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DUE TO INHERENT DANGERS ASSOCIATED WITH AUTOMOTIVE MAINTENANCE PROCEDURES, THE MANUFACTURER AND ALL PARTIES INVOLVED WITH THE DISTRIBUTION AND/OR SALE OF THIS EQUIPMENT WILL NOT BE HELD LIABLE OR RESPONSIBLE, EITHER WHOLLY OR IN PART, FOR ANY INJURY, DAMAGE OR CLAIMS RESULTING IN ITS PERFORMANCE OR THE USE OF THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

¡DECLINACIÓN!

DEBIDO A LOS PELIGROS INHERENTES ASOCIADOS CON LOS PROCEDIMIENTOS DE MANTENIMIENTO DE LOS AUTOMÓVILES, EL FABRICANTE Y TODAS LAS PARTES INVOLUCRADAS EN LA DISTRIBUCIÓN Y/O VENTA DE ESTE EQUIPO NO SE RESPONSABILIZAN, YA SEA PARCIAL O TOTALMENTE, POR NINGUNA LESIÓN, DAÑO O RECLAMOS RESULTANTES DE SU COMPORTAMIENTO O LA UTILIZACIÓN DE LAS INSTRUCCIONES CONTENIDAS EN ESTE MANUAL.

DÉNI DE RESPONSABILITÉ!

COMPTE TENU DES DANGERS INHÉRENTS AUX PROCÉDURES D'ENTRETIEN AUTOMOBILE, LE FABRICANT ET TOUTES LES PARTIES IMPLIQUÉES DANS LA DISTRIBUTION ET LA VENTE DE CET ÉQUIPEMENT NE POURRONT PAS ÊTRE TENUS POUR REDEVABLES OU RESPONSABLES, QUE CE SOIT EN TOUT OU EN PARTIE, POUR TOUTE BLESSURE, TOUT DOMMAGE OU TOUTES RÉCLAMATIONS RÉSULTANT DE LA PERFORMANCE OU DE L'UTILISATION DES INSTRUCTIONS CONTENUES DANS LE MANUEL.

OPERATING
INSTRUCTIONS
INSTRUCCIONES
DE MANEJO
MODE
D'EMPLOI

Battery Load Tester

Probador de carga de baterías

Testeur de Charge de Batterie

Safety Precautions

- Always wear approved eye protection.
- Always operate the vehicle in a well-ventilated area. **Do not inhale exhaust gases—they are very poisonous!**
- Always keep yourself, tools, and test equipment away from all moving or hot engine parts.
- Always make sure the vehicle is in **Park** (automatic transmission) or **Neutral** (manual transmission) and that the **parking brake** is firmly set. Block the drive wheels.
- Never lay tools on vehicle battery. You may short the terminals together, causing harm to yourself, the tools, or the battery.
- Never smoke or have open flames near vehicle. Vapors from gasoline and charging batteries are highly flammable and explosive.
- Never leave vehicle unattended while running tests.
- Always keep a fire extinguisher suitable for gasoline/electrical/chemical fires handy.
- Always turn ignition key OFF when connecting or disconnecting electrical components, unless otherwise instructed.
- Keep away from engine cooling fan. On some vehicles, the fan may start unexpectedly.
- **Always** follow vehicle manufacturer's warnings, cautions, and service procedures.
- Always be sure to first connect the black grounding clamp to the battery and disconnect it last when testing is complete.
- Never connect/disconnect the tester while holding the LOAD SWITCH to ON.

Medidas de seguridad

- Use siempre protección aprobada para los ojos.
- Encienda siempre el motor del vehículo en un lugar bien ventilado. **No aspire los gases de escape—¡son muy venenosos!**
- Mantenga siempre su cuerpo, las herramientas y el equipo de prueba lejos de todas las piezas móviles calientes del motor.
- Asegúrese siempre que el vehículo esté en **Park** (transmisión automática) o Punto muerto (transmisión manual) y que el freno de mano esté firmemente aplicado. Bloquee las ruedas propulsoras.
- No deje nunca herramientas sobre la batería del vehículo. Puede producir cortocircuito entre los bornes y causar daño a usted, las herramientas o la batería.
- Nunca fume ni tenga llamas expuestas cerca del vehículo. Los vapores de gasolina y las baterías en carga son muy inflamables y explosivos.
- No deje nunca el vehículo sin vigilancia mientras está ejecutando las pruebas.
- Mantenga siempre un extintor de incendios a mano adecuado para incendios de gasolina/eléctricos/químicos.
- Desconecte siempre la llave de contacto cuando conecte o desconecte componentes eléctricos, salvo indicación contraria.
- Manténgase alejado del ventilador de enfriamiento del motor. En algunos vehículos, el ventilador puede activarse imprevistamente.
- Respete **siempre** las advertencias, medidas de precaución y procedimientos de servicio del fabricante del vehículo.
- Asegúrese siempre de conectar primero la pinza negra de tierra a la batería y desconectarla al último, cuando haya terminado la prueba.
- No conecte ni desconecte el probador mientras tiene el INTERRUPTOR DE CARGA en posición ACTIVADO(ON).

