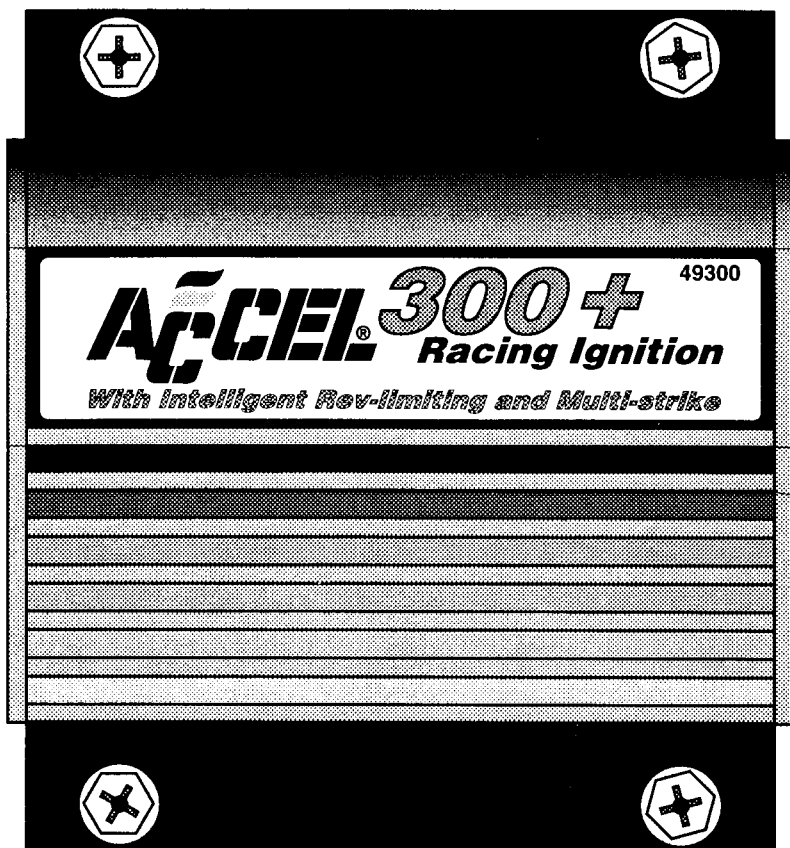




OWNERS MANUAL

	<i>Page</i>		<i>Page</i>
The System	2	Installing with a Crank Trigger	12
Setting the Rev-limit	3	Installing on other Magnetic Pickups	14
Installing with ACCEL Magnetic Pickup	4	Installing with ACCEL Fuel Injection	16
Installing on a Points Ignition	6	Installing Two Coils or two Ignitions	18
Installing on an HEI (Module removed)	8	Technical Tips and Hints	20
Installing on an HEI (Module in place)	10	Also included: Mounting Template and Warranty Mail-in.	

Congratulations! You own the ACCEL 300+ Capacitive Discharge ignition system. This ignition system will provide hot sparks for all engines that use a Distributor. It is designed for use on high revving, high compression racing engines, as well as high performance street engines. This system will consistently deliver 180 mJoules to the coil, up to 8,000 RPM on a V8 and up to 16,000 RPM on four cylinder motors.

In the unlikely event of a problem with this system
it cannot be returned through your dealer for testing or for warranty.

It must be returned to:
Accel Performance Products
8700 Brookpark Road
Cleveland, OH 44129

Your warranty card must be on record at Accel
to insure warranty processing.

See your warranty insert for details.

New orders? Technical questions??

Call our hot line.

216/398-8300

ACCEL 300+ has been designed with state-of-the-art circuitry. The circuit board has then been encased in a heat-conducting epoxy. This 'potting' minimizes the effects of vibration and moisture for exceptional reliability.

The ACCEL 300+ has an external fuse (a 2-prong 10-amp, GM style fuse) to protect against accidental shorts and power surges. Disconnect the battery during installation. Disconnect all connectors while arc welding anywhere on the vehicle!

The ACCEL 300+ has a very low current draw, making it ideal for endurance applications: long distance circle track or road races, and for racing classes that do not need to use alternators.

We recommended ACCEL 300+ RACE WIRE, ACCEL 8.8 Spiral Core or ACCEL Super Stock Spiral Core spark plug wires. For the most reliable ignition power use the ACCEL 140009 ignition coil. Minimize radio interference with an RFI Filter (ACCEL Part No. 49050).

This system, like all electronic components, must be kept away from heat!
Good places to mount it include: on the dashboard, inside a fender,
or in front of the engine. Keep it away from the exhaust system and
the outflow from radiators.

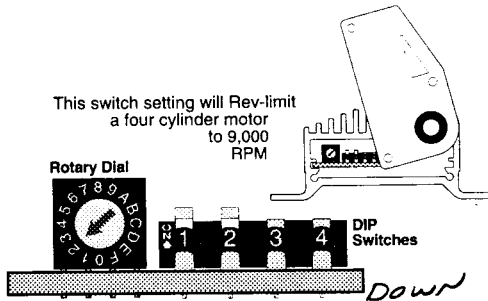
SETTING REV-LIMIT

The Accel 300+'s Intelligent Rev-limiting is owner selectable, with dip-switches, from 4,500 rpm to 12,000 rpm in 250 rpm steps.

Remove all three #8 screws from the end-plate that has the wires coming out of it. Swivel the end-plate, and the gasket, around the wires to reveal a Rotary Dial and four dip-Switches.

From the chart at right - choose your rev-limit from under the columns labeled **Down** or **Up** under **Switch-1**. Note the **Dial Setting**.

Using a small flat screwdriver - turn the rotary dial to point to the number listed under **Dial Setting**.



Dial Setting	Switch-1	
	Down	Up
0	4,500	8,500
1	4,750	8,750
2	5,000	9,000
3	5,250	9,250
4	5,500	9,500
5	5,750	9,750
6	6,000	10,000
7	6,250	10,250
8	6,500	10,500
9	6,750	10,750
A	7,000	11,000
B	7,250	11,250
C	7,500	11,500
D	7,750	11,750
E	8,000	12,000
F	8,250	No Rev-limit

For rev-limits listed under column Down, dip-switch-1 must be gently pushed down. If your chosen rev-limit is listed under column Up, dip-switch-1 must be up.

