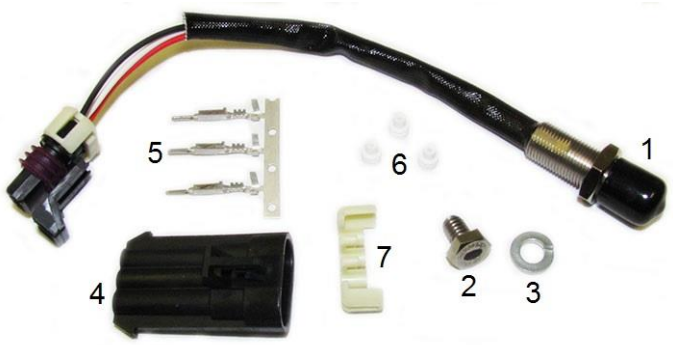
# Cam Sync Signal Sensor, Sensor Kit, & Flying Magnet Target (Holley P/N 554-125, 554-126, & 554-127)

## Parts List:

| # | Components | 554-125 | 554-126 | 554-127 |
|---|---|---|---|---|
| 1 | Sensor w/ Nut | X | | X |
| 2 | Flying Magnet Target | | X | X |
| 3 | Split-Lock Washer (SS) | | X | X |
| 4 | Connector | X | | X |
| 5 | Pins | X | | X |
| 6 | Seals | X | | X |
| 7 | TPA Lock | X | | X |




## Cam Sync Signal Sensor (554-125):

P/N 554-125 is designed to generate a cam sync input signal when used in flying magnet cam trigger setups. This sensor is a Hall Effect sensor, meaning it outputs a square wave signal, which is ideal for use with most Electronic Fuel Injection Systems. This sensor is to only be used with a "flying magnet" target like Holley P/N 554-126. The internal Hall switch triggers from the South Pole of a magnet. It will not detect a ferrous metal target.

**NOTE:** If using a flying magnet target other than Holley P/N 554-126 with Holley EFI, correct magnetic pole orientation can be determined by waving the magnet past the sensor while performing an SL system log. Make sure the face of the magnet is being held parallel to the face of the sensor. If a trigger event registers, the magnet is oriented correctly; if not, flip the magnet and verify sensor triggering in that orientation. Install the magnet into the cam drive's spider gear according to the orientation in which the trigger event occurred.

The sensor can operate from 8-20 volts. It is recommended to feed the sensor "clean" electrical power.

**NOTE:** This is not designed for systems requiring an inductive pickup as the sensor does not produce zero-crossings.

## INSTALLATION:

1. Install the sensor into a mounting bracket containing M12 x 1mm threads. It is recommended to use a small crescent wrench on the sensor end & a 17 mm wrench on the nut.

**NOTE:** If creating a custom sensor bracket, an 11mm drill bit and M12 x 1mm tap will be required. These taps are readily available (McMaster-Carr P/N 26015A222).

2. With a feeler gauge, set the gap between the sensor and flying magnet target to .040"-.080" by backing the jam nut off and screwing the sensor in or out of the receiving bracket. The smaller the gap, the better. Lock the sensor's

position by holding the sensor in place with a crescent wrench and tightening the jam nut. Do not tighten the jam nut beyond 23 ft.-lbs. or damage to the sensor threads may result.

**NOTE:** Ensure there will be no physical contact between the sensor and flying magnet target when the engine is operating.

3. Loose pins and seals are included and must be crimped onto an existing harness (Holley P/N 558-431 or 558-306). Use the proper tools to crimp Metripak 150 style pins (Delphi P/N: 12155975 - available thru Waytek, Inc. Item No.: 509). It is advised to use shielded wiring (with drain wire grounded at the ECU end) to connect to this sensor. The pins are inserted into the back of the connector. Install the TPA lock after the wires are inserted.

   The following is the proper wiring for this sensor:

   A – Red – 8V to 20V clean switched power. Pin B20 ("EST 12V Output") on Holley EFI systems would be a good choice. Pin E at the "Ignition" connector of Holley P/N 558-306.

   B – White – Sensor Output to ECU cam input signal (Pin A22 on Holley EFI). Pin B at the "Ignition" connector of Holley P/N 558-306.

   C – Black – Sensor ground. Connect to a "clean" ECU ground such as pin A14 ("IPU Ground") on Holley EFI systems. Pin G at the "Ignition" connector of Holley P/N 558-306.

4. If using Holley EFI, set the cam sensor "Type" to "Digital Rising" or "Digital Falling" in *Ignition Type* under Ignition Parameters. "Digital Falling" is recommended.

## Flying Magnet Target (554-126):

P/N 554-126 was designed to provide a flying magnet trigger for cam sync signal sensors like Holley P/N 554-125 when used with dry timing belt cam drive systems (i.e.: Jesel KBD Series, CV Products XTS Series, Comp Cams Magnum Series, etc.).

