GTiR Hall Sensor Kit
Part #200031

**WARNING!** Please read the whole guide before installing this part.

## Legals:

TAARKS Hall Sensor Kit has been designed and is intended for off-road use only. The installation of this part on a vehicle intended for use on public roads may violate laws and regulations in your country/state. Additionally, this part is sold with a LIMITED warranty that only covers defects in manufacturing. This warranty does not cover any damage incurred by using this part. The installation of this part may also void any vehicle warranties. Refer to a performance specialist for proper installation.

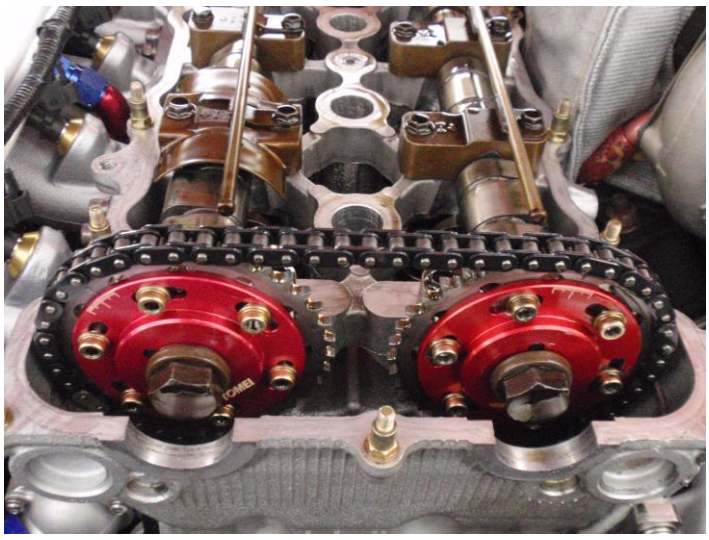
After opening the packaging please check to see if any parts are missing or damaged. If something is missing or damaged please contact us immediately. Do not install the product.

Do not modify this part in any way. Modifying the part may result in failure of the part and voids all possible warranties.