Designate the number of cylinders
SWITCH-3

by setting DIP-switches 2, and 3.

(Rotary engines use the 6 cylinder setting.

Odd-fire V6's use the V8 setting.)

NUMBER OF CYLINDERS

4 CYLINDERS

6 CYLINDERS

8 CYLINDERS

UP

DOWN

DOWN

SWITCH-2

DOWN

UP

DOWN

SWITCH-4 should be left Down.

Replace the gasket, the end-plate and re-tighten all three screws.

Once your Ignition has been installed one of the first things you will want to test is your rev-limiting. You might want to set your rev-limit low until you become familiar with the sound and feel of your engine at rev-limit. Then set it up to its correct rpm.

A worn distributor or mechanical advance mechanism may cause high frequency oscillations, which can cause inaccurate rev-limiting. A good ball-bearing distributor or crank trigger should solve this problem. No rev-limiter can protect your engine from being put into the wrong gear! Miss a 3rd to 4th shift (ending up in 2nd gear with the clutch out) and, although the spark plugs will not fire, your engine will over-rev!

INSTALLING THE ACCEL 300+ RACING IGNITION ON AN ACCEL (OR CHRYSLER) MAGNETIC PICKUP DISTRIBUTOR

1. Decide where the ignition box and its connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the batteries negative lead (ground strap) to prevent shock.
4. Remove all feed wires from the coil's two terminals (not the high voltage wire), and remove any RFI condenser or ballast resistor.
5. Splice the purple wire to the black, and the orange wire to the white on a 2 Pin 0.180" trailer plug. (This 2 Pin 0.180" trailer plug connects to the one coming from the distributor.)
2 Pin 0.180" Trailer plugs are available in most auto parts stores.
6. Splice the existing wires onto the designated colored wires on both female connectors.

Flat Connector

Yellow	Connects to the coil's positive (+) terminal.
Brown	Connects to the coil's negative (-) terminal. No other wires should connect to the coil's terminals.
Black	Grounds directly onto the engine block.
Red	Connects to +12 volts through ignition switch. No ballast resistor in line.

Square Connector

Purple	Connects to the black wire.
Orange	Connects to the white wire.
White	Not used - Insulate.
Green	Attaches to electric Tachometer's signal lead.

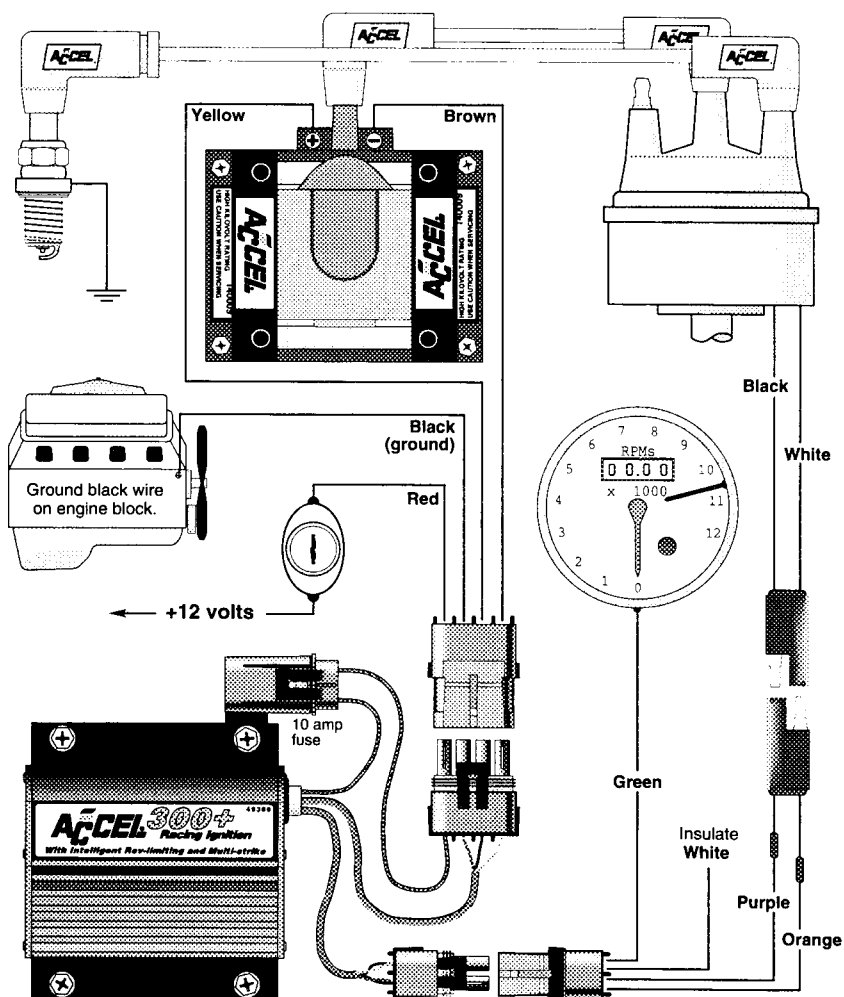
7. Connect the flat and square connectors, the distributor, and then reconnect the battery.

Magnetic Pickup Installation Hints:

Solder and shrink wrap all splices.

Avoid tangled or melted wires by tying all wires in place with cable ties.

Wiring Diagram for an ACCEL Magnetic Pickup Distributor



INSTALLING THE ACCEL 300+ RACING IGNITION ON ANY POINTS TRIGGERED IGNITION

1. Decide where the ignition box and its two connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the batteries negative lead (ground strap) to prevent shock.
4. Remove all feed wires from the coil's two terminals (not the high voltage wire), and remove any RFI condenser or ballast resistor.
5. Splice the existing wires onto the designated colored wires on both female connectors.

Flat Connector

Yellow	Connects to the coil's positive (+) terminal.
Brown	Connects to the coil's negative (-) terminal.
Black	Grounds directly onto the engine block.
Red	Connects to +12 volts through the ignition switch. No ballast resistor in line.

Square Connector

Purple	Not used - Insulate.
Orange	Not used - Insulate.
White	Connects to the wire going to the points.
Green	Attaches to electric Tachometer's signal lead.

