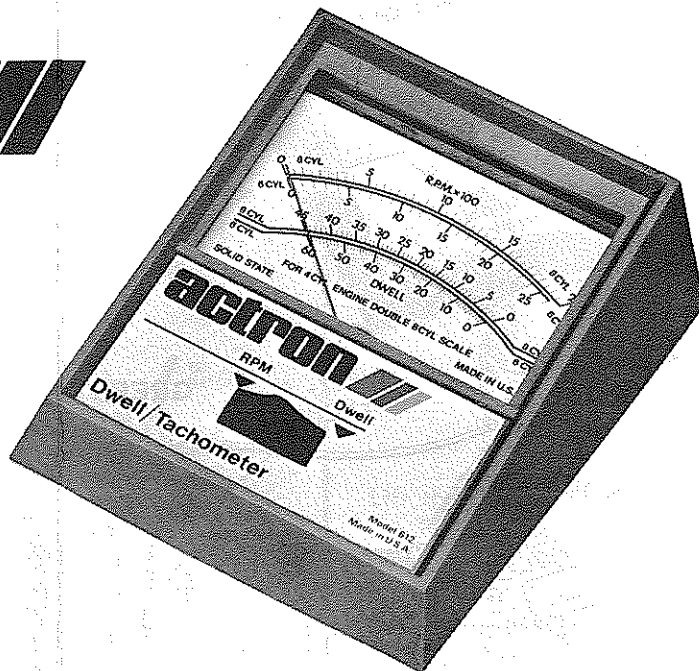


actron

owners manual

DWELL-TACHOMETER

MODEL 612



FOR 12 VOLT ELECTRONIC OR CONVENTIONAL
IGNITION SYSTEMS

FOR SAFE OPERATION

Be careful when testing an operating engine -- stay away from the fan blades, drive belts, high voltage spark plug wires and hot exhaust manifold.

Operate the vehicle in a well ventilated area to avoid danger of carbon monoxide poisoning.

Works
On Standard
or Electronic
Ignition

IMPORTANT

CONSULT THE OWNERS MANUAL OF THE VEHICLE BEING TESTED FOR SPECIFIC TUNE UP INFORMATION AND TEST PROCEDURES. THE MANUFACTURER'S SPECIFICATIONS AND TEST PROCEDURE FOR ADJUSTING DWELL ANGLE AND IDLE SPEED SHOULD BE FOLLOWED.

The information in this manual will serve as a general guide for engine tune-up.

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connections FOR RPM AND DWELL TESTS

Connect the **BLACK** clip to the battery Negative (-) terminal or a good ground on the engine or frame.

Connect the **GREEN** clip to the distributor terminal on the ignition coil or TACH terminal on Electronic Systems.

