

Chrysler/Force Troubleshooting

Capacitive Discharge Module with Alternator
(ADI – Alternator Driven Ignition)

Three and Four Cylinder Engines Using Separate Switch Boxes and Ignition Coils (Continued)

NO FIRE OR INTERMITTENT ON ONE CYLINDER:

- Check the stator and trigger resistance; the trigger wire sets should read approximately 50 ohms between the wire sets (DVA-5V or more), the stator should read 680-800 ohms (factory) and 250-350 ohms (CDI/RAPAIR) DVA 180V or more from blue to yellow.
- If readings are good, disconnect the kill wire from one pack. If the dead cylinder starts firing, the problem is likely the blocking diode in the opposite pack.

NO FIRE ON TWO CYLINDERS:

If two cylinders from the same CD unit will not fire, the problem is usually in the stator. Test per above.

ENGINE WILL NOT SHUT OFF:

Check the kill circuit in the pack by using a jumper wire connected to the kill wire coming out of the pack and shorting it to ground. If this kills the pack, the kill circuit in the harness or on the boat is bad, the ignition switch could also be bad.

COILS ONLY FIRE WITH THE SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

HIGH SPEED MISS:

- Using the Fluke meter with the 511-9773 peak reading adapter, (or CD-77) and 511-9770 piercing probes, DVA check stator voltage to each pack at high speed. If it exceeds 400 volts, replace the pack.
- Disconnect the rectifier. If the engine fires, replace the rectifier.

Connections: 2 & 3 cylinder			
Pack #1 (Firing #1 and #2 cylinders)			
Trigger:	Orange Green Orange(or Red) Green	Pack:	Orange Green Red White/green stripe
Stator:	Yellow Blue	Pack:	Yellow Blue
Coil #1:	White	Pack:	Orange
Coil #2:	White	Pack:	Red
Pack #2 (Firing #3 cylinder)			
Trigger:	Red White/green stripe	Pack:	Red White/green stripe
Stator:	Yellow Blue (must be connected to the blue and brown/blue stripe on pack 1)	Pack:	Blue
Coil #3:	White	Pack:	Red
Connections: 4 cylinder			
Pack #1 (Firing #1 and #2 cylinders)			
Trigger:	Orange Green Red White/green stripe	Pack:	Orange Green Red White/green stripe
Stator:	Yellow Blue	Pack:	Yellow Blue
Coil #1:	White	Pack:	Orange
Coil #2:	White	Pack:	Red
Pack #2 (Firing #3 and #4 cylinders)			
Trigger:	Orange Green Red White/green stripe	Pack:	Orange stripe Green Red White/green stripe
Stator:	Yellow Blue	Pack:	Yellow Blue
Coil #3:	White	Pack:	Orange
Coil #4:	White	Pack:	Red

Force Troubleshooting Prestolite ADI Ignitions 1984-1992

General

1. Check for broken wires and terminals, especially inside the plastic plug-in connectors. We recommend that you remove the pins from the connectors using the CDI **511-9706** pin removal tool and visually inspect them.
2. Check the flywheel for a broken or loose magnet.
3. Disconnect the kill wires from the CD and connect a DC voltmeter between the kill wires and engine ground, turn the ignition switch on and off several times. If, at any time, you see voltage appearing on the meter, there is a problem in the harness or ignition switch. At NO TIME SHOULD YOU SEE BATTERY VOLTAGE ON A KILL CIRCUIT.
4. Visually inspect stator for burned or discolored areas. If found, replace the stator. If the areas are on the battery charge windings, it indicates a possible problem with the rectifier.

IF NO FIRE ON ANY CYLINDER:

1. Disconnect the kill wire AT THE PACK.
2. Check for broken or bare wires on the unit, stator and trigger.
3. Using the Fluke meter with the 511-9773 peak reading adapter, or CD-77 and 511-9770 piercing probes, measure DVA voltage of the stator between the output wire sets. With everything connected, readings should be approximately 180 volts or more. Resistance readings between the stator wire sets range from 680 – 800 ohms (factory) and 250-350 ohms (CDI/RAPAIR).
4. Disconnect the rectifier. If the engine fires, replace the rectifier.