6. Connect the Accel 300+'s flat and square connectors and then reconnect the battery.

Points Performance and Installation Hints:

"Point Bounce" at high rpms can cause ignition problems. We recommend a set of Racing Points, which have stronger springs.

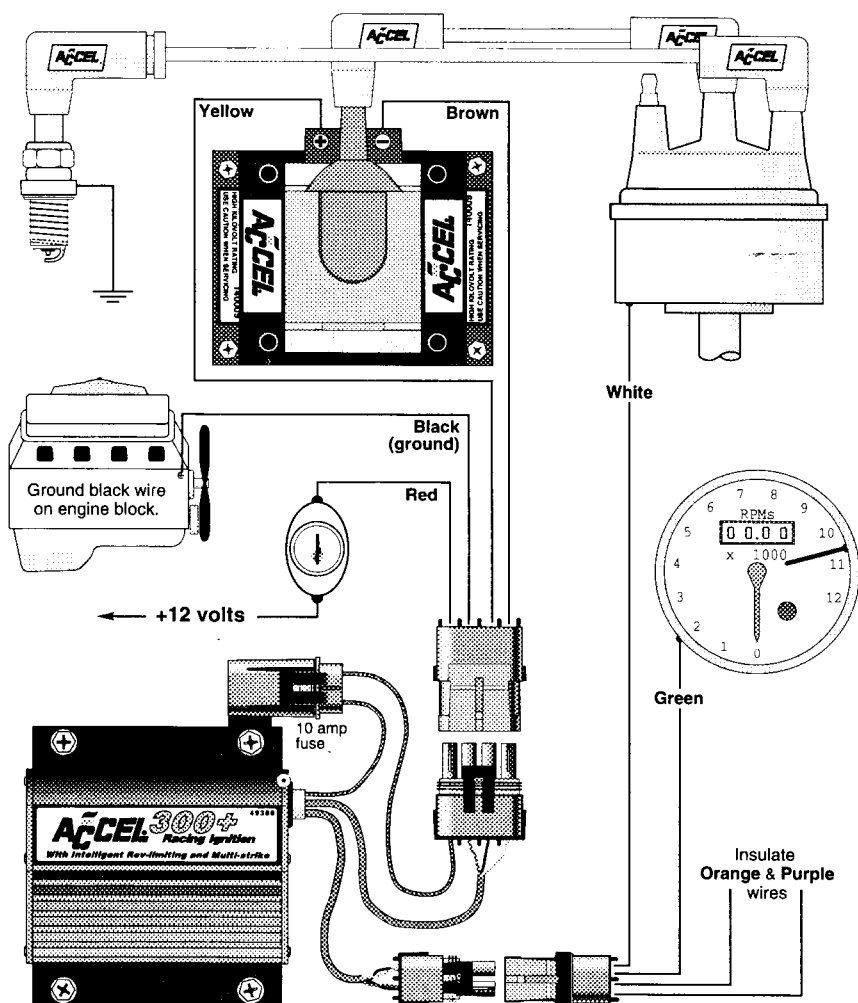
The ACCEL 300+ conserves ignition energy by supplying a very small triggering current. This causes less point wear than normal and the plastic bumper on the points will wear down faster than the points themselves. As a result Timing and Point gap must be checked often. Keep your points clean or replace them often!

Check point gap on a regular basis. Once per race weekend should be OK.

Solder and shrink wrap all splices.

Avoid tangled or melted wires by tying all wires in place with cable ties.

Wiring Diagram for Points Ignition



INSTALLING THE ACCEL 300+ RACING IGNITION ON AN HEI MAGNETIC PICKUP DISTRIBUTOR (WITH THE IGNITION MODULE OUT)

1. Decide where the ignition box and its two connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the battery's negative lead (ground strap) to prevent shock.
4. Open the distributor and remove the condenser and the hei transistor module.
5. Splice the existing wires onto the designated colored wires on both female connectors.

Flat Connector

Yellow	Connects to the b+ connector on the hei coil. Use #10 Spade lugs, available in hardware stores.
Brown	Connects to the c- and grd terminals on the hei coil. Do not reconnect tach or bat tabs in the hei cap!
Black	Grounds directly onto the engine block.
Red	Connects to +12 volts through the ignition switch.

Square Connector

Purple	Connects to green wire inside the distributor. Various HEIs may look different.
Orange	Connects to orange wire inside the distributor.
White	Not used - Insulate.
Green	Attaches to electric Tachometer's signal lead.

6. Connect the ACCEL 300+'s flat and square connectors and then reconnect the battery.

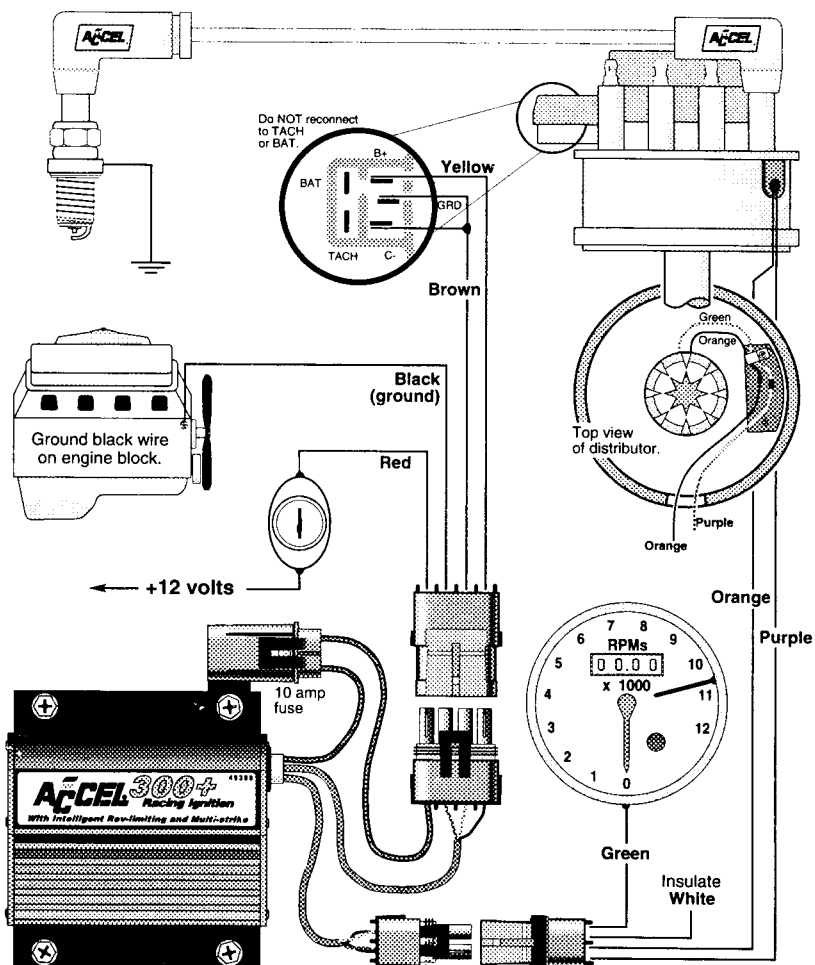
GM HEI / Magnetic Triggering Installation Hints:

