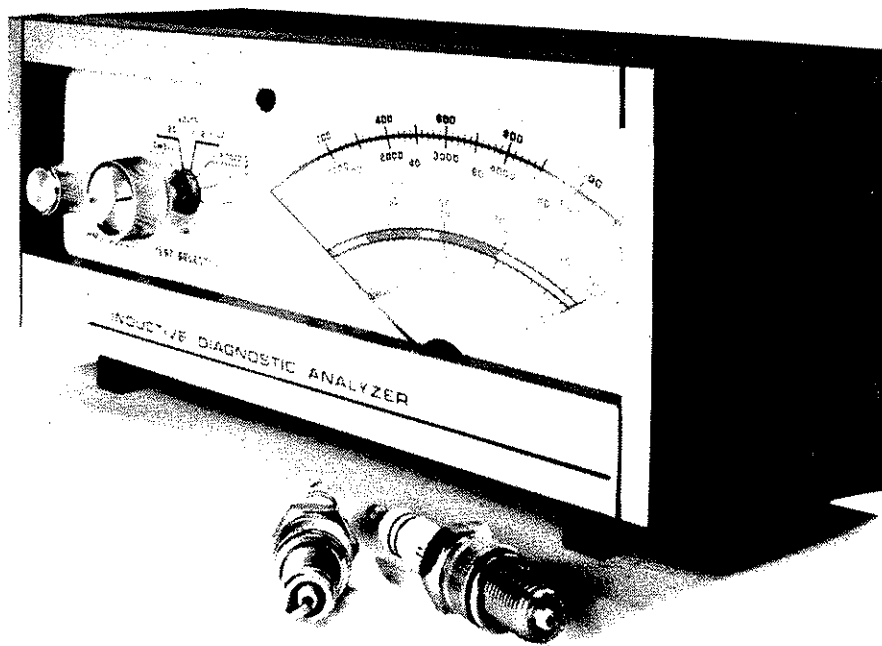
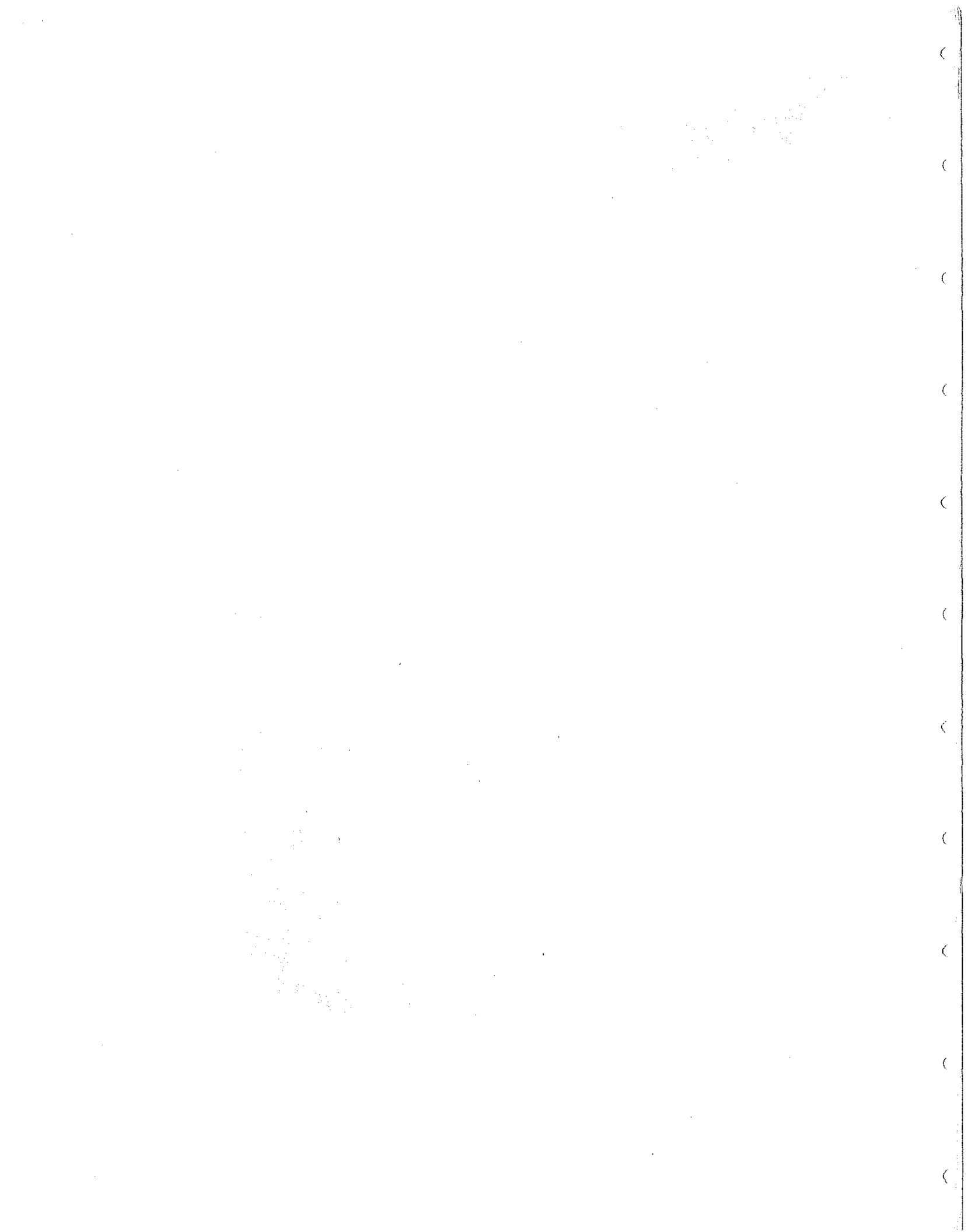




OPERATING INSTRUCTIONS

INDUCTIVE DIAGNOSTIC ANALYZER





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*Indicates tests performed only on vehicles not equipped with electronic ignition.

GENERAL INFORMATION

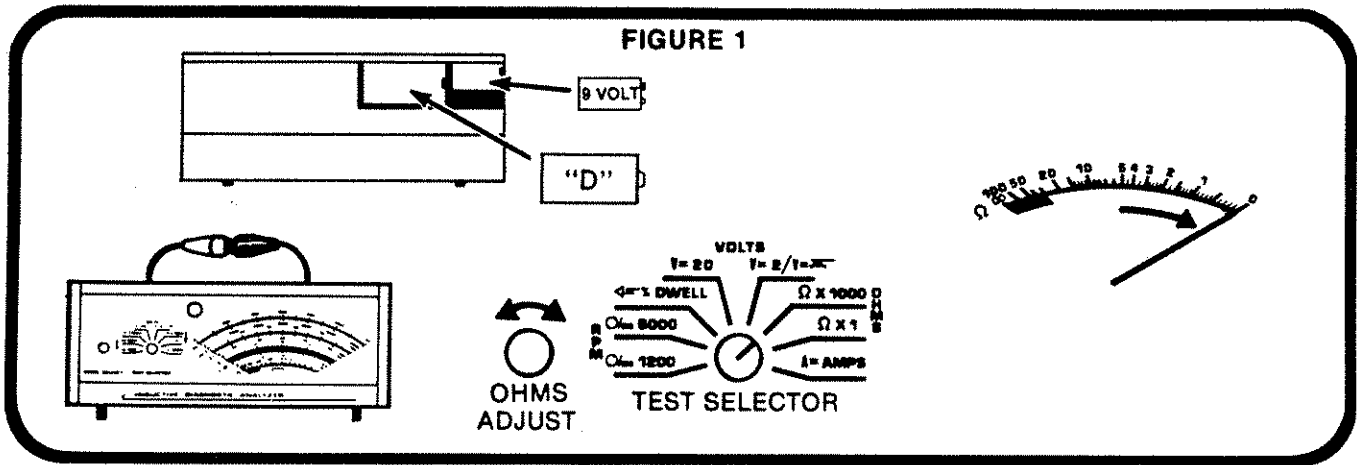
This Inductive Diagnostic Analyzer consists of a portable steel-cased multi-function unit with 0-6000 RPM and 0-1200 RPM tachometer, 0-100% dwell, 0-20 volt and 0-2 volt scales, distributor points condition scale, x1 and x1000 OHMS scales, 0-100 amps scale, and LED ignition test light.

The rugged steel construction and compactness of this analyzer and the absence of a power line cord give it a mobility unique among professional grade testers. Wherever you can park a vehicle, you can test it with the inductive diagnostic analyzer.

This manual contains eight (8) tune-up tests that can be performed in sequence, fourteen (14) troubleshooting tests and six (6) electronic ignition components tests. Also included are simplified test connection and calibration procedures, safety rules and a replacement parts list.

This analyzer is powered by one "D" size 1½-volt battery and one 9-volt transistor battery. These are used only for the ohmmeter tests. Replacement of the batteries is necessary only when it becomes impossible to set the pointer to zero OHMS on the meter.

NOTE: Before proceeding, carefully read the safety rules page 20 of this booklet.



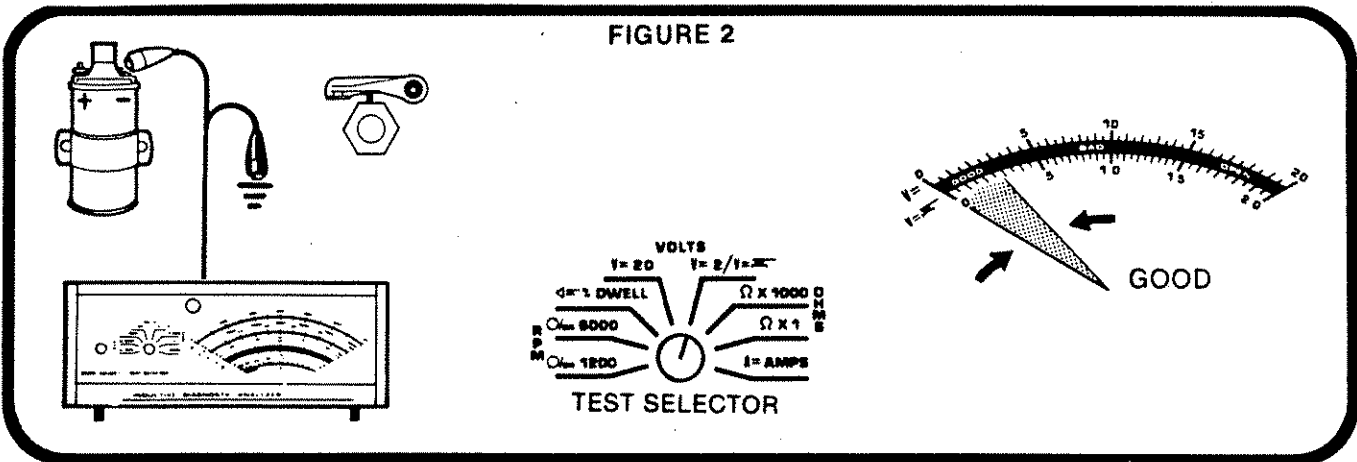
OHMS CALIBRATIONS

1. Connect RED and BLACK test clips together.
2. Turn test selector to desired OHMS position, x1 or x1000 OHMS.
3. Turn OHMS adjust to bring pointer to zero OHMS. Selected OHMS range is now ready for use.

CAUTION: Never connect RED and BLACK test clips to a source of vehicle voltage if test selector is in x1 OHMS position. This will burn out an internal fuse, requiring replacement to restore normal operation.

BATTERY REPLACEMENT

If pointer cannot be adjusted to zero OHMS on meter, replace both batteries, observing polarity. Correct batteries are one "D" and one 9-volt.



TUNE-UP TESTS

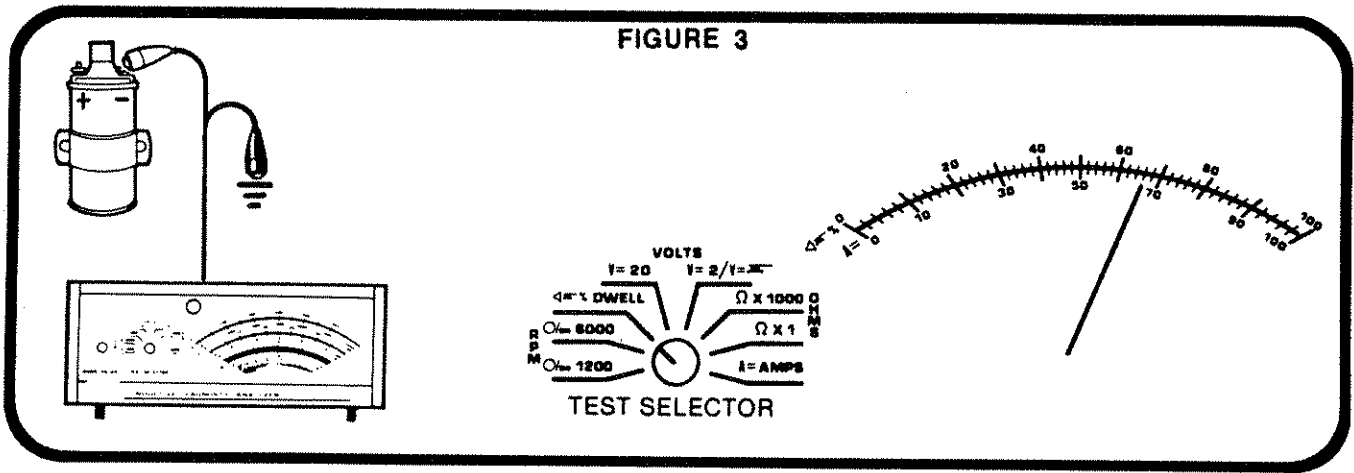
*DISTRIBUTOR POINTS CONDITION TEST

1. Connect RED test clip to DISTRIBUTOR (-) terminal of coil and BLACK test clip to GROUND.
2. Turn test selector to V = 2 position.
3. Turn ignition switch to ON position while observing meter.

Results: GOOD—Points are OK.
 BAD—Points are burned. Replace.
 OPEN—Points are open. Momentarily crank engine and recheck.

PRO TIP: Burned points can cause hard starting and a rough engine.

