



5-0 IGNITE 36-2+1 PRO CRANK TRIGGER INSTALLATION GUIDE

This installation guide is applicable to the following engine;

- Honda D16 SOHC VTEC and Non-VTEC.

Fitment: OBD2

Please read this installation guide carefully prior to installing the product.



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If in doubt, seek professional help.

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PREFACE

Thank you for purchasing 5-0 Ignite crank trigger kit. We have done all the hard work to ensure that your installation is a breeze and clean. Your kit should include the following items;

- 1x Crank sprocket with integrated 36-2 tooth trigger wheel
- 1x Crank sprocket one piece key 'long'
- 1x Cam angle sensor unit with pre-installed cam drive key
- 1x Crank angle sensor unit
- 1x Wiring boot
- 1x M6x1 socket head cap 'short' bolt for crank sensor unit
- 2x M8 dress up washers for cam angle sensor unit
- 2x M8x1.25 socket head cap bolts for cam angle sensor unit
- 2x 3 pin male Deutsch DTM connector
- 1x 3 pin female Deutsch DTM connector
- 2x Cam angle sensor unit shims (keep as spare)



INFORMATION AND LIMITATIONS

Installation of this kit requires moderate to advance level of mechanical skills and experience due to the requirement of timing belt removal/installation and calibration of the vehicle's ECU.

This kit will require a modern/capable ECU (Haltech, Link, Motec, Emtron, etc.) that allows you to set the trigger type (missing tooth + home), trigger edge and trigger angle. This kit is **not** compatible with OEM based ECU such as Hondata/Crome/Neptune.

This kit will require a sound knowledge of automotive electrical wiring systems (sheathing, splicing, crimping and terminations).

Fastening of bolts (i.e timing belt tensioner, cam pulley bolt, crank pulley etc.) shall follow manufacturer's recommended specifications.

PROCEDURE

1. Set the engine to TDC.
2. Disconnect/remove;
 - a. Ancillary belts
 - b. Crank pulley
 - c. Valve cover/timing covers
 - d. Distributor
3. Ensure the engine is on T.D.C by aligning the mark on the crank timing sprocket to the oil pump.
4. Remove timing belt. Clean lower timing/oil pump area. Replace oil pump seal and water pump if required.



Figure 1 - Remove existing timing belt and sprocket

5. Installation of the timing belt differs from the OEM procedure. The recommended installation order are as follows;
 - 5.1 Ensure that cam and crank is at TDC. Place timing belt over the cam gear. Maintain light tension so the timing belt doesn't pop out of groove.
 - 5.2 Install the supplied crank sprocket with the integrated trigger wheel onto the crank. Install the long square key (tapered side towards oil pump). The trigger tooth position is towards the crank pulley side. Prior to sliding the crank sprocket fully home, slip the timing belt into position.
 - 5.3 Wrap timing belt around the water pump.
 - 5.4 Slip on the timing belt around the tensioner and set belt tension.

- 5.5 Check that the crank and cams are at TDC. Rotate engine counterclockwise several times and re-verify TDC.



Figure 2 – Install crank sprocket and slip timing belt into position before fully seating it home

