



KIRK ENGINES, INC.

The following instructions are for the installation of Trandenser II ignition system on Kohler K-series engines or Onan engines equipped with battery ignition systems.

Function – The Trandenser is a miniaturized, solid-state ignition system that replaces the existing condenser. Using state-of-the-art IGBT technology, it allows all the benefits of transistorized electronic ignition with unparalleled ease of installation and unobtrusive appearance. An integral LED timing light is incorporated, easily visible through the potting compound, thereby allowing precise ignition timing to be attained.

Please note – The Trandenser II is constructed of the highest available quality of solid-state components. It is over-designed for high reliability and durability in service. **However, it can be ruined in an instant if wiring is incorrectly attached during installation! It is important that these directions are followed explicitly!**

Refer to the attached wiring diagram and follow these step-by-step instructions.

- 1) Disconnect the negative lead of the battery.
- 2) Be certain that the breaker points are in serviceable condition. **It is highly recommended that new breaker points and spark plug be installed for optimal performance.** Use the standard Kohler or Onan settings for spark plug and point gap. New points sets are sometimes preserved with light oil. Clean thoroughly with contact cleaner or lacquer thinner before installing.
- 3) Disconnect the existing condenser from the negative (-) coil terminal. Loosen clamp mounting bolt and slip condenser out of retaining clamp. Be certain that the interior surfaces of the retaining clamp are clean and free of corrosion. Fit the Trandenser into existing retaining condenser clamp with wires oriented in the proper direction. Tighten mounting bolt and check for secure fit as this forms the critical ground connection. **Operation with a poor or non-existing ground can instantly destroy this device when power is applied!** On Onan engine applications, mount the Trandenser II on the exterior of the engine in a cool location (adjacent to the ignition coil is suggested). **Do not mount in the breaker points box as overheating and subsequent failure will occur!**
- 4) Disconnect the existing breaker point lead wire from both the negative (-) terminal of the coil and at the breaker point terminal screw. Remove this wire. Attach the detachable black wire supplied with the Trandenser II to the breaker points using the supplied ring terminal. Route the wire and connect to the spade terminal on the Trandenser II.
- 5) Note – Trandenser II is designed to operate with the stock engine ignition coil. If the coil is a replacement, check resistance across the positive (+) and negative (-) terminals. Resistance should be between 3 and 6 ohms. **The use of aftermarket coils with resistance values lower than 3 ohms is not approved and will cause failure of this device!**
- 6) Connect the RED integral lead wire ring terminal of Trandenser II to the positive (+) terminal of the coil.
- 7) Connect the BLACK integral lead wire ring terminal of Trandenser II to the negative (-) terminal of the coil.
- 8) Connect the negative lead of the battery.
- 9) Start the engine and verify normal operation.

Note: Some wire length alterations may be required for your application. Lengthening leads is permissible as long as a similar gauge and grade of wire insulation is used. For leads that appear too long, it is suggested that these are looped and secured with a wire tie. Always solder wire splices and insulate with heat shrink sleeves.

The following instructions apply to setting ignition timing with Trandenser II ignition module equipped with LED static timing light

- 1) Remove spark plug from cylinder head (this allows easier rotation of engine by hand).
- 2) Remove breaker point cover.
- 3) Rotate the engine clockwise (viewed from flywheel end) by hand. The breaker points should just begin to open when the S or SP flywheel mark (Kohler K-series engines) appear in the center of the timing sight hole.
- 4) Align the S or SP flywheel mark to center in the sight hole or to align with the stationary mark on the bearing plate or blower housing.
- 5) Turn ignition switch to the on (run) position.
- 6) Loosen the breaker points adjusting screw. With a clear view of the LED timing light (potted surface) on Trandenser II, move the point adjustment (using a screwdriver in provided slot) to the closed and just-open positions. When points are open, LED will be lighted; with points closed, LED will be off. Note: If LED glows intermittently (or not at all) when points are closed, this indicates poor ground, usually caused by contamination on the point contact surfaces. Clean points thoroughly with contact cleaner or lacquer thinner.
- 7) With points closed and LED off, move adjustment slowly to open points while watching the LED. The location where the LED just turns on is where the points "break". This is the spot where ignition is considered "timed". Tighten breaker points adjusting screw. Note: The breaker points will not necessarily be at .020 gap when properly timed to engine. A resulting gap of .016 to .025 is considered normal. Remember, proper timing is what is critical, not the point gap.
- 8) Rotate engine back and forth a few degrees by hand. LED function should be coincident with S or SP flywheel marks aligning with previously mentioned stationary marks. If timing marks and LED function do not coincide, repeat steps 6 and 7.
- 9) Turn ignition switch to the off position.
- 10) Refit breaker point cover and spark plug.
- 11) Start the engine and verify normal operation.

Troubleshooting Ignition System Problems

Engine runs erratically, misses, or dies

- a) Old points pitted or oxidized. Clean points or install new set.
- b) Poor ground. Clean Trandenser II mounting clamp interior surface.
- c) Spark plug incorrectly gapped. Set to engine manufacturer's specification.
- d) Wrong heat range spark plug. Check engine manual – replace plug.
- e) Points push rod sticking or worn. Replace.

Engine will not run

- a) Check for spark at plug. Remove spark plug and crank engine. Spark should be bright blue with a "snap" sound. If no spark, try a fresh plug.
- b) Check for proper voltage at coil. Measure across positive (+) terminal to ground to verify 12 volts minimum.
- c) Points contaminated. Clean contacts with contact cleaner or lacquer thinner. Note: LED will be completely off when points are closed and making proper ground contact. If LED glows intermittently (or continuously), clean points.
- d) Points not contacting. Points out of adjustment. Readjust gap to .020. Check for spark at plug. Repeat timing procedure as stated above.
- e) Loose connections. Check and secure all wire connections including splices on wire extensions. Make certain ground is clean and secure.
- f) Bad ignition coil. If all the above checks indicate normal functioning, chances are that the coil has failed from vibration. Replace.

Legal Stuff – Kirk Engines, Inc. warrants its Products to be free from defects in workmanship and materials at time of sale. Kirk Engines, Inc. offers Products that are installed by individual owners on their respective equipment. Therefore, Kirk Engines, Inc. cannot be held responsible for damage or loss of equipment due to faulty installation of Products, or use of said Products outside the scope and intent of their application.

Trandenser II Wiring Diagram