FIGURE 3



***DISTRIBUTOR POINTS—DWELL TEST**

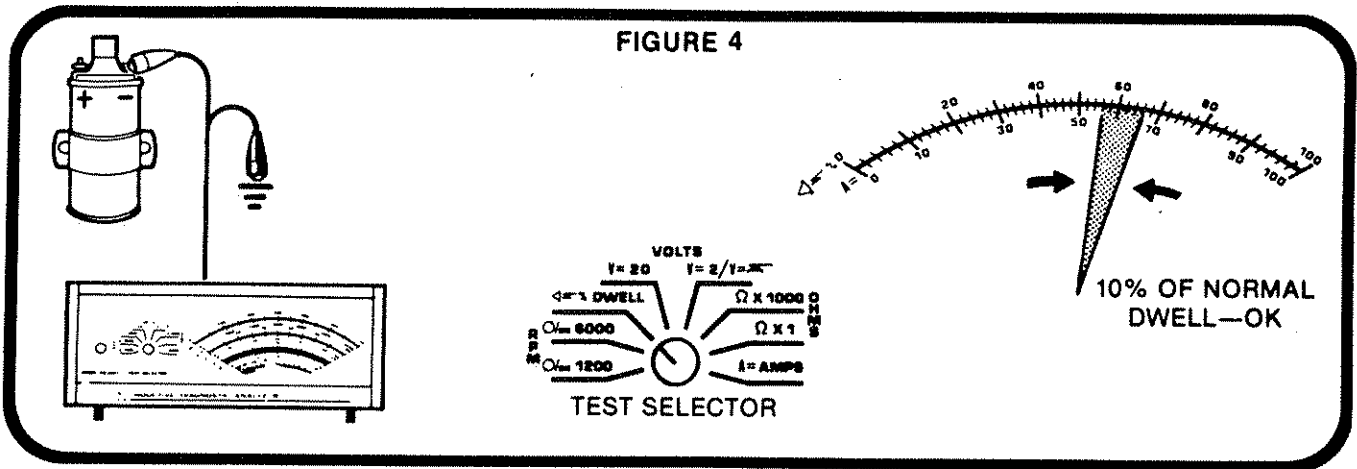
1. Turn test selector to DWELL position.
2. Start engine, let idle while observing meter.
3. To read dwell in degrees, refer to scale on rear of analyzer.

See owner manual for correct dwell.

Results: Low—Point gap too wide. Reset.
 Normal—Point gap adjusted properly.
 High—Point gap too narrow. Reset.

PRO TIP: Low dwell causes poor ignition coil performance. High dwell causes prematurely burned breaker points.

FIGURE 4



***DISTRIBUTOR—MECHANICAL WEAR TEST**

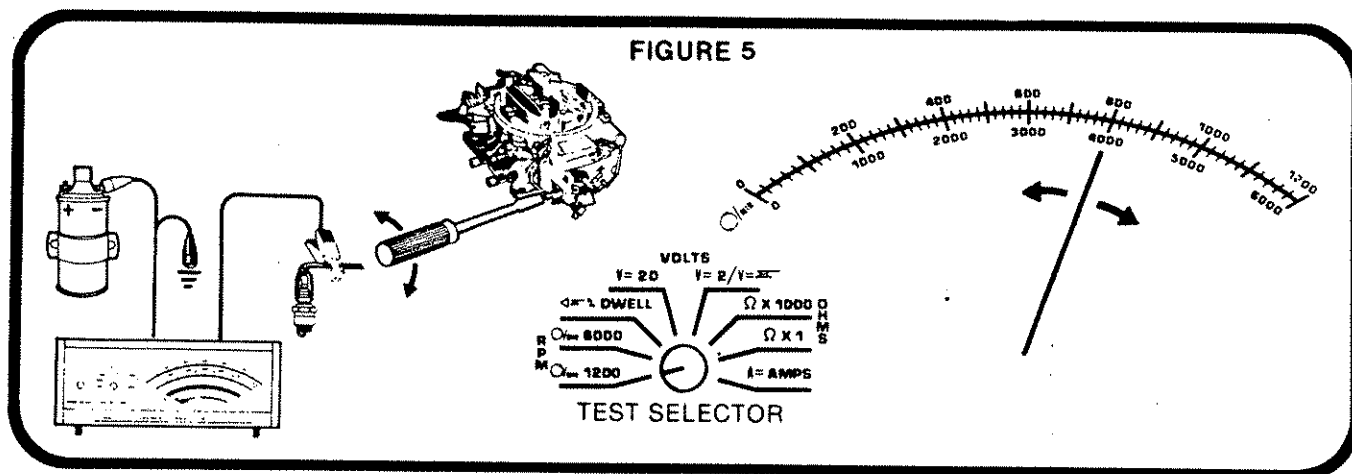
1. Briefly race engine while observing meter and note change of DWELL from value at idle.

Results: Change within 10%—Normal.
 Change over 10%—Worn-out distributor. Replace.

NOTE: Some distributors have off-center pivoting breaker plates, which will cause excessive DWELL change. This is normal for this type of distributor. See your owner manual.

PRO TIP: Excessive distributor mechanical wear causes an abnormal spark advance, resulting in poor engine performance.

FIGURE 5



ENGINE—IDLE SPEED TEST

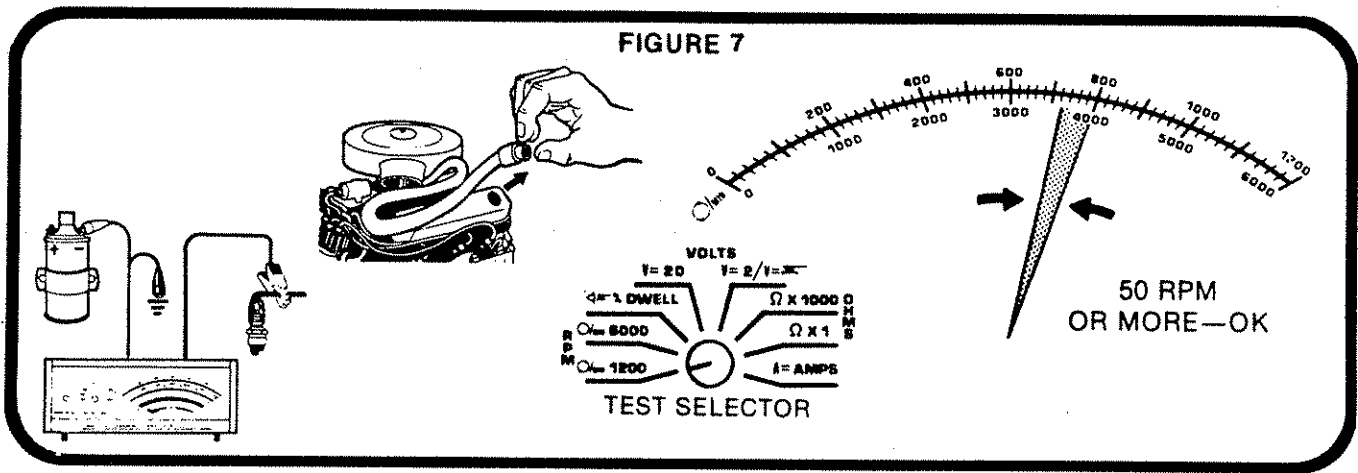
1. Turn test selector to 1200 RPM position.
2. Put the 2/4 cycle switch in the proper position for your vehicle (consult your owners manual if needed).
3. Connect the RED test clip to distributor (-) side of the ignition coil and the BLACK test clip to ground.
4. Hook inductive pickup over spark plug wire (with the arrow on the spark plug pointing towards the spark plug).
5. Start engine and let idle. On automatic transmission vehicles, place shift selector in correct position as specified by manufacturer.
6. Observe the LO RPM scale.

NOTE: Consult your owners manual for correct idle speed.

Results: Too High—Speed adjusted too fast. Adjust.
 Normal—Speed adjusted correctly.
 Too Low—Speed adjusted too slow. Adjust.

IMPORTANT: Place shift selector in "Neutral" or "Park" before proceeding with the next test.

PRO TIP: High idle speed causes excessive brake wear, while low idle speed causes engine stalling and roughness.

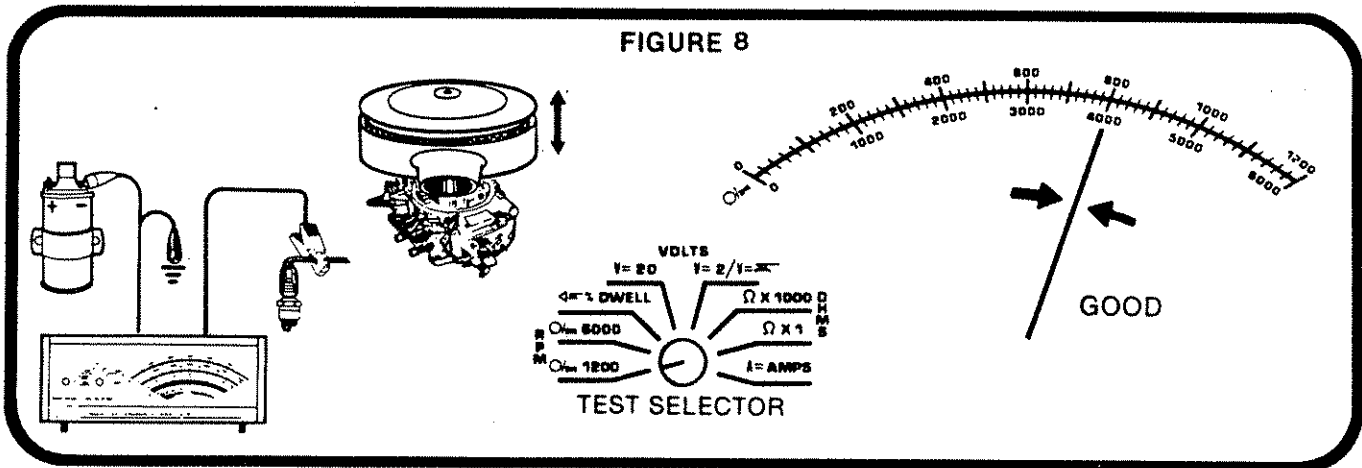


ENGINE—PCV TEST

1. Put the 2/4 cycle switch in the proper position for your vehicle (consult your owners manual).
2. Connect the RED test clip to the distributor (-) side of the ignition coil and the BLACK test clip to ground.
3. Hook the inductive pickup over any spark plug wire (with the arrow on the pickup pointing towards the spark plug).
4. Start the engine and let it idle with the shift selector in neutral.
5. Pull PCV hose and assembly from valve cover and observe the LO RPM scale.
6. Place thumb over end of PCV valve and observe scale.

Results: Speed drops 50 RPM or more—PCV OK.
 Speed drops less than 50 RPM—PCV defective. Replace.

PRO TIP: A defective PCV permits crankcase vapors to escape to the atmosphere and increases air pollution.

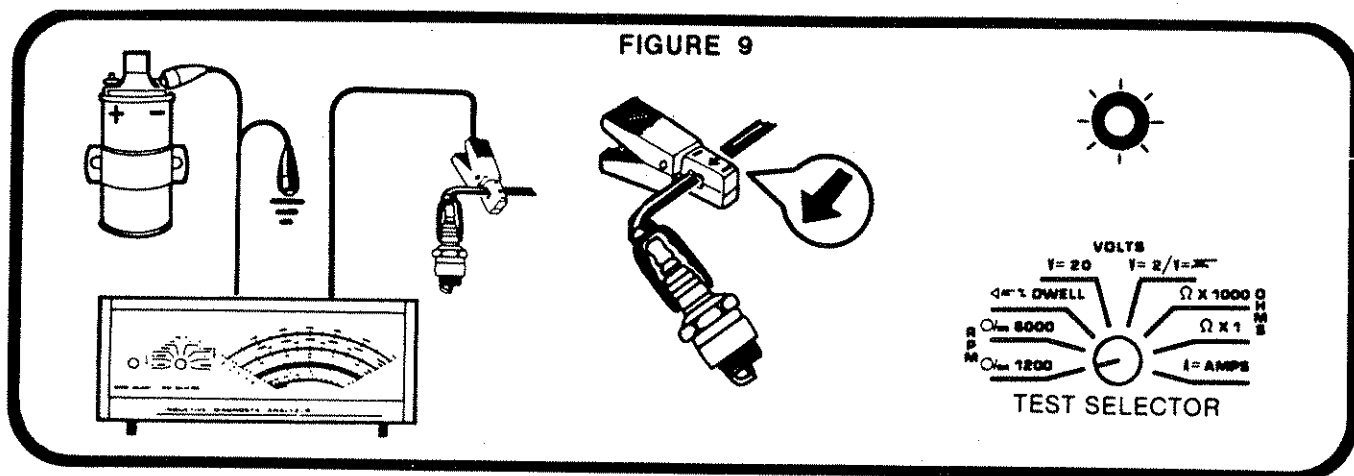


ENGINE—AIR FILTER TEST

1. Put the 2/4 cycle switch in the proper position for your vehicle (consult your owners manual).
2. Connect the RED test clip to the distributor (-) side of the ignition coil and the BLACK test clip to ground.
3. Hook the inductive pickup over any spark plug wire (with the arrow on the pickup pointing towards the spark plug).
4. Start the engine and let it idle with the shift selector in neutral.
5. Observe the LO RPM scale with and without the air cleaner in place.

Results: No RPM change—Air filter OK.
 RPM changes—Air filter dirty and restricted. Replace.

PRO TIP: A dirty air filter causes an overrich fuel mixture resulting in poor fuel economy and loss of power.