## INSTALLATION:

1. Ensure that the desired cam timing has been set and all upper cam drive pulley nuts have been tightened.

2. Determine the correct cam sync phasing for the specific application. If using Holley EFI, correct cam sync phasing and therefore, flying magnet target angular position can be determined using the following formula:

   Cam Sync Position = Crank Reference Angle + (1080°/Number of Cylinders) +/- 30°

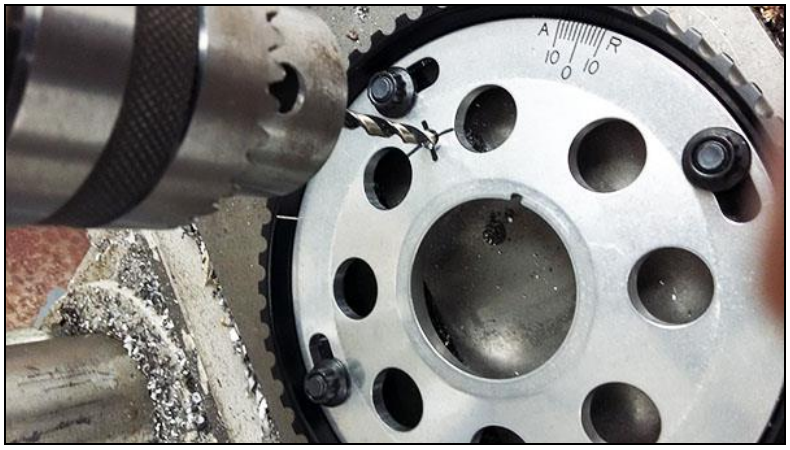
3. Once correct flying magnet crank angle position has been determined, make a reference mark on the face of the cam drive's upper pulley or spider gear. If the ideal location falls on a lightening hole, simply place the mark at the center of the nearest web face before or after the hole.

**NOTE:** If using Holley EFI and exact angular positon given by the calculation cannot be achieved due to the cam drive's lightening hole locations, it is important to make sure the cam trigger event does not coincide with the crank pulse in 1-pulse per fire applications or coincide with the tooth directly before the gap on X-1 and X-2 trigger wheel applications (i.e.: 36-1, 60-2, etc.). Consider locating the flying magnet target on the next adjacent web face before or after the web face surface in question.

4. Locate and mark the correct radial mounting distance from the spider gear's centerline. The radial centerline of the spider gear's lightening-hole pattern (if applicable) is an ideal distance in most applications.

Step 3 & 4: Locate hole.

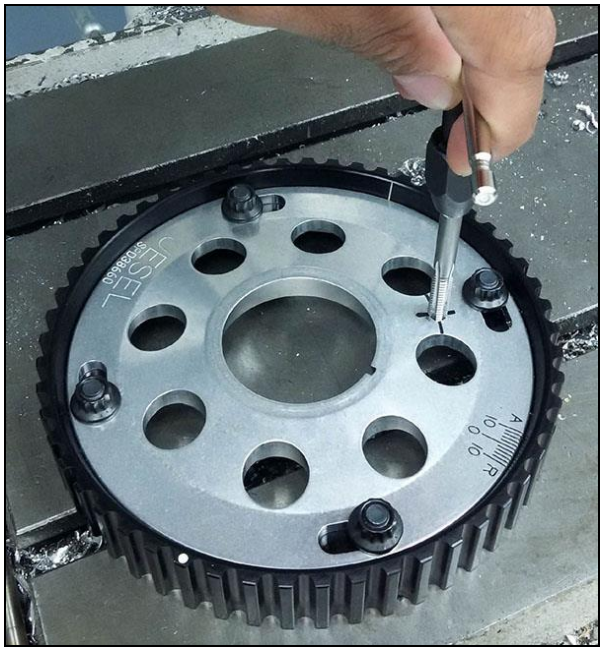
5. Using a No.7 or 13/64” drill bit, drill a through hole at the intersection of the angular and radial reference marks. This may be done with a hand drill, on the engine, or a drill press or mill, off the engine. It is advised to use a center-punch to help locate the drill bit prior to drilling the cam gear.



Step 5: Drill hole.

**NOTE:** If drilling on the engine, care must be taken to keep from drilling into the underlying belt drive cover and block once the drill bit passes through the spider gear. A split-lock washer has been included for added flying target retention and optional off-engine drilling using a vertical mill. If it is desired to use the supplied washer, spot-face a flat on the surface of the spider gear over the ¼” hole, using a 3/8” end mill. This will provide a flat surface on which the split-lock may fully seat. As an added precaution, medium strength thread adhesive should be used in accordance with the split lock washer. The engine may be operated immediately after installation if the split lock is being utilized.

6. Using a ¼”-20 starting tap, partially thread the previously drilled hole until the tip of the tap just begins to protrude the rear of the spider gear. This will ensure the flying magnet target cannot protrude the rear of the cam gear and make contact with the underlying cam cover studs.



Step 6: Tap hole.

**NOTE:** If the flying magnet screw happens to break through and protrudes beyond the rear face of the cam drive's spider gear, ensure that it does not make contact with the underlying cam cover studs. This can be done by ensuring that the engine can be rotated a full revolution (mind camshaft end-play) without interference. If contact is made, excess material should be cut or ground off the end of the screw. Care must be taken to prevent from putting too much heat into the part as doing so could weaken the encapsulated magnet or melt the surrounding epoxy.

7. Apply a liberal amount of permanent strength thread adhesive to the flying magnet target screw and thread it into the cam spider gear until it stops.

**NOTE:** Do not tighten the flying magnet screw beyond 70 in.-lbs. as doing so may result in stripped threads. It is recommended to allow the thread adhesive at least 24 hours to cure before operating the engine.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