



TE020

Ignition Coil

Tester

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Safety Precautions

To prevent accidents that could possibly result in serious injury and/or damage to vehicles and/or test equipment, carefully observe all safety rules and test procedures when working on vehicles.

1. When the engine is running, it produces carbon monoxide, a toxic and poisonous gas. Always operate the vehicle in a well ventilated area. Do not breathe exhaust gases – they are hazardous that can lead to death if inhaled in excessive amount.
2. Fuel and battery vapors are highly flammable. **DO NOT SMOKE NEAR THE VEHICLE DURING TESTING**
3. Before starting the engine for testing or trouble shooting, always make sure the parking brakes are firmly engaged. Put the transmission in Park (automatic transmission) and Neutral (manual transmission).
4. Always block the drive wheels. Never leave vehicle unattended while testing.
5. Engine parts become very hot when the engine has been run for a while even though it was switched OFF. To prevent severe burns, avoid contact with hot engine parts.
6. Never lay tools on vehicle battery. You may short the terminals together causing harm to yourself, the tools or the battery.
7. When the engine is running, be cautious when working around the ignition coil, distributor cap, ignition wires and spark plugs. They are **HIGH VOLTAGE** components that can cause electrical Shock.
8. Always keep a fire extinguisher readily available and easily accessible in the workshop

Precautions to be taken during usage

1. Do not operate the Ignition Coil Tester for more than 5 minutes on the coil being tested to avoid over heating and damage it.
2. Spark gap distance of the Spark Tester needs to be adjusted according to the type of the coil. The higher the engine cylinder capacity, the bigger the gap distances are.
3. Use only 12VDC power supply - which can be powered either by the car battery or external 12VDC power source when doing tests on the work bench.
4. The described testing procedures in this manual are for references only. Always refer to the Car Service manuals for better information.
5. Always turn the ignition speed adjustment knob to the lowest speed before connecting or disconnecting the signal cable to the coil.
6. Always check the hook up connections again to ensure that it was correctly connected before applying power.

Functions

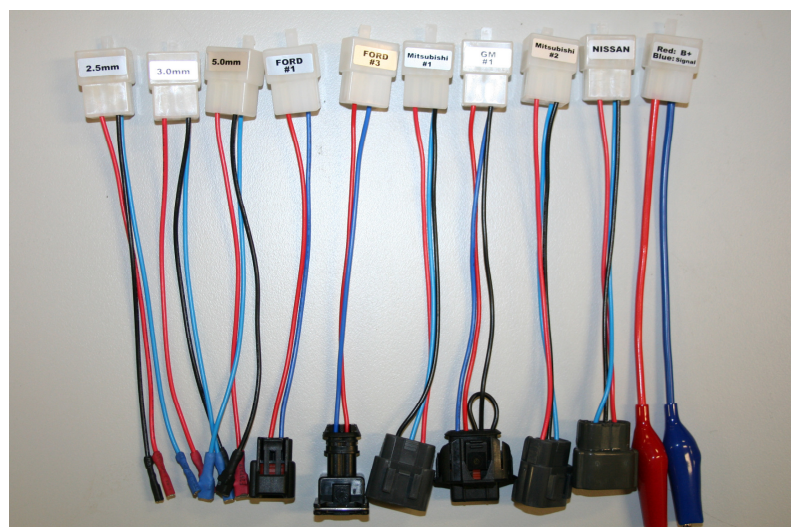


1. Power LED indicator (RED). This red LED lights up when 12VDC is supplied to the unit.
2. Ignition speed adjustment knob. To increase the simulated ignition speed, turn the knob to clockwise direction. Likewise turn to counter clockwise will reduce the speed. Adjustable speed ranges from 180 – 12,000 RPM.
3. Power input socket. When the 12VDC power is plugged into this socket, the unit powers up and the red LED indicators will light up.
4. Power supply cable with battery terminal clips. Clip this cable to the battery terminals to supply power to the unit. (Red clip to positive (+) and Black clip to negative (-) of the battery terminals)
5. Ignition speed LED indicator (GREEN). This green LED will light up after self test for about 2 seconds

General

The TE020 comes with several adapters to suit a number of different coil types. This allows direct connection to the coil and simplifies operation, by providing the necessary grounds, Triggers and power supplies.

