

## 550-3200 - Engine Cubic Inch Tester Tool

The Speedway Cubic Inch Tester accurately measures engine displacement up to 672 cubic inches with 0.5% precision. It's designed for verifying displacement under restrictive conditions, featuring a glass tube, thermometer, plug adapter, instructions, and accessories housed in a hardwood box. Each unit undergoes rigorous accuracy testing before shipment.

**Note:** It may not be suitable for overhead cam engines where valve action cannot be halted.

### How to use:

1. Only remove the spark plug from the cylinder being tested.
2. Remove both pushrods from the cylinder being tested.
3. Screw the hose adapter into the spark plug hole.
4. Blow through the hose to ensure no air escapes past the threads, then attach it to the tester.
5. Take the tester and push the nylon puck and O-ring about 3/4 of the way down the tester using the provided ram rod.
6. It is imperative to **SLOWLY** turn the engine over at around 200 RPM, leaving the other cylinder spark plugs intact on the cylinders not being tested.
  - **Note:** On 24-volt or 36-volt systems, consider disconnecting batteries to reduce cranking speed, or use single starter bumps instead of continuous cranking.
    - For vehicles without starters, remove all spark plugs and push the car in high gear to simulate cranking speed.
7. With the **IGNITION OFF**, crank the engine over approximately five times until the O-ring ceases to rise.
  - Ensure the nylon puck forces the tester's valve to open on each stroke, producing a slight popping sound.
    - If not, reset the O-ring and repeat, initially holding the valve open manually.
8. Read the measurement from the O-ring's bottom and multiply by the number of cylinders to determine the motor's total cubic inches.
9. Ensure accurate readings by testing with a cold engine (room temperature). Consult the attached chart for adjustments if the engine is warm.
  - Place the supplied thermometer in the spark plug hole to measure cylinder temperature. Avoid contact with the piston or any other metal surface.
  - **CORRECTION CHART FOR WARM ENGINES:** Use this chart only if the engine is hotter than ambient (surrounding) temperature. It is accurate within three cubic inches and always measures on the low side, never larger than the actual displacement. If the engine shows higher readings, recheck. If discrepancies persist, consider removing the cylinder head and measuring bore and stroke.
    - 100 degrees add 2.5%
    - 120 degrees add 3.0%
    - 140 degrees add 4.5%
    - 160 degrees add 6.0%
    - 180 degrees add 8.0%

# INSTRUCTIONS

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- **Note:** The warmer the engine, the lower the cubic inches the tester will read.

## Testing "Big Motors":

- Only remove the spark plug from the cylinder being tested, not all cylinders.
- Reduce cranking RPM to 200 or less; for 36-volt systems, disconnect two batteries.
- Initially hold the exhaust valve open manually for the first two pumps, then release.

## Maintenance:

- Regularly clean and lubricate the nylon puck and glass bore with WD-40 or light oil.
- If contaminants enter the tester, unscrew the bottom for cleaning, marking threads for proper reassembly to avoid volume changes affecting accuracy.

**Note:** Parts replacement, repairs, and recalibration services are available through PMS.