NO FIRE OR INTERMITTENT FIRE ON ONE CYLINDER:

1. Check the stator and trigger resistance; the trigger wire sets should read approximately 50 ohms between the wire sets (DVA-5V or more), the stator should read 680-800 ohms (factory) and 250-350 ohms (CDI/RAPAIR) DVA 180V or more from blue to yellow.
2. If readings are good, disconnect kill wire from one pack. If the dead cylinder starts firing, the problem is likely the blocking diode in the opposite pack.

NO FIRE ON TWO CYLINDERS:

If two cylinders from the same CD unit will not fire, the problem is usually in the stator. Test per above.

ENGINE WILL NOT SHUT OFF:

Check the kill circuit in the pack by using a jumper wire connected to the kill wire coming out of the pack and shorting it to ground. If this kills the pack, the kill circuit in the harness or on the boat is bad, the ignition switch could also be bad.

COILS ONLY FIRE WITH THE SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

HIGH SPEED MISS:

1. Using the Fluke meter with the 511-9773 peak reading adapter, (or CD-77) and 511-9770 piercing probes, DVA check stator voltage to each pack at high speed. If it exceeds 400 volts, replace the pack.
2. Disconnect the rectifier. If the engine fires, replace the rectifier.

Two Cylinder Engines with Combination CD Module with Built-in Ignition Coils (1984-1988)

NO FIRE OR INTERMITTENT ON ONE CYLINDER:

1. Check the stator resistance; you should read 680-800 ohms (factory) and 250-350 ohms (CDI/RAPAIR) DVA 180V or more from blue to yellow (Note – On some two cylinder engines, the stator has two blue wires and no yellow wire. The stator will read from blue to blue). All stator wires should read open to engine ground.
2. Check the trigger resistance; trigger wire sets read approximately 50 ohms between the wire sets (DVA-5V or more), and open to engine ground.
3. If readings are good, disconnect kill wire from one pack. If the dead cylinder starts firing, the problem is likely the blocking diode in the opposite pack.

ENGINE WILL NOT KILL:

Check the kill circuit in the pack by using a jumper wire connected to the kill wire coming out of the pack and shorting it to ground. If this kills the pack, the kill circuit in the harness or on the boat is bad, the ignition switch could also be bad.

Force Troubleshooting

Prestolite ADI Ignitions 1984-1992

Two Cylinder Engines Using Separate Switch Boxes and Ignition Coils

1. Disconnect the kill wires from the CD and connect a DC voltmeter between the kill wires and engine ground, turn the ignition switch on and off several times. If, at any time, you see voltage appearing on the meter, there is a problem in the harness or ignition switch. At NO TIME SHOULD YOU SEE BATTERY VOLTAGE ON A KILL CIRCUIT.
2. Check the flywheel for a broken or loose magnet.
3. Check for broken wires and terminals, especially inside the plastic plug-in connectors. We recommend that you remove the pins from the connectors using the CDI **511-9706** pin removal tool and visually inspect them.
4. Visually inspect the stator for burned or discolored areas. If found, replace the stator. If the areas are on the battery charge windings, it indicates a possible problem with the rectifier.

IF NO FIRE ON EITHER CYLINDER:

1. Disconnect all kill wires AT THE PACK.
2. Check for broken or bare wires on the switch box, stator and trigger.
3. Using the Fluke meter with the 511-9773 peak reading adapter, or CD-77 and 511-9770 piercing probes, measure DVA voltage of the stator between the output wire sets. With everything connected, readings should be approximately 180 volts or more. Resistance readings between the stator wire sets range from 680 – 800 ohms (factory) and 250-350 ohms (CDI/RAPAIR).
4. Disconnect the rectifier. If the engine fires, replace the rectifier.

NO FIRE OR INTERMITTENT ON ONE CYLINDER:

1. Check the stator resistance; you should read 680-800 ohms (factory) and 250-350 ohms (CDI/RAPAIR) DVA 180V or more from blue to yellow (Note – On some two cylinder engines, the stator has two blue wires and no yellow wire. The stator will read from blue to blue). All stator wires should read open to engine ground.
2. Check the trigger resistance, trigger wire sets read approximately 50 ohms between the wire sets (DVA-5V or more), and open to engine ground.
3. If readings are good, disconnect the kill wire from one pack. If the dead cylinder starts firing, the problem is likely the blocking diode in the other pack.

ENGINE WILL NOT SHUT OFF:

Check the kill circuit in the pack by using a jumper wire connected to the white kill wire coming out of the pack and shorting it to ground. If this kills all fire from the pack, the kill circuit in the harness or on the boat is bad. The ignition switch could also be bad.