Please select the correct connector plug for the vehicle. If the correct connector plug is not available, use the Red and blue alligator clips ,or the 2.5mm 3.0mm or 5.0mm adapters to connect to the coil. Always refer to the vehicle service manual for the correct coil connections.



Operation

Single Ignition Coil System

Example: General

1. Switch the ignition key to 'Off' position
2. Unplug the high tension ignition coil cable from the distributor cap and connect it to the Spark Tester. Set the Spark Tester gap to 10 ~ 15 mm and connect the other end with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the tester's speed adjustment knob is turned to the extreme left (minimum), connect the coil tester's power supply clips to the battery terminals [Red to positive (+), Black to negative (-)].
4. When the power is connected, the tester's red power LED indicator lights up. The unit will run through a Self-test for about 2 seconds and the green LED will lights up.



5. Select the adapter cable from the Kit that has the Red and Blue wires with Alligator clips. Testing on Car:

a/- Disconnect the trigger wire to the negative side of the coil.

b/-Connect the blue wire to the negative side of the coil.(Do not connect the Red wire)

c/-Turn ignition on

Testing on Bench:

a/- Connect the blue wire to the negative side of the coil.

b/-Connect the red (power) wire to the Coil positive.

c/-If the vehicle has a voltage dropping resistor in circuit , this also needs to be connected on the bench between the Red wire (Power) and the coil supply (+)



6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.
7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.
9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.



10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.

12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe around the coil body to see whether there is any voltage leakage or not.

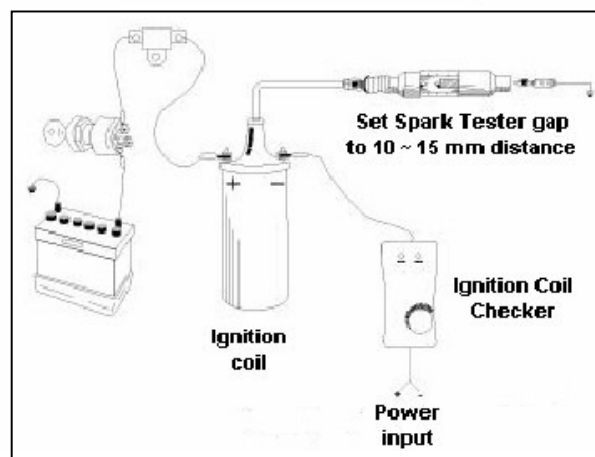


TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.



15. If everything is normal, turn down the ignition speed adjustment
16. After checking procedures has finished and there is a need to disconnect the tester, first turn the ignition key to the off position or disconnect the 12VDC power from the tester and then remove the connections and put them back safely into the carry case.



Single Ignition Coil System

Example: Bosch 2 pin plug (Ford EA – EL)

1. Switch the ignition key to 'Off' position
2. Unplug the high tension ignition coil cable from the distributor cap and connect it to the Spark Tester. Set the Spark Tester gap to 10 ~ 15 mm and connect the other end with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the tester's speed adjustment knob is turned to the extreme left (minimum), connect the coil tester's power supply clips to the battery terminals [Red to positive (+), Black to negative (-)].
4. When the power is connected, the tester's red power LED indicator lights up. The unit will run through a Self-test for about 2 seconds and the green LED will lights up.
5. Select the adapter cable Ford #3 from the Kit and connect to the ignition coil.



6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.
7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.
9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.
10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.
12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe around the coil body to see whether there is any voltage leakage or not.