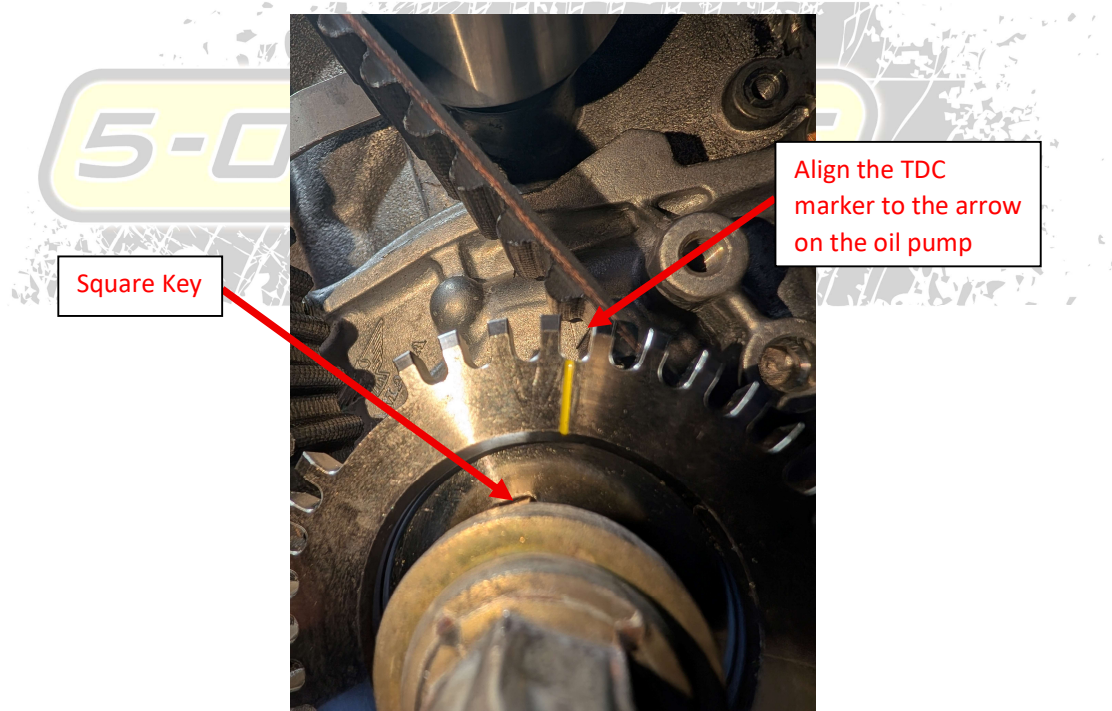


Figure 3 - Ensure the supplied square key is installed and TDC marks align

6. Trial fit the crank sensor onto your oil pump using the supplied bolts. Set the crank sensor air gap to be between 0.6mm to 0.9mm. **Undo the nut and loosen the grub screw** in order to wind the sensor in/out. **The timing belt guide washer may have some spring in it, check the sensor air gap whilst pushing the integrated crank sprocket onto the crank. CHECK and confirm that the trigger teeth position is centred to the sensor centreline especially with aftermarket oil pump.**

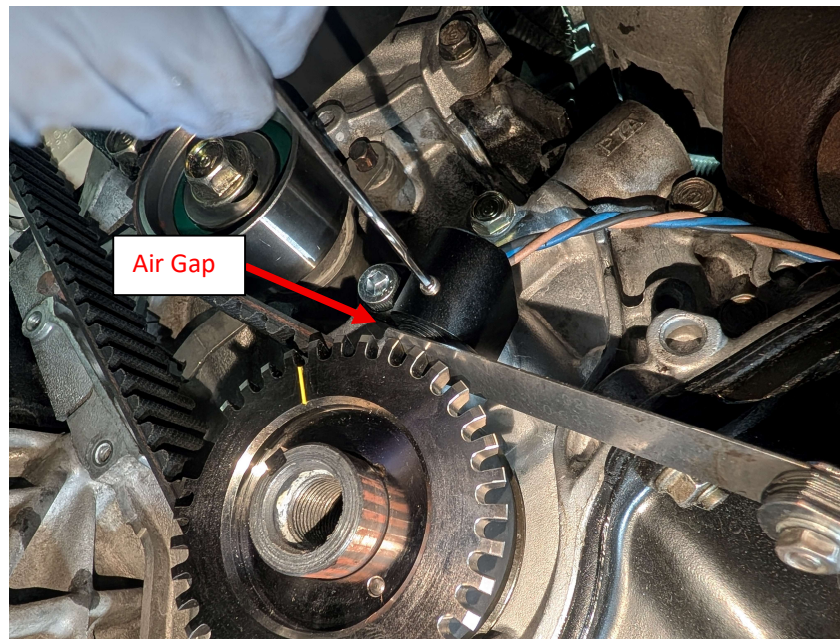


Figure 4 - Trial fit and set crank sensor air gap

7. Once gap is set, tighten the grub screw and the sensor nut. Do not overtighten!
8. Remove the crank sensor and prepare the crank sensor wiring harness to your preference (refer to the end of this installation guide for wiring diagram). Route the wiring so that it is away from the alternator body and away from moving object such as the drivebelts/driveshaft.



