

Relative Compression

Meets NATEF Task: (A8-A-7) Perform cylinder and running compression tests; determine necessary action. (P-1)

Name _____ Date _____ Time on Task _____

Make/Model/Year _____ VIN _____ Evaluation: 4 3 2 1

Many scopes, such as the Fluke 98 scopemeter and MTS 5100, are capable of displaying changes in battery voltage when the engine is being cranked and display a relative compression based on the voltage change. For example, if a particular cylinder is weak and lacks compression, the starter motor will not have to draw as much current from the battery whenever that cylinder is being rotated through its compression stroke. The lower compression is reflected by a higher than normal battery voltage and displayed on the display as a lower than normal reading.

- _____ 1. Connect the scope to the battery positive (+) and negative (-) terminals. Connect a probe to cylinder #1 needed to “sync” the display to cylinder #1. (Check and follow the scope manufacturer’s recommended procedure.)

- _____ 2. Disable the ignition to prevent the engine from starting while it is being cranked.
 - a. On vehicles equipped with a distributor and separate coil, unplug the coil wire from the distributor cap and *ground* the coil wire to a good engine ground using a jumper wire.
 - b. Unplug the power lead feeding the ignition system (the white connector or side of General Motors HEI integral coil distributor).
 - c. Unplug the wiring connector at the ignition coil

NOTE: The ignition system must be disabled or grounded to prevent possible ignition coil damage that could result.

- _____ 3. Crank the engine for 15 seconds and observe the scope pattern. If all cylinders are almost equal condition, the display should also be equal. If unequal test results are indicated, the engine should be tested further by performing a compression test and a cylinder leakage test.

- _____ 4. Based on the test results, what is the necessary action?