Précautions de sécurité

- Portez en permanence une protection pour les yeux approuvée.
- Faites toujours tourner le véhicule dans une zone bien ventilée. **N'inhalez pas de gaz d'échappement-ils sont très toxiques!**
- Gardez vous, ainsi que vos outils et équipement de test, à l'écart de toutes les pièces du véhicules en mouvement ou brûlantes.
- Assurez-vous toujours que le véhicule est en position **Park** (boîte automatique) ou au **point mort** (boîte manuelle), et que le **frein à main** est bien serré. Calez les roues motrices.
- Ne posez jamais d'outils sur la batterie. Vous pourriez court-circuiter les bornes, provoquant d'éventuels dommages corporels ou matériels (outils et batterie).
- Ne fumez jamais et n'ayez pas de flamme libre près du véhicule. Les vapeurs d'essence et de batterie en charge sont très inflammables et explosives.
- Ne laissez jamais le véhicule sans surveillance pendant le déroulement des tests.
- Gardez toujours à portée un extincteur convenant aux incendies d'origine carburant/électrique/chimique.
- Tournez toujours la clé de contact sur l'arrêt (OFF) quand vous branchez ou débranchez des composants électriques, sauf instructions spécifiques autres.
- Restez à l'écart du ventilateur de refroidissement du moteur. Sur certains véhicules il peut se mettre en marche inopinément.
- Respectez **toujours** les avertissements, mises en garde et procédures d'entretien du constructeur.
- Faites bien attention de relier en premier la pince noire de mise à la masse sur la batterie, et de la retirer en dernier quand le test est terminé.
- Ne faites jamais de branchement/débranchement du testeur tout en maintenant son commutateur de charge (LOAD SWITCH) en position activée (ON).

BATTERY LOAD TESTER

The Battery Load Tester is designed to test the battery condition- a 10 second test indicates if a battery is good and fully charged or faulty. Further testing will show if the faulty condition is due to a partially charged or a defective battery (i.e.-bad cells) or a possible problem with the vehicle electrical system. The test can be performed on partially charged batteries (with a hydrometer reading of 1225 or higher).

The Battery Load Tester can also be used to check the vehicle charging system.

CAUTION!

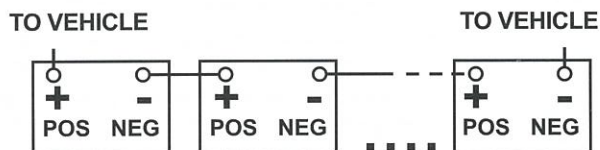
TESTING PROCEDURES AND INFORMATION PROVIDED IN THIS MANUAL ARE INTENDED AS GENERAL GUIDELINES FOR ENGINE TUNE UP AND ADJUSTMENTS ONLY. CONSULT THE APPLICABLE VEHICLE SERVICE MANUALS FOR ALL SPECIFIC TESTS.

DO NOT ACTIVATE AND HOLD THE LOAD SWITCH FOR MORE THAN 15 SECONDS. THIS WILL OVERLOAD THE TESTER RESULTING IN DAMAGE AND VOID THE WARRANTY.

BEFORE TESTING, READ AND FOLLOW ALL SAFETY PRECAUTIONS.

VEHICLE PREPARATION

- **Key OFF, Engine OFF.**
- Disconnect all battery chargers! Battery cannot be tested while being charged.
- In all multiple battery systems, all batteries must be tested separately, *Only* batteries connected in series may remain connected during test. See diagram below:



Batteries in Series: All batteries are connected from negative (-) terminal of one to positive (+) terminal of the other, with only one battery's positive (+) and one other's negative (-) connected to the vehicle. Any number of batteries can be connected in series, but each battery **must** be tested separately. *All other types of multiple connections* must be disconnected and isolated from the other.

BATTERY TEST

Battery Temperature

The most accurate test results will be obtained when battery temperature is at approximately 70°F. If testing battery between 70° and 40°F, add 0.1 volt for every 10°F below 70°F. If testing a battery between 70°F and 100°F, subtract 0.1 volt for every 10°F above 70°F.

Connect Tester to Battery (See Figure 1)

1. Connect the black clamp to the battery negative (-) post.
2. Connect the red clamp to the battery positive (+) post.

NOTE

Make sure both sides of each clamp make good contact with the battery posts. If required, rock the clamps back and forth to improve connection.

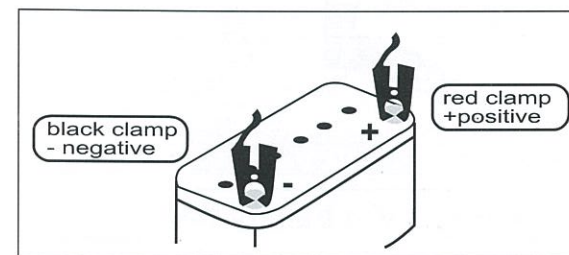


Figure 1. Connection

3. Press and hold the LOAD SWITCH for 10 seconds.
4. Hold the LOAD SWITCH and read the meter (See Figures 2 or 3).
5. Release the LOAD SWITCH immediately after reading the meter.
6. Disconnect the red clamp from the battery.
7. Disconnect the black clamp from the battery.