Figure 5 - Prepare the crank sensor wiring harness

9. Re- install the crank sensor and the lower timing cover.

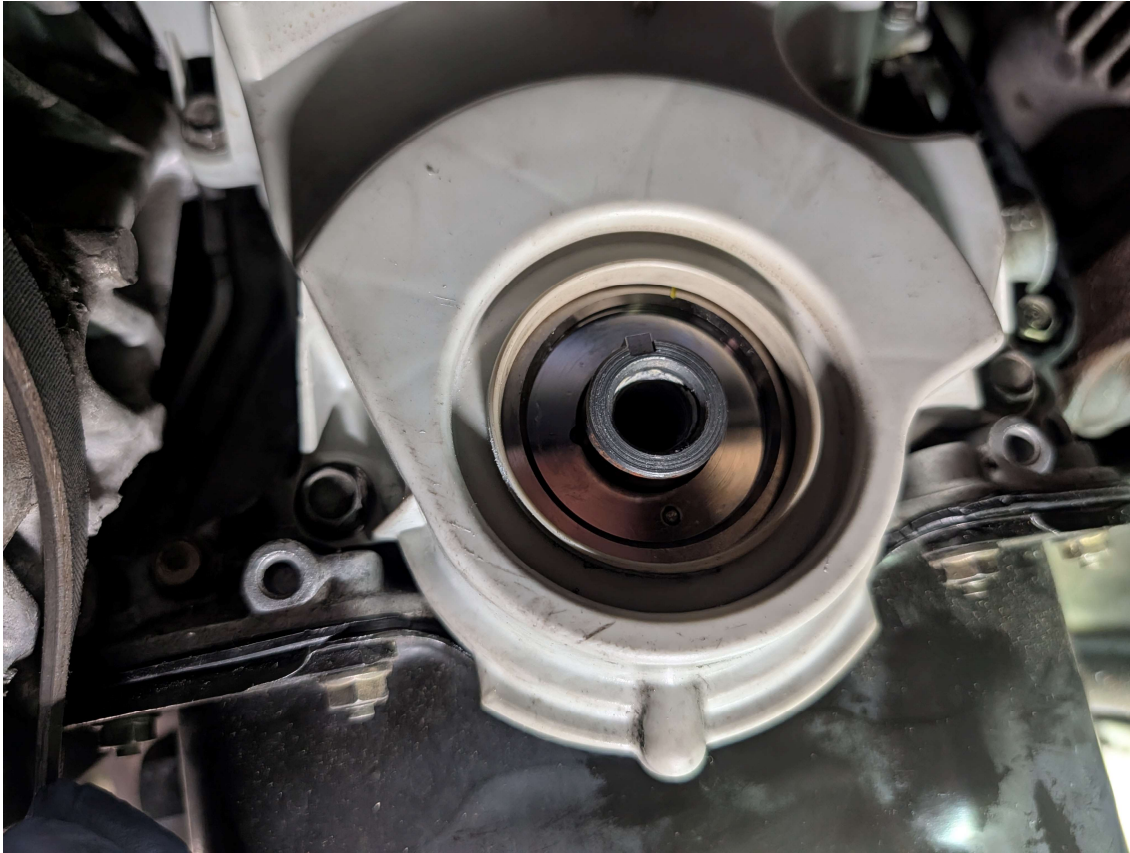


Figure 6 – Install the crank sensor and lower timing cover

10. Install the crank pulley and torque the crank pulley bolt to spec. **Note:** The OEM timing belt guide washer between the crank sprocket and the crank pulley is no longer required.
11. Zip tie the crank sensor wiring harness for it to be secure and away from drive belts or moving components.