IGNITION—SPARK INTENSITY TEST

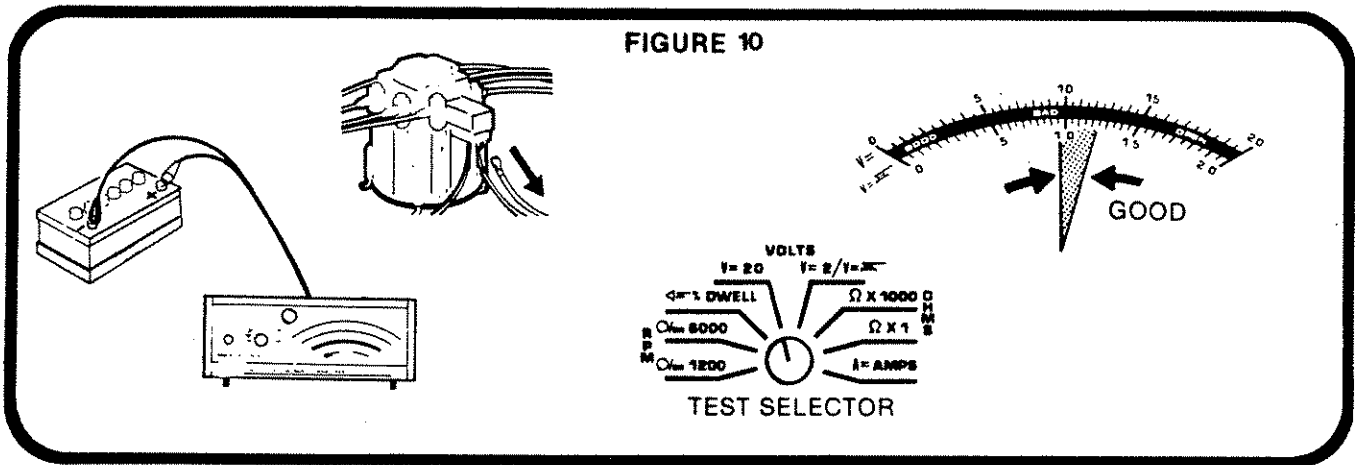
1. Put the 2/4 cycle switch in the proper position for your vehicle (consult your owners manual).
2. Start the engine and let idle in neutral.
3. Hook the inductive pickup over the # 1 spark plug wire (with the arrow on the pickup pointing towards the spark plug) and observe the ignition indicator lamp.
4. Repeat step D on each remaining spark plug wire.
5. At normal idle, observe LED light for steady blinking.

Results: Steady blinking on all spark plug wires—Ignition coil, coil wire, rotor, distributor cap and all spark plug wires OK.
 Unsteady or no blinking on all spark plug wires—Check for bad coil, coil wire, rotor or center tower of distributor cap.
 Unsteady or no blinking on *one or more* spark plug wires—Check for bad spark plug wires or side towers of distributor cap.

PRO TIP: Poor spark intensity causes mis-firing of spark plugs, resulting in loss of power and fuel economy.

(See troubleshooting section, figures # 21, 22, 23, 24. For electronic ignition systems, see figures # 26, 27, 28, 29, 30, and 31.)

FIGURE 10



BATTERY/STARTER—CRANKING SYSTEM TEST

1. Connect RED test clip to positive (+) battery terminal and BLACK test clip to negative (-) battery terminal.
2. Turn test selector to V = 20 position.
3. With engine stopped, disconnect ignition coil wire from center tower of distributor cap and ground it using a jumper wire.

NOTE: On GM HEI (8 cyl.) electronic ignition system, disconnect "BAT" terminal connector from distributor.

4. Crank engine continuously for 15 seconds while observing meter.

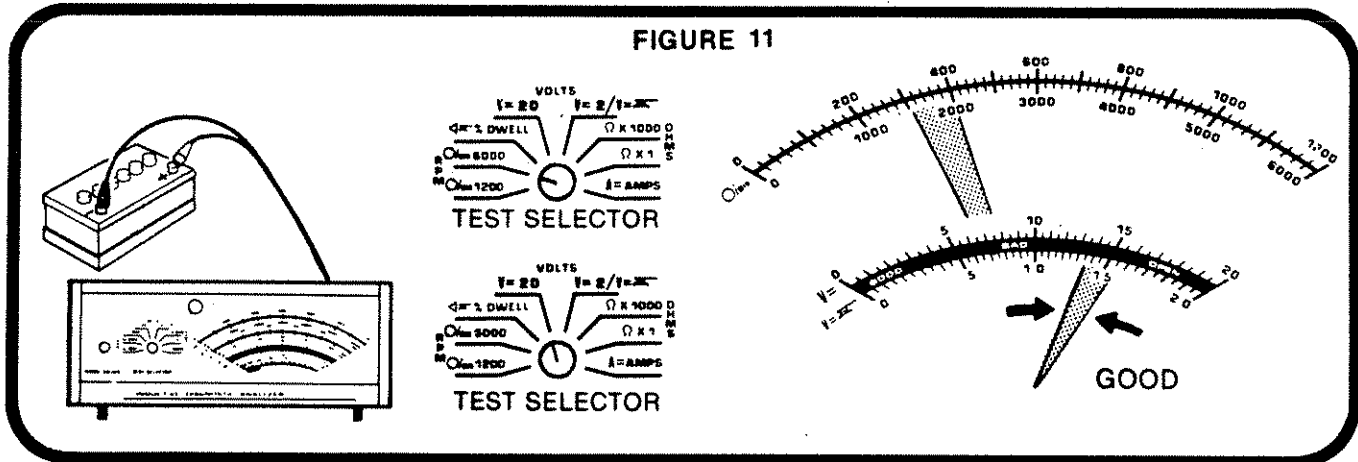
Results: Voltage reads more than 9.5V—Normal cranking system.

Voltage reads less than 9.5V—Defective battery, cables, solenoid or starter.

(See troubleshooting section, figures #12, 13, 14, 15, and 16.)

PRO TIP: Defective components in the cranking system cause slow or difficult starting of engine, particularly in extremely cold weather.

FIGURE 11



ALTERNATOR (GENERATOR)/REGULATOR—CHARGING SYSTEM TEST

1. Reconnect ignition coil wire to center tower of distributor cap.

NOTE: On GM HEI (8 cyl.) electronic ignition system, reconnect "BAT" terminal connector to distributor.

2. Turn test selector to 6000 RPM position, start engine and adjust speed to 1500-2000 RPM.
3. Turn test selector to V = 20 position and observe meter.

Results: Voltage reads more than 15.5V—Defective or poorly grounded regulator. Shorted field circuit.

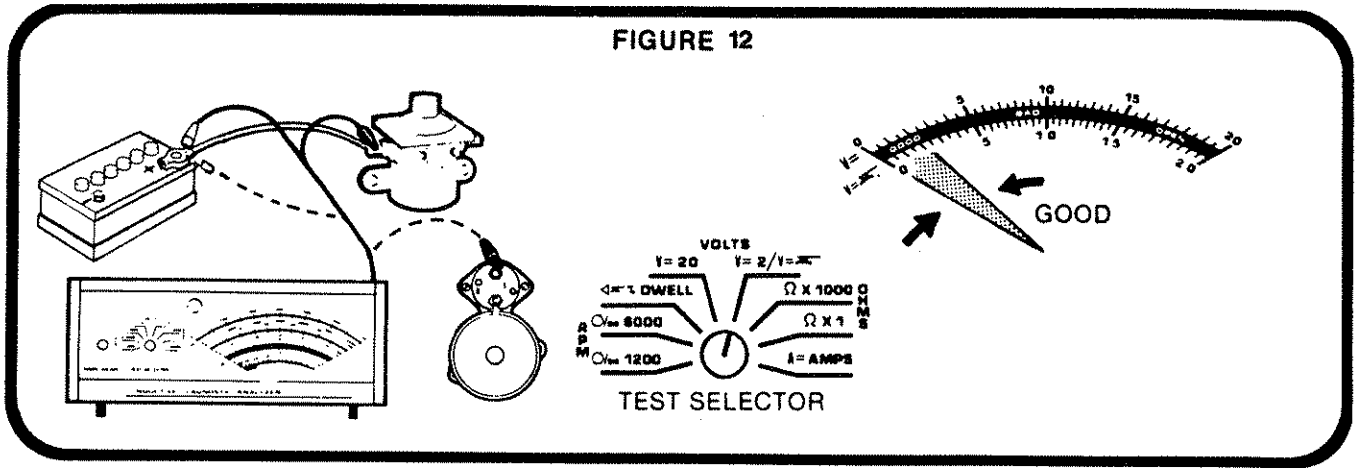
Voltage reads between 13.5V and 15.5V—Normal charging system.

Voltage reads less than 13.5V—Loose fan belt, defective regulator or alternator (generator), poor connections or open field circuit.

(See troubleshooting section, figures #17, 18, 19, 20.)

PRO TIP: Defective components in the charging system cause premature failure of battery and other electrical accessories.

FIGURE 12



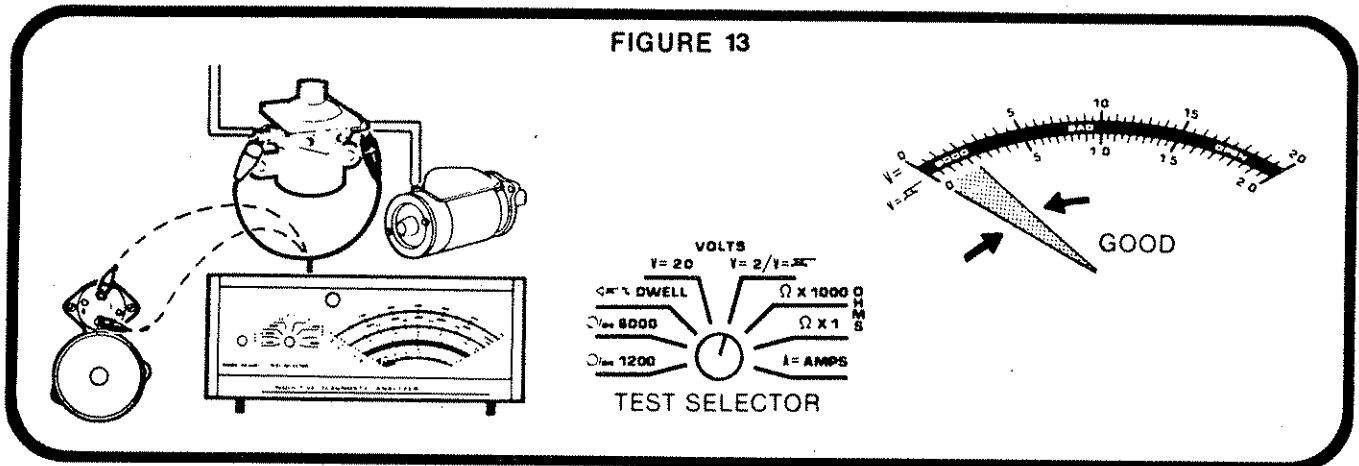
TROUBLESHOOTING TESTS

BATTERY CABLE TEST

1. Connect RED test clip to positive (+) battery terminal and BLACK test clip to battery terminal of solenoid.
2. Turn test selector to $V = 2$ position.
3. Disable ignition as shown in figure 10.
4. Crank engine while observing meter.

Results: Voltage reads more than 0.2V—Defective battery cable, loose or corroded connections.
Voltage reads less than 0.2V—Cable and connections OK.

FIGURE 13



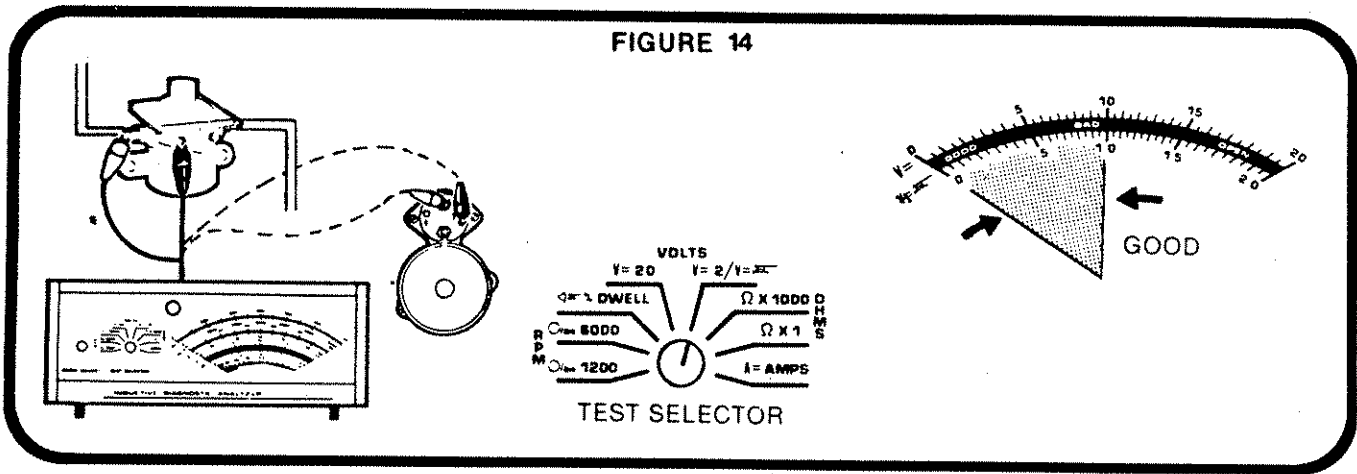
STARTER SOLENOID TEST

1. Connect RED test clip to battery terminal of solenoid and BLACK test clip to starter terminal of solenoid.
2. Repeat steps 2-3-4 of "Battery Cable Test."

NOTE: The pointer will instantly read off-scale to the right. This is normal and causes no harm to analyzer.

Results: Voltage reads more than 0.2V—Defective solenoid. Replace.
Voltage reads less than 0.2V—Solenoid is OK.

FIGURE 14



STARTER SWITCH—CIRCUIT TEST

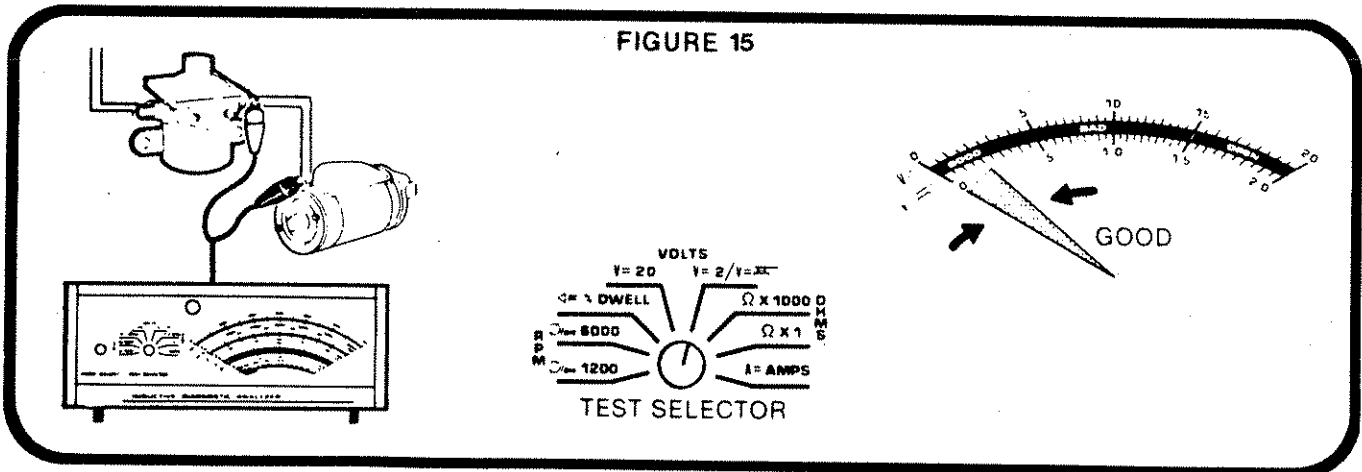
1. Connect RED test clip to battery terminal of solenoid and BLACK test clip to small terminal on solenoid.