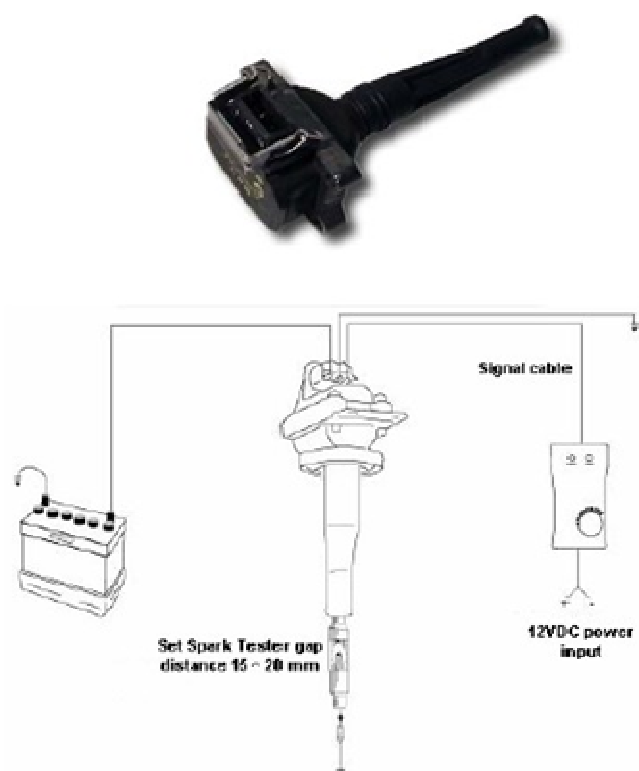
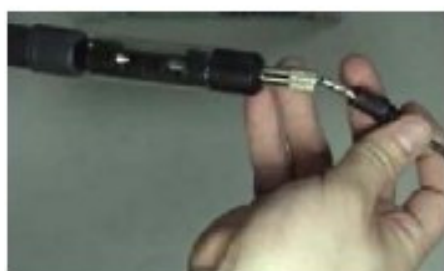
TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.
15. If everything is normal, turn down the ignition speed adjustment
16. After checking procedures has finished and there is a need to disconnect the tester, first turn the ignition key to the off position or disconnect the 12VDC power from the tester and then remove the connections and put them back safely into the carry case.

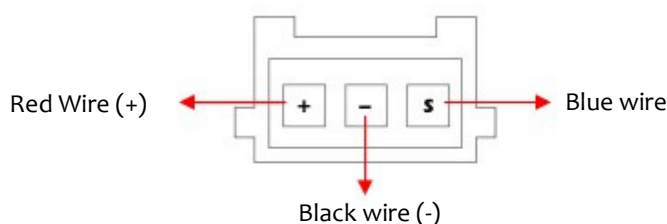
Coil – On – Plug (COP) System

Example: BMW 520 (E34) – Year 1995 or other similar ignition system.

1. Switch the ignition key to 'OFF' position
2. Unplug and remove the ignition coil from the engine. Plug the Spark Tester to the coil. Set the Spark Tester gap to 15 ~ 20mm and connect its end with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the testers speed adjustment knob is turned to the extreme left (minimum), connect the coil tester power supply clips to the battery terminals (Red to positive, Black to negative).
4. When the power is connected, the testers red power LED indicator lights up. The unit will run through a Self Test for about 2 seconds and the green LED will light up.
5. Using the adapters provided in the Kit, (2.5mm, 3.0mm or 5.0mm connectors)
 - a. Connect the Blue wire to the Coil trigger
 - b. Connect the Black wire to the coil negative (-)
 - c. Connect the Red wire to the Coil positive (+)



6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.
7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.



9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.

10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.
12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe the coil to see whether there is any voltage leakage.



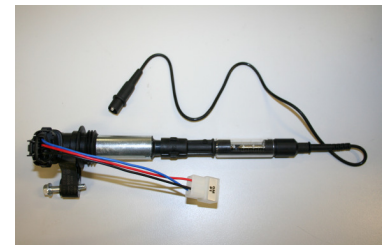
TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.
15. After checking procedures has finished and there is a need to disconnect the tester, unplug 12VDC power from the tester and then remove the connections and put them back safely into the carry case.

Coil – On – Plug (COP) System

Example: GMH Commodore VZ

1. Switch the ignition key to 'OFF' position
2. Unplug and remove the ignition coil from the engine. Plug the Spark Tester to the coil. Set the Spark Tester gap to 15 ~ 20mm and connect its end with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the testers speed adjustment knob is turned to the extreme left (minimum), connect the coil tester power supply clips to the battery terminals (Red to positive, Black to negative).



