

NAME: _____

Mr.

VAT 40 and Electrical Testing
NATEF Electricity and Electrical systems

Battery Load Test

Year: _____ Make: _____ Model: _____

Objective: To test the capacity of the battery

1. Make sure the load bank is off. Turn Selector Switch to 'Starting'.
2. Hook up the heavy cables + to +, - to -. Switch the voltmeter to INT. 18V.
3. Battery reading (should be within 12.5-13.8 Volts).

Actual Reading: _____

4. Clamp amperage cable around positive lead on the VAT 40, with the arrow towards the battery.
5. Load to 200 amps or $\frac{1}{2}$ of the cold cranking amperage. Do NOT OVERLOAD!
6. Count to 15 seconds while holding the load. Immediately read the voltmeter after 15 seconds before releasing the load.
7. Voltage Reading: _____
8. The battery is acceptable if the reading is above 9.6 volts.

Pass _____ Fail _____

Charging System Test I

Objective: To enable students to determine the condition of the charging system.

1. Connect voltmeter using Heavy voltmeter leads. Turn voltmeter to INT.18V. Selector switch to 'Starting'.
2. Battery reading should be between 12.5 and 13.8 volts.

Actual Reading: _____

3. Start the automobile with exhaust system evacuating the emissions.
4. Turn on accessories.
5. Hold the engine speed at 2000 R.P.M.'s.
6. Voltage Reading: _____
7. The Charging system is acceptable if the reading is 13.8 - 14.5 Volts.

Pass _____ Fail _____

NAME: _____

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Charging System Test II

Objective: To enable students to determine the condition of the charging system.

1. Connect heavy voltmeter cables to battery. Switch Voltmeter to INT. 18V. Turn selector switch to 'Charging'.
2. Battery reading should be between 12.5 and 13.8 volts.

Actual Reading: _____

3. Clamp green ammeter lead around positive cable of alternator; arrow must be facing towards the battery. Zero the amperage Meter load scale.
4. Look up rated output of alternator (**Should be between 85-125 amps**).

Amperage rating: _____

5. Start the automobile with exhaust system evacuating the emissions. Accessories must be off, and hold the engine speed at 2000 R.P.M.'s.
6. Read the Amperage Meter scale.
7. Load Voltage to 14V or lower if necessary and read peak amp meter.
8. Acceptable reading should be **within** 10% of rated output.

10% of rated Output: _____ (A 90 amp alternator = range of 81-90 amps)

Range of Acceptable Output: _____

Actual Output: _____

9. Results:

Pass _____

Fail _____

Starter Draw Test

Objective: Students will be able to determine the condition of the starting system.

1. Connect Voltmeter using heavy leads and Voltmeter Switch on INT. 18V. Select 'Starting' switch.
2. Battery reading should be between 12.5 and 13.8 volts.

Actual Reading: _____

3. Disable ignition or Fuel so the vehicle won't start.
4. Crank the engine for 15 seconds.

5. Voltage Reading: _____

6. The starting system is acceptable if the reading is above 9.6 volts.

Pass _____ Fail _____