NOTE: Some vehicles have two small terminals. If no reading is obtained when the BLACK test clip is connected to one of the small terminals, simply reconnect the BLACK test clip to the other small terminal.

2. Repeat steps 2-3-4 of "Battery Cable Test."

Results: Voltage reads more than 1.0V—Defective ignition switch, neutral safety switch (on automatic transmission vehicles, bad wires, loose or corroded connections.)
Voltage reads less than 1.0V—Switches, wires, connections OK.

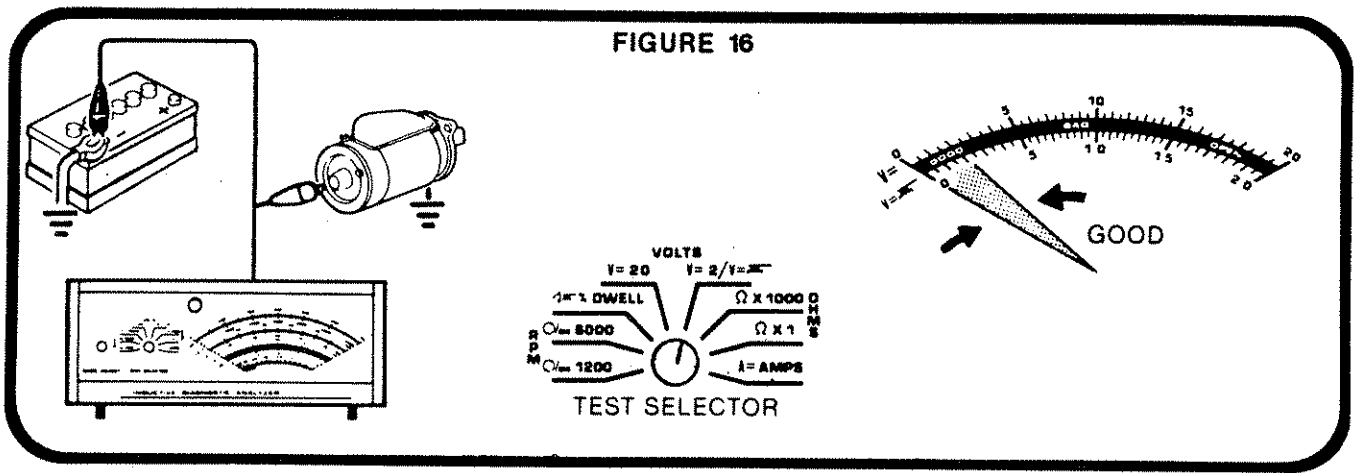
FIGURE 15



STARTER CABLE TEST (IF EQUIPPED)

1. Connect RED test clip to starter terminal on solenoid and BLACK test clip to starter terminal of starter motor.
2. Repeat steps 2-3-4 of "Battery Cable Test."

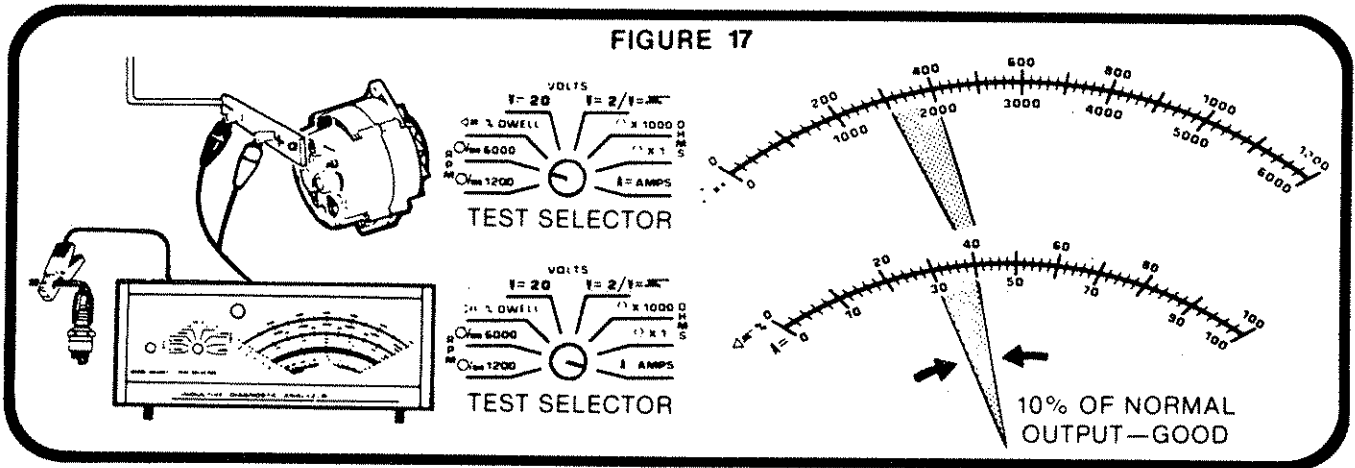
Results: Voltage reads more than 0.2V—Defective starter cable, loose or corroded connections.
Voltage needs less than 0.2V—Starter cable and connections OK.



GROUND CABLE TEST

1. Connect RED test clip to frame of starter motor and black test clip to negative (-) terminal of battery.
2. Repeat steps 2-3-4 of "Battery Cable Test."

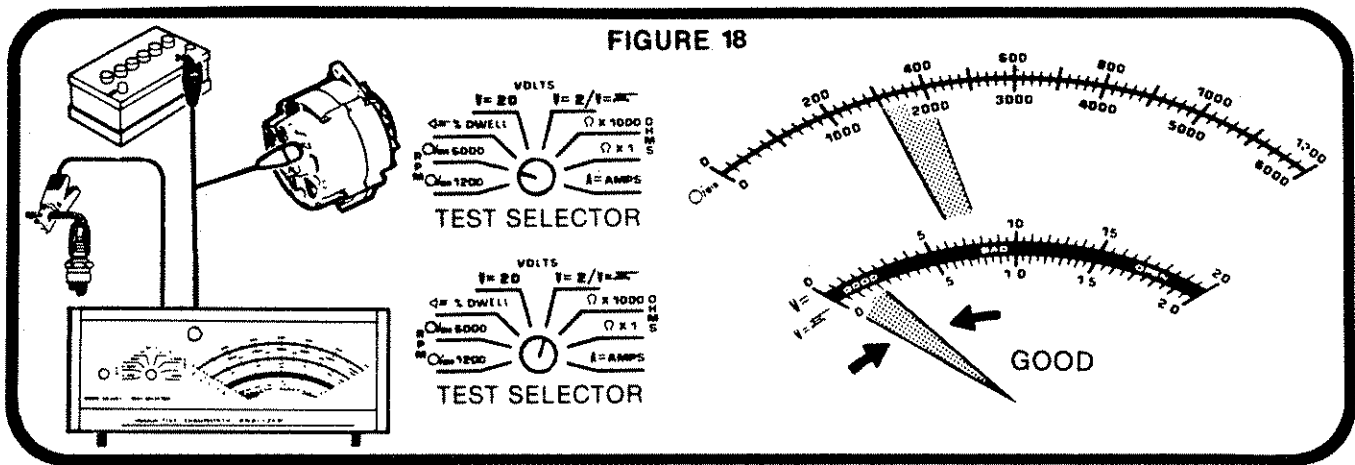
Results: Voltage reads more than 0.2V—Defective ground cable, loose or corroded connections, loose starter motor.
 Voltage reads less than 0.2V—Ground cable and connections OK.



ALTERNATOR (GENERATOR) OUTPUT TEST

1. With engine stopped, disconnect large diameter wire at "BAT" (+) terminal of alternator or "ARM" (D+) terminal of generator.
2. Fasten SHUNT BAR to terminal at alternator or generator and reconnect large wire to other end of SHUNT BAR.
3. Connect RED test clip to positive (+) pin of SHUNT BAR and BLACK test clip to negative (-) pin of SHUNT BAR. Hook inductive pickup over a spark plug wire.
4. Turn test selector to 6000 RPM position.
5. With ignition disabled, turn on all electrical accessories and crank engine for 15-20 seconds.
6. Enable ignition system, restart engine and adjust speed to 1500-2000 RPM.
7. Turn test selector to A = AMPS position while observing meter.

Results: Amperage more than 10% above rated output—Shorted field circuit, Replace alternator or generator and wiring.
 Amperage within 10% of rated output—Normal alternator or generator.
 Amperage more than 10% below rated output—Loose fan belt, defective regulator or alternator (generator), poor connections or open field circuit.

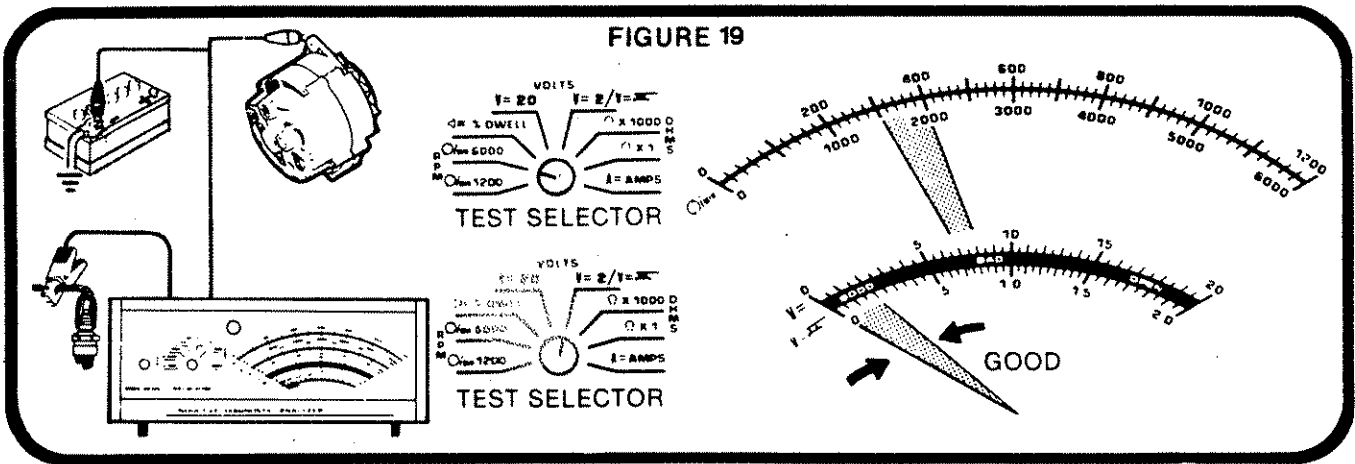


ALTERNATOR (GENERATOR) CIRCUIT TEST

1. Connect RED test clip to "BAT" (+) terminal of "Alternator" or "ARM" (D+) terminal of Generator and BLACK test clip to positive (+) terminal of battery. Hook inductive pickup over a spark plug wire.
2. Turn test selector to 6000 RPM position.
3. With all accessories on, start engine, and adjust speed to 1500-2000 RPM.
4. Turn test selector to V = 2 position while observing meter.

Results: Voltage reads more than 0.2V (Alternators) / 0.6V (Generators)—defective wire, loose or corroded connections.

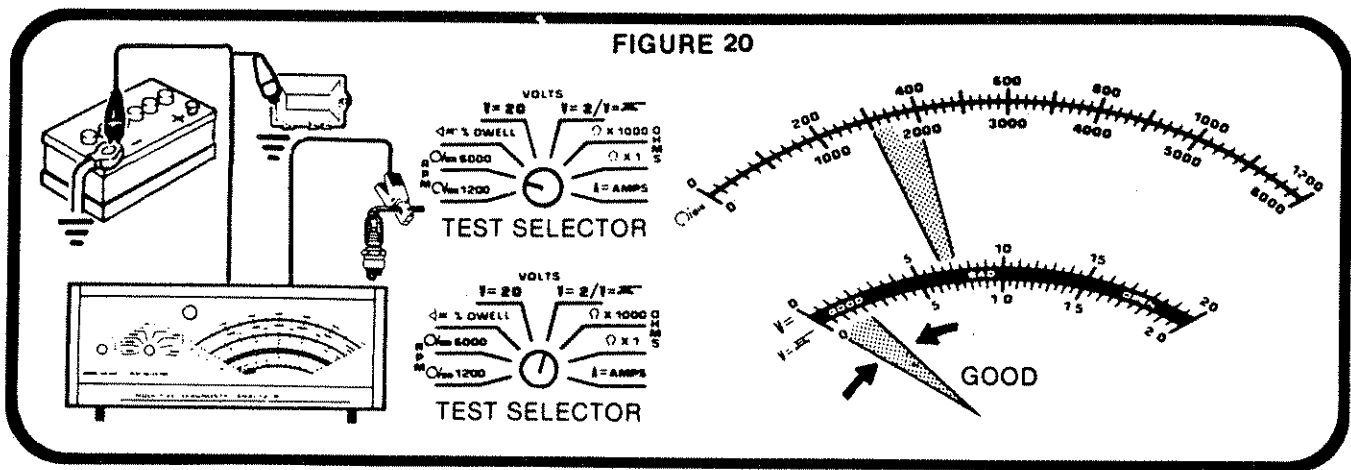
Voltage reads less than 0.2V (Alternators) / 0.6V (Generators)—wires and connections OK.



ALTERNATOR (GENERATOR) GROUND TEST

1. Connect RED test clip to frame of alternator or generator and BLACK test clip to negative (-) terminal of battery. Hook inductive pickup over a spark plug wire.
2. Repeat steps 2-3-4 of "Alternator (Generator) Circuit Test."