4. When the power is connected, the testers red power LED indicator lights up. The unit will run through a Self Test for about 2 seconds and the green LED will light up.



5. Using the adapter provided in the Kit, (GM #1) Connect the adapter to the coil and to the TE020 coil tester

6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.
7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.
9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.
10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.
12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe the coil to see whether there is any voltage leakage.



TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.
15. After checking procedures has finished and there is a need to disconnect the tester, unplug 12VDC power from the tester and then remove the connections and put them back safely into the carry case.

Coil – On – Plug (COP) System

Example: Ford BA

1. Switch the ignition key to 'OFF' position
2. Unplug and remove the ignition coil from the engine. Plug the Spark Tester to the coil. Set the Spark Tester gap to 15 ~ 20mm and connect its end with the cable provided to the chassis ground or the battery negative (-) terminal.





3. Ensure that the testers speed adjustment knob is turned to the extreme left (minimum), connect the coil tester power supply clips to the battery terminals (Red to positive, Black to negative).
4. When the power is connected, the testers red power LED indicator lights up. The unit will run through a Self Test for about 2 seconds and the green LED will light up.



5. Using the adapter provided in the Kit, (Ford #1) Connect the adapter to the coil and to the TE020 coil tester
6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.

7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.



8. Observe the spark created. Normal spark should have a straight and continuous arc line.



9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.
10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.
12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe the coil to see whether there is any voltage leakage.



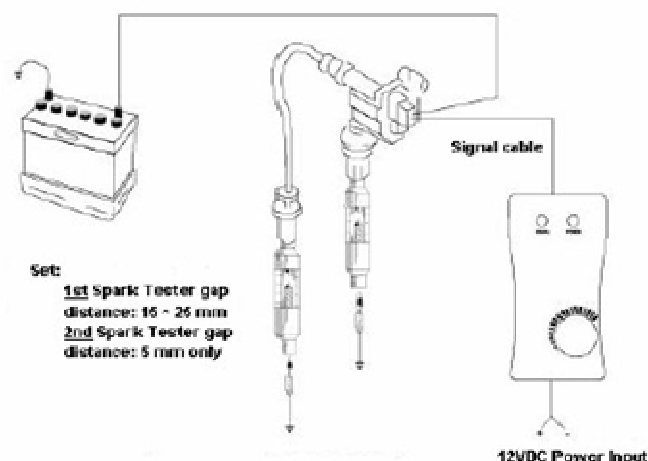
TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.
15. After checking procedures has finished and there is a need to disconnect the tester, unplug 12VDC power from the tester and then remove the connections and put them back safely into the carry case.

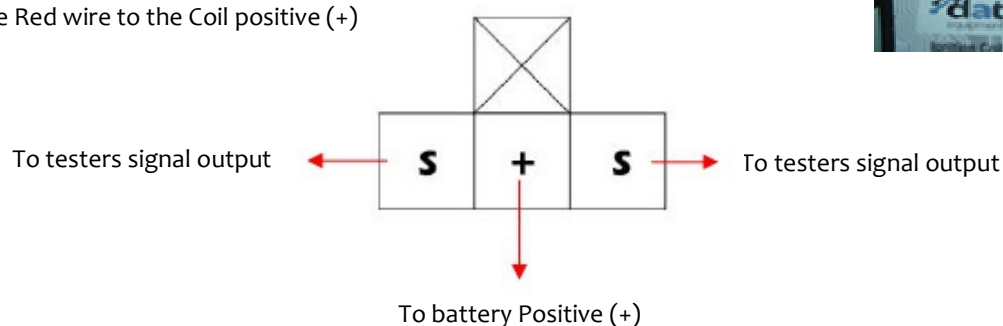
Double Ended Coil – On – Plug (DECOP) System:

