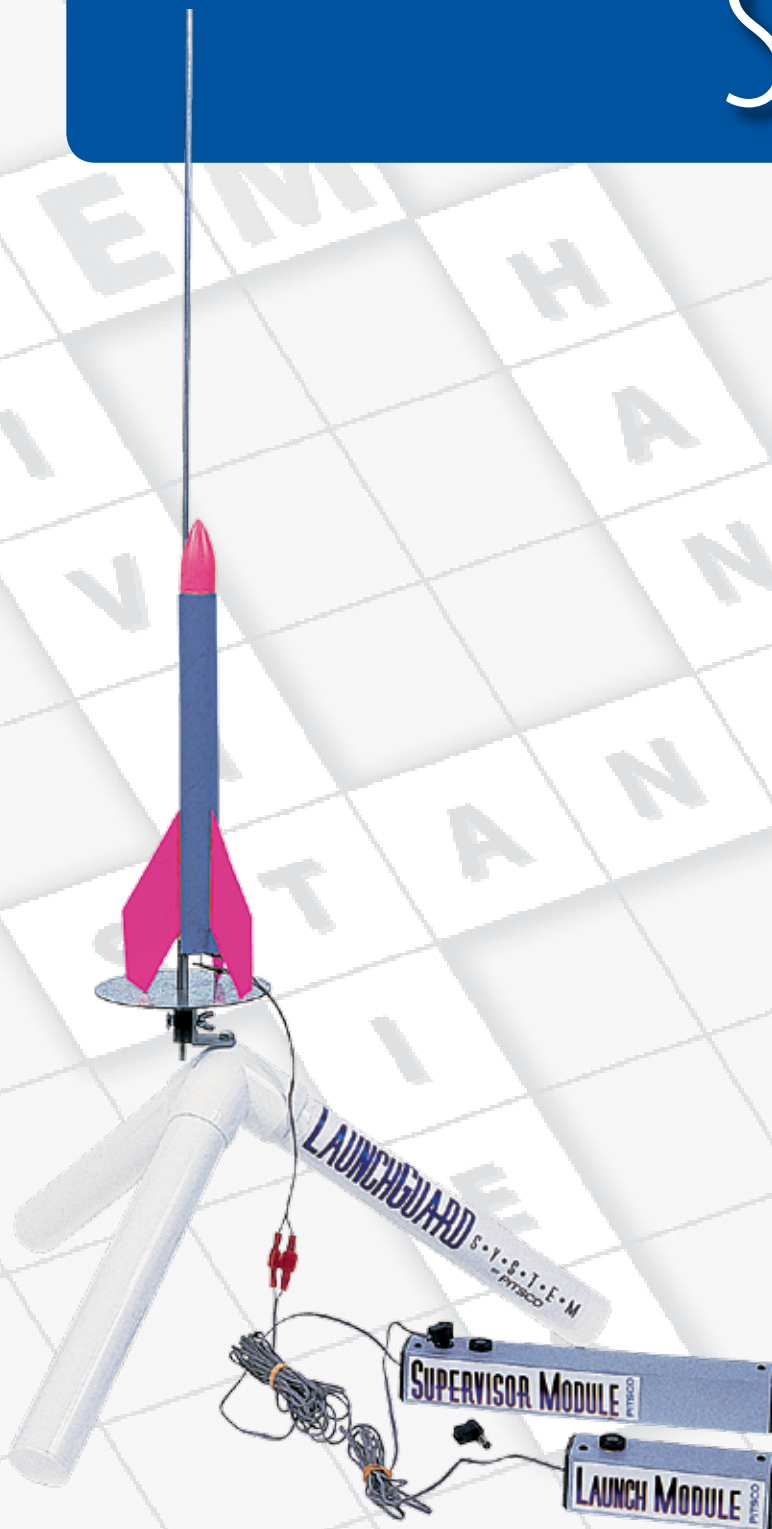


LaunchGuard System

User Guide



ABOUT THE LAUNCHGUARD

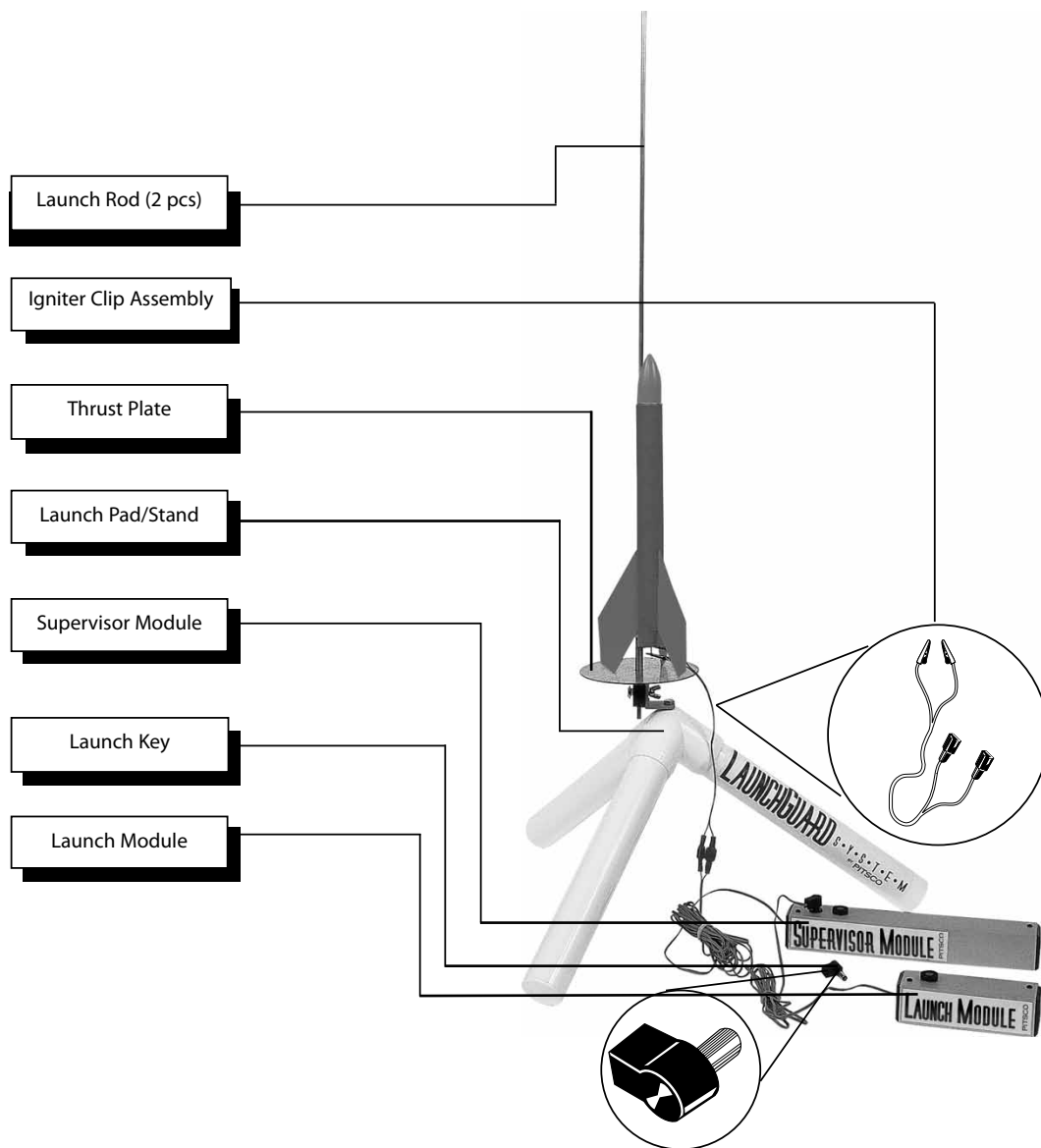
With the LaunchGuard System, you and your students will experience the thrill of launching model rockets with one of the safest and most reliable launching systems on the market.

Here's how it works: Students launch their rockets by pressing a button on the Launch Module. Before the student can launch, a button must be pressed and held on the separate box, called the Supervisor Module. When the supervisor (teacher) presses the button, the system is live and the student can launch the rocket when ready. This feature enables the teacher to have absolute control and to make sure all systems are safe for launch.

As an option, the teacher may substitute a special Launch Key for the Supervisor Module. When the key is plugged into the Launch Module, the system is "live" and ready for launch.