NOTE

If REPLACE indication is suspected due to the battery being completely discharged because of lights or other accessories being left on, charge battery to full capacity and retest before deciding to replace the battery.

BATTERY TEST RESULTS

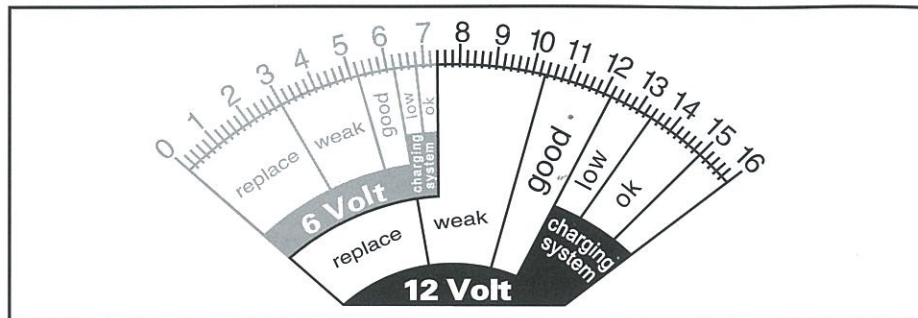


Figure 2.12 Volt Battery Test Results

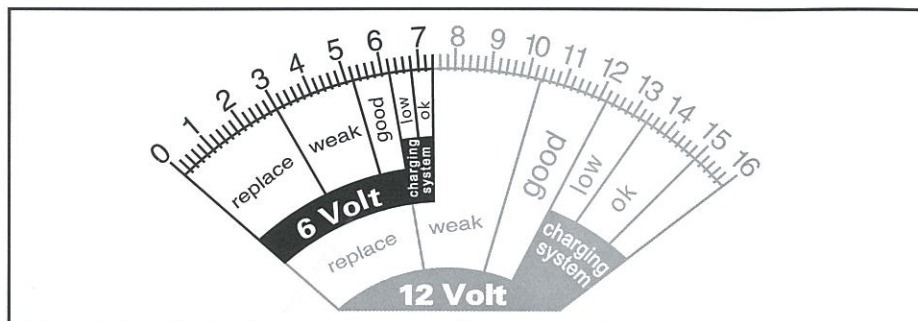


Figure 3.6 Volt Battery Test Results

GOOD - Battery is in good condition and should start the vehicle in any climate.

NOTE

A WEAK or REPLACE indication may be due to excessive resistance caused by a bad connection or corrosion between battery cables and the battery posts. Remove battery cables from battery, connect the tester directly to the posts and retest.

WEAK - Indicates the battery requires charging. Charge battery at 30 Amps for 5 minutes or at 10 Amps for 15 minutes. Then retest.

RESULTS AFTER CHARGING:

- If battery tests WEAK a second time, this could indicate one or more cells are bad and battery must be replaced.
- If battery reads GOOD, the battery was not sufficiently charged during the first test.

REPLACE - Indicates the battery is bad and requires replacement.

CHARGING SYSTEM TEST

Connect Tester to Battery

1. Connect the black clamp to the battery negative (-) post.
2. Connect the red clamp to the battery positive (+) post.
3. Start vehicle and set idle at 1200-1500 RPM and observe meter (See Figures 4 or 5).

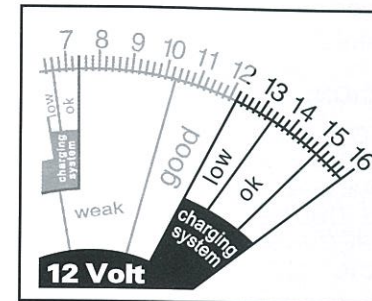


Figure 4.12 Volt Charging System Test Results

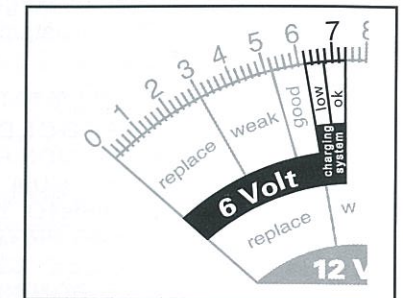


Figure 5.6 Volt Charging System Test Results

CHARGING SYSTEM TEST RESULTS

OK - A fully charged battery should read in the GREEN OK Zone.

LOW - Indicates a problem with the vehicle charging system and that the battery is not charging properly.

RED ZONE (above 15 volts or 7.5 volts, whichever applies) - Indicates the charging system voltage is too high. Damage to the vehicle electrical system may result.

A decision to REPLACE the alternator or other electrical system components should not be based solely on these test results. Refer to the applicable Vehicle Service Manual for additional testing.