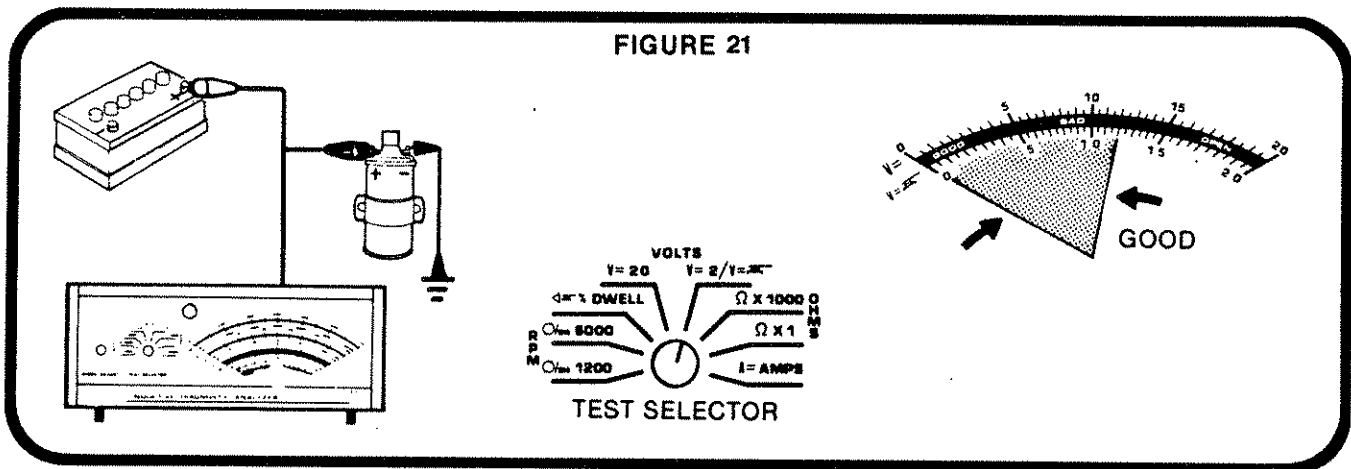
Results: Voltage reads more than 0.2V—Loose or poorly grounded alternator or generator.
Voltage reads less than 0.2V—Alternator or generator properly grounded.



REGULATOR GROUND TEST (For External Regulators Only)

1. Connect RED test clip to frame of regulator and BLACK test clip to negative (-) terminal of battery. Hook inductive pickup over a spark plug wire.
2. Repeat steps 2-3-4 of "Alternator (Generator) Circuit Test."

Results: Voltage reads more than 0.2V—Regulator poorly grounded or body sheet metal poorly grounded to vehicle battery and frame (grounding strap).
 Voltage reads less than 0.2V—Regulator and body sheet metal properly grounded.

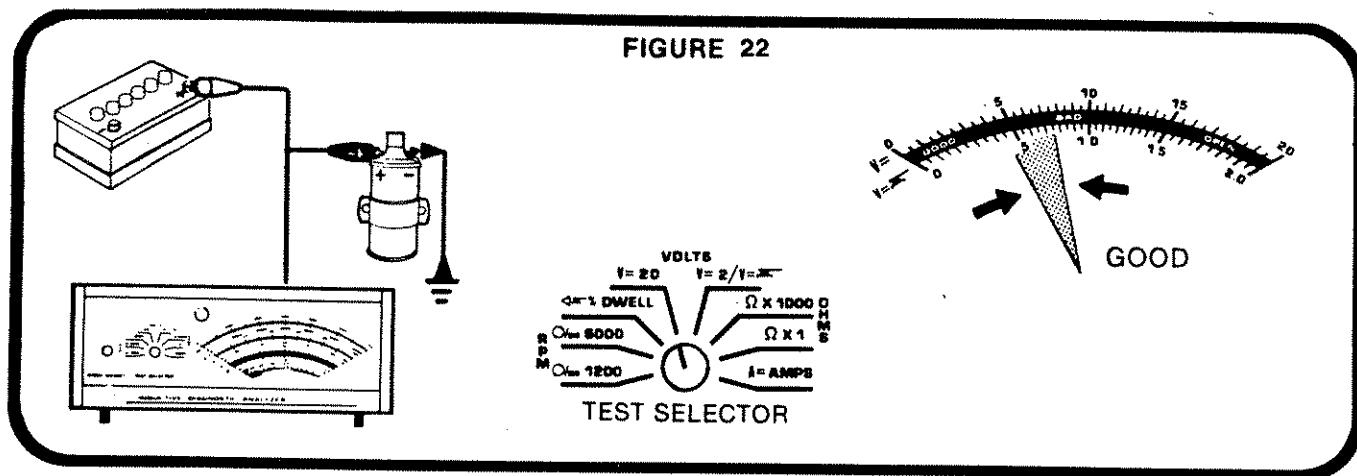


*IGNITION CRANK CIRCUIT TEST

1. Connect RED test clip to positive (+) battery terminal and BLACK test clip to BAT (+) terminal of ignition coil.
2. Turn test selector to V = 2 position.
3. With engine stopped, connect a jumper lead from DISTI (-) terminal of ignition coil to ground.
4. Crank engine while observing meter.

Results: Voltage reads more than 1.2V—Defective ignition switch, neutral safety switch (on automatic transmission vehicles), bad wires, loose or corroded connections.
 Voltage reads less than 1.2V—Switches, wiring and connections OK.

FIGURE 22



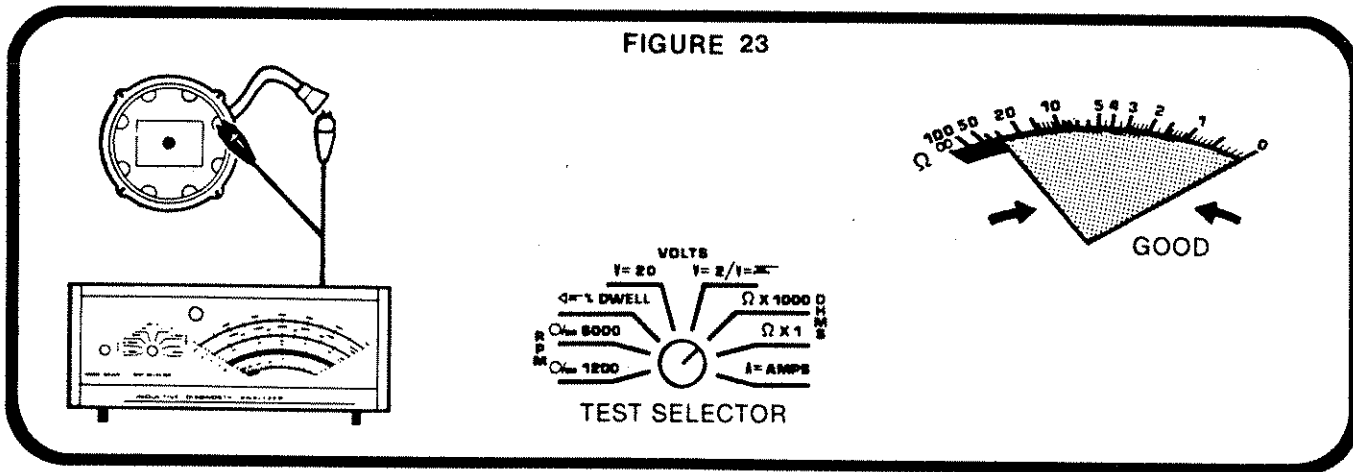
***IGNITION RESISTOR CIRCUIT TEST**

1. All test lead connections are identical to those in previous test.
2. Turn test selector to V = 20 position.
3. Turn ignition switch to ON position while observing meter.

Results: Voltage reading above 7.5V—Defective ballast resistor or primary resistance wire, defective ignition switch, loose or corroded connections.
 Voltage reading between 4.5V and 7.5V—Resistor, ignition switch, wiring and connections OK.

NOTE: A few ignition systems use an internal resistor within the ignition coil. This condition is shown by a near-zero volt reading.

FIGURE 23

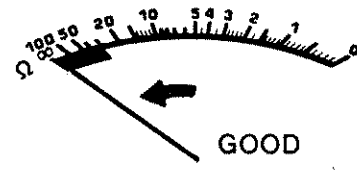
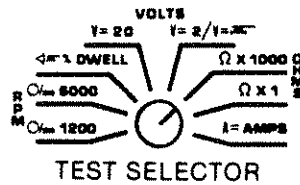
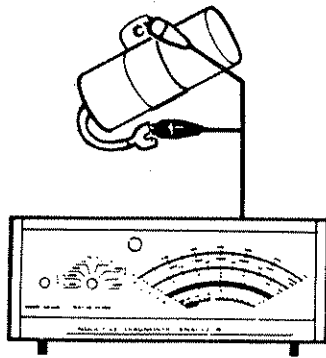


IGNITION PLUG CABLE TEST

1. Turn ignition switch to OFF position and remove distributor cap.
2. Turn test selector to x1000 OHMS position and calibrate as shown in Figure # 1
3. One at a time, remove each spark plug cable and connect one test clip to end of spark plug cable and the other to its metal segment inside distributor cap. Observe meter.

Results: OHMS reading is more than 30,000 (in RED zone)—Defective spark plug cable or corroded socket in the distributor cap.
 OHMS reading is less than 30,000—Spark plug cable OK.

FIGURE 24



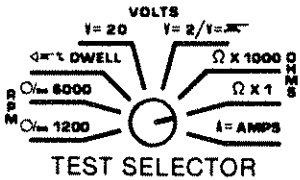
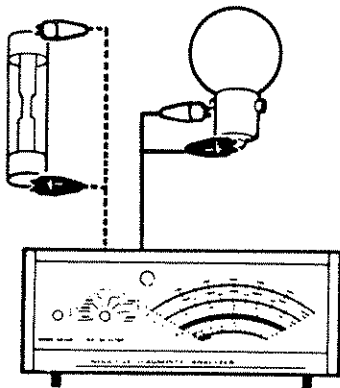
CONDENSER TEST

1. Disconnect condenser wire from circuit to be tested.
2. Turn test selector to x1000 position and calibrate as shown in figure #1
3. Connect one test clip to condenser body and the other to end of wire. Observe meter.

Results: OHMS reading is between zero OHMS and infinity (∞)—Bad condenser.
 OHMS reading is infinity (∞) at left edge of meter—Condenser is OK.

NOTE: Ignore momentary pointer deflection.

FIGURE 25



FUSE / LIGHT BULB TEST

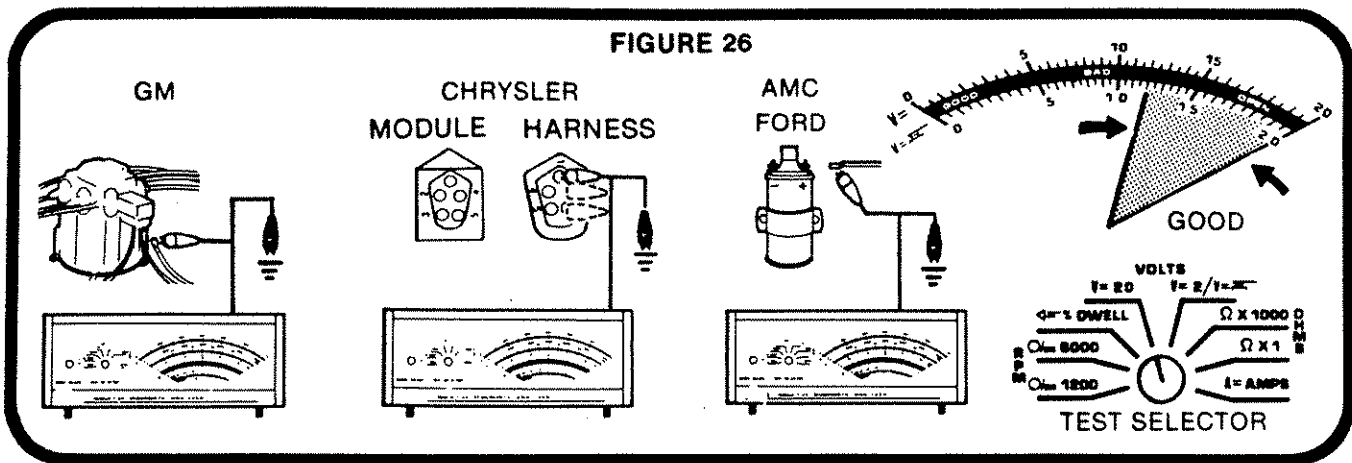
1. Remove fuse or bulb from circuit to test.
2. Turn test selector to x1 position and calibrate as shown in figure #1
3. Connect test clips across fuse or across filament of bulb and observe meter.

Results: OHMS reading is infinity (∞) at left edge of meter—Fuse or bulb is burned out. Replace.

OHMS reading is near zero OHMS at right edge of meter—Fuse or bulb is OK.

NOTE: Never use an Ohmmeter around live electrical circuits. This can cause a blown fuse inside analyzer.