DISTRIBUTOR SIDE

12. **Drive key clearance check is mandatory!**

Measure distance 'A' on your engine (fit face to camshaft end) and measure distance 'B' on the cam angle sensor unit (fit face to key face). Distance 'A' must be greater than distance 'B' for clearance (i.e. A=18mm & B=17.5mm == OK). If distance 'B' is greater than distance 'A', **CONTACT US** for adjustment guidance.

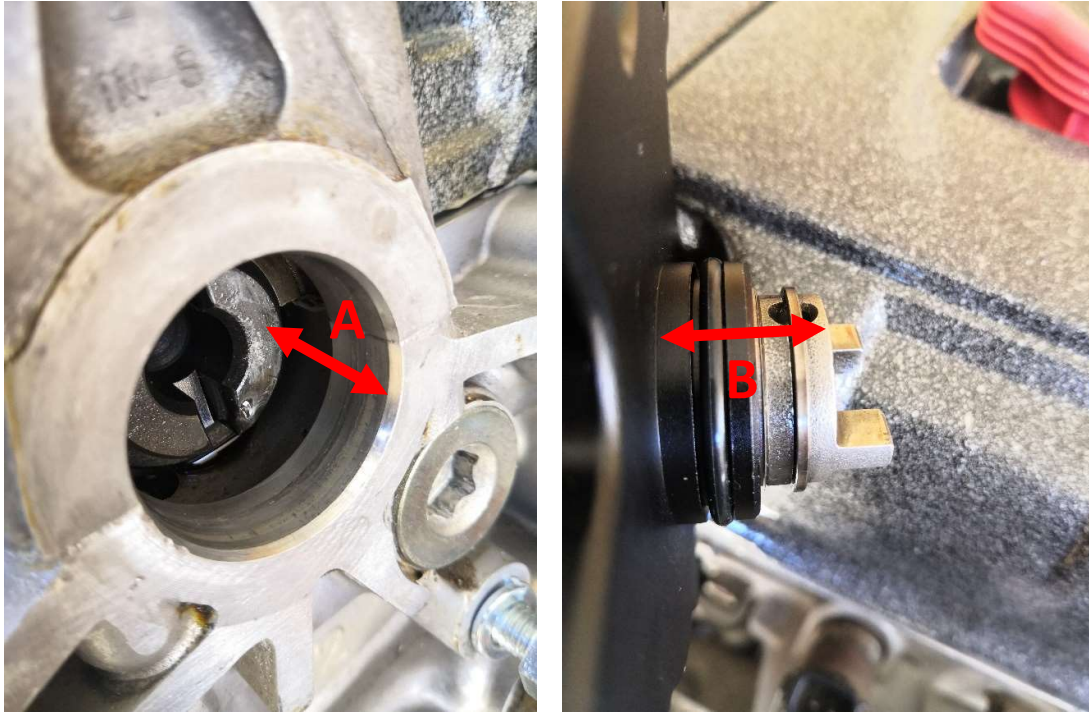


Figure 7 - Camshaft end to key drive clearance check

13. Install the cam sensor unit on the engine using the supplied bolt and washer, tighten to 24Nm. The drive key can only engage onto the camshaft one way just like the OEM distributor.