COILS ONLY FIRE WITH THE SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

HIGH SPEED MISS:

1. Using the Fluke meter with the 511-9773 peak reading adapter, (or CD-77) and 511-9770 piercing probes, DVA check stator voltage to each pack at high speed. If it exceeds 400 volts, replace the pack.
2. Disconnect the rectifier. If the engine fires, replace the rectifier.
3. Check for broken wires and terminals, especially inside the plastic plug-in connectors. We recommend that you remove the pins from the connectors using the CDI **511-9706** pin removal tool and visually inspect them.
4. Check the flywheel for a broken or loose magnet.
5. Disconnect the kill wires from the CD and connect a DC voltmeter between the kill wires and engine ground, turn the ignition switch on and off several times. If, at any time, you see voltage appearing on the meter, there is a problem in the harness or ignition switch. At NO TIME SHOULD YOU SEE BATTERY VOLTAGE ON A KILL CIRCUIT.
6. Visually inspect the stator for burned or discolored areas. If found, replace the stator. If the areas are on the battery charge windings, it indicates a possible problem with the rectifier.

Three and Four Cylinder Engines Using Separate Switch Boxes and Ignition Coils

IF NO FIRE ON ANY CYLINDER:

1. Disconnect the kill wire AT THE PACK.
2. Check for broken or bare wires on the unit, stator and trigger.
3. Using the Fluke meter with the 511-9773 peak reading adapter, or CD-77 and 511-9770 piercing probes, measure DVA voltage of the stator between the output wire sets. With everything connected, readings should be approximately 180 volts or more. Resistance readings between the stator wire sets range from 680 – 800 ohms (factory) and 250-350 ohms (CDI/RAPAIR).
4. Disconnect the rectifier. If the engine fires, replace the rectifier.

NO FIRE OR INTERMITTENT ON ONE CYLINDER:

1. Check the stator and trigger resistance; trigger wire sets should read approximately 50 ohms between the wire sets (DVA-5V or more), the stator should read 680-800 ohms (factory) and 250-350 ohms (CDI/RAPAIR) DVA 180V or more from blue to yellow.
2. If readings are good, disconnect kill wire from one pack. If the dead cylinder starts firing, the problem is likely the blocking diode in the opposite pack.

Force Troubleshooting Prestolite ADI Ignitions 1984-1992

Three and Four Cylinder Engines Using Separate Switch Boxes and Ignition Coils (Continued)

NO FIRE ON TWO CYLINDERS:

If two cylinders from the same CD unit will not fire, the problem is usually in the stator. Test per above.

ENGINE WILL NOT SHUT OFF:

Check the kill circuit in the pack by using a jumper wire connected to the kill wire coming out of the pack and shorting it to ground. If this kills the pack, the kill circuit in the harness or on the boat is bad. The ignition switch could also be bad.

COILS ONLY FIRE WITH THE SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

HIGH SPEED MISS:

1. Using the Fluke meter with the 511-9773 peak reading adapter, (or CD-77) and 511-9770 piercing probes, DVA check stator voltage to each pack at high speed. If it exceeds 400 volts, replace the pack.
2. Disconnect the rectifier. If the engine fires, replace the rectifier.

Connections: 2 & 3 cylinder

Pack #1 (Firing #1 and #2 cylinders)

Trigger: Orange
Green
Orange(or Red)
Green

Stator: Yellow
Blue (both)

Coil #1: White
Coil #2: White

Pack: White/Orange Stripe
White/Yellow Stripe
White/Red Stripe
White/Green Stripe

Pack: Brown/Yellow Stripe
Brown/Blue Stripe

Pack: Orange/Blue Stripe or Blue/Orange Stripe
Pack: Blue/Red Stripe

Pack #2 (Firing #3 cylinder)

Trigger: Red
White/Green stripe

Stator: Yellow
Blue (must be connected to the Blue and Brown/Blue Stripe on pack 1)

Coil #3: White

Pack: White/Red Stripe
White/Green Stripe

Pack: Brown/Blue Stripe

Pack: Blue/Red Stripe

Connections: 4 Cylinder

Pack #1 (Firing #1 and #2 cylinders)

Trigger: Orange
Green
Red
White/Green

Stator: Yellow
Blue

Coil #1: White
Coil #2: White

Pack: White/Orange Stripe
White/Yellow Stripe
White/Red Stripe
White/Green Stripe

