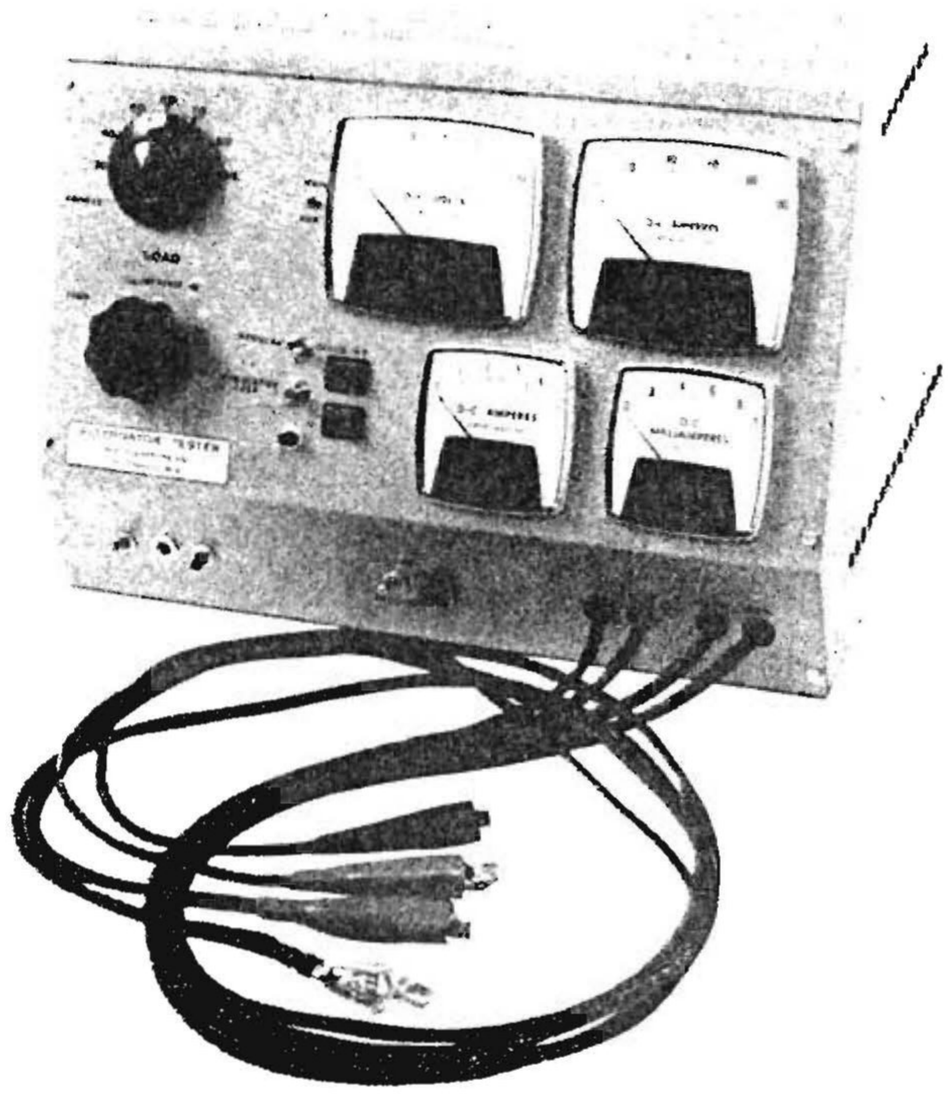
Alternator Test Console



- Designed for the rebuilder whose test bench still has a functional motor, pulley, vise, etc. (i.e. drive unit), but with damaged and/or inaccurate meters, crumbling carbon pile, broken switches, etc.
- TEST CONSOLE combines the **metering system, loading system** and **field supply system** required for testing alternators into one compact reliable unit which can be mounted on top or to one side of the drive unit. This tester requires **no** battery. The alternator output is absorbed by oversized. fan-cooled relay-controlled power resistors. The field (rotor) current is provided by a regulated power supply whose output voltage remains **constant** regardless of rotor draw or line voltage fluctuations.
- Large (4½") accurate, easy-to-read 0-120 Amp Ammeter and 0-30 Volt Voltmeter show alternator output. 0-10 Amp Field Ammeter shows rotor draw while the "Phase Defect" meter shows open or shorted diodes and open, shorted or grounded stator windings making a scope unnecessary.

