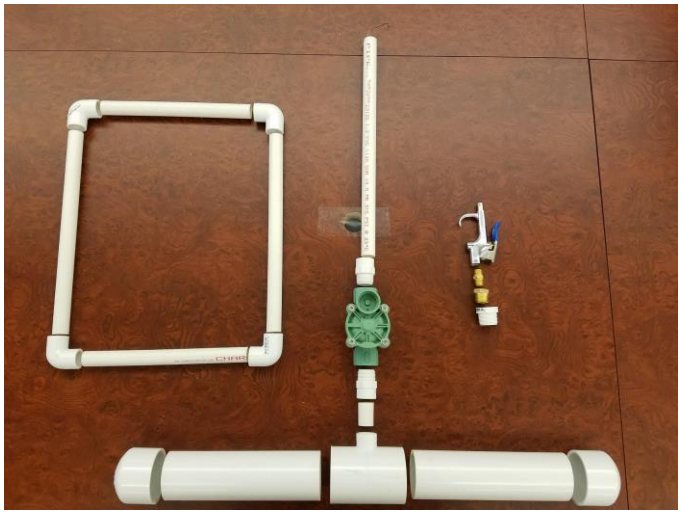






Compressed Air Rocket Launcher

G — Barrel - ½ in. X 14 in. PVC Pipe



Cement

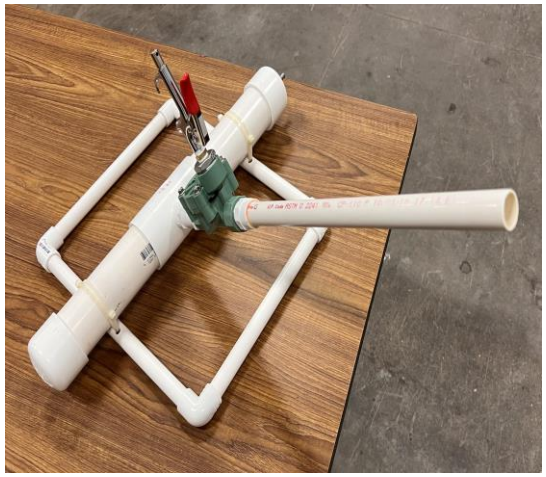
F — ¾ in. X ½ in. Thread to Slip Adapter

Thread lock

Sprinkler valve ¾ in.

X

Thread lock



E — ¾ in. X ¾ in. thread to slip Adapter

Cement

D — ¾ in. PVC pipe 1 in. long

Cement

Tire Valve

J

2 in. PVC Cap

2 in. PVC Cap

Cement

Cement

H

B — 2 in. X 8 in. PVC Pipe

A — 2 in. X ¾ in. PVC Tee

Cement

Cement

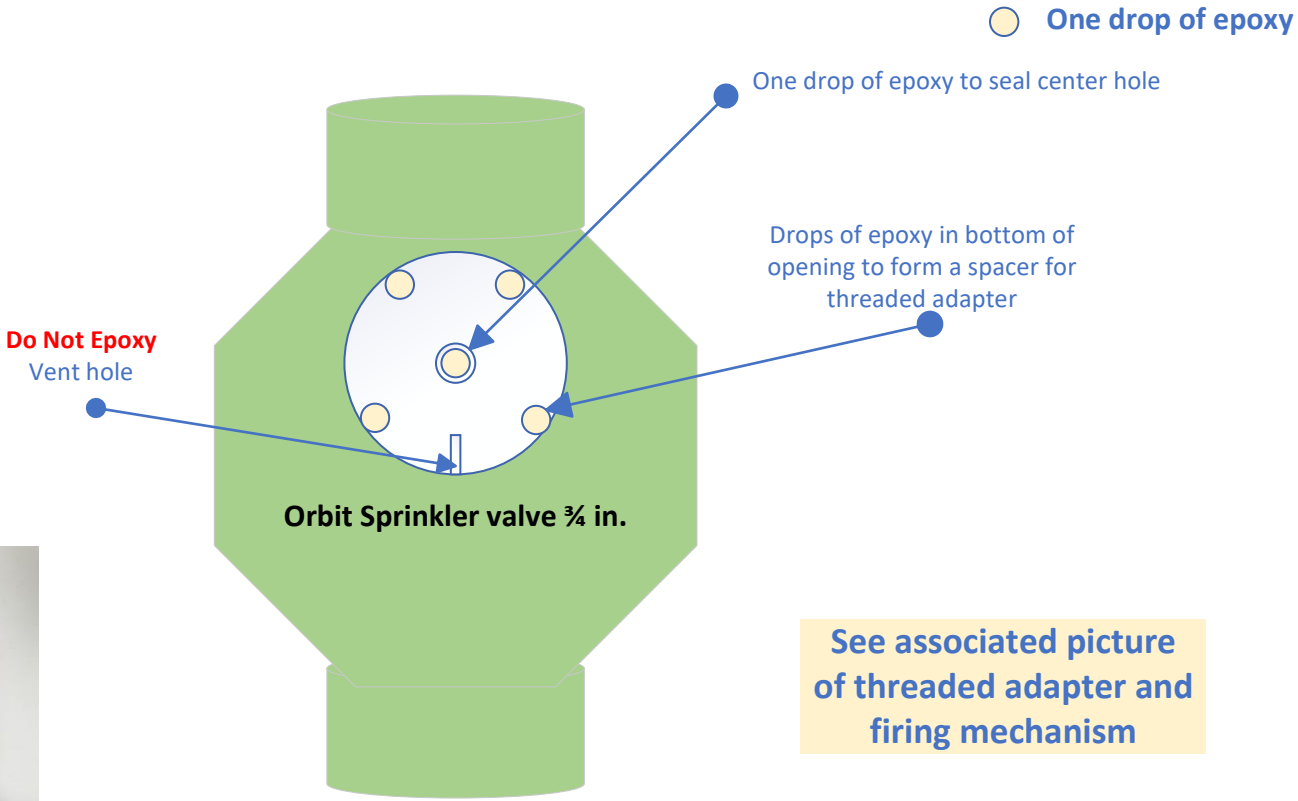
C — 2 in. X 8 in. PVC Pipe

I

Modifications to Orbit sprinkler valve

Compressed air rocket launcher

View after solenoid has been removed



See associated picture of threaded adapter and firing mechanism

All Epoxy must be completely hardened before installing the threaded adapter in the solenoid opening. This may take up to 24 hrs.

The drops of epoxy at the bottom of the solenoid opening allow air flow, and prevent blocking the vent opening.

Compressed air rocket launcher

Air blow gun assembly

P

Use Teflon tape on both ends of the ¼ in. threaded nipple and the outside threads on the adapter.

Q

Thread the adapter into the opening where the solenoid was removed.

R

Note:

Stop tightening the adapter when it touches the spots of epoxy at the bottom of the solenoid opening. Adjust the position of the air gun by holding the adapter in place with a wrench.

When testing after assembly, air may leak from the threaded areas. If this occurs, add additional Teflon tape and retest. The right amount of Teflon tape will almost completely hide any threads.

Rocket Launcher Base