Example: Merc Benz E320 (W210 & M104) Year 1995 or other similar system

1. Switch the ignition key to the 'OFF' position
2. Unplug and remove the coil from the engine. Plug both the Spark Testers to coil. Set the 1st Spark Tester gap to 15 – 25mm at the rigid coil end side and the 2nd Spark Tester gap: 5mm at the high tension cable side and connect them with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the testers speed adjustment knob is turned to the extreme left (minimum), connect the coil tester power supply clips to the battery terminals (Red to positive, Black to negative).
4. When the power is connected, the testers red power LED indicator lights up. The unit will run through a Self Test for about 2 seconds and the green LED will light up.
5. Using the adapters provided in the Kit, (2.5mm, 3.0mm or 5.0mm connectors)
 - a. Connect the Blue wire to the Coil trigger
 - b. Connect the Black wire to the coil negative (-)
 - c. Connect the Red wire to the Coil positive (+)



6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.



7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.
9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.
10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.
12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.
13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe the coil to see whether there is any voltage leakage or not.



TE022 Ignition Leak Checker

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.
15. If everything is normal, turn down the ignition speed adjustment.
16. Disconnect blue coil trigger wire.
17. Switch the location of the Spark Testers: Vice Versa – 1st Spark tester will move to the high tension cable side and the 2nd Spark tester to the coil side. (Note: Do not adjust the Spark Tester arc gap which has been adjusted previously)
18. Connect blue trigger wire and repeat steps 6-16.
19. When finished testing, unplug the 12VDC power from the tester and then remove the connections and put them back safely into the carry case.

Double Ended Coil – On – Plug System

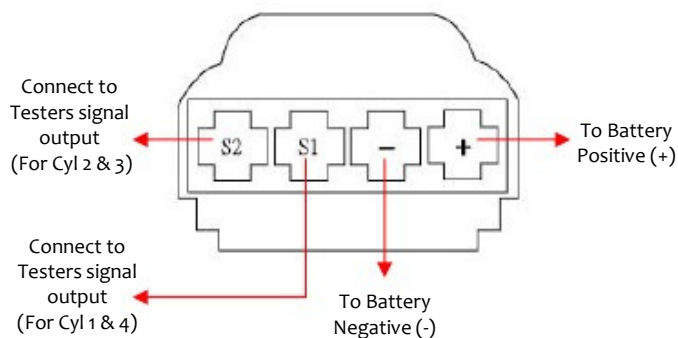
Example: Isuzu / Rodeo 2000 or other similar ignition systems.



1. Switch the ignition key to 'OFF' position
2. Unplug and remove the DECOP coil from the engine. Plug both the Spark Tester into the coil outlets. Set the 1st Spark Tester (cyl 1) gap to 20 ~ 25mm and the 2nd Spark Tester (cyl 4) gap 5mm and connect its end with the cable provided to the chassis ground or the battery negative (-) terminal.



3. Ensure that the testers speed adjustment knob is turned to the extreme left (minimum), connect the coil testers power supply clips to the battery terminals (Red to positive, Black to negative).



4. When the power is connected, the testers red power LED indicator lights up. The unit will run through a Self Test for about 2 seconds and the green LED will light up.
5. Using the 2.5mm adapter cables provided from the kit, connect the red wire to terminal positive (+). Then connect the black wire to negative (-) terminal. Connect the blue wire to S1 to trigger coil for spark plug 1 and 4. See coil pin out diagram to below.
6. Turn the coil tester ignition speed knob clockwise to switch on. Adjust this switch fast or slow according to requirement.
7. Adjust to the lowest speed, observe spark color (should be bluish purple color) at the spark tester sight glass.
8. Observe the spark created. Normal spark should have a straight and continuous arc line.
9. If the spark has an abnormal shape or is weak or intermittent, the coil may be faulty.
10. Turn the coil tester to higher ignition speed until the coil is slightly heated.
11. Then turn it down to a lower ignition speed; observe whether the arc is continuous or intermittent.



12. If 'clicking' electrical noises are heard but there is no arc present, it means that the ignition coil has an internal high voltage leakage.

13. To check the leaks, use the DAT Equipment TE022 Ignition Leak Checker to probe the coil to see whether there is any voltage leakage or not.



**TE022 Ignition
Leak Checker**

14. If there is a high voltage leakage, a visible spark is noticed and the Ignition Leak Checker indicator LED will blink simultaneously.