  Tests Delco internal regulators, and diode trios, isolation diodes and other "auxiliary" outputs. Negative-positive ground switch. Tests new Ford internal and Delco "CS".

  Model C-120-12 (120 Amp 12v)*
  Dimensions: 18" wide x 12" high x 12" deep, 40 lbs.

  Model C-200-12 (200 Amp 12v)*
  Dimensions: 22" wide x 16" deep x 15" high, 50 lbs.

  * See price list for other voltage options.
- Full one year guarantee

Test Console

Testing Delco CS Alternators

The new Delco CS type alternators require a special technique to test on the Console. This is due to changes in the internal circuitry of the alternator. The CS type alternator like the older Delco internal alternators, generates its field (rotor) power internally. The CS, however, accomplishes this without using a diode trio. Instead of supplying a partial field current from the battery (through the ignition key and indicator light), the CS receives only a small signal from the key. This signal turns on the regulator which allows current to flow through the rotor directly from the "hot" battery (output) terminal of the alternator.

Since, on the Console, no battery is present in the system, the "Field" test lead must be used as the source of Plus 12 volts as follows.....

1. Turn the Console off.

2. SET LOAD TO MINIMUM - Coarse Selector to 30 and Carbon Pile (Fine Load Control) 2 turns CCW.

3. Connect the Adapter Plug (Provided) to the alternator. Place small ring clip on Adapter Plug over alternator output post.

4. Connect the "Main" (heavy red) Test Lead from the Console to the alternator output post. Be sure "Ground" (heavy black) is connected to the mounting vise.

5. Set the Field Control switch to "full field" (12 volts).

6. Start motor. Turn on Console.

7. Depress Regulator Test Switch and HOLD IT! This further reduces the load (to 10 amps).

8. Momentarily touch "Field" Test Lead to the alternator output terminal. This should cause the Console meters to react and cause the alternator to begin generating. Remove "Field" Test Lead from output terminal. Alternator should maintain voltage. Increase load USING CARBON PILE FIRST to determine the maximum output of the alternator.

Note -If, after several attempts, the alternator does not "hold" and continue to generate with the "Field" Test Lead removed, try increasing the speed.

Test Console

Testing Ford Internally Regulated Alternators

The new Ford Internally regulated alternators require a special technique to test on the Console. This is due to changes in the internal circuitry of the alternator. This type alternator generates its field (rotor) Power internally. This is accomplished without using a diode trio. Instead of supplying a Partial field current from the battery (through the ignition key and indicator light), the Ford internal receives only a small signal from the key. This signal turns on the regulator which allows current to flow through the rotor directly from the "hot" battery (output) terminal of the alternator.

Since, on the Console, no battery is Present in the system, the "Field" test lead must be used as the source of Plus 12 volts as follows.....

1. Turn the Console off.

2. SET LOAD TO MINIMUM - Coarse Selector to 30 and Carbon Pile (Fine Load Control) 2 turns CCW.

3. Connect the Adapter Plugs (provided) to the alternator.

4. Connect the "Main" (heavy red) Test Lead from the Console to the alternator output (large ring terminal in Adapter Plug). Be sure "Ground" (heavy black) is connected to the mounting vise.

5. Set the Field Control switch to "full field" (12 volts).

6. Start motor. Turn on Console.

7. DePress Regulator Test Switch and HOLD IT! This further reduces the load (to 10 amPs).

8. Momentarily touch "Field" Test Lead to the bare wire in the Adapter Plug harness. This should cause the Console meters to react and cause the alternator to begin generating. Remove "Field" Test Lead. Alternator should maintain voltage. Increase load USING CARBON PILE FIRST to determine the maximum output of the alternator.

Note -If, after several attempts, the alternator does not "hold" and continue to generate with the "Field" Test Lead removed, try increasing the speed.

TROUBLE-SHOOTING the Alternator Test Console

When trouble-shooting the Alternator Test Console, it is helpful to divide the tester into its three major functional areas.....