FIGURE 26



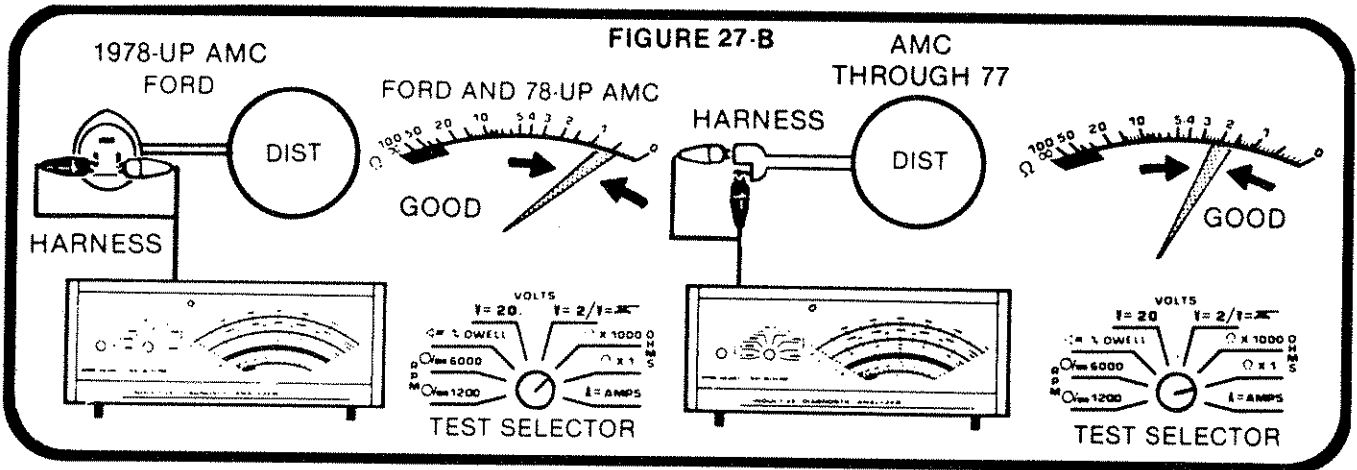
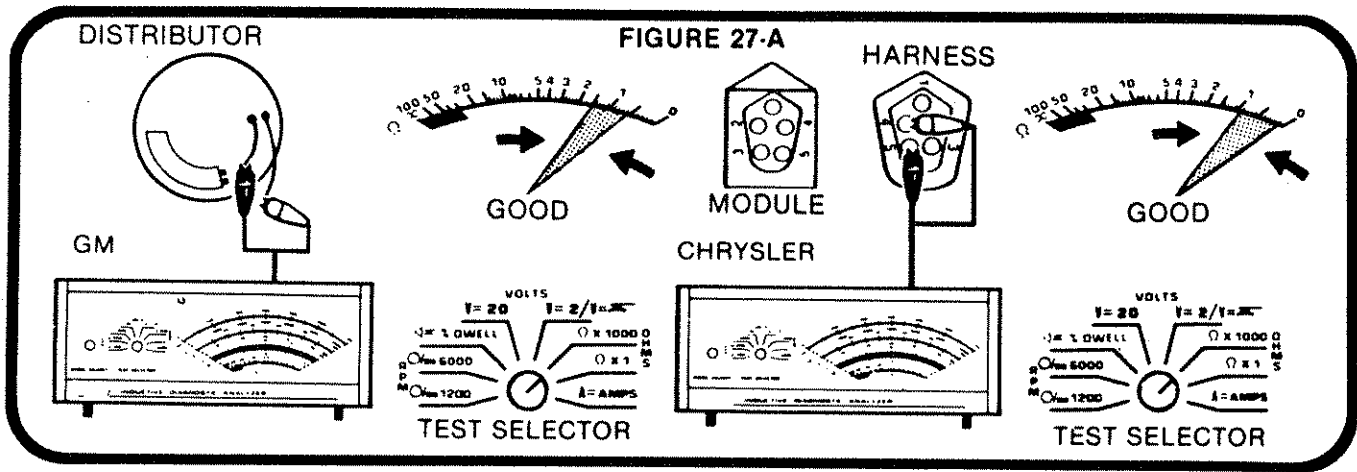
ELECTRONIC IGNITION COMPONENTS TESTS

IGNITION CIRCUIT TESTS

1. Disconnect "BAT" positive (+) terminal of distributor connector at:
 - GM—Distributor
 - Chrysler—Module
 - Ford or AMC—Ignition coil.
2. Connect RED test clip to:
 - GM, Ford or AMC—Disconnected "BAT" positive (+) wire
 - Chrysler—Pins #1-2-3 of harness. Connect BLACK test clip to ground.
3. Turn test selector to V = 20 position.
4. Turn ignition switch to ON position and observe meter.

Results: Voltage reading below 12.0V—Defective ignition switch, ballast resistor (if so equipped), loose or corroded connections.

Voltage reading above 12.0V—Ignition switch, ballast resistor, wiring and connections OK.



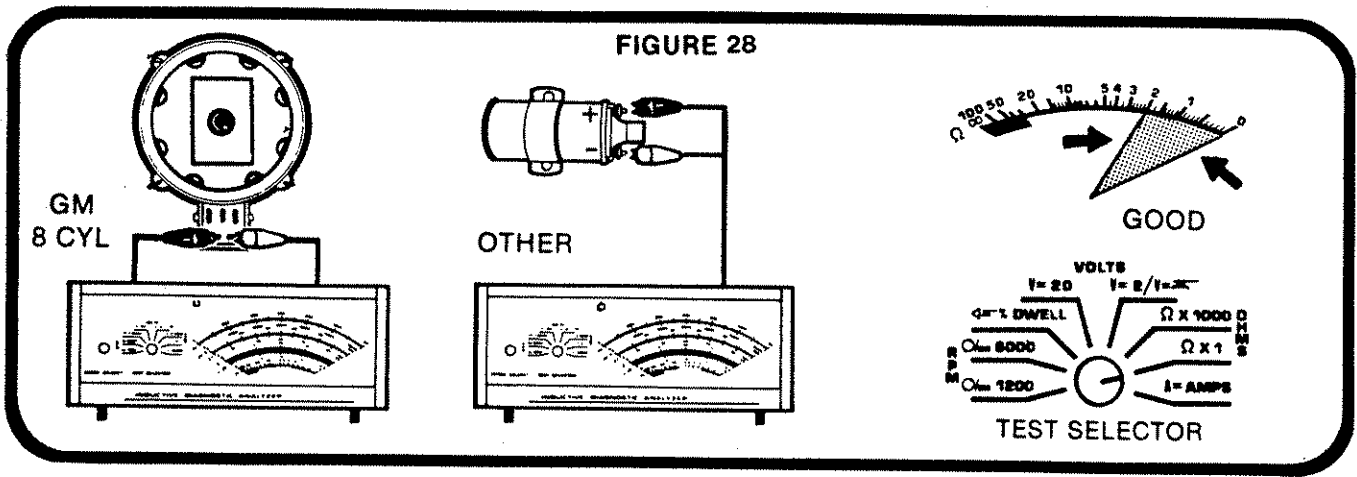
DISTRIBUTOR—PICKUP COIL TEST

1. Turn ignition switch to OFF position.
2. Remove distributor cap and rotor.
3. Disconnect:
 - GM—Green "G" wire and white "W" wire from pickup coil in distributor
 - Chrysler—Connector plug at module
 - Ford and AMC—Connector plug at distributor.
4. Turn test selector to x1000 position for GM, Chrysler, Ford and 1978 (and up) AMC and calibrate as shown in figure #1. Turn test selector to x1 position for AMC through 1977 and calibrate as shown in figure #1.
5. Connect test clips to:
 - GM—Disconnected green "G" wire and white "W" wire at distributor
 - Chrysler—Across pins #4 + 5 of harness to distributor.
 - Ford and 1978-up AMC—Across pins #2 + 3 of harness to distributor.
 - AMC through 1977—Across terminals of harness to distributor.
6. Observe meter.

Results: OHMS more or less than specifications—Defective pickup coil in distribution, replace.
OHMS within specifications—pickup coil OK.

SPECIFICATIONS

GM	CHRYSLER	FORD and 1978-up AMC	AMC through 1977
500-1500 OHMS	150-900 OHMS	400-800 OHMS	1.6-2.4 OHMS

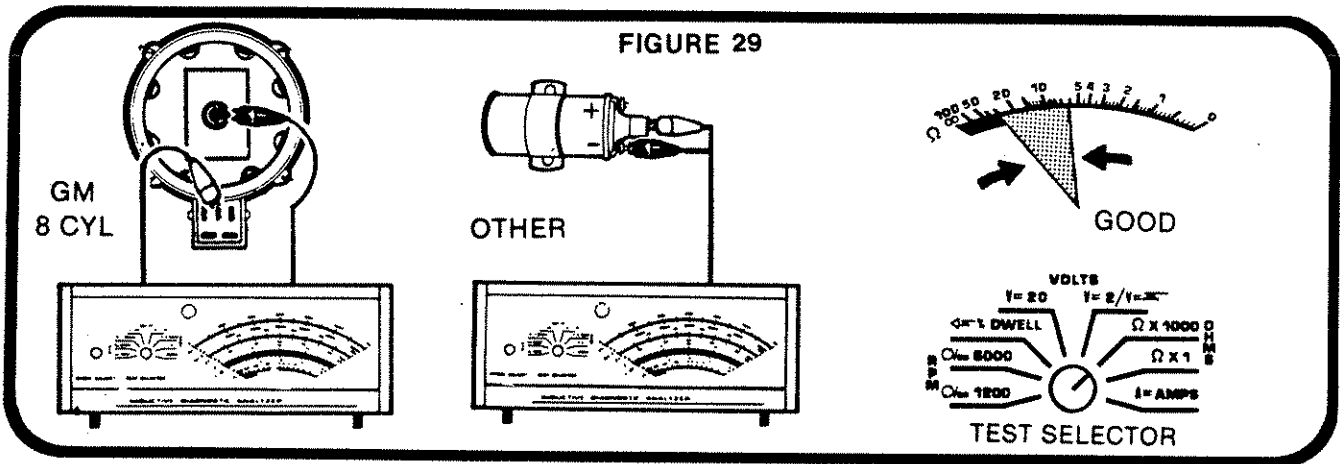


IGNITION COIL—PRIMARY RESISTANCE TESTS

1. Turn ignition switch to OFF position.
2. Remove distributor cap from distributor (GM 8 cyl. only).
3. Disconnect harness connector plug at distributor (GM 8 cyl. only).
4. Turn test selector to x1 position and calibrate as shown in figure #1.
5. Connect test clips to ignition coil primary terminals as shown and observe meter.

Results: OHMS more than specifications—Open primary wiring of coil. Replace.
 OHMS with specifications—Primary wiring of ignition coil is OK.

SPECIFICATIONS—All: 0.0 to 2.0 OHMS



IGNITION COIL—SECONDARY RESISTANCE TESTS

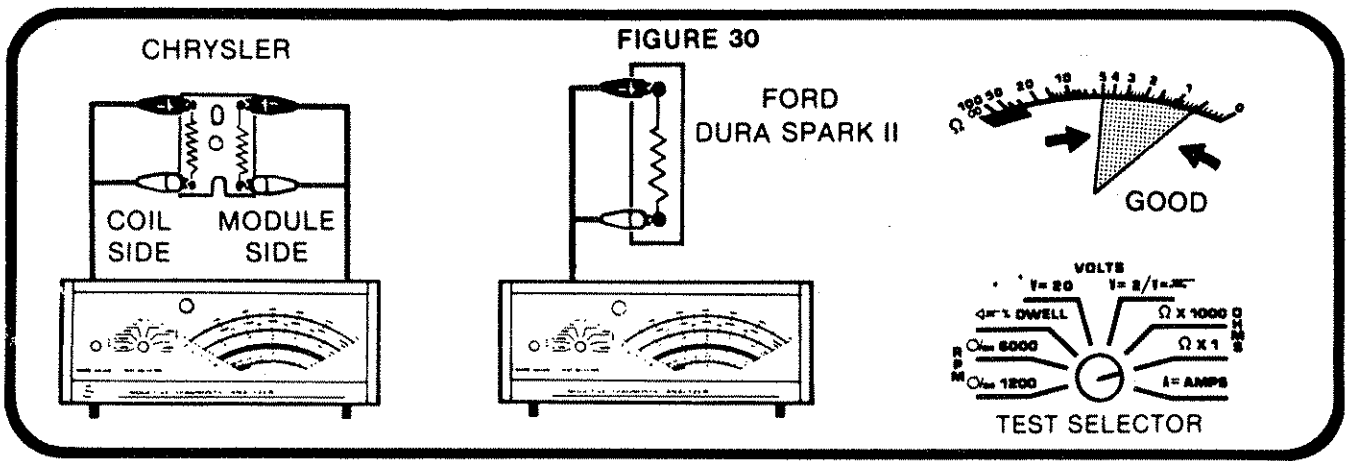
1. Repeat steps 1-2-3 of "Ignition Coil—Primary Resistance Tests."
2. Turn test selector to x1000 position and calibrate as shown in figure #1.
3. Connect test clips to ignition coil secondary terminals as shown and observe meter.

Results: OHMS more or less than specifications—Defective secondary wiring of ignition
 Replace.

OHMS within specifications—Secondary wiring of ignition coil is OK.

SPECIFICATIONS

GM	6,000 to 30,000 OHMS	Ford	7,300 to 9,300 OHMS
CHRYSLER		1978-up AMC	
AMC thru 77	9,000 to 15,000 OHMS		
All AMC 4 cyl.			



BALLAST RESISTOR TESTS (Chrysler and Ford Dura Spark II Only)

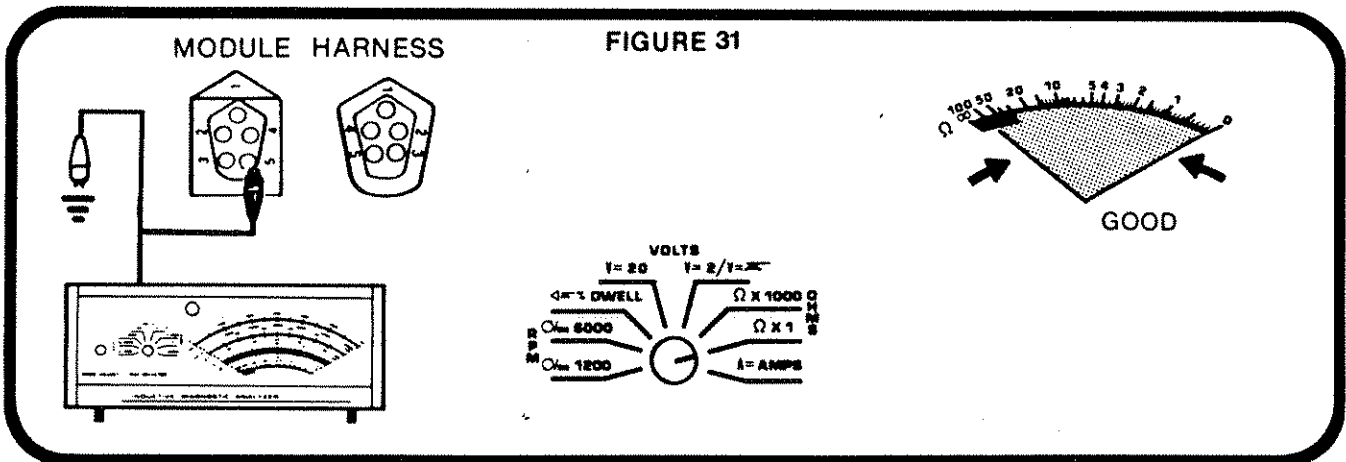
1. Turn ignition switch to OFF position.
2. Turn test selector to x1 position and calibrate as shown in figure #1.
3. Connect test clips across ballast resistor as shown. Observe meter.

Results: OHMS more than specifications—Defective ballast resistor. Replace (see specifications in owner manual).
OHMS within specifications—Ballast resistor OK.

SPECIFICATIONS

CHRYSLER
COIL SIDE—0.5 OHMS
MODULE SIDE—5.0 OHMS

FORD DURA SPARK II —1.0 OHMS



ELECTRONIC MODULE TEST (Chrysler Only)

1. Turn ignition switch to OFF position.
2. Disconnect connector plug at module.
3. Turn test selector to x1 position and calibrate as shown in figure #1.
4. Connect test clips to pin #5 of module and ground. Observe meter.