Insulate and fasten down the purple / green and the orange / orange wires to avoid getting them snagged in the rotor.

Solder and shrink-wrap all splices.

Avoid tangled or melted wires by tying all wires with cable ties.

GM HEI Magnetic Pickup (With Ignition Module *OUT*)



INSTALLING THE ACCEL 300+ RACING IGNITION ON AN HEI MAGNETIC PICKUP DISTRIBUTOR (WITH THE IGNITION MODULE IN)

1. Decide where the ignition box and its two connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the batteries negative lead (ground strap) to prevent shock.
4. Disconnect the red ignition switch wire and the tachometer wire that connects to the bat and tach locations in the distributor cap.
5. Unplug the hei connector to see three tabs connected to red, black, and brown wires.
(Various hei distributor caps look slightly different and colors, especially the red wire, may vary.)
6. Splice the existing wires onto the designated colored wires on both female connectors.

Flat Connector

Yellow	Connects to the b+ connector on the hei distributor cap. In general - use #10 Spade lugs, available in hardware stores.
Brown	Connects to the c- and grd terminals on the distributor cap. Do not reconnect tach or bat tabs in hei distributor cap!
Black	Grounds directly onto the engine block.
Red	Connects to +12 volts through the ignition switch and to the red wire inside the three tab hei connector.

Square Connector

White	Connects to the brown wire inside the hei connector.
Green	Attaches to electric Tachometer's signal lead.
Purple	Not used - Insulate.
Orange	Not used - Insulate.

7. Connect the ACCEL 300+'s flat and square connectors and reconnect the battery. Do not plug the hei connector back into the distributor cap.

GM HEI / Magnetic Triggering Installation Hints:

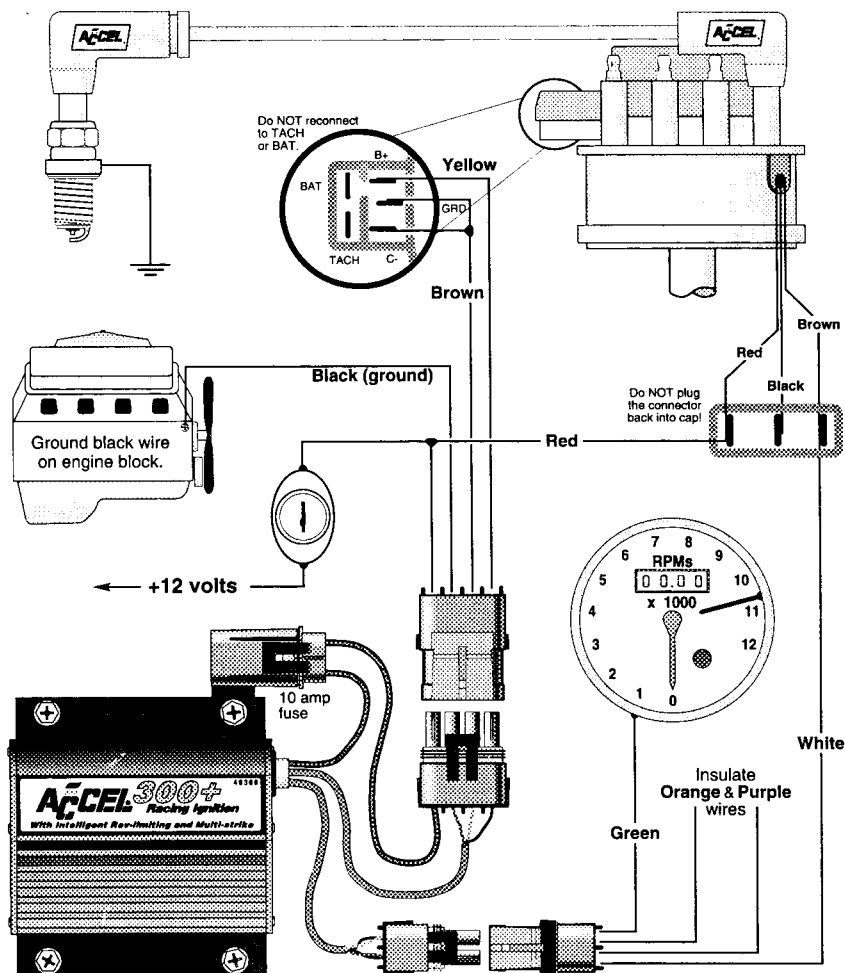
We recommend that you take the hei module out of cars that are meant for racing.

While this is to insure accurate timing, it also means there will be less connections, and less parts, that may potentially fail under the stresses of racing.

Solder and shrink-wrap all splices.

Avoid tangled or melted wires with cable Ties.

GM HEI Magnetic Pickup (With Ignition Module *IN*)



INSTALLING THE ACCEL 300+ RACING IGNITION ON A CRANK TRIGGERED SYSTEM

1. Decide where the ignition box and its connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the batteries negative lead (ground strap) to prevent shock.
4. Attach the Crank Trigger according to the kit's directions. Please refer to the ACCEL catalog for proper applications and part numbers for your specific crank trigger requirements.
5. Splice the existing wires onto the designated colored wires on the three connectors.