Pack: Brown/Yellow Stripe
Brown/Blue Stripe

Pack: Orange/Blue Stripe or Blue/Orange Stripe
Pack: Blue/Red Stripe

Pack #2 (Firing #3 and #4 cylinders)

Trigger: Orange
Green
Red
White/Green

Stator: Yellow
Blue

Coil #3: White
Coil #4: White

Pack: White/Orange Stripe
White/Yellow Stripe
White/Red Stripe
White/Green Stripe

Pack: Brown/Yellow Stripe
Brown/Blue Stripe

Pack: Orange/Blue Stripe or Blue/Orange stripe
Pack: Blue/Red Stripe

Force Troubleshooting

Prestolite ADI Ignitions 1984-1992

Engines Using Separate Switch Boxes and Ignition Coils (Continued)

Connections: 5 Cylinder

Pack #1 (Firing #1 and #2 cylinders)

Trigger: Orange
Green
Red
White/Green

Stator: Yellow
Blue

Coil #1: White
Coil #2: White

Pack: White/Orange Stripe
White/Yellow Stripe
White/Red Stripe
White/Green Stripe

Pack: Brown/Yellow Stripe
Brown/Blue Stripe

Pack: Orange/Blue Stripe or Blue/Orange Stripe
Pack: Blue/Red Stripe

Pack #2 (Firing #5 cylinder)

Trigger: Red
White/Green

Stator: Yellow
Blue (must be connected to the blue and brown/blue stripe on pack 1)
Coil #5: White

Pack: White/Red Stripe
White/Green Stripe

Pack: Brown/blue stripe
Pack: Blue/red stripe

Pack #3 (Firing #3 and #4 cylinders)

Trigger: Orange
Green
Red
White/Green

Stator: Yellow
Blue

Coil #3: White
Coil #4: White

Pack: White/Orange Stripe
White/Yellow Stripe
White/Red Stripe
White/Green Stripe

Pack: Brown/Yellow Stripe
Brown/Blue Stripe

Pack: Orange/Blue Stripe or Blue/Orange stripe
Pack: Blue/Red Stripe

NOTICE: The color codes listed above may appear on the packs, stators or triggers. Some packs have solid colors and some triggers have striped wires. If you need further assistance, please call our technical support department.

5 Cylinder with Single Switch Box (1991-1992)

NOTE: This engine uses a battery powered inverter box to provide 250V power to the switch box. The inverter is in a 332-4797 CD module case. This unit is easily identified as the inverter has four terminals instead of the seven used on the 332-4797 CD module. The original stator's only function is to charge the battery. CDI Electronics offers a replacement for the inverter, which has high voltage output in addition to the battery charging output.

No Fire on Any Cylinder:

1. Check the red wire from the battery at cranking; minimum voltage is 9.5V.
2. Check the DVA voltage on the purple/white terminal at cranking. A minimum of 0.3V is needed to trigger the inverter box. If the voltage is low, check the DVA voltage from the white/black trigger to the yellow, black, brown, white and purple trigger wires. If you read 4V or more, the inverter box is likely bad.
3. Check the DVA voltage on the blue terminal at cranking, reading should be approximately 250V.
4. *CDI Electronics replacement stator only:* Check the DVA output and resistance from the blue wire to engine ground. You should read a minimum of 160V DVA and 80 ohms resistance.

No Fire on One Cylinder:

Check the DVA voltage from the white/black trigger to the yellow, black, brown, white and purple trigger wires. If you read 4V or more, the trigger is likely good.

Fires All Cylinders But Will Not Run:

Disconnect the white/black wire from the switch box and check the resistance from the switch box's white/black wire to engine ground. The reading should be approximately 8400 ohms. A low reading indicates a bad bias circuit and the switch box needs replacing.

