

LNRC 2026

Competition Kit Contents

LIGNUM National Rocketry Competition • Caribbean Apex Challenge • Morant Point, Jamaica • August 16, 2026

1. Overview

Every registered LNRC 2026 team receives one identical competition kit in July 2026. The kit contains all materials needed to construct your rocket airframe, PicoSat payload, and recovery systems. Teams in the 2-inch and 3-inch classes receive the same kit - both body tube sizes are included, and teams use only the one matching their registered class.

Each team receives 3 KNSB competition motors. Teams may use their motors for test flights and practice at their own discretion.

2. Kit Component List

All quantities are per kit (per team).

Qty	Component	Description	Notes
3	KNSB Competition Motor (LP-KNSB-34-165)	F-class KNSB motor in linen phenolic casing. 34 mm OD, 165 mm length. ~79 N avg thrust, ~0.84 s burn, ~69 Ns total impulse.	<i>May be used for test flights and practice</i>
3	Electric Match (Motor Igniter)	Single-use electric igniter for motor ignition.	<i>One per motor</i>
1	2-Inch Body Tube	Spiral-wound cardboard/phenolic body tube, 2-inch inner diameter (50.8 mm ID). Length: 24 inches (610 mm).	<i>2-Inch Class airframe</i>
1	3-Inch Body Tube	Spiral-wound cardboard/phenolic body tube, 3-inch inner diameter (76.2 mm ID). Length: 24 inches (610 mm).	<i>3-Inch Class airframe</i>
1	2-Inch Nose Cone	Ogive-profile nose cone, 2-inch base diameter (50.8 mm).	<i>For 2-Inch Class</i>
1	3-Inch Nose Cone	Ogive-profile nose cone, 3-inch base diameter (76.2 mm).	<i>For 3-Inch Class</i>
1	Corrugated Plastic Sheet	18 in x 24 in corrugated plastic (coroplast) sheet. Use for fins, fairings, or structural panels.	<i>~4.6 mm thick</i>
1	Balsa Wood Sheet	1/8 in x 6 in x 36 in balsa wood sheet. Lightweight fin material; sand and epoxy to airframe.	
1	Shock Cord (2 ft)	2 ft length of 1/4-inch tubular nylon shock cord. Connects nose cone or PicoSat bay to main airframe during recovery.	<i>High-strength nylon</i>

1	Parachute Material - Large (for 3-Inch Class)	24 in x 24 in sheet of lightweight ripstop nylon fabric + 8 x 24 in shroud lines (1.5 mm nylon cord). Assemble into a 24-inch diameter circular parachute for the 3-inch rocket main descent.	~3.5 m/s descent rate at typical kit mass
1	Parachute Material - Small (for 2-Inch Class / PicoSat)	16 in x 16 in sheet of lightweight ripstop nylon fabric + 6 x 18 in shroud lines (1.5 mm nylon cord). Assemble into a 16-inch diameter circular parachute for the 2-inch rocket or PicoSat.	~3–4 m/s descent rate
1	Arduino Uno (with USB cable)	Arduino Uno R3 microcontroller board with USB-A to USB-B cable. Primary flight computer for PicoSat payload.	Primary controller
1	GY-521 MPU-6050 IMU Module	6-axis IMU: 3-axis gyroscope + 3-axis accelerometer, 16-bit ADC, I2C interface. For attitude and acceleration logging.	I2C interface
1	GY-BMP280 Pressure Sensor	High-precision digital barometric pressure sensor. Measures altitude and temperature. I2C or SPI interface. Replaces BMP180.	±1 hPa accuracy
1	Micro SD Card Reader Module	6-pin SPI interface SD/TF card adapter module with level conversion. For non-volatile data logging.	SPI interface
1	128 MB Micro SD Card	128 MB micro SD card for data storage in PicoSat flight computer.	Pre-format as FAT32
1	95 dB Buzzer / Alarm	Piezoelectric buzzer, 95 dB output. Use as audible locator beacon to help recovery teams find the rocket after landing.	Wire to flight computer
1	400-Tie Breadboard	Standard 400 tie-point solderless breadboard for prototyping PicoSat electronics without soldering.	
1	Breadboard Jumper Wire Kit	Assorted male-to-male, male-to-female, and female-to-female jumper wires. For breadboard connections.	Mixed lengths
1	9V Battery	Standard 9V alkaline battery. Powers the PicoSat electronics during flight.	Replace before competition day
3	9V Battery Connector (Clip Type)	9V snap connector leads. Attach to battery for clean power connection to electronics.	One per battery
1	On/Off Switch	SPDT toggle or slide switch. Used to arm/disarm the PicoSat electronics.	Wire in series with battery

3. Parachute Assembly Guide

Your kit includes fabric and cord to construct two parachutes - one for the main rocket body and one for the PicoSat or 2-inch rocket. Below are the assembly specifications for each.

Large Parachute (3-Inch Class Main Body)

- Cut the 24 in x 24 in ripstop nylon into a circle 24 inches in diameter.
- Mark 8 equally spaced anchor points around the circumference.
- Cut 8 shroud lines from the 1.5 mm nylon cord, each 24 inches long.
- Reinforce each anchor point with a small fabric patch and tie/sew shroud lines securely.
- Gather shroud lines at the apex and tie to your shock cord or swivel.
- Spill hole optional: a 2-inch centre hole reduces oscillation in crosswinds.

Small Parachute (2-Inch Class / PicoSat)

- Cut the 16 in x 16 in ripstop nylon into a circle 16 inches in diameter.
- Mark 6 equally spaced anchor points around the circumference.
- Cut 6 shroud lines, each 18 inches long.
- Attach shroud lines as above and gather at the apex.
- Aim for a descent rate of 3–4 m/s at your estimated PicoSat mass.

4. Non-Kit Components & Approvals

Teams are permitted to use components not included in the kit, unless explicitly prohibited by the Game Manual. The following rules apply:

- Any non-kit component not addressed in the Game Manual must be submitted for approval via the Q&A system at www.lignumpropulsion.com before use in competition.
- Teams may request that 3D-printed parts be produced and supplied by Lignum Propulsion by submitting a design file and request through the Q&A system.
- Approved non-kit components and 3D-printed parts are permitted at no additional cost.
- Non-kit components that are explicitly permitted by the Game Manual (e.g., additional epoxy, paint, ballast) do not require Q&A approval.

Q&A System opens: May 30, 2026 | www.lignumpropulsion.com

5. Important Warnings

- Motors must be stored in a cool, dry location away from open flame. Never attempt to disassemble or modify motors.
- Report any dropped, damaged, or defective motor to Lignum Propulsion officials immediately.
- Any kit component found to be missing or defective upon receipt must be reported to lignumpropulsion@gmail.com immediately.
- The PicoSat is the avionics electronics assembly. It has no defined form factor or size requirement; it must fit inside the rocket airframe and be ejectable.
- All electronic connections should be secured and inspected before flight. Loose connections are a common source of data loss and deployment failures.

6. Contact

Questions about kit contents or build process:

Email: lignumpropulsion@gmail.com

Q&A System: www.lignumpropulsion.com