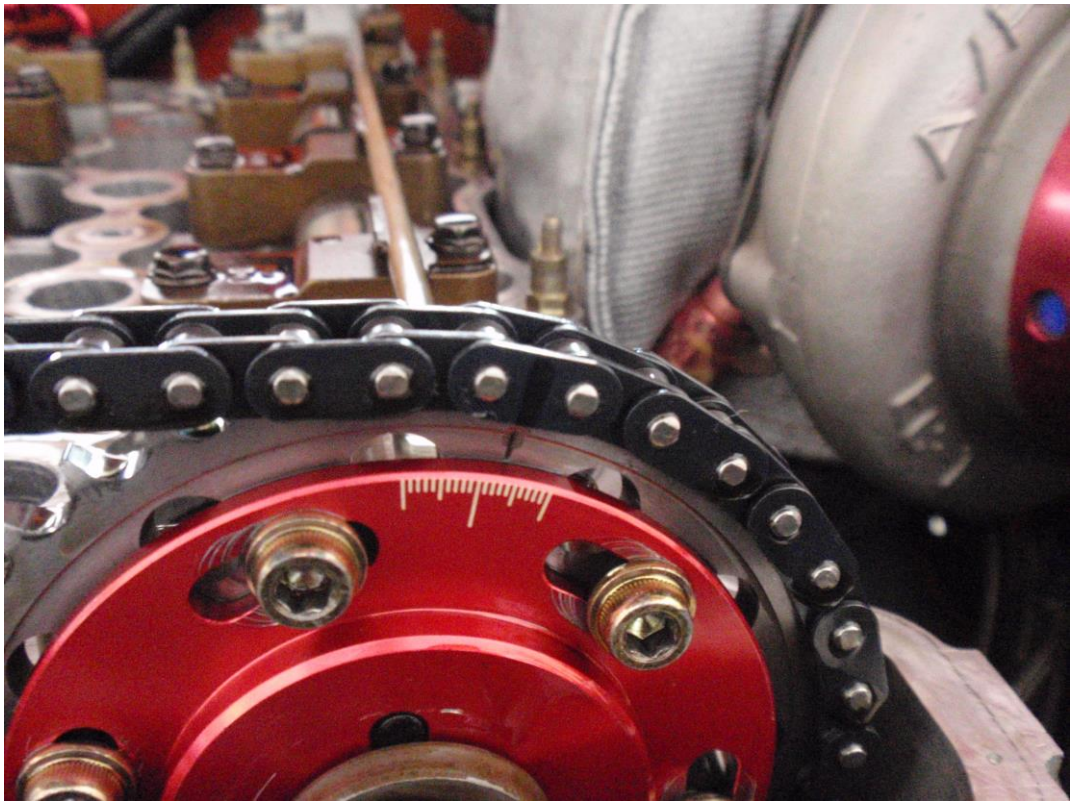
## Installation Guide

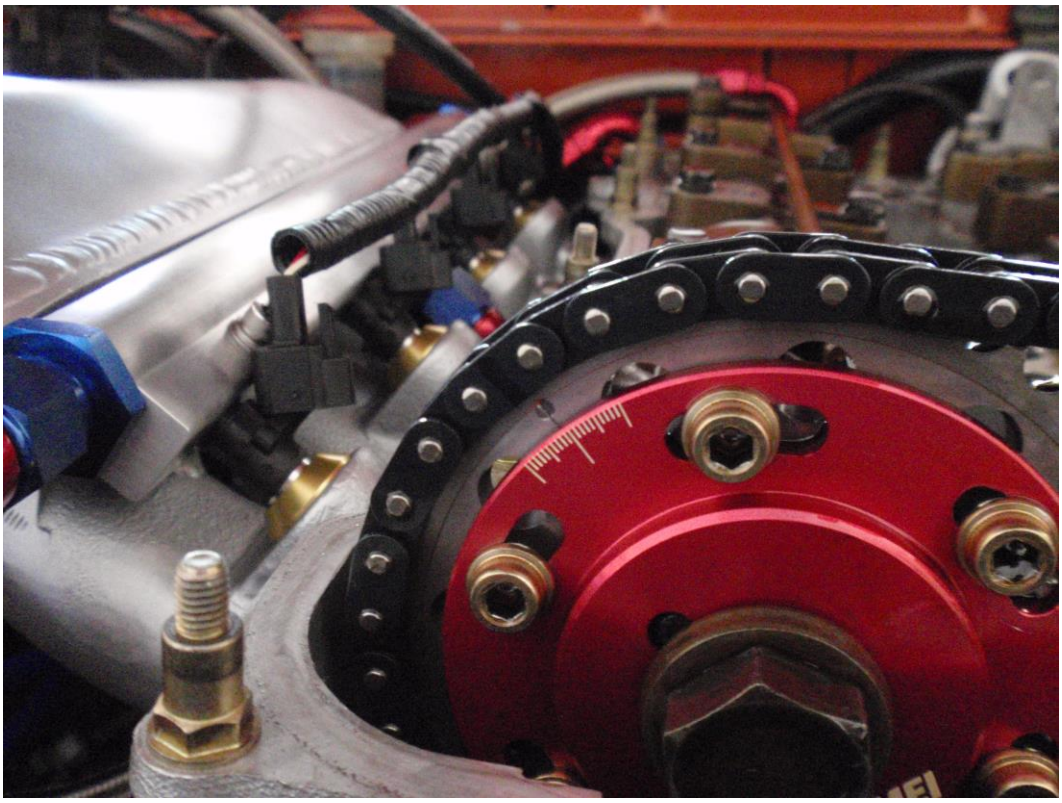
Remove the rocker cover and everything attached to the rocker cover.

Set the motor to TDC on cylinder one. The lobes on the camshafts for cylinder one will face away from each other.