Force Troubleshooting Mercury Designed Ignitions (1992-1999)

Two Cylinder Engines Using a Separate Switch Box and Ignition Coils

No Fire At All:

1. Disconnect the black/yellow kill wire AT THE PACK and retest. If the engine's ignition fires, the kill circuit has a fault-check the key switch, harness and shift-switch.
2. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
3. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.
4. Check the stator resistance and DVA output as follows:

Black Stator

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
Blue	Blue/White	3250-3650	500-600	180V or more
Red	Red/White	75-90	28-32	25V or more

Red Stator

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more

Red Stator Adapter (Not Available from CDI)

WIRE	Read To	OEM RESISTANCE	DVA
Blue	Engine GND	OPEN	180V or more

No fire or Intermittent fire on One Cylinder:

1. If the cylinders are only misfiring above an idle, connect an inductive Tachometer to each cylinder in turn and try to isolate the problem cylinder.
2. Check the trigger resistance and DVA output as shown below:

Wire Color	Check To (Wire Color)	Resistance	DVA Reading
Brown wire	White wire	800-1400	4V or more Connected
Brown wire	Engine GND	Open	1V or more (*)
White wire	Engine GND	Open	1V or more (*)

(*) This reading can be used to determine if a pack has a problem in the triggering circuit. For instance, if you have no fire on one cylinder and the DVA trigger reading for that cylinder is low – disconnect the trigger wire and recheck the DVA output to ground from the trigger wire. If the reading stays low – the trigger is bad.

3. Check the DVA output on the green wires from the switch box while connected to the ignition coils. Check the reading on the switch box terminal AND on the ignition coil terminal. You should have a reading of at least 150V or more at both places. If the reading is low on one cylinder, disconnect the green wire from the ignition coil for that cylinder and reconnect it to a load resistor. Retest. If the reading is now good, the ignition coil is likely bad. A continued low reading indicates a bad power pack.

Engine will not rev beyond 3000-4000 RPM:

1. Connect an inductive Tachometer to each cylinder in turn and try to isolate the problem. A single cylinder dropping fire will likely be a bad switch box or ignition coil. All cylinders not firing properly usually indicates a bad stator.
2. Connect a DVA meter between the stator's Blue wire and Blue/White wires. Perform a running test. The DVA voltage should jump up to well over 200V and stabilize. A drop in voltage right before the problem occurs indicates a bad stator. (Blue to Engine GND if the engine has a Red stator kit installed).
3. Connect a DVA meter between the stator's Red wire and Red/White wires. The DVA voltage should show a smooth climb in voltage and remain high through the RPM range. A reading lower than on the Blue wire reading indicates a bad stator.

High Speed Miss:

1. Connect an inductive Tachometer to each cylinder in turn and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the switch box or ignition coil. Occasionally a trigger will cause this same problem. Check the trigger as described above under "*No fire or Intermittent Fire on One Cylinder*".
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracks or broken magnets.

Force Troubleshooting

Mercury Designed Ignitions

Two Cylinder Engines

1996-2000

Two Cylinder Engines Using a Combination Switch Box and Ignition Coil (CDM Modules)

No Fire At All:

1. Disconnect the black/yellow kill wires from the harness and retest. If the engine's ignition fires, the kill circuit has a fault- check the key switch, harness and shift switch.
2. Swap the White/Green and Green White stator wire and retest. If the problem moves to the other cylinder, the stator is likely bad.
3. Disconnect one CDM module at a time and using a set of piercing probes and jumper wires- short the stator and trigger wire in the CDM connector to engine ground. Retest. If the other module starts firing, the CDM you unplugged is bad.
4. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
5. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.
6. Check the stator resistance and DVA output as follows:

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more

7. Check the resistance of the CDM as follows:

	Red Meter Lead	Black Meter Lead	Reading
CDM Pin #	A	C	700-1300 Ohms
CDM Pin #	D	A	DIODE*
CDM Pin #	A	D	DIODE*
CDM Pin #	D	B	DIODE*
CDM Pin #	B	D	DIODE*
CDM Pin #	A	B	DIODE*
CDM Pin #	B	A	DIODE*
	High Tension Lead	A	700-1300 Ohms

* Diode readings are to be read one way, then reverse the leads and read again. You should get a low reading in one direction and a higher reading in the other.

No fire or Intermittent Fire on One Cylinder:

1. If the cylinders are only misfiring up above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.

2. Using a set of piercing probes, check the trigger DVA output as shown below:

Wire Color	Check To (Wire Color)	Resistance	DVA Reading
Brown wire	White wire	800-1400	3V or more
White wire	Engine GND	Open	1V or more
Brown wire	Engine GND	Open	1V or more

3. If # 1 is not firing, swap the White/Green and Green White stator wire and retest. If the problem moves to the #2 cylinder, the stator is likely bad. If no change, swap locations with #2 and see if the problem moves. If it does, the module is bad. A continued no fire on the same cylinder indicates a bad trigger.