Results: OHMS more than 100—Defective module.
OHMS less than 100—Module OK.

SAFETY EQUIPMENT

FIRE EXTINGUISHER

Never work on your car without having a suitable fire extinguisher handy. A 5-lb. or larger CO₂ or dry-chemical unit specified for gasoline/chemical/electrical fires is recommended.

FIREPROOF CONTAINER

Rags and flammable liquids should be stored only in fireproof, closed metal containers. A gasoline-soaked rag should be allowed to dry thoroughly outdoors before being discarded.

SAFETY GOGGLES

We recommend wearing safety goggles when working on your car to protect your eyes from battery acid, gasoline, dust and dirt flying off moving engine parts.

NOTE: Never look directly into the carburetor throat while the engine is cranking or running as sudden backfire can cause burns.

LOOSE CLOTHING AND LONG HAIR (MOVING PARTS)

Be very careful not to get your hands, hair or clothes near any moving parts such as fan blades, belts and pulleys or throttle and transmission linkages. Never wear neckties or loose clothing when working on your car.

JEWELRY

Never wear wrist watches, rings or other jewelry when working on your car. You'll avoid the possibility of catching on moving parts or causing an electrical short circuit which could shock or burn you.

VENTILATION

Always work on your car in a well ventilated area. Never run the engine in a closed garage without venting the exhaust outside.

SETTING THE BRAKE

Make sure that your car is in **park** or **neutral** and that the **parking brake is firmly set**.

NOTE: Some vehicles have an automatic release on the parking brake when the engine is started. To prevent movement of these vehicles, securely block wheels.

HOT SURFACES

Avoid contact with hot surfaces such as exhaust manifolds and pipes, mufflers (catalysts), the radiator and hoses. Never remove the radiator cap while the engine is hot as escaping coolant under pressure may seriously burn you.

SMOKING AND OPEN FLAMES

Never smoke while working on your car. Gasoline vapor is highly flammable, and the gas formed in a charging battery is explosive.

BATTERY

Do not lay tools or equipment on the battery. Accidentally grounding the "HOT" battery terminal can shock or burn you and damage wiring, the battery or your tools and testers.

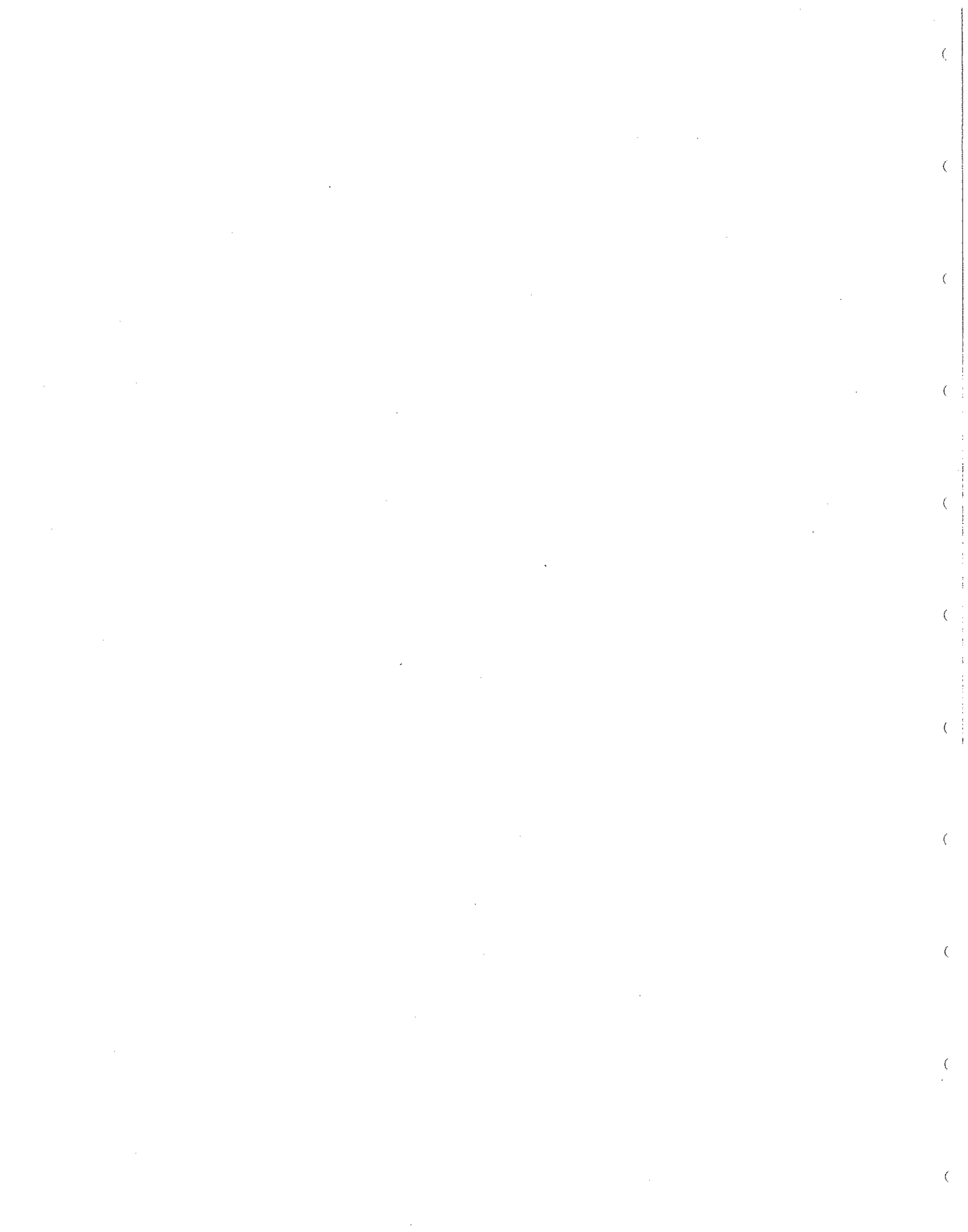
Be careful of contact with battery acid. It can burn holes in your clothing and burn your skin or eyes.

HIGH VOLTAGE

High voltage — 30,000-50,000 volts — is present in the ignition coil, distributor cap, ignition wires and spark plugs. When handling ignition wires while the engine is running, use insulated pliers to avoid a shock. While not lethal, a shock may cause you to jerk involuntarily and hurt yourself.

REPAIR PARTS

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
6004-0003 CP	Test Lead Ass'y	0758-0170	Knob, Ohms Adjust
6004-0002 CP	D.C. Power Lead Ass'y	0400-0815	Washer, Felt
6004-0001 CP	Ind. Pick Up Lead Ass'y	7034-0512-1	Bezel & Window Ass'y
6002-0001 CP	Jumper Lead Ass'y	0694-0005 CP	Dwell Conversion Label
0758-0167	Knob, Switch	0696-0015	Ford Adapter Clip

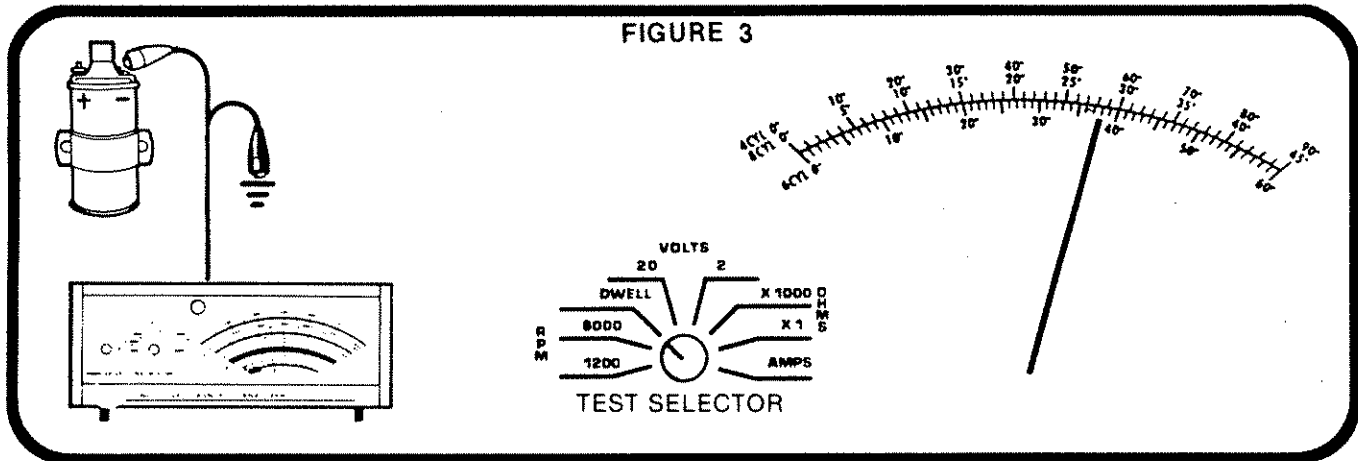


INSTRUCTION CORRECTIONS

The CP7670 Inductive Engine Analyzer has been improved to simplify operation and improve versatility.

- The D.C. Power Leads have been eliminated to reduce connection time.
- The Dwell Scale has been altered to show degrees of dwell, rather than percent of dwell, to allow direct measurement on 4, 6 & 8 cylinder engines.
- A 2/4 cycle switch may be included with your analyzer. If yours has this switch, set the switch to the appropriate position for the type of engine you are testing. Test rotary engines in the 2 cycle position.

Use test procedures shown in this correction sheet in place of the comparable tests with the same titles shown in the instruction booklet.

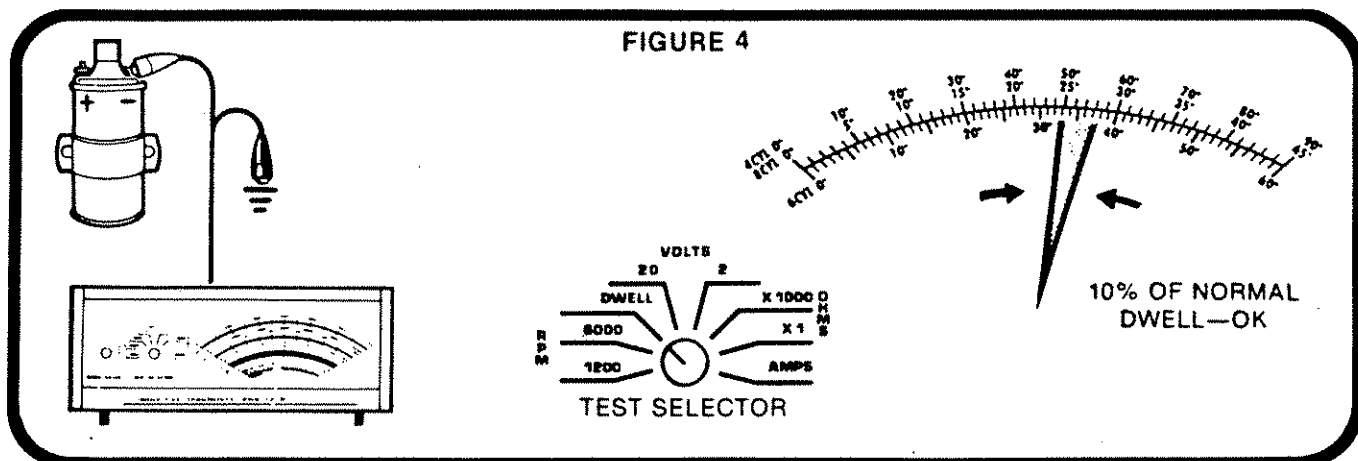


* DISTRIBUTOR POINTS—DWELL TEST

1. Turn test selector to DWELL position.
2. Start engine, let idle while observing meter.

See owner manual for correct dwell.

Results: Low—Point gap too wide. Reset.
Normal—Point gap adjusted properly.
High—Point gap too narrow. Reset.



* DISTRIBUTOR—MECHANICAL WEAR TEST

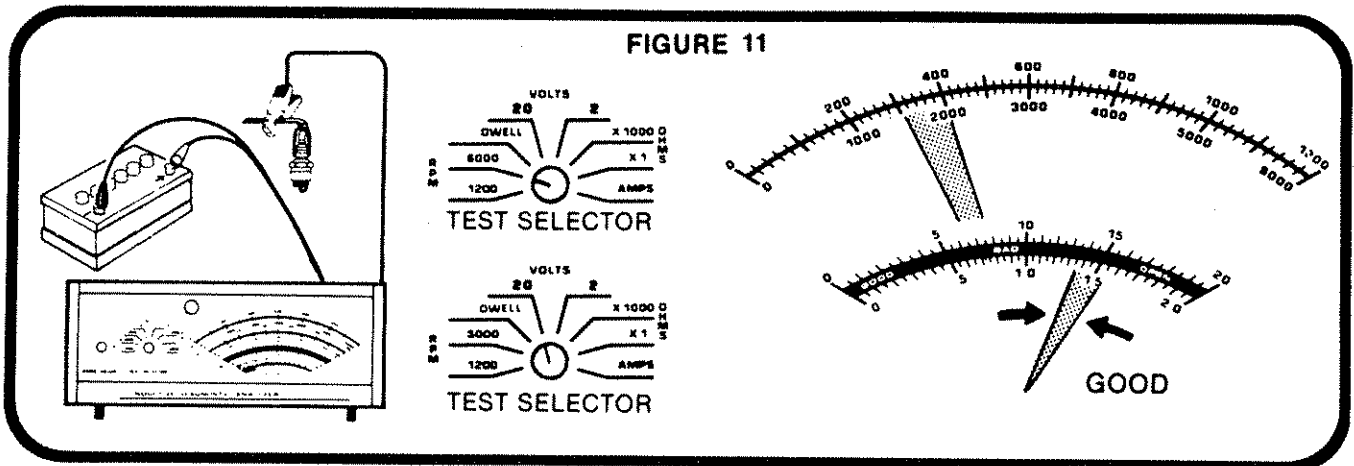
1. Briefly race engine while observing meter and note change of DWELL from value at idle.

Results: Change within 10%—Normal.
Change over 10%—Worn-out distributor. Replace.

NOTE: Some distributors have off-center pivoting breaker plates, which will cause excessive DWELL change. This is normal for this type of distributor. See your owner manual.

