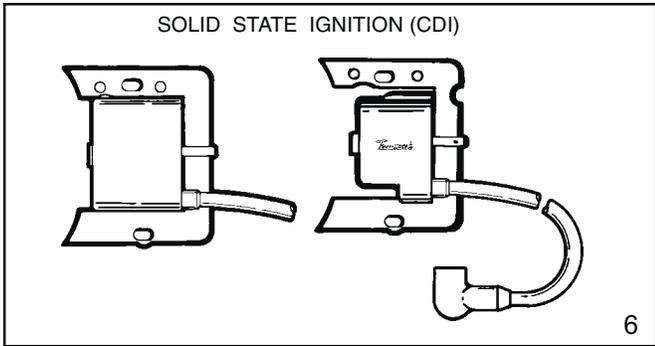
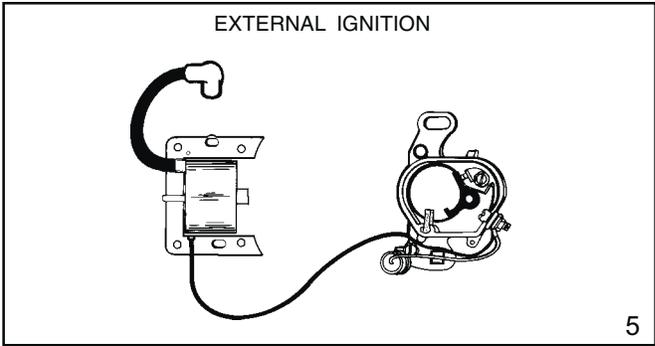
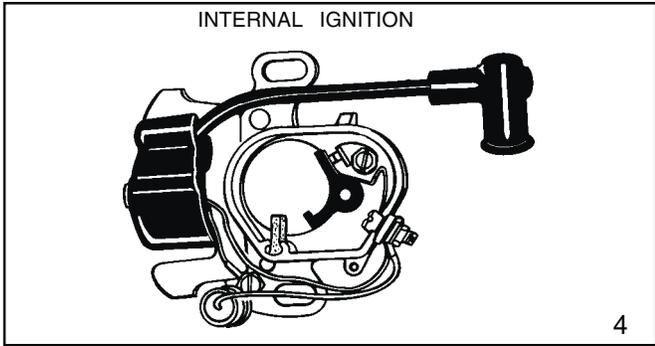
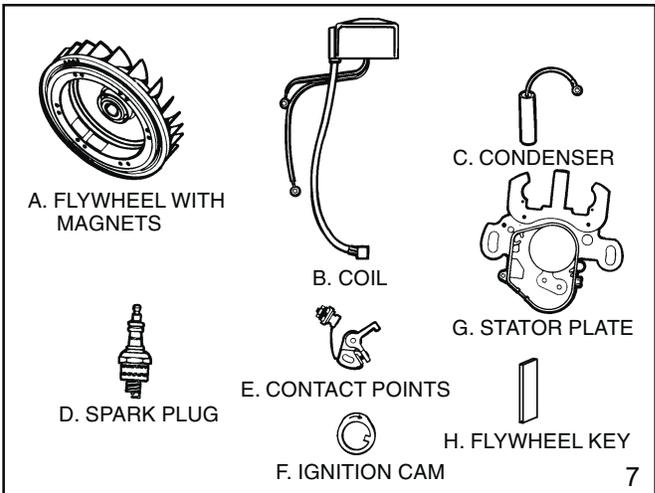


IDENTIFICATION OF TECUMSEH IGNITION SYSTEMS

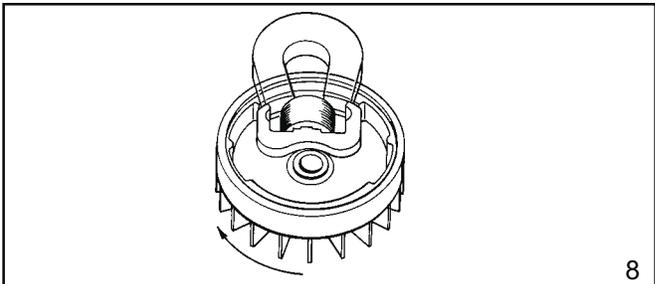


COMPONENTS OF A TECUMSEH MAGNETO IGNITION SYSTEM (DIAG. 7)