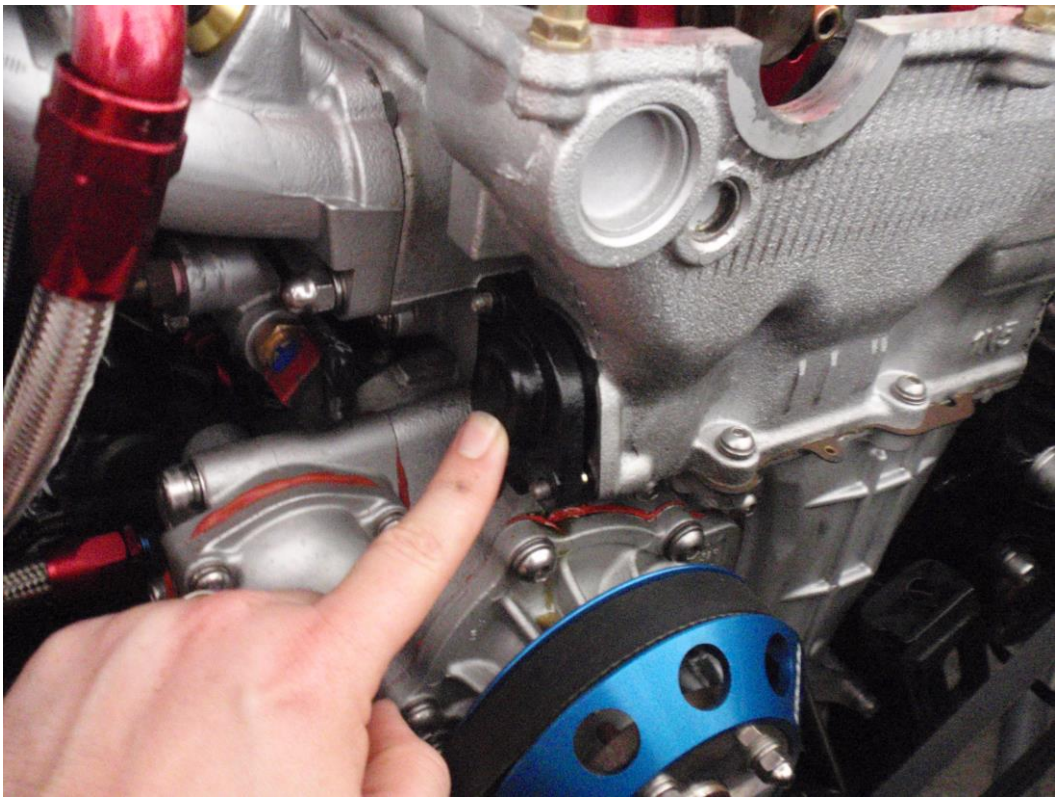


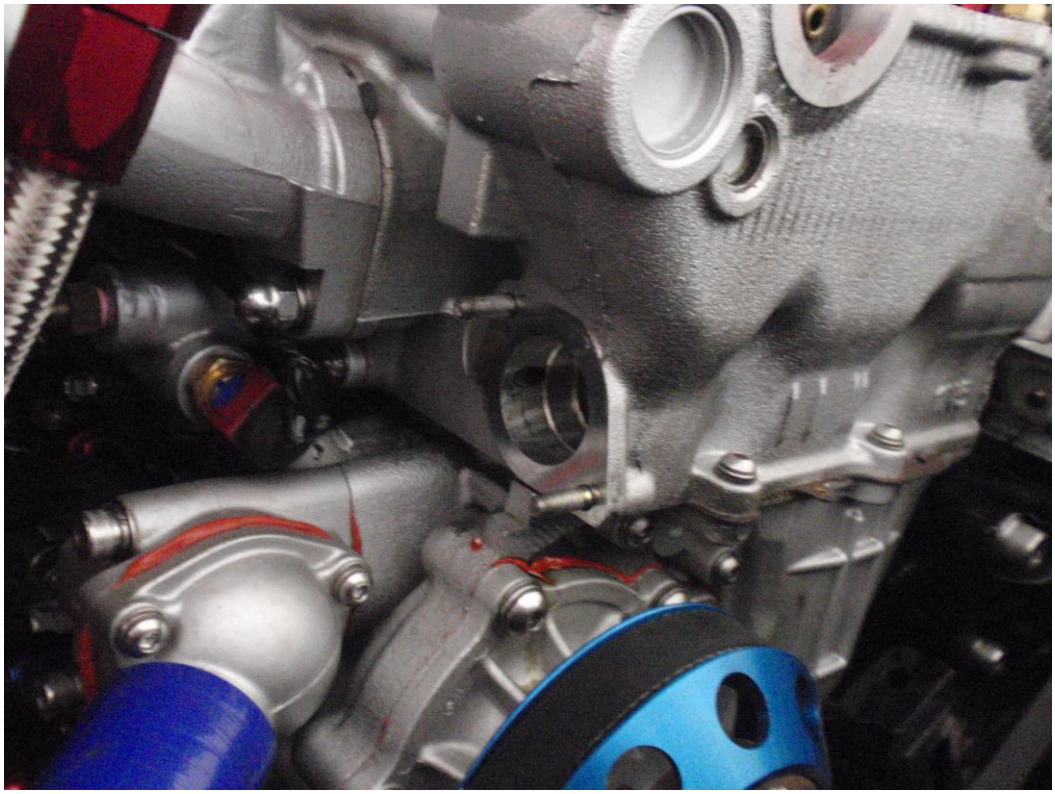
Mark the timing chain with a marker at the timing marks on the cams gears.