**FIGURE 10
BATTERY/STARTER-CRANKING SYSTEM TEST**

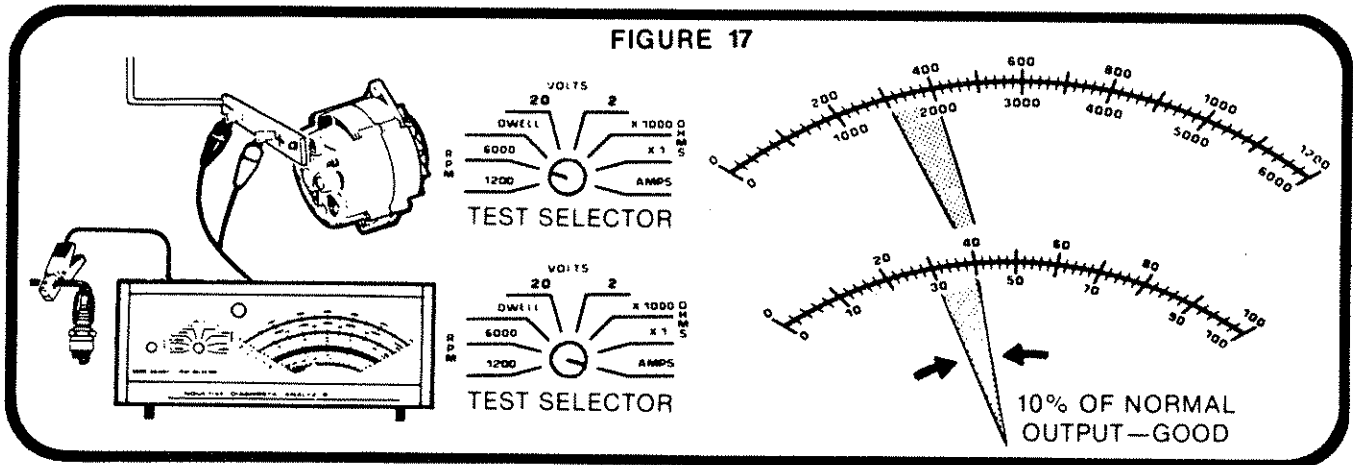
After "Results"; there should be a step 5. "Reconnect ignition coil wire to center tower of distributor cap".



ALTERNATOR (GENERATOR)/REGULATOR—CHARGING SYSTEM TEST

- A. Turn test selector to 6,000 RPM position.
- B. Connect the RED test clip to the positive (+) side of the battery and the BLACK test clip to the negative (-) side of the battery. Hook the inductive pickup over a spark plug wire.
- C. Disconnect the ignition coil wire from the center tower of the distributor cap and ground it using a jumper wire.
- D. Crank the engine continuously for 15 seconds.
- E. Reconnect the ignition coil wire to the distributor cap, start the engine, and adjust speed to 1,500-2,000 RPM on the HI RPM scale.
- F. Turn test selector to V = 20 position and observe meter.

Results: VOLTAGE READS MORE THAN 15.5 VOLTS—Defective or poorly grounded regulator or shorted or defective field circuit.
 VOLTAGE READS BETWEEN 13.5 and 15.5 VOLTS—Charging system normal.
 VOLTAGE READS BELOW 13.5 VOLTS—Loose fan belt, defective regulator or alternator (generator), poor connections or open field circuit.



ALTERNATOR (GENERATOR) OUTPUT TEST

continued on next page

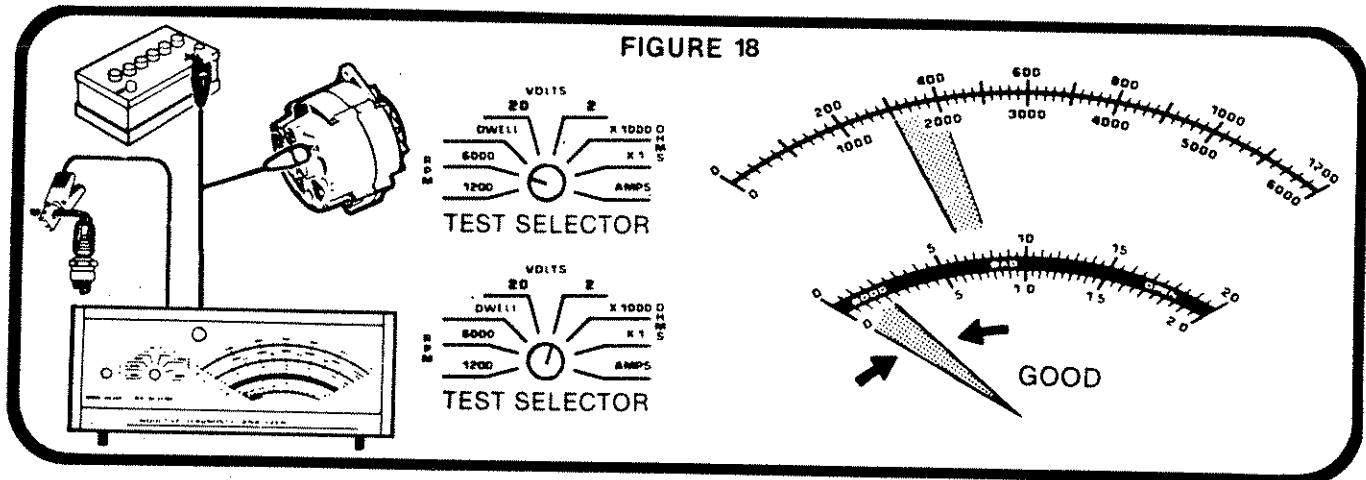
ALTERNATOR (GENERATOR) OUTPUT TEST

- Turn test selector to 6,000 RPM position.
- With engine stopped, disconnect large diameter wire at the "BAT" (+) terminal of the alternator or "ARM" (D+) terminal of the generator.
- Fasten the SHUNT BAR to the terminal at the alternator/generator and reconnect the large wire to the other end of the SHUNT BAR.
- Connect the RED test clip to the positive (+) terminal of the battery and the BLACK test clip to the negative terminal of the battery. Hook the inductive pickup over a spark plug wire.
- Remove the high tension wire from the center tower of the distributor cap and ground it using a jumper wire.

NOTE: On GM HEI equipped systems (8 cyl), disconnect the "BAT" terminal from the connector.

- Turn on all electrical accessories and crank the engine for 15 to 20 seconds.
- Enable the ignition system, start the engine, and adjust the speed to 1,500 to 2,000 RPM.
- Remove the test clips from the battery and connect the RED test clip to the tab on the shunt bar that is closest to the alternator/generator and connect the BLACK test clip to the remaining tab on the shunt bar.
- Turn the test selector to the AMPS position and observe the AMPS scale on the tester.

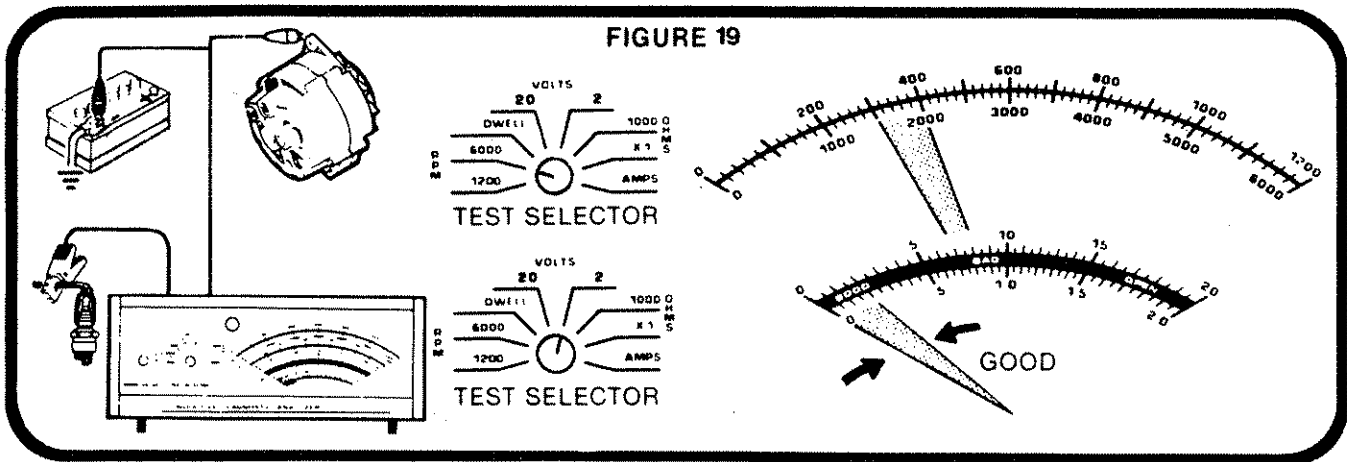
Results: AMPERAGE MORE THAN 10% ABOVE RATED OUTPUT—Probable shorted field circuit, REPLACE alternator/generator or repair wiring.
 AMPERAGE WITHIN 10% OF RATED OUTPUT—Normal alternator/generator.
 AMPERAGE MORE THAN 10% BELOW RATED OUTPUT—Loose fan belt, defective regulator or alternator/generator, poor connections, open field circuit.



ALTERNATOR (GENERATOR) CIRCUIT TEST

- Turn test selector to 6,000 RPM position.
- Connect the RED test clip to the positive (+) battery terminal and the BLACK test clip to the negative (-) battery terminal. Hook the inductive pickup over a spark plug wire.
- With all accessories on, start the engine and adjust the speed to 1,500 to 2,000 RPM.
- Remove the test clips from the battery and connect the RED test clip to the "BAT" (+) terminal of the alternator or "ARM" (D+) terminal of the generator and connect the BLACK test clip to the positive (+) battery terminal.
- Turn test selector to V = 2 position.
- Observe the LO VOLTS scale.

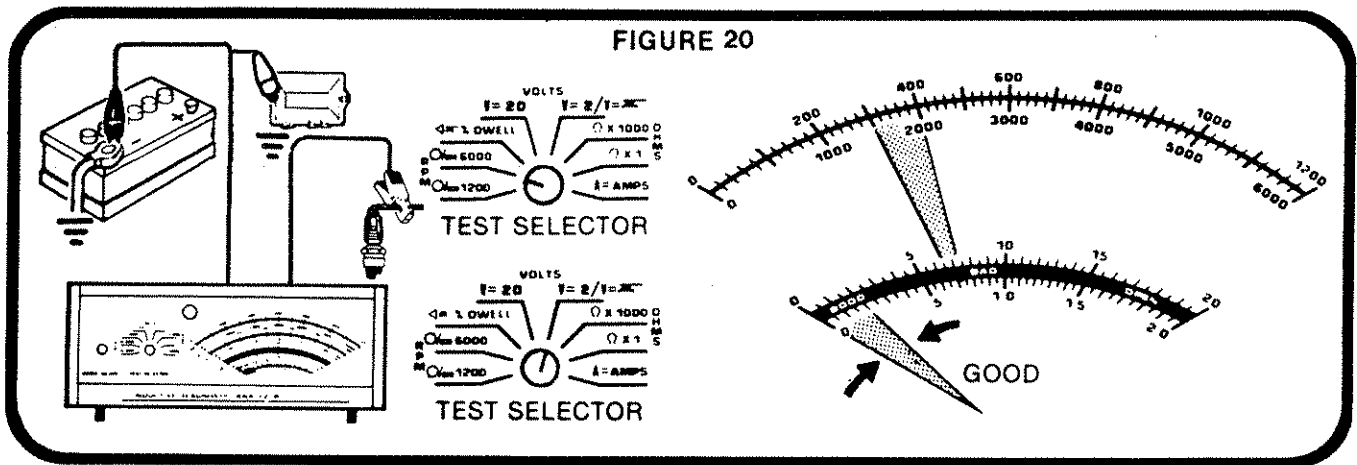
Results: VOLTAGE READS MORE THAN 0.2 VOLTS (ALTERNATORS)/0.6 VOLTS (GENERATORS)—Defective wire, loose or corroded connections.
 VOLTAGE READS LESS THAN 0.2 VOLTS (ALTERNATORS)/0.6 VOLTS (GENERATORS)—Wires and connections are OK.



- A. Turn test selector to 6,000 RPM position.
- B. Connect the RED test clip to the positive (+) battery terminal and the BLACK test clip to the negative (-) battery terminal. Hook the inductive pickup over a spark plug wire.
- C. With all accessories on, start the engine, and adjust the speed to 1,500-2,000 RPM on the HI RPM scale.
- D. Disconnect the RED test clip from the battery and connect it to the frame of the alternator/generator.
- E. Turn test selector to $V = 2$ position.
- F. Observe the LO VOLTS scale.

Results: VOLTAGE READS MORE THAN 0.2 VOLTS—Loose or poorly grounded alternator/generator.

VOLTAGE READS LESS THAN 0.2 VOLTS—Alternator/generator properly grounded.



- A. Turn test selector to 6,000 RPM position.
- B. Connect the RED test clip to the positive (+) battery terminal and the BLACK test clip to the negative (-) battery terminal. Hook the inductive pickup over a spark plug wire.
- C. With all accessories on, start the engine, and adjust the speed to 1,500-2,000 RPM on the HI RPM scale.
- D. Disconnect the RED test clip from the battery and connect it to the frame of the regulator.
- E. Turn test selector to $V = 2$ position.
- F. Observe the LO VOLTS scale.

Results: VOLTAGE READS MORE THAN 0.2 VOLTS—Loose or poorly grounded regulator.

VOLTAGE READS LESS THAN 0.2 VOLTS—Regulator properly grounded.

FULL ONE (1) YEAR WARRANTY

PENTRON PRODUCTS, INC., 1560 Trimble Road, San Jose, California 95131, warrants to the user that this unit will be free from defects in materials and workmanship for a period of one (1) year from the date of original purchase.

Any unit that falls within this period will be repaired or replaced at PENTRON's option and without charge when returned to the factory. PENTRON requests that a copy of the original, dated sales receipt be returned with the unit to determine if the warranty period is still in effect.

This warranty does not apply to damages caused by accident, alterations, or improper or unreasonable use. Expendable items, e.g. batteries, fuses, lamp bulbs, flash tubes, are also excluded from the scope of this warranty.

PENTRON PRODUCTS, INC. DISCLAIMS ANY LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY WRITTEN WARRANTY ON THE UNIT. Some states do not allow the disclaimer of liability for incidental or consequential damages, so the above disclaimer may not apply to you. This warranty gives specific legal rights, and you may also have rights which vary from state to state.


PENTRON PRODUCTS, INC.

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**PART NUMBER
0692-5002-1 CP**

**PRODUCTS MANUFACTURED IN JAPAN TO PENTRON
PRODUCTS INC. SPECIFICATIONS**