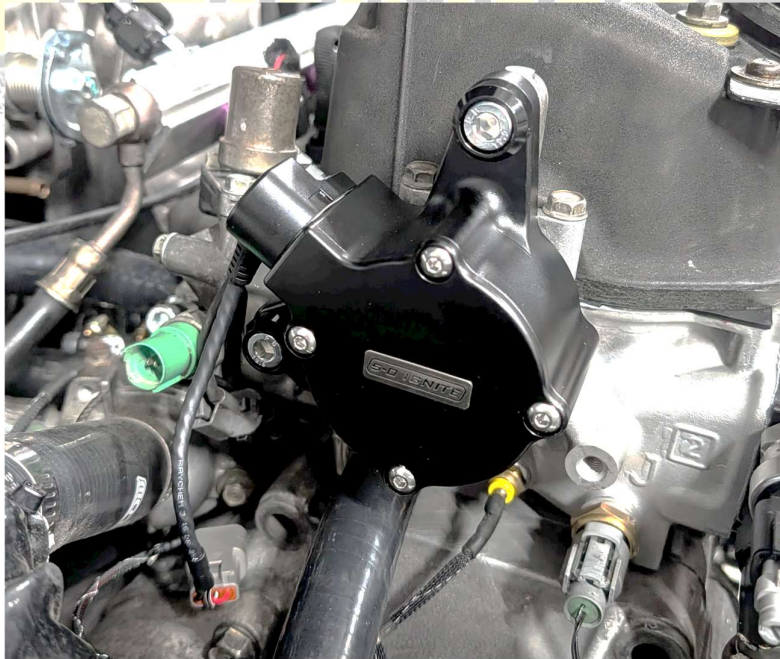


Figure 8 - Install the cam sensor unit onto the engine

14. Perform the final wiring work. Refer to the wiring diagram on the end of this installation guide.

WARNING

It is essential to run a new, dedicated shielded wiring loom (including power, signal, and ground) directly to your ECU. The sensor must be powered by a regulated voltage source—such as the ECU's 5V or 8V output (and NOT from the ECU's 12V input supplied via the main relay). The warranty does not cover damaged sensor(s) from incorrect wiring, physical damage or powering the sensor(s) with an unregulated voltage source.

All sensors have undergone bench testing prior to dispatch to ensure full functionality. It is the installer's responsibility to check and verify wiring before powering up the sensors.

15. Configure the ECU trigger settings. **DO NOT ATTEMPT IF YOU'RE NOT FAMILIAR WITH ECU CONFIGURATIONS.**

GENERAL ECU SETTING

Trigger type: Multitooth/missing crank + 1 home tooth on cam

Number of crank teeth: 36

Number of crank missing tooth: 2

Number of teeth on cam: 1

Sensor type: Hall effect (both crank and cam)

Pull up resistor: Enable for both crank and cam (or enable 1k ohm pullup)

Filtering: Set to 1 or lowest value of the 'on' state

Trigger edge: Set to 'rising' for both crank and cam.

Trigger angle: Must set using timing light. Ballpark figure is 70° before TDC (-70°), typical for most ECU if the crank sync tooth is set to '1'.

- Enable timing lock (i.e. at 10°) and disable the injectors.
- With a timing light and coil on plug extension lead installed (such as DAT-Equipment TE010), crank the engine.
- Adjust the TDC offset angle until the ignition timing on the crank pulley matches the timing lock figure.
- Start the engine and idle.
- Verify the TDC offset angle.
- Once all parameters are set, disable timing lock.

TROUBLESHOOTING

PROBLEM	APPROACH
No signal output from the sensors.	- Check if wiring is correct. - Ensure the crank sensor gap is set correctly. - Check the power and ground connection to the sensor. - Make sure pull up resistor is enabled.
Sensors are outputting signal but engine does not start. Continuous miss counts.	- Verify crank and cam sensor wiring is correct to the ECU. - Verify crank and cam trigger settings are correct on the ECU.
Engine misfires when clutch is pressed in.	Your engine has a severely worn thrust bearing causing excessive crankshaft axial movement, placing trigger teeth outside the sensor’s range.



CONCLUSION

Installation is now complete. 5-0 Ignite Honda D16 pro crank trigger eliminates ignition timing drift in comparison to the inferior distributor or any systems reliant on the camshaft based only. Benefits includes tuner’s confidence in maximising ignition timing whilst keeping consistent engine safety margin.

WIRING DIAGRAM