Flat Connector

-  **Yellow** Connects to the coils positive (+) terminal.
Use #10 loop connectors for the yellow and brown wires.
-  **Brown** Connects to the coils negative (-) terminal.
No other wires should connect to the coil's terminals.
- Black** Grounds directly to the engine block.
Use 3/8 inch loop connector.
- Red** Connects to +12 through the ignition switch.
Remove the ballast resistor.

Square Connector

-  **Purple** Connects to the 2 Pin 0.180" trailer plug's white wire.
-  **Orange** Connects to the 2 Pin 0.180" trailer plug's black wire.
You can get 2 Pin 0.180" trailer Plugs at most automotive supply stores.
- White** Not used - Insulate.
- Green** Attaches to electric Tachometer's signal lead.

6. Connect the ACCEL 300+'s flat and square connectors, the Crank Triggers connector, reconnect the battery.

Crank Triggering Installation Hints:

A small cable tie tied long-wise around the trailer plug connectors will hold them securely together. Tie the pickup down and away from the fan.

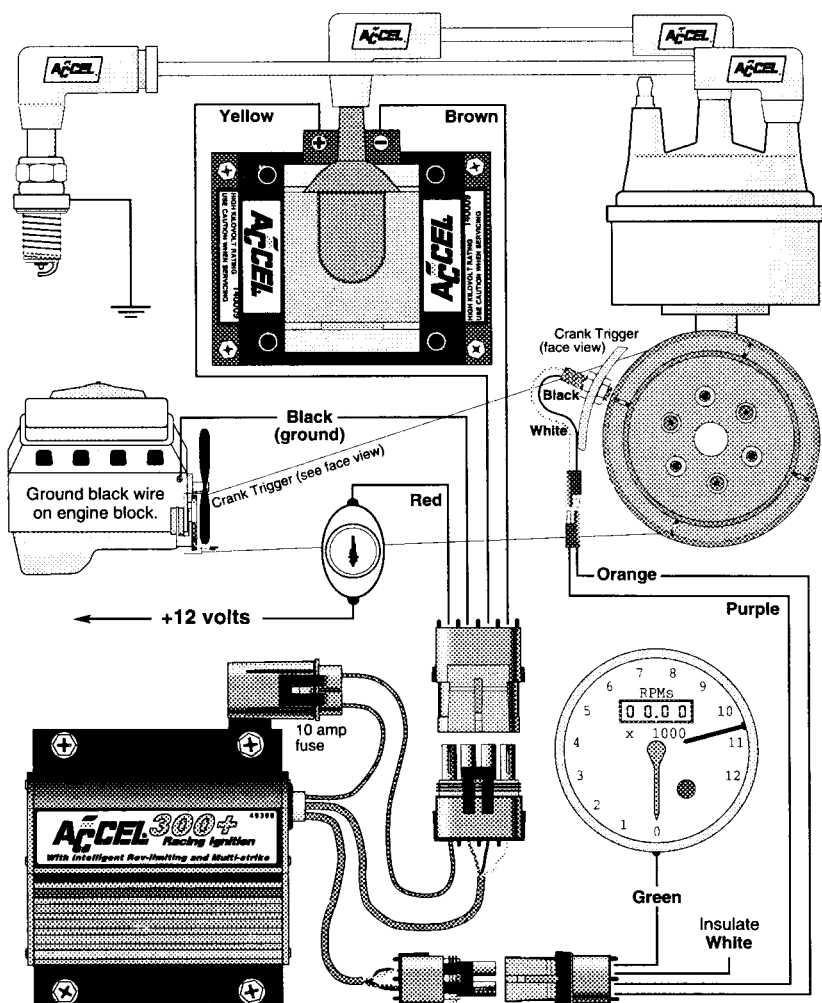
The engine moves in the car and you may want some slack in these wires.

Crank triggered timing is fixed. This means starting may be difficult.

Solder and shrink wrap all splices.

Avoid tangled or melted wires by tying all wires in place with cable ties.

Wiring Diagram for an ACCEL Crank-triggered System



INSTALLING THE ACCEL 300+ RACING IGNITION ON A FORD (OR MSD) MAGNETIC PICKUP DISTRIBUTOR

1. Decide where the ignition box and its connectors will be and check all wire lengths.
2. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
3. Disconnect the batteries negative lead (ground strap) to prevent shock.
4. Remove all feed wires from the coil's two terminals (not the high voltage wire).
5. Splice the existing wires onto the designated colored wires on both female connectors.

Flat Connector

Yellow	Connects to the coil's positive (+) terminal. Use #10 loop connectors for yellow and brown wires.
Brown	Connects to the coil's negative (-) terminal. No other wires should connect to the coil's terminals.
Black	Grounds directly onto the engine block. Use 3/8 inch loop connector.
Red	Connects to +12 volts through the ignition switch. Remove the ballast resistor.

Square Connector

Purple	Connects to purple & black wire from distributor. If using an msd extension cable connect to its green wire.
Orange	Connects to orange & black wire from distributor. If using an msd extension cable connect to its purple wire.
White	Not used - Insulate.
Green	Attaches to the electric Tachometer's signal lead.

