



Crank Trigger Instructions

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Ignition boxes need to see a minimum threshold of amplitude on the trigger signal before they will emit a spark. Many factors can contribute to a diminished signal and therefore: NO SPARK.

Cranking speed: The culprit is most often a slow cranking motor. A block mounted starter powered by only 12 or 16 volts and big blower will most always crank too slow. A blower starter will almost always crank fast enough to avoid problems. 24VDC on the starter will fix things up too.

Wheel size: The faster the magnets pass by the pickup, the more signal they make. A small diameter magnet wheel provides fewer surface feet per minute than a big wheel. Use the biggest wheel possible for best results!

Pickup gap: We recommend .040-.060" gap between the end of the pickup and the magnet wheel. The closer the pickup, the stronger the signal. As much as things flex at high RPM, we do not recommend much tighter than .040 or the wheel may contact the pickup under heavy load with a big blower belt tugging on the crank snout.

Polarity: Sometimes, ignition boxes have the polarity switched on the trigger input connector and the pickup will not work correctly. We check each pickup for polarity and output strength on a scope before it leaves. Of course, we can't control the other side of the trigger circuit! Sometimes, the conductors in the plug have been reversed on a box and cause an issue.

Note: When using a crank trigger pickup with a Pro-Mag magneto, the pickup **MUST** be phased correctly with the mag and coincide with the pulses that the magneto makes. If not, no spark or very weak spark may result.

The quickest, simplest way to do this is to get the motor running and properly timed using the magneto's internal pickup **FIRST**. Once this is accomplished, turn the motor off and manually rotate the engine until it is sitting static at the cylinder #1 firing position. The crankshaft degree ring should indicate the timing setting. Example: You used a timing light when running off the mag pickup and set the ignition timing to 32 degrees. With the motor off, rotate and position the motor so that the mag rotor is pointing at #1 terminal in the cap and the crank degree ring indicates 32 degrees BTDC.

Now, position the crank trigger pickup so that it is centered with one of the magnets on the crank hub. Connect the crank trigger pickup to your ignition, start the engine and check the timing with a light. Adjust the pickup bracket to the desired timing setting. Always keep the pickup within 5 degrees of the magneto's timing setting for best spark output.

*** Troubleshooting ***

Many times, a new crank trigger person is trying to connect a Pro-Mag with a Power-Grid and other accessories all at once and the wiring is **COMPLICATED!** First, try to reduce things down to the simplest system. Remove the crank trigger pickup from the system and utilize the mag pickup directly. Does the motor run? Many times, the answer is **NO** and other wiring issues are the cause of the problem...not the crank trigger pickup. When the motor starts and runs fine on just the mag trigger, then add the crank trigger back into the mix. If introducing a crank trigger into a running setup produces no spark, the next step is to increase cranking speed by removing the spark plugs. Remove the coil wire from the magneto cap and put a grounded spark plug in it so that all sparks can be seen in one place. Open the gap up to .040-.050 so things are easy to see. If there is spark with no plugs in the motor, and it is lost when the plugs are put back in it, cranking speed is just not fast enough to start on a crank trigger pickup. Bigger starter, more voltage, bigger wheel... the magnets need to fly by the pickup faster somehow. All crank trigger pickups will have the same issue with slow speed. Another solution: A "Change-over/Kill Switch" from FIE. This allows the driver to start the vehicle on the stronger magneto pickup and then change over to the more accurate crank trigger pickup after the motor is running by flipping a toggle switch in the cockpit.

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