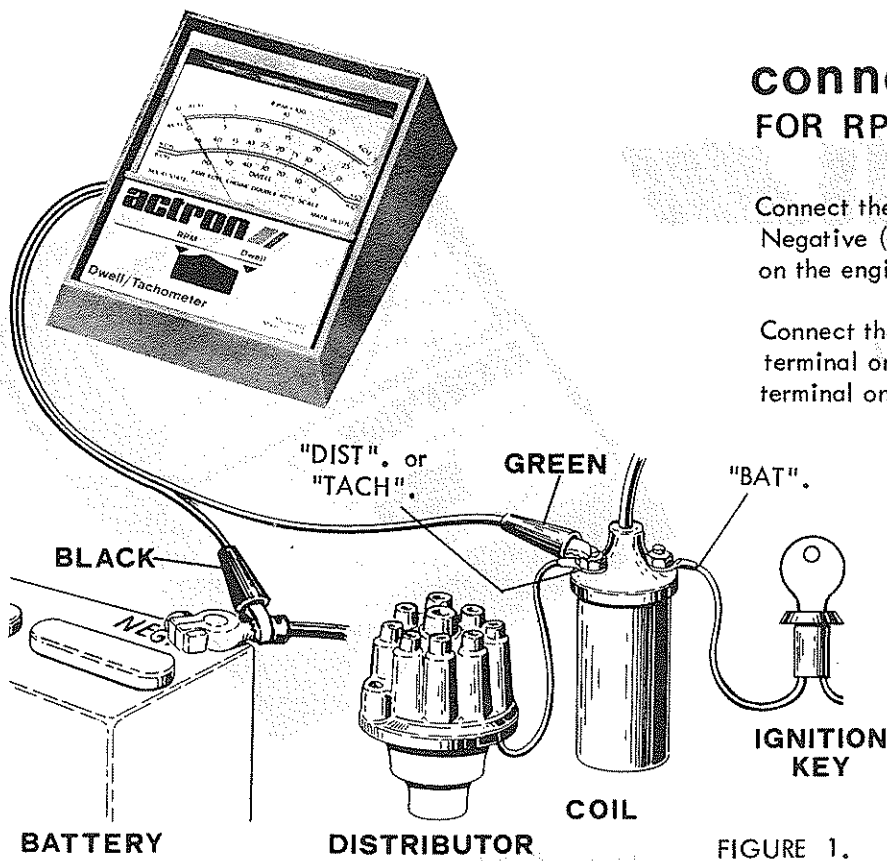


FIGURE 1.

TACHOMETER CONNECTION TO GENERAL MOTORS CARS WITH DIAGNOSTIC CONNECTOR AND DELCO HEI

TACHOMETER CONNECTIONS FOR GENERAL MOTORS CARS WITH DIAGNOSTIC CONNECTORS

To make RPM tests, locate the Engine Electrical Diagnosis Connector (usually near the left front fender). Open the cover and insert the adapter shown below in socket No.6. Connect the **GREEN** clip to the spade terminal. The **BLACK** clip must be connected to battery **NEG. (-)**.

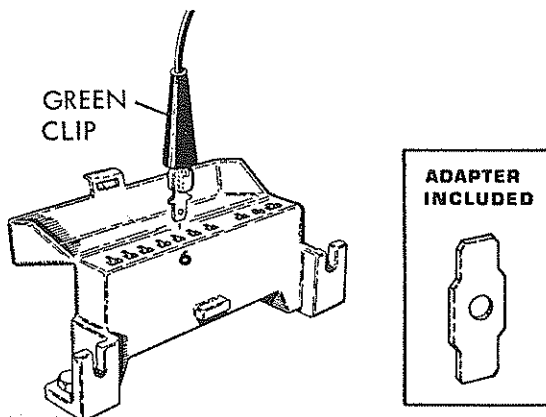
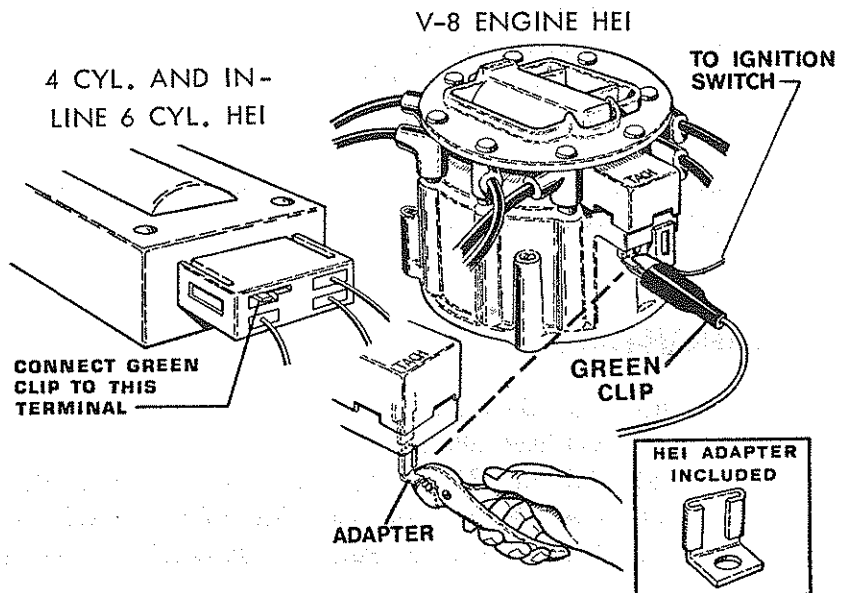


FIGURE 2

DELCO HIGH ENERGY IGNITION



On 4 cylinder and in-line 6 cylinder engines with a separate coil, connect the **GREEN** clip to the open TACH terminal as indicated. On the integral coil V-8 HEI, slide the adapter onto the TACH terminal as shown. Then connect the **GREEN** clip to the adapter. The **BLACK** clip is connected to the battery Negative as shown in **FIGURE 1**.