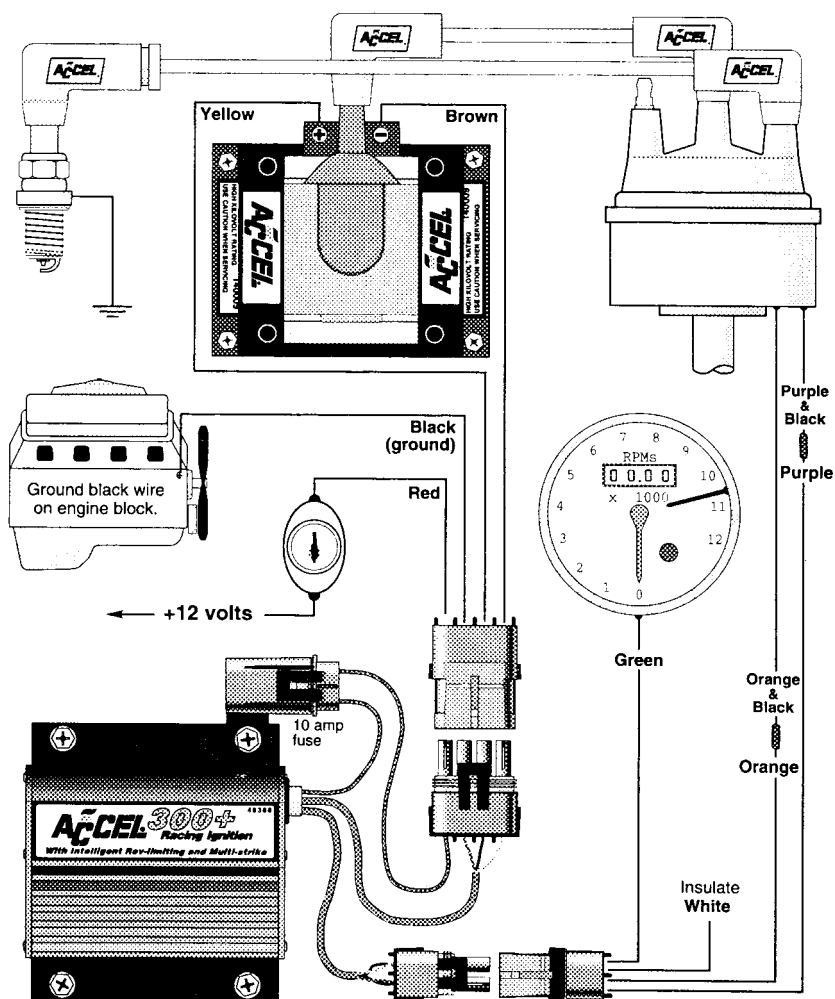
6. Connect the ACCEL 300+'s flat and square connectors and reconnect the battery.

Magnetic Pickup Installation Hints:

Solder and shrink wrap all splices.

Avoid tangled or melted wires by tying all wires in place with cable ties.

Wiring Diagram for a Ford (or MSD) Magnetic Pickup Distributor



INSTALLING THE ACCEL 300+ RACING IGNITION WITH ACCEL FUEL INJECTION

1. Attach the Fuel Injection according to its instructions.
2. Decide where the ignition box and its connectors will be and check all wire lengths.
3. Drill all four mounting holes for #10 bolts using a 15/64" drill bit (see Mounting Template).
4. Disconnect the batteries negative lead (ground strap) to prevent shock.
5. Splice the existing wires onto the designated colored wires on the three connectors.
(Two connectors from the ACCEL 300+ and one from the fuel injection)

Flat Connector

Yellow	Connects to the coils positive (+) terminal. Use #10 loop connectors for the yellow and brown wires.
Brown	Connects to the coils negative (-) terminal. No other wires should connect to the coil's terminals.
Black	Grounds directly to the engine block. Use 3/8 inch loop connector.
Red	Connects to +12 volts through the ignition switch. Remove the ballast resistor.

Square Connector

Purple	Not used - Insulate
Orange	Not used - Insulate
White	Connects to the white wire coming from the Fuel Injection.
Green	Attaches to the electric Tachometer's signal lead.

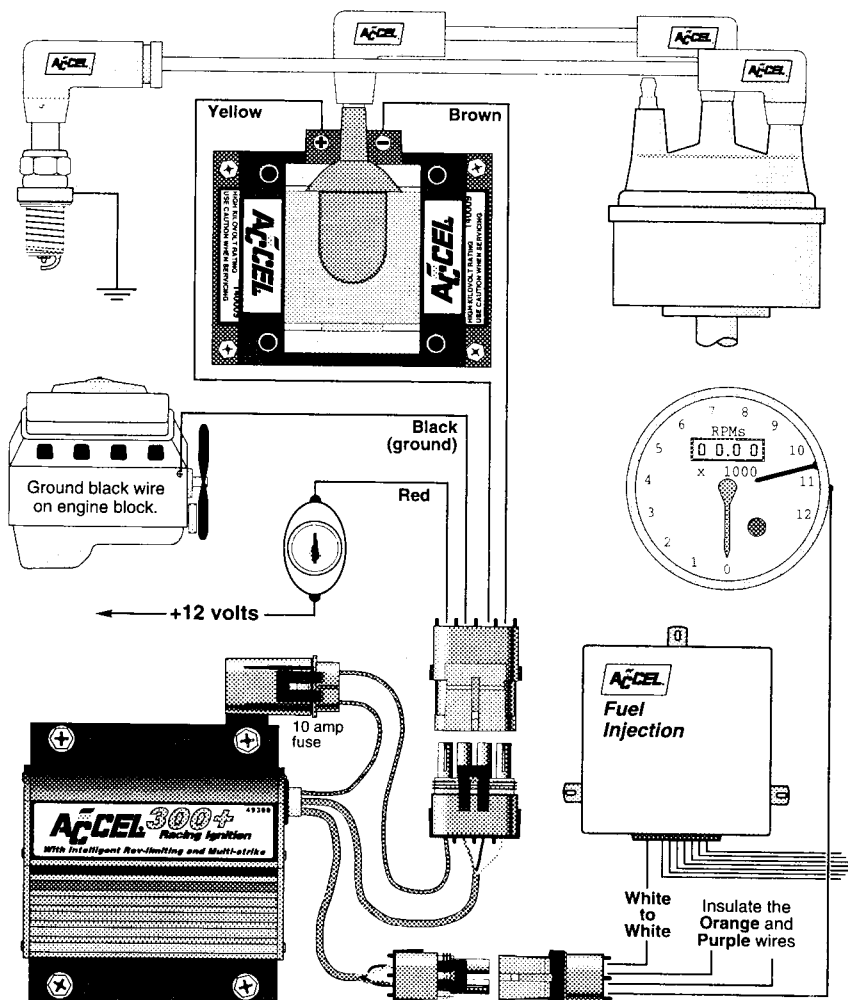
6. Connect both ACCEL 300+'s flat and square connectors, the fuel injection connector, and reconnect the battery.

ACCEL 300+ / Fuel Injection Installation Hints:

Solder and shrink wrap all splices.