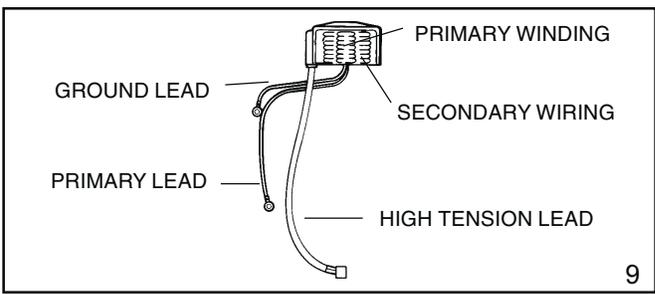
- A. Flywheel with magnets
- B. Coil
- C. Condenser
- D. Spark plug
- E. Contact points
- F. Ignition cam
- G. Stator plate (dust cover, cam wiper, and laminations.)
- H. Flywheel key



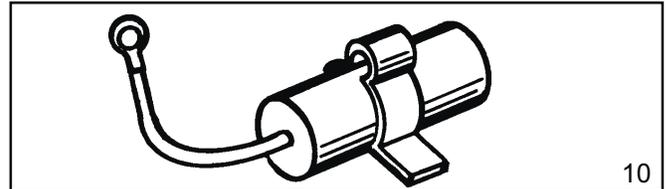
The **flywheel with magnets** provide the magnetic flux (or field) which is necessary to induce the low voltage in the primary circuit. A horseshoe magnet is a good example of how the magnets function in the flywheel. The magnets are either cast in or glued onto the flywheel, and are not a replaceable item (diag. 8).



The **ignition coil** is used to increase the low voltage in the primary to high voltage in the secondary, capable of jumping the spark plug gap. The coil consists of a primary and a secondary winding of wire. The primary is the low voltage (200 - 300 volts) winding, consisting of approximately 150 turns of heavy gauge wire next to the core. The secondary winding consists of approximately 10,000 turns of very fine wire wrapped over the primary. When induced by the primary, the secondary winding generates a voltage of between 10,000 - 20,000 volts, which can arc the spark plug gap (diag. 9).

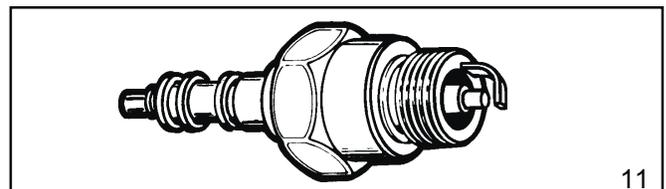


**The condenser** acts as an electrical shock absorber to prevent arcing between the contact points as they open. Arcing will lower the voltage at the spark plug, as well as burn and pit the contact points. The condenser is a replaceable item (diag. 10).



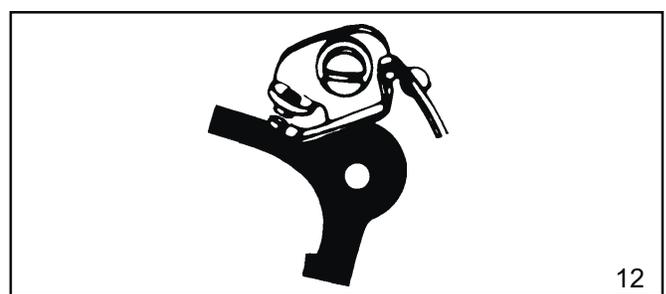
10

**The spark plug** is made up of two electrodes. The outside electrode is grounded and secured to the threaded sleeve. The center electrode is insulated with porcelain. The two are separated by an air gap which creates a resistance. A large voltage from the secondary arcs the air gap which causes a spark and ignites the air-fuel mixture in the cylinder (diag. 11).