15. If everything is normal, turn down the ignition speed adjustment to the minimum.

16. Disconnect the blue trigger wire from S1

17. Switch the location of the Spark Testers: Vice versa - 1st Spark Tester to coil output - CYL. 4 and the 2nd Spark Tester to coil output - CYL. 1. (Note: Do not adjust the Spark Tester arc gap which has been adjusted previously.)

18. Reconnect the blue trigger wire to S1. Repeat Steps 5 to 16 again to determine the coil conditions.

19. When finished testing, disconnect the blue trigger wire from S1.

20. Unplug the Spark Tester and plug them to the remaining untested coil outlets (CYL 2 & 3).

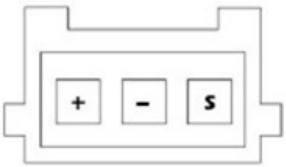
21. Connect the blue wire for the coil signal into the second signal input (S2) (Cyl 2 and 3).

22. Repeat Steps 4 to 18 again.

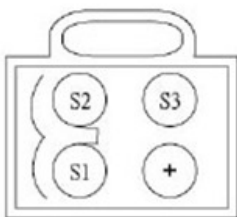
23. When finished testing, unplug the coil connections, then unplug the 12VDC power from the tester and then remove the connections and put them back safely into the carry case.


Note: Repeat the Steps 6 to 21 for coil signal (S3) if present but always determine which two cylinders are controlled by which signal input (example: S1 – CYL.1 & 4, S2- CYL.2 & 5 and S3 – CYL.3 & 6). Always refer to service manuals for information.

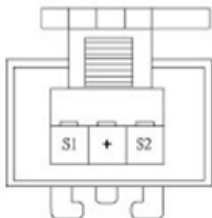
Ignition Coil Connection Pin Out

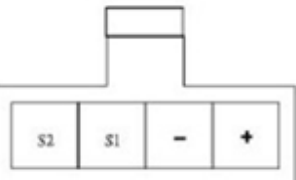
BMW	Models	Year	Capacity
	E39	96 ~ 98	2.0L
	M52	96 ~ 98	2.5L
	520	91 ~ 95	2.8L
	525	91 ~ 95	2.8L
 <p>S: Ignition Signal +: Positive Voltage - : Negative Voltage</p>			


CHRYSLER	Model	Year	Capacity
	Concord	93 ~ 97 96 ~ 97	3.3 L 3.5 L

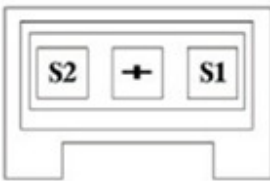
	<p>S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 5 S3: Ignition Signal – Cylinder 3 & 6 + : Positive Voltage</p>
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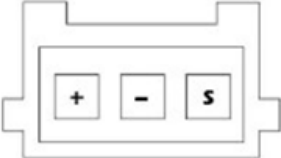
CHRYSLER	Model	Year	Capacity
	Neon	95 ~ 96	2.0 L
 <p>S1: Ignition Signal – Cylinder 1 & 3 S2: Ignition Signal – Cylinder 2 & 4 + : Positive Voltage</p>			

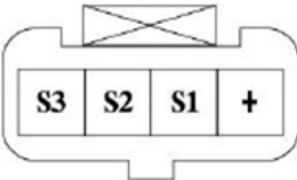
CHRYSLER	Model	Year	Capacity
	Stratus	95 ~ 00	2.0 L 2.4 L 2.5 L
	S1: Ignition Signal – Cylinder 1 & 3 S2: Ignition Signal – Cylinder 2 & 4 + : Positive Voltage		


DAEWOO	Model	Year	Capacity
	Magnus	2000	2.0 L
	S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 3 + : Positive Voltage - : Negative Voltage		

FORD	Model	Year	Capacity
	Escape	2000	2.0 L 3.0 L
	S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 3 + : Positive Voltage		

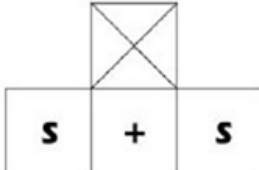
FORD	Model	Year	Capacity
	Mondeo Metrostar	97 ~ 99 01 ~ 02	2.0 L
	S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 3 + : Positive Voltage		