Avoid tangled or melted wires by tying all wires in place with cable ties.

Wiring Diagram for ACCEL Fuel Injection



INSTALLING A SECOND ACCEL 300+ RACING IGNITION WITH EITHER ONE OR TWO IGNITION COILS

You will need two ACCEL 300+ ignition boxes.

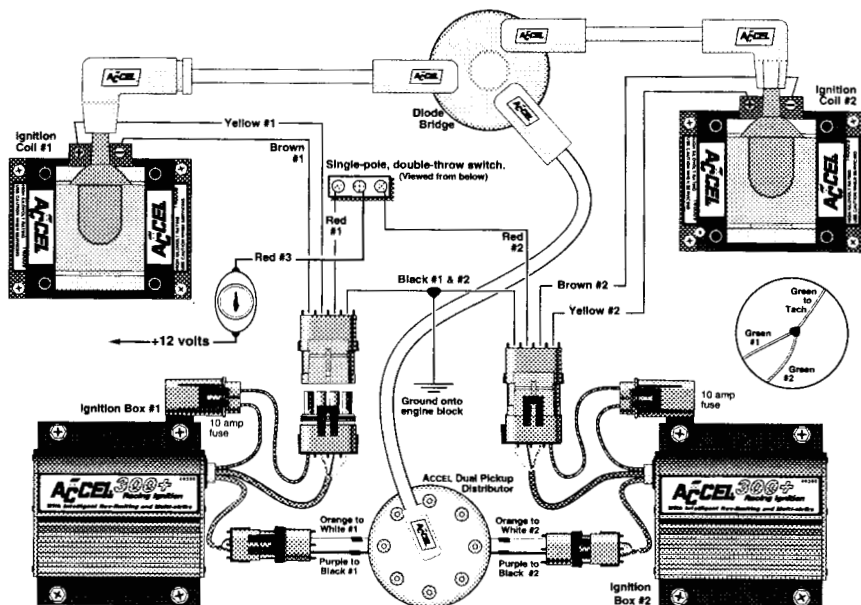
One coil systems need a double-pole double-throw toggle switch.

Two coil systems needs two ignition coils (ACCEL part #140009), a diode bridge, a single-pole double-throw toggle switch, and an ACCEL dual pick-up distributor.

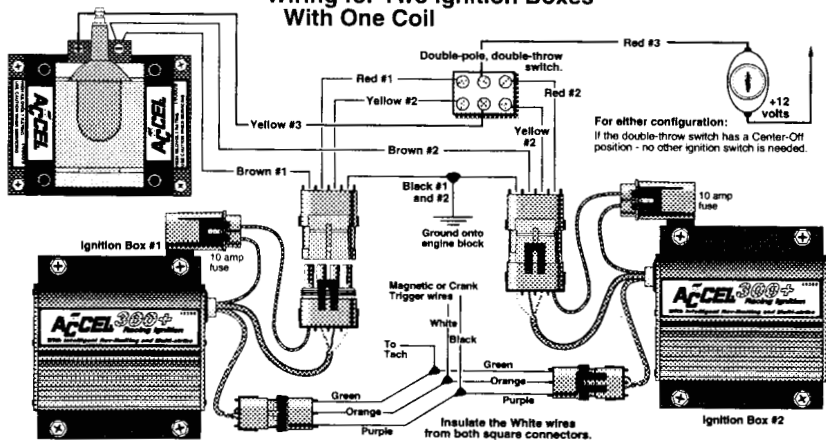
If either double-throw switch has a Center - Off position
no other ignition switch is needed.

1. Disconnect the batteries negative lead (ground strap) to prevent shock.
2. Install both ACCEL 300+'s according to the instructions for a Magnetic Pickup distributor. There are now two orange/white and two purple/black connections (See Pages 3 - 4).
3. Install hardware according to instructions. Mount ignition boxes and coils in cool places. Mount the toggle switch in a place that is easily assessable to the driver!
- 4A. Two coil, two ignition system (See wiring diagram at the top of Page 18.):
 - Connect both brown wires to their separate coil's negative (-) terminals.
 - Connect both yellow wires to their separate coil's positive (+) terminals.
 - Connect both red wires to both outer terminals of the single-pole (minimum rating of 6 amps DC) switch. Then connect the switch's center terminal to the ignition switch with a red wire (red #3) to indicate this wire is hot!
 - Connect both orange wires to both white wires coming from the distributor.
 - Connect both purple wires to both black wires coming from the distributor.
 - Connect the Dual Pickup distributor's wires to the ignition box that is connected to its matching coil.
- 4B. One coil, two ignition system (See wiring diagram at the bottom of Page 18.):
 - Connect both brown wires to the coil's negative (-) terminal.
 - Connect the coil's positive (+) terminal to the bottom center terminal of the double-pole (minimum rating of 6 amps DC) toggle switch, (yellow #3).
 - Connect the double-pole switch's top center terminal to the ignition switch with a red wire (red #3).
 - Attach both yellow wires to the two bottom terminals on the toggle switch.
 - Attach both red wires to the two top terminals on the double-pole switch.
 - Splice both orange wires to the single white wire coming from the distributor.
 - Splice both purple wires to the single black wire coming from the distributor.
5. Splice both green wires to the one Tachometer signal lead.
6. Ground both black wires on the engine block.
7. Connect the ACCEL 300+'s flat and square connectors and reconnect the battery.

Wiring for Two Ignition Boxes with Two Ignition Coils (For highest reliability)



Wiring for Two Ignition Boxes With One Coil



TECHNICAL TIPS AND HINTS

Ignition Noise: Do not use solid core spark plug wires! High powered sparks and solid core spark plug wires creates RFI (Radio Interference). This noise causes feedback into the ignition system. Use ACCEL 300+ RACE WIRE, ACCEL 8.8 Spiral Core or ACCEL Super Stock Spiral Core spark plug wires. Spark plug wire looms will help avoid inductive power loss between spark plug wires.