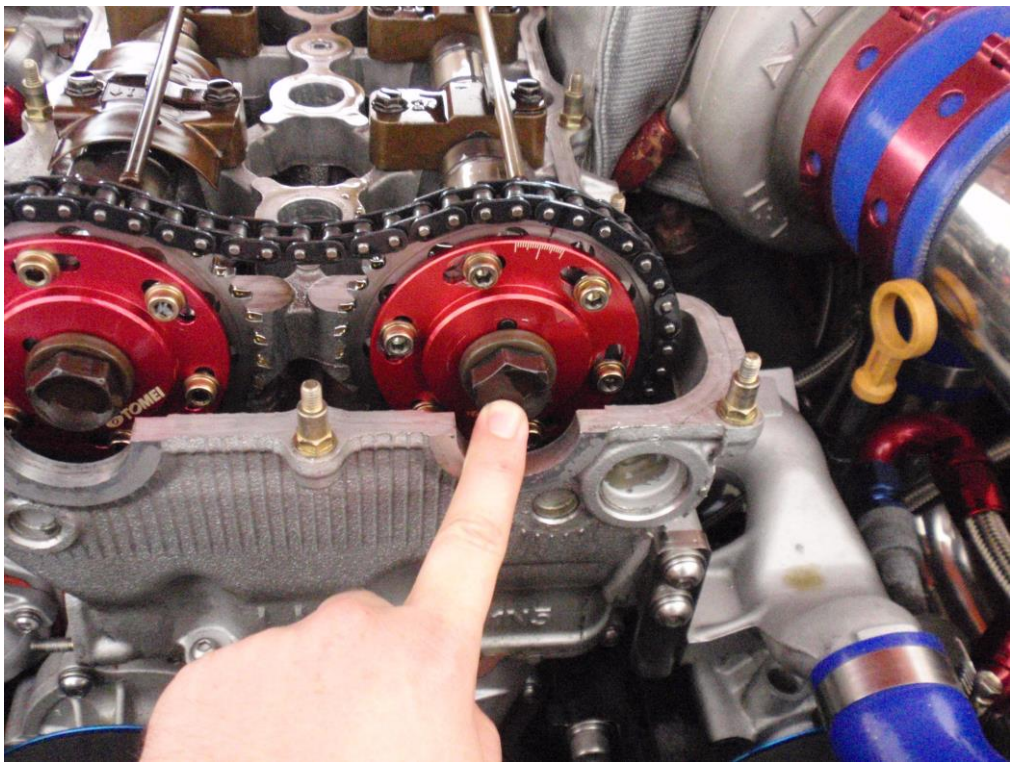


Remove the timing chain tensioner.