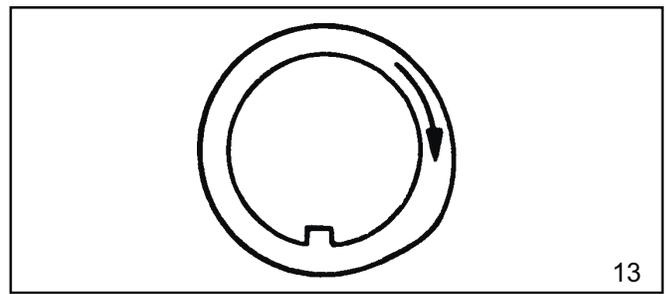
11

**The contact points** consist of an insulated, movable point that connects to the coil primary lead, and a stationary point that is grounded to the stator body. Spring tension holds the points together making a complete path for the primary circuit, and are opened by the action of the point arm which rests on the ignition cam. The contact points are a replaceable item (diag. 12).



12

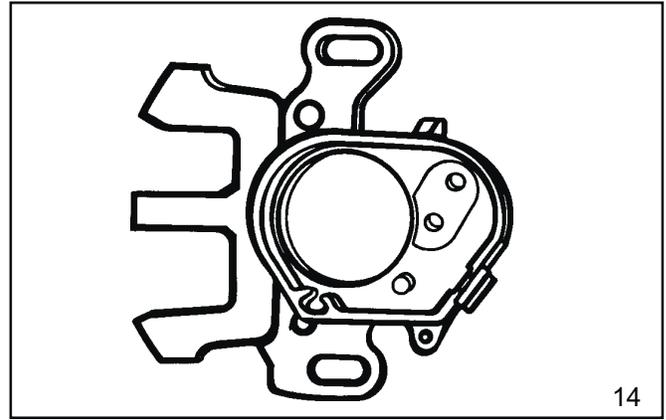
**The ignition cam** is an oblong device which rotates with the crankshaft, and opens the points for firing the ignition system. It is important to check the ignition cam for roughness, if rough replace the cam. When inserting the ignition cam onto the crankshaft make sure that the side stamped "TOP", or the side that has an arrow on it faces the mechanic (diag. 13).



13

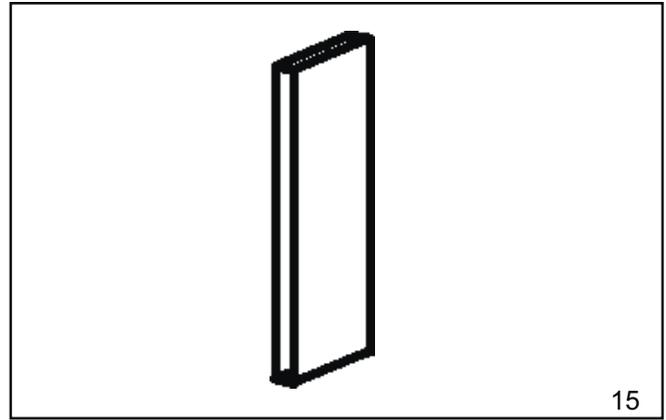
**NOTE:** SOME IGNITION CAMS ARE MACHINED DIRECTLY ONTO THE CRANKSHAFT AND ARE NOT REPLACEABLE.

**The stator plate** is an aluminum fixture which houses the points, cam wiper, condenser, and has the laminations riveted to it. The laminations are strips of iron riveted together to form an iron core. Rust or debris in between the laminations will hamper the performance of the ignition system. If corrosion on the laminations is severe, the stator plate should be replaced (diag. 14).