Spark Plug Gap: For optimum performance, non-resistive type spark plugs are recommended. When used with the proper ignition coil (ACCEL part No. 140009) the ACCEL 300+'s high voltage output allows you open spark plug gaps wider. Gap spark plugs to .040" for 12 : 1 compression, and .050" (or more) for lower compression motors. If missing occurs close gaps until the miss goes away. Wide spark plug gaps expose more air/fuel mixture to the sparks, creating a bigger flame kernel and helps to eliminate flame quenching at the plug's electrodes.

Ignition Timing: Do not use normal ignition timing. Hot sparks start combustion faster, more evenly, and give higher pressures after TDC. Retard timing by about 4° at first, and check the plugs for detonation. Advance the timing in 1° increments and checking the plugs each time.

Coil Selection: Do not use the Accel SuperCoil (140001) with this ignition. Use the 140009 Coil for street or long duration racing. Use the 140010 Coil for Drag Racing but do not use it for more than fifteen minutes at a time.

Alternators and Batteries: Do not use this ignition box on 24 volt systems. Your ACCEL 300+ draws less power from your electrical system than any other high output system. Street cars will start more easily and racing cars can use smaller batteries. Cars running with no alternator will run stronger and longer between battery charges.

Dynamometer Tuning

Although dyno tuning is recommend, you may utilize a more 'seat-of-the-pants method. Use a spark plug loupe to look for tiny purple beads (indicating detonation) on the spark plug insulators. Spark plug tips should be dry. Exhaust pipe ash should be grey and dry.

Do not expect huge horsepower gains. Ignition does not deliver more chemical energy to the combustion process. Hotter ignition starts the process faster. This gives you higher pressure after TDC. Look for the gains in higher Torque and in faster throttle response.

- Do an accurate dyno run to establish a baseline.
- Install the ACCEL 300+ and establish a new baseline. You may see gains now or not.
- Adjust spark gaps and fuel ratio (no richer than 12.5:1 on gasoline), and retard timing.
- Make successive runs, adjusting the three variables one at a time. Plot the trends.
- Average the results and compare them against the original baselines.
- Test INTELLIGENT REV-LIMITING. Start at a low rev-limit.

Technical Specifications

Primary Voltage:	600v	Rev-limit range:	4,500-12,000 RPM (250 RPM increments)
Volts in:	8-18 vdc	Compatibility:	All tachometers that accept a 12 volt signal.
Energy stored:	1,500 mJoules/Sequence	Triggering:	Magnetic pickup, points, breakerless, or electronic transistorized ignition.
Spark duration:	100-500 uSec.	Reliability:	Epoxy encapsulated for heat dissipation vibration, and moisture resistance.
Size:	4.25 x 3.125 x 2 ins		
Weight:	2.5 lbs		
Maximum RPMs:	14,000 RPM (8 cylinders)		
Max. Input current:	6.0 amps.		
Discharge current:	30-100 ams into cil.		

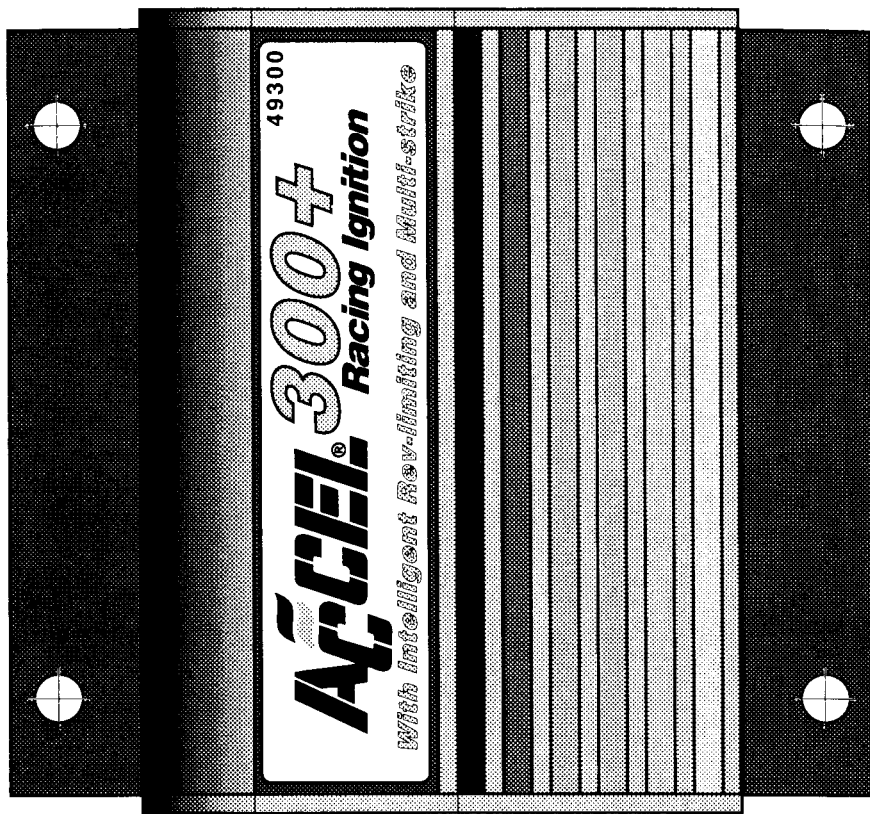
Locate the box in a cool place:

- In front of the engine compartment

• On (or under) the dashboard

- Inside one of the fenders

The Rev-limit Controls are behind the side panel with the wires. Allow yourself enough overhead and side clearance for good access to the rev-limiting DIP-Switches inside. Place this template on as flat a surface as possible. Punch through the cross-hairs with a steel punch and then drill four #10 clearance holes. If wiring through the firewall - drill a hole and use a rubber grommet to protect the wires from abrasion.



WARRANTY REGISTRATION MAIL-IN

Name _____ Age _____ Date Purchased _____

Address _____

City _____ State _____ Zip _____

ACCEL Product Purchased _____ Part # _____

Make of Car _____ Year _____ State _____ Lic Plate # _____

THE ABOVE SECTION MUST BE COMPLETED TO VALIDATE WARRANTY

Occupation _____

This was a PURCHASE or a GIFT? _____ Purchased from _____

Automotive events you attend _____

Do you attend as a (Spectator / Competitor / Crew / Event Staff)? _____

How did you hear about this product? _____

8700 Brookpark Rd., Cleveland, OH 44129