The rugged Launch Pad includes a standard 1/8" Launch Rod, and also accepts a larger 3/16" rod for launching larger rockets. The 3/16" Launch Rod is available from Pitsco (18789).

LAUNCHGUARD COMPONENTS



LAUNCHGUARD ASSEMBLY

Launch Stand (Refer to Figure 1)

1. Insert the three legs into the three-way fitting.
2. Slip the two rod sections securely together.
3. Insert the rod into the smaller hole on the Launch Stand. Adjust rod to the vertical position, and tighten the wing nut.

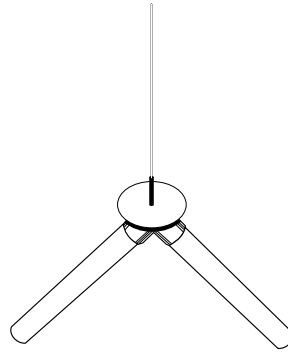


Figure 1

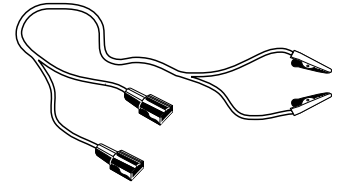


Figure 2

Launch Module

1. Attach the two terminals of the igniter clip assembly (Figure 2) to the leads extending from the Supervisor Module (Figure 3).
2. Install the batteries in the Supervisor Module. Use a Phillips screwdriver to remove the screw and end cap. Slide the battery box out of the Supervisor Module, and insert batteries as shown in Figure 3. Slide the battery box back into the unit, snap on the battery connector, and reinstall the end plug.