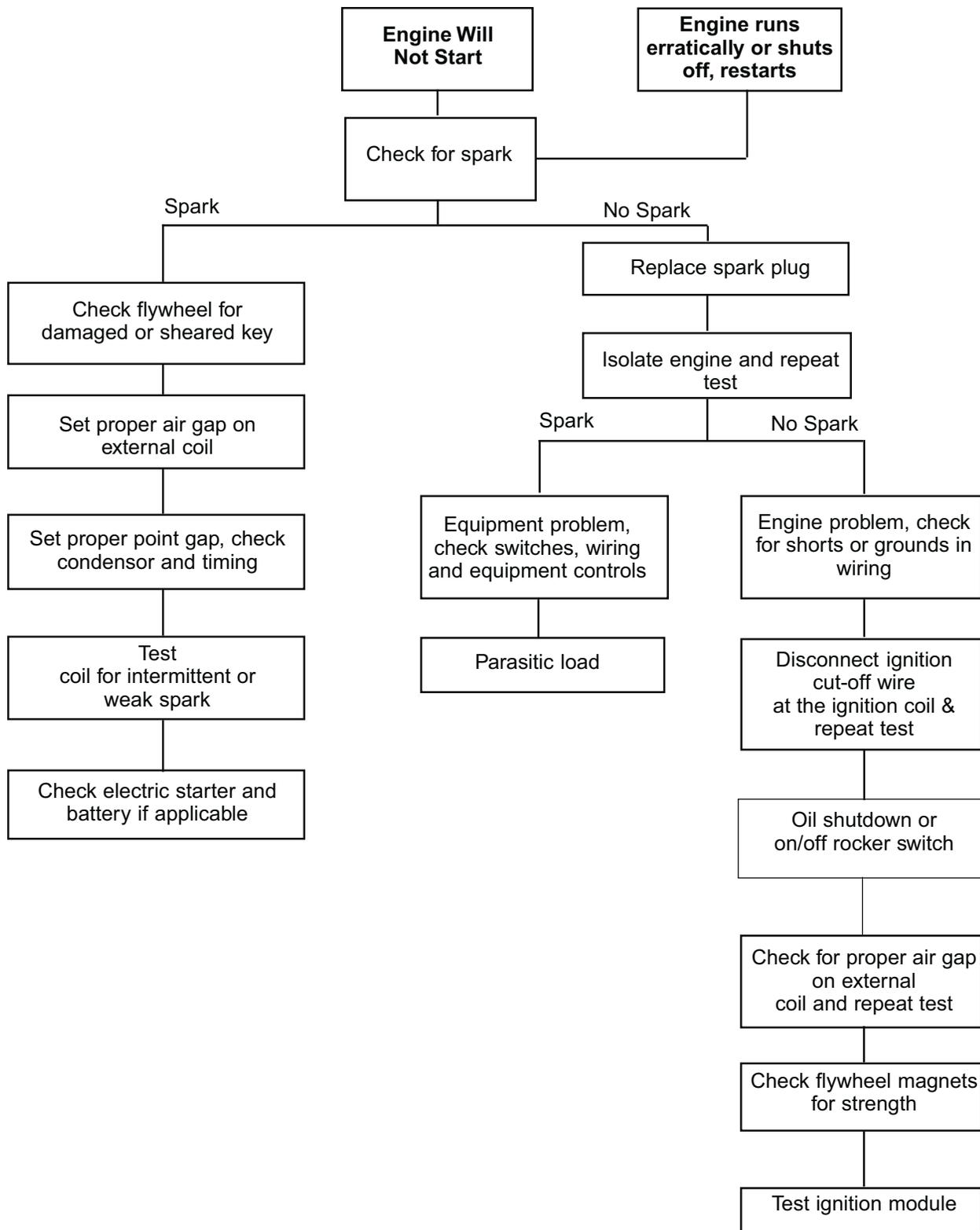
14

**The flywheel key** locates the flywheel to the crankshaft in the proper position. If a flywheel key is sheared, or partially sheared, the engine will not start or be difficult to start (diag. 15).



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# IGNITION TROUBLESHOOTING



## TESTING PROCEDURE

1. Check for spark using a commercially available spark tester and following the tester's recommended procedure.
2. Check for the correct spark plug and for cracks in the porcelain, pitted or burned electrodes, excessive carbon buildup, and proper air gap setting. Replace if questionable.
3. Remove the blower housing, disconnect the ignition ground lead at the ignition coil (solid state only). Reinstall the blower housing and crank the engine over. If spark occurs, check the ignition switch, safety interlock switches, electrical wiring for shorting to ground, or oil shutdown switch.