FIGURE 3

TACHOMETER CONNECTION TO FORD AND CHRYSLER TRANSISTOR IGNITION SYSTEMS AND LATE MODEL FORD STANDARD IGNITION

FORD TRANSISTOR IGNITION

On 1974 Ford transistor ignition system, connect as shown in Figure 6, using the Ford adapter as shown.

On 1975 Ford transistor ignition, connect the GREEN clip to the wire terminal on the "DEC" or "TACH" side of the coil as shown below.

Connect the BLACK clip to the battery NEGATIVE as shown in Figure 1.

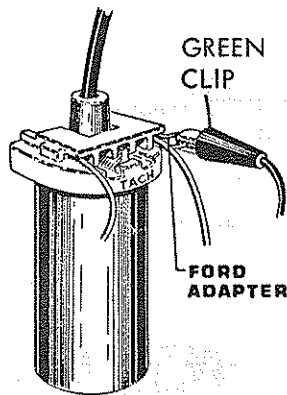


FIGURE 4

CHRYSLER AND AMERICAN MOTORS IGNITION (Conventional and Transistor Systems)

Connect the GREEN lead to the negative terminal of the ignition coil.

Connect the BLACK clip to the Battery Negative as shown in FIGURE 1.

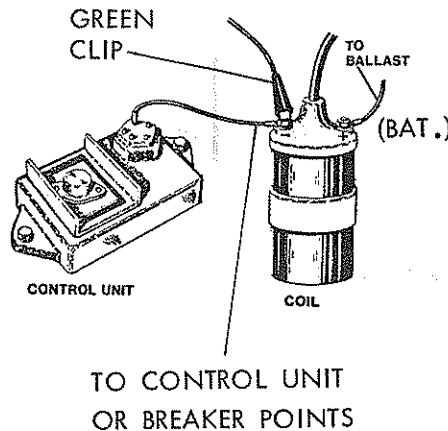
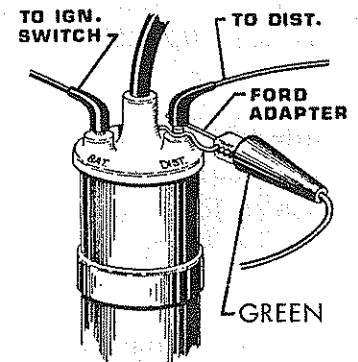


FIGURE 5

FORD CONVENTIONAL IGNITION



Lift the distributor terminal and slide the FORD adapter clip in place as shown, then push the terminal down on it. Remove when the tests are finished. Connect the BLACK clip to the battery NEG. (-) as shown in FIGURE 1.



FIGURE 6

IDLING SPEED, RPM AND CARBURETOR ADJUSTMENT

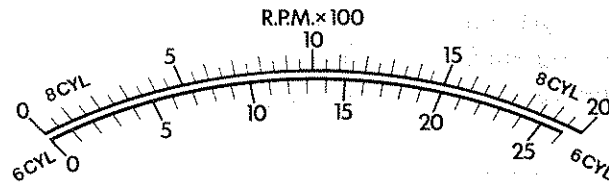
Many cars built in 1970 and later have idle mixture screw limiter caps that restrict adjustment. On these cars the carburetor should be adjusted according to the procedure in the manufacturer's service manual.

Start the engine and allow it to warm up to normal operating temperature before proceeding with any adjustments.

Shut the engine off and connect the test leads as shown in FIGURE 1 or for Electronic ignition and late model cars see FIGURES 2,3,4,5 and 6.

Slide the selector switch to RPM. Observe the readings on the appropriate RPM scale.

(On 4 cylinder engines, double the reading on the 8 cylinder scale. Example: 450 RPM on the 8 cylinder scale is 900 RPM on a 4 cylinder engine).