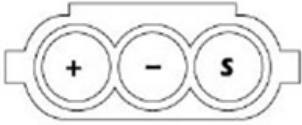
HONDA	Models	Year	Capacity
	CRV	2003	
 <p>S: Ignition Signal +: Positive Voltage - : Negative Voltage</p>			


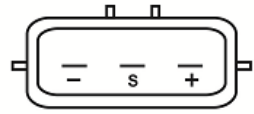
MAZDA	Model	Year	Capacity
	MPV	99 ~ 02	2.5 L
 <p>S1: Ignition Signal – Cylinder 1 & 5 S2: Ignition Signal – Cylinder 2 & 6 S3: Ignition Signal – Cylinder 3 & 4 + : Positive Voltage</p>			


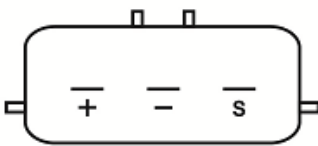
MAZDA	Model	Year	Capacity
	<u>Premacy</u>	01 ~ 03	1.8 L 2.0 L
 <p>S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 3 - : Negative Voltage + : Positive Voltage</p>			

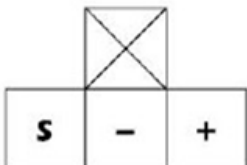
M. BENZ	Model	Year	Capacity
	C180	00 ~ 02	All
	C200	00 ~ 02	
	C240	00 ~ 02	
	C320	00 ~ 02	

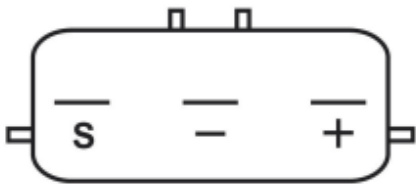
	S: Ignition Signal +: Positive Voltage
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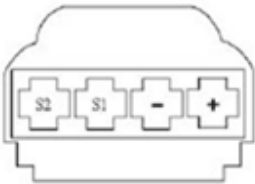
MITSUBISHI	Model	Year	Capacity
	<u>Savrin</u>	01 ~ 02	2.0 L
 <p>S: Ignition Signal + : Positive Voltage - : Negative Voltage</p>			

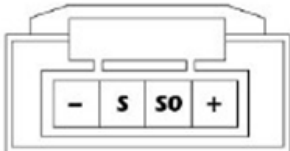
Mitsubishi #1	Model	Engine
	Lancer	4G92
	Lancer CH	4G69
	Lancer	4B10
	Lancer	4B12
	Outlander	4B12
	Lancer EVO	4B11
	Use Mitsubishi adapter number #1 -: Black: Ground S: Blue: Ignition signal +: Red: Positive voltage	

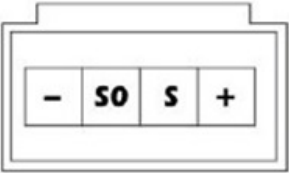
Mitsubishi #2	Model	Engine
	Lancer	4G91
	Lancer CC	4G93
	Lancer CE	4G93
	Lancer EVO	4G63
	Mirage	4G91
	Galant HH	4G63
	Galant HG	4G63
	Use Mitsubishi adapter #2 +: Red: Positive voltage -: Black: Ground S: Blue: Ignition Signal	

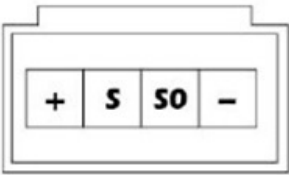
NISSAN	Model	Year	Capacity
	Cefiro Sentra	95 ~ 97 00 ~ 01	1.8 L 2.0 L 3.0 L
 <p>S: Ignition Signal + : Positive Voltage - : Negative Voltage</p>			

Nissan	Model
	Tida X-Trail Teana
	Use adapter NISSAN S: Blue: Ignition Signal -: Black: Ground +: Positive voltage

