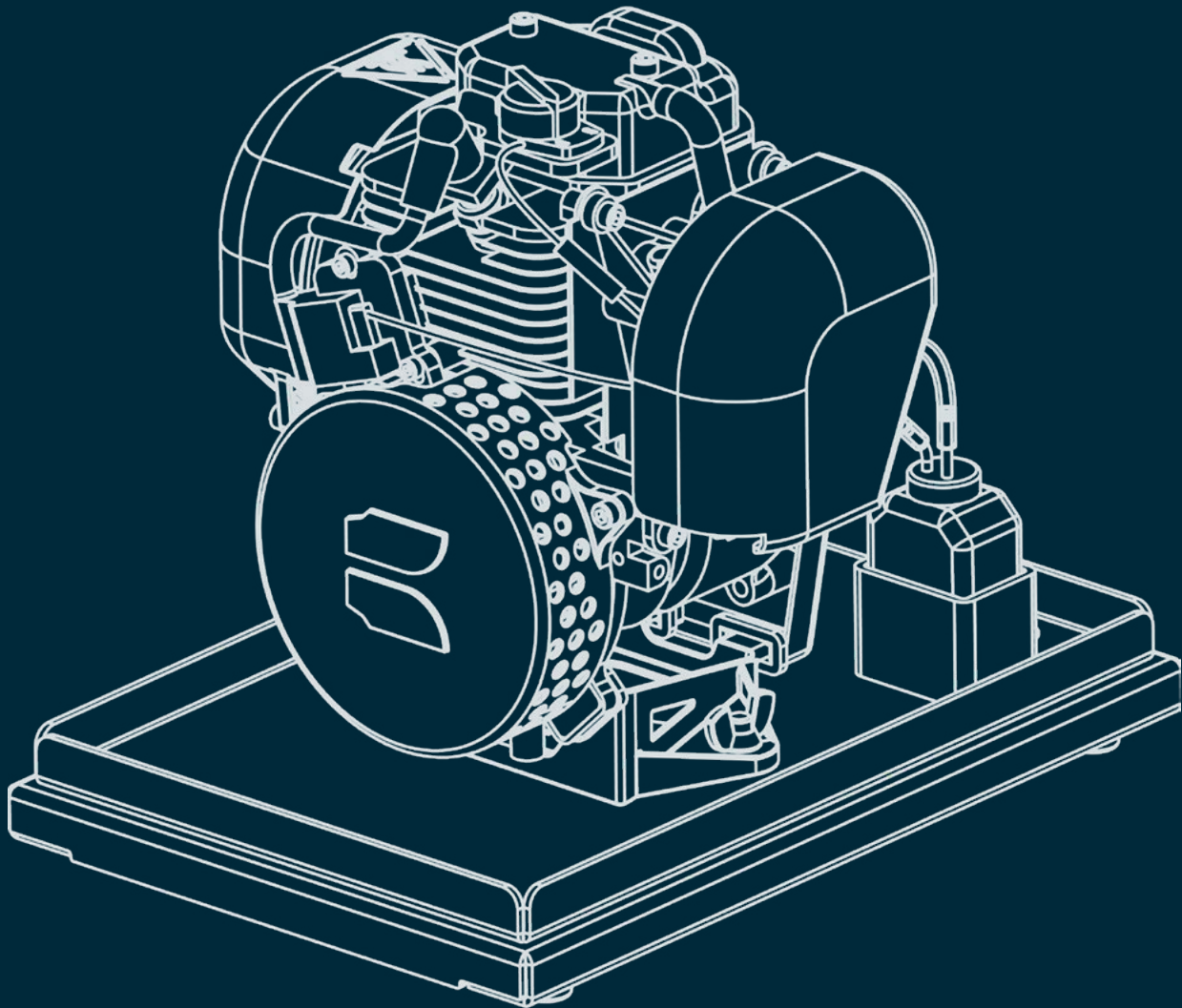




# Student-Built 1-cylinder Engine





The **EM-045-HN04 Student-Built 1-Cylinder Engine** is a fully functional Honda GX35-based 4-stroke engine adapted specifically for educational use. The unit is modified with protective covers, an optimized base plate and a complete storage solution. Designed for classroom durability and hands-on learning, it enables students to disassemble, reassemble, adjust, and start a real engine safely and effectively.