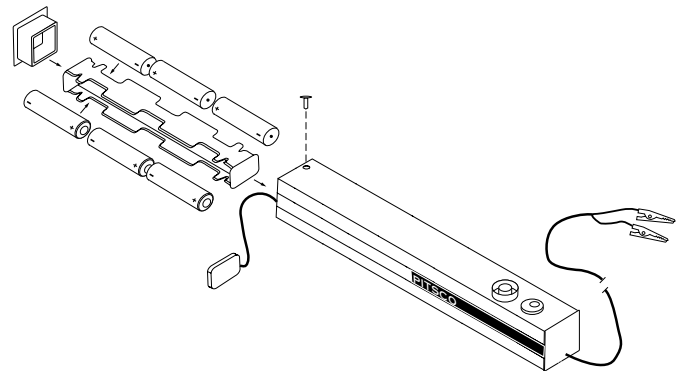


Figure 3

LAUNCHING ROCKETS

Note: Before launching, carefully read the National Association of Rocketry (NAR) Model Rocket Safety Code on page 4. Make sure students understand and will follow this code before letting them to launch.

1. Slip the rocket onto the Launch Pad by threading the rod through the rocket's launch lug (Figure 4).
2. Set the rocket on the thrust plate of the Launch Pad (Figure 4).
3. Remove the Launch Key from the Supervisor Module to prevent accidental ignition of the rocket engine. Connect the two alligator clips on the Launch Module to the igniter leads on the rocket (Figure 5).
4. Clear the launch area.
5. Arm the launcher by using one of these options:
Launch Key – Insert the Launch Key (Figure 6) into the socket of the Supervisor Module. The system is now live and ready for launch.
Launch Module – Connect the Launch Module to the Supervisor Module. When ready, press and hold the button on the Launch Module to arm the system. **Note:** You will hear a buzzing alarm sound – this signals that you are properly connected to the igniter.
6. With the system armed and with all persons standing a safe distance from the launcher, press the button on the Launch Module to launch the rocket.

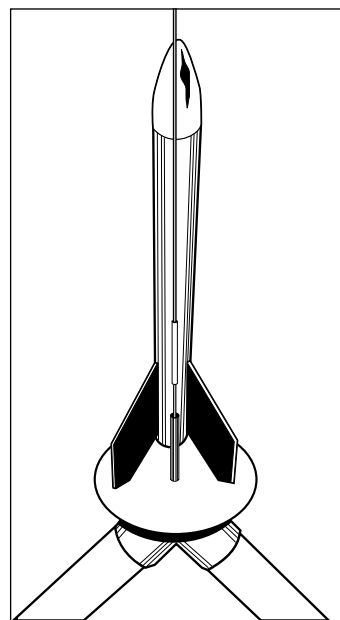


Figure 4

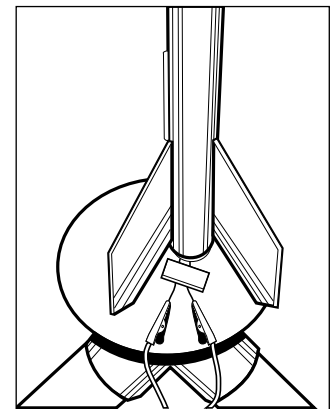


Figure 5

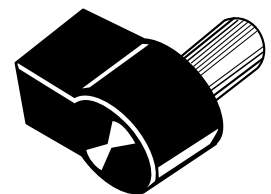


Figure 6

National Association of Rocketry

Model Rocket Safety Code

1. **Materials.** I will use only lightweight, non-metal parts for the nose, body, and fins of my rocket.
2. **Motors.** I will use only certified, commercially-made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
3. **Ignition System.** I will launch my rockets with an electrical launch system and electrical motor igniters. My launch system will have a safety interlock in series with the launch switch, and will use a launch switch that returns to the "off" position when released.
4. **Misfires.** If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery, and will wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.
5. **Launch Safety.** I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets. If I am uncertain about the safety or stability of an untested rocket, I will check the stability before flight and will fly it only after warning spectators and clearing them away to a safe distance.
6. **Launcher.** I will launch my rocket from a launch rod, tower, or rail that is pointed to within 30 degrees of the vertical to ensure that the rocket flies nearly straight up, and I will use a blast deflector to prevent the motor's exhaust from hitting the ground. To prevent accidental eye injury, I will place launchers so that the end of the launch rod is above eye level or will cap the end of the rod when it is not in use.
7. **Size.** My model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or 320 N-sec (71.9 pound-seconds) of total impulse.
8. **Flight Safety.** I will not launch my rocket at targets, into clouds, or near airplanes, and will not put any flammable or explosive payload in my rocket.
9. **Launch Site.** I will launch my rocket outdoors, in an open area at least as large as shown in the accompanying table, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.
10. **Recovery System.** I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.
11. **Recovery Safety.** I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places.

Launch Site Dimensions

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00 – 1.25	1/4A, 1/2A	50
1.26 – 2.50	A	100
2.51 – 5.00	B	200
5.01 – 10.00	C	400
10.01 – 20.00	D	500
20.01 – 40.00	E	1,000
40.01 – 80.00	F	1,000
80.01 – 160.00	G	1,000
160.01 – 320.00	Two Gs	1,500