4. Check the resistance of the CDM as follows:

	Red Meter Lead	Black Meter Lead	Reading
CDM Pin #	A	C	700-1300 Ohms
CDM Pin #	D	A	DIODE*
CDM Pin #	D	B	DIODE*
CDM Pin #	A	B	DIODE*
	High Tension Lead	A	700-1300 Ohms

* Diode readings are to be read one way, then reverse the leads and read again. You should get a low reading in one direction and a higher reading in the other.

High Speed Miss:

1. Connect an inductive Tachometer to each cylinder in turn and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the trigger or CDM module.
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracked or broken magnets.

Force Troubleshooting Mercury Designed Ignitions Three Cylinder Engines 1992-1996

Three Cylinder Engines Using a Single Switch Box and Three Ignition Coils

No Fire At All:

1. Disconnect the black/yellow kill wire AT THE PACK and retest. If the engine's ignition fires, the kill circuit has a fault- check the key switch, harness and shift switch.
2. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
3. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.
4. Check the stator resistance and DVA output as outlined below:

Black Stator				
WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
Blue	Engine GND	3250-3650	500-600	180V or more
Red	Engine GND	75-90	28-32	25V or more
Red Stator				
WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more
Red Stator Adapter (Not Available from CDI)				
WIRE	Read To	OEM RESISTANCE		DVA
Blue	Engine GND	OPEN		180V or more

No fire or Intermittent on One or More Cylinders:

1. If the cylinders are only misfiring above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.
2. Check the trigger resistance and DVA output as given below:

Wire Color	Check to Wire Color	Resistance	DVA Reading
Brown wire	White/Black	800-1400	4V or more Connected
White wire	White/Black	800-1400	4V or more Connected
Purple wire	White/Black	800-1400	4V or more Connected
Brown wire	Engine GND	Open	1V or more (*)
White wire	Engine GND	Open	1V or more (*)
Purple wire	Engine GND	Open	1V or more (*)

(*) This reading can be used to determine if a pack has a problem in the triggering circuit. For instance, if you have no fire on one cylinder and the DVA trigger reading for that cylinder is low – disconnect the trigger wire and recheck the DVA output to ground from the trigger wire. If the reading stays low – the trigger is bad.

4. Check the DVA output on the green wires from the switch box while connected to the ignition coils. Check the reading on the switch box terminal AND on the ignition coil terminal. You should have a reading of at least 150V or more at both places. If the reading is low on one cylinder, disconnect the green wire from the ignition coil for that cylinder and reconnect it to a load resistor. Retest. If the reading is now good, the ignition coil is likely bad. A continued low reading indicates a bad power pack.

Engine will not rev beyond 3000-4000 RPM:

1. Connect an inductive Tachometer to all cylinders and try to isolate the problem. A single cylinder dropping fire will likely be the switch box or ignition coil. All cylinders acting up usually indicate a bad stator.
2. Connect a DVA meter from the stator's blue wire to engine ground and do a running test. The DVA voltage should jump up to well over 200V and stabilize. A drop in voltage right before the problem occurs indicates a bad stator. (Check from the adapter's blue to engine ground if the engine has a red stator kit installed).
3. Connect a DVA meter to the Red wire. The DVA voltage should show a smooth climb in voltage and remain high through the RPM range. A reading lower than the blue wire reading indicates a bad stator.

High Speed Miss:

1. Connect an inductive Tachometer to all cylinders and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the switch box or ignition coil. Occasionally a trigger will cause this same problem. Check the trigger as described above under "No fire or Intermittent on One or More Cylinders".
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracks or broken magnets.

Force Troubleshooting Mercury Designed Ignitions Three Cylinder Engines 1996-2000

Three Cylinder Engines Using a Combination Switch Box and Ignition Coil (CDM Modules)

No Fire At All:

1. Disconnect the black/yellow kill wires from the harness and retest. If the engine's ignition fires, the kill circuit has a fault-check the key switch, harness and shift switch.
2. Disconnect one CDM module at a time and see if the other modules start firing. If they do, the module you just unplugged is bad.
3. If the bottom two are not firing, swap the connection between the top and middle cylinder. If the middle cylinder starts firing, replace the top CDM.
4. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
5. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.
6. Check the stator resistance and DVA output as given below:

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more

7. Check the resistance of the CDM as follows:

	Red Meter Lead	Black Meter Lead	Reading
CDM Pin #	A	C	700-1300 Ohms
CDM Pin #	D	A	DIODE*
CDM Pin #	A	D	DIODE*
CDM Pin #	D	B	DIODE*
CDM Pin #	B	D	DIODE*
CDM Pin #	A	B	DIODE*
CDM Pin #	B	A	DIODE*
	High Tension Lead	A	700-1300 Ohms

* Diode readings are to be read one way, then reverse the leads and read again. You should get a low reading in one direction and a higher reading in the other.