This compact OverHead Camshaft (OHC) engine introduces students to the fundamentals of combustion, energy transfer, thermodynamics, and precision mechanical systems. With real service procedures—valve adjustments, timing verification, spark plug inspection—the EM-045-HN04 encourages skill development using industry-standard tools (feeler gauges, torque wrench, syringes, etc.).

## EDUCATIONAL ADVANTAGES

- Fully functional 4 stroke engine that incorporates modern design for fundamental engine learning programs
- Demonstrate the 4 strokes and valve timing operation with intake and exhaust valve timing
- Provides a **real mechanical learning experience** through complete engine teardown and reassembly.
- Teaches essential concepts: **combustion, energy transfer, timing systems and measurement techniques.**
- Encourages students to practice OEM-based procedures: valve adjustments, timing, torquing, spark gap checks.
- Demonstrate by using measurable tools that you can measure primary and secondary ignition systems visualization of ignition events using an oscilloscope (spark pattern, dwell, burn duration).
- Has students following procedures outlined in the service information for step by step teardown and rebuild procedures,
- Hands-on tasks support development of problem-solving, mechanical aptitude, and math competencies (ex: calculating valve clearance).
- Ideal for technical programs exploring **automotive, small engine, agriculture machinery, or engineering fundamentals.**
- Easy to access replacement parts for lost or damaged components

## FEATURES

- Based on the **Honda GX35 4-stroke OHC engine.**
- **Horizontal crankshaft** design for versatile application.
- **Easy starting** and ultra-lightweight (less than 4 lbs).
- **Non-interference** timing belt system.
- **360° inclinable** engine technology.
- Two compression rings + one oil ring.
- No consumables and no gaskets to replace or damage.
- Floating piston pin.
- Overhead cam with adjustable valves.
- Integrated ignition system.
- All rotating and high-temperature parts are protected with removable guards.
- Base design allows secure fastening and vibration control.
- Emergency stop switch included.
- Robust structure with no fragile external parts.
- Disassembly time by an experienced technician: ~70 minutes.





## APPLICATIONS

Honda GX35 4-stroke OHC engine

## TECHNICAL INFORMATION

**Power Output:** 1.25 hp

**Oil Capacity:** 50 cc (5W30)

**Timing System:** Belt-driven overhead cam

**Weight:** < 4 lbs (approx.)

**Design:** Tabletop format, easy classroom setup

**Configuration:** Fully enclosed with removable protective panels

## MAJOR COMPONENTS INCLUDED

- Honda GX engine (modified for training use)
- Storage case (Pelican-style)
- Tool kit:
  - 1/4" drive ratchet
  - 1/4" drive Allen key sockets: 3mm, 4mm
  - 1/4" drive sockets: 8mm, 12mm
  - 3/8" drive 5/8" spark plug socket
  - 1/4" female to 3/8" male adapter
  - 1/4" beam type torque wrench
  - Needle-nose pliers 6"
  - Flywheel puller
  - Combination tune-up feeler gauge tool
  - 60 cc syringes (2)
  - Phillips #1 screwdriver
  - tool pouch
- Spare nuts, bolts, gaskets
- Spare timing belt

## FUNCTIONALITIES

- All high-risk zones protected by grills.
- Guards are easily removable for training use.
- Rear flywheel window allows timing verification.
- Centrifugal clutch removed for safety.
- Integrated emergency stop switch.
- Compact design optimized for classroom footprint.
- Designed for repeat disassembly/reassembly cycles.
- Throttle restricted for safety and to prevent over-revving.

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