(1) - Providing 12 Volt DC power for the alternator field (rotor) by means of the internal Power Supply.

(2) - Absorbing alternator Power output through a series of relay-controlled load resistors (COARSE LOAD) and a carbon pile (FINE LOAD).

(3) - Measuring the current input (field amps) and the power output (volts & amps) of the alternator under test.

(1) - Field (rotor) power is provided by a regulated DC Power Supply. Regulation provides a nearly constant output voltage regardless of load (rotor draw) or input (line) voltage. On some consoles, thePower Supply is also protected against overload. Any attempt to draw more than 8 amps from the Field test lead will cause the Power Supply to "fold back" to a much lower voltage until the overload is removed. The DC Power Supply has its own Pilot light (apart from the main AC on-off indicator/Pilot which goes out when the Power Supply is shorted. Current drawn from the Power Supply is monitored by the 0-10 amp field meter.

The Power Supply can be checked with any voltmeter or by connecting the Field test lead to the Aux. test lead. Set field control switch to "full field" and voltmeter switch to "Aux.". The voltmeter should read 12 volts and the field amp meter should read 3.5-4.0 amps. Also, the "Aux." indicator light should be on.

If Power Supply voltage is too low it can be adjusted. This adjustment, however, requires that the front panel be opened. If voltage adjustment is necessary, proceed as follows.....

- REMOVE AC POWER PLUG FROM OUTLET!
- Remove 6 screws holding front panel to cabinet.
- Pull bottom of panel out until it clears cabinet (about 1/2 inch) and lean top of panel away from cabinet.
- Power Supply is located in center of cabinet and can be identified by a transformer and large blue cylindrical capacitor. The voltage adjustment control is located in the upper left area of the Power supply. It has a cross-shaped screwdriver slot.
- Be sure from panel wiring (especially 110 volt connections behind main on-off switch) is not touching main cabinet. Connect a voltmeter to Field test lead (Pos) and Ground test lead (neg). Turn main switch on.
- Now Plug in line Power cord and note voltmeter reading. Adjust Power Supply to 13.8 volts. REMOVE POWER CORD FROM RECEPTACLE!
- Setting voltage too high will cause some internally regulated alternators to shut off (no output) because the high field supply voltage triggers the internal voltage regulator to shut down. Carefully replace front panel installing 2 bottom screws first.

(2) The LOADING SYSTEM consists of 9 large power resistors each of 10 amp capacity. These are connected between the Main (pos) test lead (alternator output) and the Ground test lead (neg) by means of power relays. The relays, in turn, are controlled by the selector switch located on the upper left front panel and marked "COARSE LOAD". Using this selector, the load on the alternator can be varied from 30 amps to 90 amps. An additional 10-15 amps of load can be added by adjusting the lower left "FINE LOAD" carbon pile control knob. In addition, activating the "Regulator Test" switch causes the load to decrease by about 25 amps. This will cause the voltage to rise until the alternator's regulator takes over control and limits the system voltage to approximately 14.5 volts.

Checking the Load System is relatively simple. With a high amp, non-regulated alternator connected and running, increase the Coarse control in steps from 30A to 90A. With each step, the main ammeter reading should increase while the voltmeter reading decreases.

(3) The METERING SYSTEM consists of the main output ammeter (0-100 amps), voltmeter (0-30 volts), and field ammeter (0-10 amps). These three meters are factory calibrated and cannot be adjusted. Be sure voltmeter switch is set to "main" for normal testing. If any of these three meters fails to operate, look for loose or broken connections starting at the meter and working back to its signal source. The fourth meter (lower right) is a ripple meter whose reading should roughly correspond to alternator output. The percentage of ripple varies with different alternator types. Therefore, the best way to use this meter is to test alternators in groups and make note of the "normal" ripple reading. Once the "norm" for any type alternator has been established, write it down for future reference. If all ripple readings are consistently too low (or too high), for all types of alternators, the meter can be made more or less sensitive by turning the small potentiometer shaft located at the (right) rear of the tester.

IMPORTANT! SHOCK HAZARD! - Power line plug must be removed from socket before opening front panel of tester. Internal repairs should only be attempted by an experienced electrician.