No fire or Intermittent on One or More Cylinders:

1. If the cylinders are only misfiring above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.
2. Using a set of piercing probes, check the trigger DVA output as shown below:

Wire Color	Check to Wire Color	Resistance	DVA Reading
Purple wire	Engine GND	Open	3V or more
White wire	Engine GND	Open	3V or more
Brown wire	Engine GND	Open	3V or more

NOTE: These triggers have the bias circuitry internally built-in, therefore you cannot measure the resistance like you can measure on the older engines. In addition, these engines use four triggering coils versus the two triggering coils used on the older engines.

3. If # 1 is not firing, disconnect the #2 CDM module and see if the #1 module starts firing. If it does, the module you just unplugged is bad. If it does not, disconnect the #3 CDM module and see if the #1 module starts firing. If it does, the module you just unplugged is bad.
4. If there is no fire on either # 2 or #3, swap locations with #1 and see if the problem moves. If it does, the module is bad. A continued no fire on the same cylinder indicates a bad trigger.

High Speed Miss:

1. Connect an inductive Tachometer to all cylinders and try to isolate the problem. A high variance in RPM on one cylinder indicates a problem usually in the trigger or CDM module.
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracks or broken magnets.

Four Cylinder Engines (1991-1996)

Four Cylinder Engines Using a Single Switch Box and Four Ignition Coils

No Fire At All:

1. Disconnect the black/yellow kill wires AT THE PACK and retest. If the engine's ignition fires, the kill circuit has a fault-check the key switch, harness and shift switch.
2. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
3. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.

Force Troubleshooting Mercury Designed Ignitions

Four Cylinder Engines Using a Single Switch Box and Four Ignition Coils (Continued)

4. Check the stator resistance and DVA output as given below:

Flex-plate Flywheel

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
Blue	Blue/White	5000-7000	2200-2400	180V or more
Red	Red/White	125-155	45-55	25V or more

Cast, Vented Flywheel

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
Blue	Blue/White	3250-3650	500-600	180V or more
Red	Red/White	75-90	28-32	25V or more

Red Stator

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more

Red Stator Adapter (Not Available from CDI)

WIRE	Read To	OEM RESISTANCE	DVA
Blue	Blue	OPEN	180V or more
Blue (Each)	Ground	OPEN	180V or more

No fire or Intermittent on One or More Cylinders:

- If the cylinders are only acting up above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.
- Check the trigger resistance and DVA output as given below:

Wire Color	Check to Wire Color	Resistance	DVA Reading
Purple wire	White wire	800-1400	4V or more Connected
Brown wire	White/Black wire	800-1400	4V or more Connected
Purple wire	Engine GND	Open	1V or more (*)
White wire	Engine GND	Open	1V or more (*)
Brown wire	Engine GND	Open	1V or more (*)
White/Black wire	Engine GND	Open	1V or more (*)

(*) This reading can be used to determine if a pack has a problem in the triggering circuit. For instance, if you have no fire on one cylinder and the DVA trigger reading for that cylinder is low – disconnect the trigger wire and recheck the DVA output to ground from the trigger wire. If the reading stays low – the trigger is bad.

Note: If #1 and #2, or #3 and #4 are misfiring, check the trigger as described above. The trigger uses two coils to fire four cylinders. #1 & 2 share one trigger coil and #3 & 4 share the other trigger coil. Also, the switch box is divided into two parts. The #1 and #2 cylinders fire on one half, and #3 and #4 fire on the other half of the switch box. If the trigger tests fine by the chart above, but you have two cylinders not firing (either #1 and #2 or #3 and #4), the switch box or stator is bad.