**NOTE:** STANDARD POINT IGNITION MAY HAVE TO BE DISCONNECTED AT THE IGNITION SHUTOFF (AT THE SPEED CONTROL).

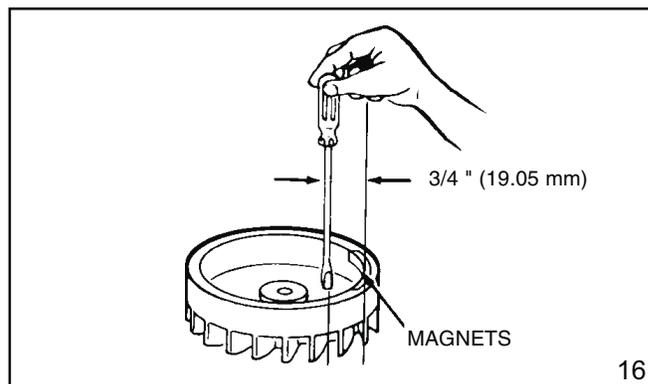
4. Check the air gap between the flywheel magnets and the laminations of an externally mounted coil or module. It should be .0125 (.317 mm) or use gauge part # 670297.
5. Check the flywheel magnets for the proper strength using this rough test. Hold a screwdriver at the extreme end of the handle with the blade down, move the blade to within 3/4 inch (19.05 mm) of the magnets. If the screwdriver blade is attracted to the magnets, the magnetic strength is satisfactory (diag. 16).
6. Examine the stator components (diag. 17).

- A. Check the ignition cam for roughness.
- B. Check the movable point arm that rests on the ignition cam for wear.
- C. Check the spring steel on the point assembly for evidence of excessive heat.
- D. Check contact points for wear. If they are pitted or burned, this is an indication that the condenser is not functioning properly. If any of the above are faulty, replace accordingly.
- E. When replacing the points, also replace the condenser.
- F. After the points are replaced and engine is re-timed, be sure to clean the points with lint free paper. An engine will not run smoothly if the points are improperly set or coated with even a small quantity of oil, etc.

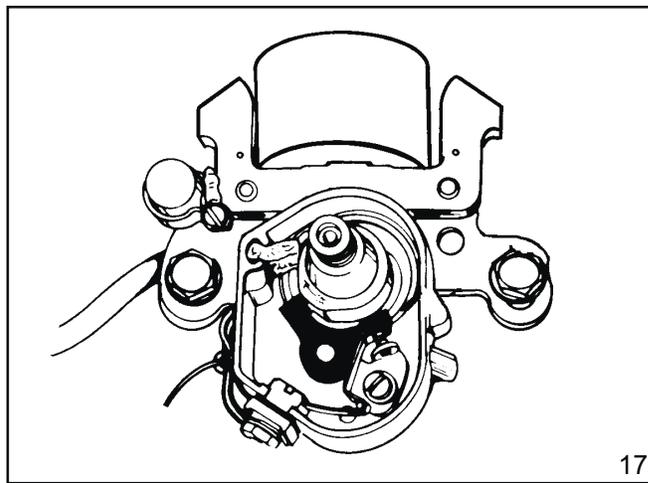
7. Examine the coil and lamination assembly (either internal or external) for cracks in the insulation or other damage which would cause shorts or leakage of current. Make sure the electrical leads are intact, especially where they enter the coil (diag. 18).
8. Check the operation of the coil using an approved tester. Follow the instructions furnished with the test unit or booklets offered by the Tecumseh Products Co. Engine and Transmission Group Service Division. If the coil or lamination assembly is defective, replace as necessary.

**NOTE:** IF LAMINATIONS ARE BAD ON AN INTERNAL COIL ASSEMBLY, THE ENTIRE STATOR BODY MUST BE REPLACED SINCE THE LAMINATIONS ARE PERMANENTLY RIVETED TO THE STATOR.

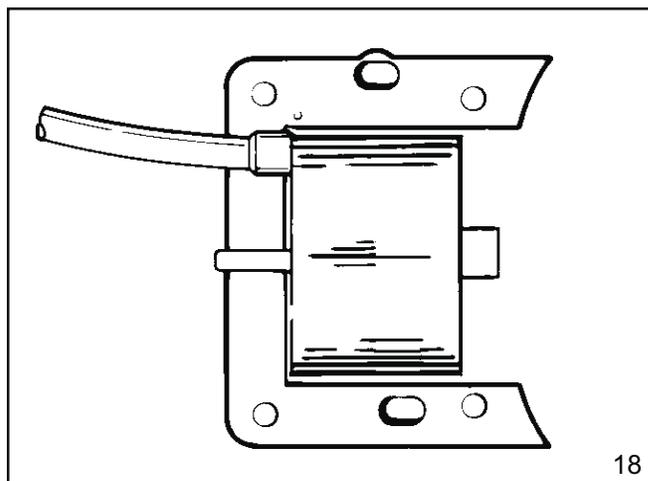
External coils are permanently attached to the lamination and must be serviced as an assembly.



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17



18