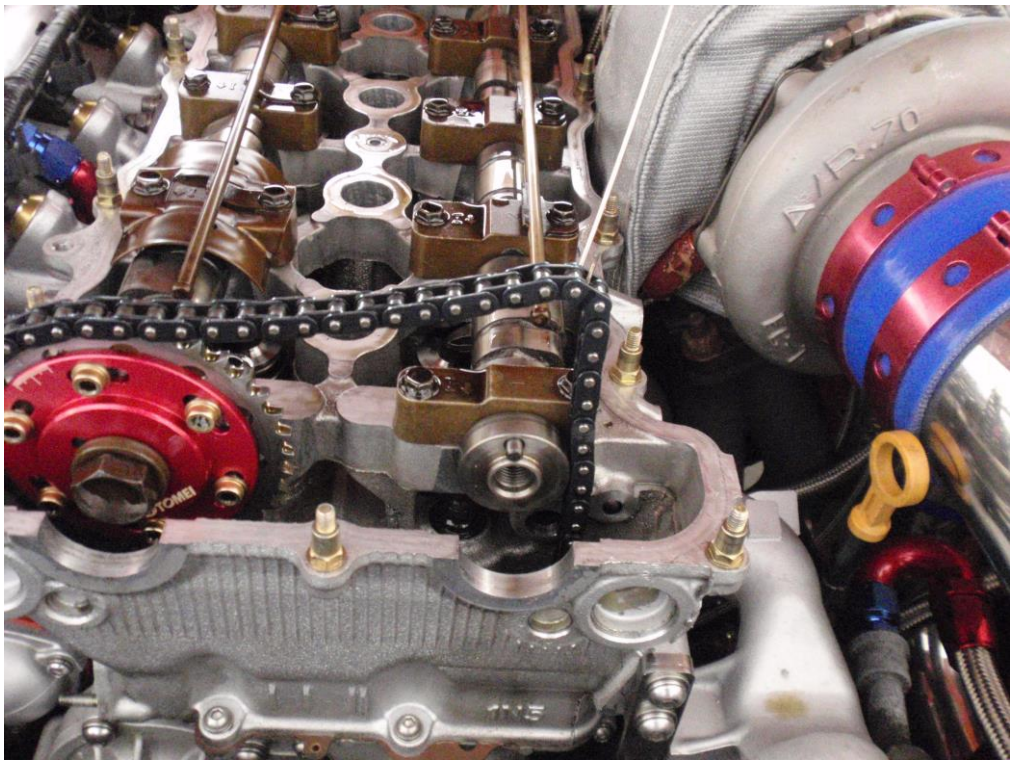




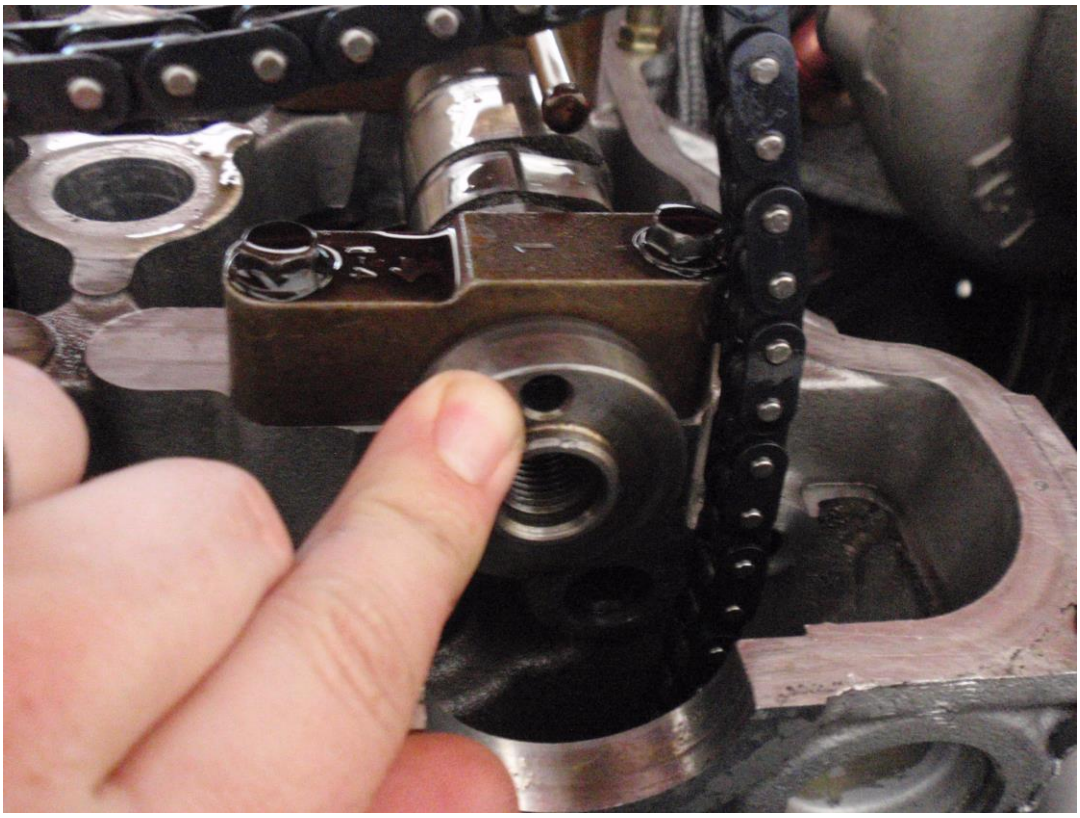
Remove the 24mm bolt from the front of the exhaust camshaft.