- If you have two cylinders not firing (either #1 or #2 or #3 and #4), swap the stator leads end to end on the switch box (Red with red/white and blue with blue/white). If the problem moved to the other cylinders, the stator is bad. If the problem stayed on the same cylinders, the switch box is likely bad.
- Check the DVA output on the green wires from the switch box while connected to the ignition coils. Check the reading on the switch box terminal AND on the ignition coil terminal. You should have a reading of at least 150V or more at both terminals. If the reading is low on one cylinder, disconnect the green wire from the ignition coil for that cylinder and reconnect it to a load resistor. Retest. If the reading is now good, the ignition coil is likely bad. A continued low reading indicates a bad power pack.

Engine will not rev beyond 3000-4000 RPM:

- Connect an inductive Tachometer to all cylinders and try to isolate the problem. If two cylinders on the same end of the switch box are dropping out, the problem is likely going to be either the switch box or trigger. A single cylinder dropping fire will likely be the trigger, switch box or ignition coil. All cylinders misfiring usually indicate a bad stator.
- Connect a DVA meter to the stator's blue wire and blue/white wires and do a running test. The DVA voltage should jump up to well over 200V and stabilize. A drop in voltage right before the problem occurs indicates a bad stator. (Note: Check between the adapter's blue wires if the engine has a red stator kit installed).

Force Troubleshooting Mercury Designed Ignitions

Four Cylinder Engines Using a Single Switch Box and Four Ignition Coils (Continued)

3. Connect a DVA meter between the Red wire and Red/White wire and do a running test. The DVA voltage should show a smooth climb in voltage and remain high through the RPM range. A reading lower than the reading on the blue wires indicates a bad stator.

High Speed Miss:

1. Connect an inductive Tachometer to all cylinders and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the switch box or ignition coil. Occasionally a trigger will cause this same problem. Check the trigger as described above under “*No fire or Intermittent on One or More Cylinders*”.
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracks or broken magnets.

Four Cylinder Engines 1996-2000

Four Cylinder Engines Using a Combination Switch Box and Ignition Coil (CDM Modules)

No Fire At All:

1. Disconnect the black/yellow kill wires from the harness and RPM Limiter. Retest. If the engine's ignition fires, the kill circuit has a fault-check the key switch, harness and shift switch.
2. Disconnect the yellow wires from the stator to the rectifier and retest. If the engine fires, replace the rectifier.
3. Check the cranking RPM. A cranking speed less than 250-RPM will not allow the system to fire properly.
4. Check the stator resistance and DVA output as given below:

WIRE	Read To	OEM RESISTANCE	CDI RESISTANCE	DVA
White/Green	Green/White	500-700	500-600	180V or more

5. Check the resistance of the CDM as follows:

	Red Meter Lead	Black Meter Lead	Reading
CDM Pin #	A	C	700-1300 Ohms
CDM Pin #	D	A	DIODE*
CDM Pin #	A	D	DIODE*
CDM Pin #	D	B	DIODE*
CDM Pin #	B	D	DIODE*
CDM Pin #	A	B	DIODE*
CDM Pin #	B	A	DIODE*
	High Tension Lead	A	700-1300 Ohms

Note: Diode readings are to be read one way, then reverse the leads and read again. You should get a low reading in one direction and a higher reading in the other.

No fire or Intermittent on One or More Cylinders:

1. If the cylinders are only misfiring above an idle, connect an inductive RPM meter to all cylinders and try to isolate the problem cylinders.
2. Using a set of piercing probes, check the trigger DVA output as given below:

Wire Color	Check to Wire Color	Resistance	DVA Reading
Purple wire	Engine GND	Open	3V or more
White wire	Engine GND	Open	3V or more
Brown wire	Engine GND	Open	3V or more
White/Black wire	Engine GND	Open	3V or more

NOTE: These triggers have the bias circuitry internally built-in, therefore you cannot measure the resistance like you can measure on the older engines. In addition, these engines use four triggering coils versus the two triggering coils used on the older engines.

3. Disconnect one of the CDM modules that are firing one at a time and see if the dead CDM starts firing. If it does, the CDM you just unplugged is bad.

High Speed Miss:

1. Connect an inductive RPM meter to all cylinders and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the switch box or ignition coil. Occasionally a trigger will cause this same problem. Check the trigger as described above under “*No fire or Intermittent on One or More Cylinders*”.
2. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
3. Remove the flywheel and check the triggering and charge coil flywheel magnets for cracks or broken magnets.