OPEL	Model	Year	Capacity
	Corsa	94 ~ 00	1.4 L
 <p>S1: Ignition Signal – Cylinder 1 & 4 S2: Ignition Signal – Cylinder 2 & 3 + : Positive Voltage - : Negative Voltage</p>			

TOYOTA	Model	Year	Capacity
	Camry	2003	2.0 L 3.0 L
 <p>S : Ignition Signal S0: Ignition Signal Return + : Positive Voltage - : Negative Voltage</p>			

TOYOTA	Model	Year	Capacity
	Camry <u>Hiace</u>	97 ~ 99 96 ~ 00	2.2 L 2.7 L
 <p> <u>S</u>: Ignition Signal <u>S0</u>: Ignition Signal Return <u>+</u> : Positive Voltage <u>-</u> : Negative Voltage </p>			

TOYOTA	Model	Year	Capacity
	<u>Premio</u>	97 ~ 01	2.0 L
 <p> <u>S</u>: Ignition Signal <u>S0</u>: Ignition Signal Return <u>+</u> : Positive Voltage <u>-</u> : Negative Voltage </p>			

Disclaimer

All information, illustrations, and specifications contained in this user manual were based on the latest information available at the time of printing. The right is reserved to make any changes at any time without obligations to notify any person or organization of such revisions or changes. Furthermore, the manufacturer or its sales agents are not liable for errors contained herein or for incidental or consequential damages (including lost profits) in connection with the furnishing, performance or use of this material. This user manual tells how to use the Ignition Coil Tester kit to perform the required procedures on checking of the ignition coils. Safe and effective use of this TESTER is very much dependent on the user following the normal practices and procedures outline in this manual.

Warranty

Limited Warranty

This limited warranty cover defects in materials and workmanship for a period of TWELVE (12) months which begins from the date the product is purchased by the end user and is subjected to the following terms and conditions:

Within the warranty period, the manufacturer will repair or replace, at their options, any defective parts and return to the owner in good working condition. Any repaired or replaced parts will be warranted for the balance of the original warranty or three months (3) months from the date of repair, whichever is longer. This warranty only extends to the first owner and not assignable or transferable to any subsequent owner. Cost of delivery charges incurred for the repair of the product to and from the manufacturer will be borne by the owner. This limited warranty covers only those defects that arises as a result of normal use and does not cover those that arise as a result of:

- Unauthorized modifications and repair.
- Improper operation or misuse.
- Accident or neglect such as dropping the unit onto hard surfaces.
- Contact with water, rain or extreme humidity.
- Contact with extreme heat.
- Cables that have broken, bent contact pins or subject to extreme stress or wear.
- Physical damage to the product surface including scratches, cracks or other damage to the display screen or other externally exposed parts.

Limitations of Warranty

Other than the foregoing limited warranty, the manufacturer does not make any other warranty or condition of any kind, whether express or implied. Any implied warranty of merchantability or fitness for use shall be limited to the duration of the foregoing limited warranty. Otherwise, the foregoing limited warranty is the owner's sole and exclusive remedy and is in lieu of all other warranties whether express or implied. The manufacturer or any of its exclusive sales agents shall not be liable for any consequential or incidental damages or losses arising of the loss of uses of this product. All warranty information, product features and specifications are subjected to change without prior notice.

Quick Connection Reference Guide

<p>Step 1</p>  <p>(chassis ground or battery negative (-))</p>	<p>Step 2</p> 	<p>Step 3</p> 
<p>Connect the ignition coil and Spark Tester(with ground connected) . Connect the adapter cable with ignition coil.</p>	<p>Ensure that the tester's speed adjustment knob is turned to the left end (counterclockwise for minimum).</p>	<p>Connect the tester's power supply clips to the battery terminals. Plug the Power cable into the Tester's power input socket.</p>
<p>Step 4</p> 	<p>Step 5</p> 	<p>Step 6</p> 
<p>When the DC12V power is supplied, the tester's Red LED will light up. The unit will run through a Self-test for about 2 seconds and the Green LED will light up and start the flash.</p>	<p>Connect the coil power and signal cable with tester.</p>	<p>Turn the knob to change the ignition speed fast or slow. After test finished, turn the knob to the left end(counterclockwise).</p>