Consult the manufacturer's service manual for the location of the idle speed adjusting screw and the idle mixture adjusting screw (or screws). Make idle speed and mixture adjustments according to the procedure outlined in the service manual or as specified on the decal in the engine compartment.

NOTE: On engines equipped with exhaust emission control systems, air injection pumps and positive crankcase ventilation, refer to the decal in the engine compartment for idle adjustment procedure.

DWELL TEST AND ADJUSTMENT

Connect the test leads as shown in FIGURE 1.

For Electronic ignition and late model cars see FIGURES 2,3,4,5 and 6.

Slide the selector switch to DWELL. Observe dwell readings on the appropriate DWELL scale. Each scale division represents one degree.

Start the engine and operate it at the specified idle RPM. Compare the meter Dwell Angle reading with the manufacturer's specification for the engine. If the dwell reading is higher or lower than the manufacturer's specification, adjust the distributor points as described below.

CONVENTIONAL BREAKER POINT SYSTEMS

On GM distributors with a small metal slide cover, lift the cover and insert a 1/8" Allen wrench in the adjusting screw socket and adjust the dwell by turning the wrench. (FIGURE 7)

On Ford, Chrysler, American Motors and other distributors not equipped with a small metal access slide cover, perform the following steps:

1. Remove coil wire from center tower of distributor cap and ground the wire by connecting the loose end to the engine or frame.
2. Remove the distributor cap and rotor.
3. Connect a remote starter switch to the vehicle or have an assistant crank the engine for you.
4. With ignition switch ON and engine cranking observe reading on the Dwell scale. (For 4 cylinder engines, double the reading on the 8 cylinder scale. Example: 30 degrees dwell on the 8 cylinder scale is 60 degrees on a 4 cylinder engine.)

5. To adjust Dwell, loosen the locking screw slightly and adjust the point gap with a feeler gage according to the procedure outlined in the vehicle's service manual. After adjustment, tighten locking screw, and recheck dwell while cranking engine. Repeat procedure if necessary.
6. Reassemble distributor and recheck dwell reading with engine operating at idle speed. Repeat steps 5 and 6 if necessary.

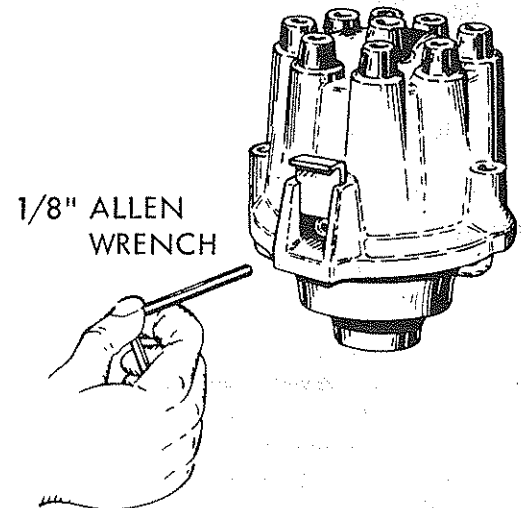
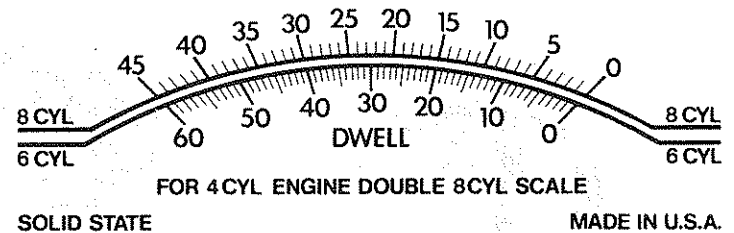


FIGURE 7

ELECTRONIC AND TRANSISTOR IGNITIONS

Due to the vast array of electronic ignition and engine control systems being used on late model cars, it is essential that specific service information for the vehicle under test be obtained. Although dwell angle is not adjustable on electronic systems, the reading obtained is important and should be within the manufacturer's specified limits. If it is not, consult the manufacturer's shop manuals for diagnostic procedures and possible component replacement instructions.

NOTE: IT IS IMPORTANT TO RECHECK THE IGNITION TIMING EVERY TIME THE POINTS ARE ADJUSTED