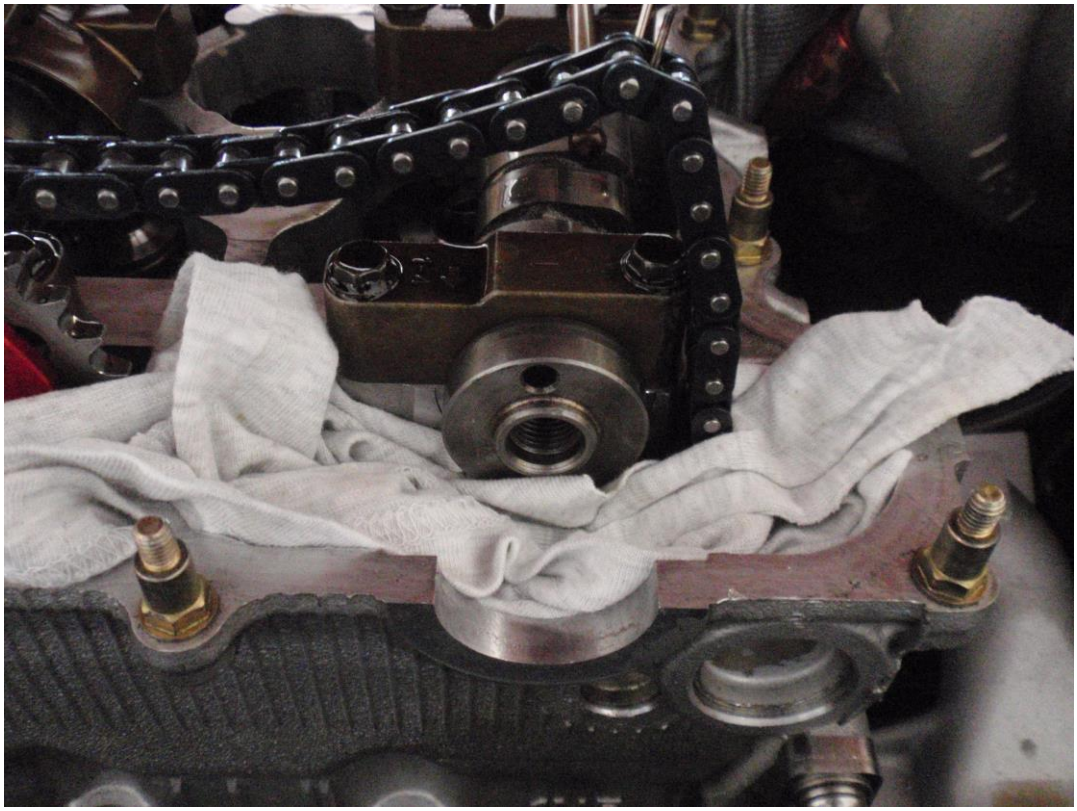

Remove the exhaust cam gear and support the chain. Do not let the chain drop.



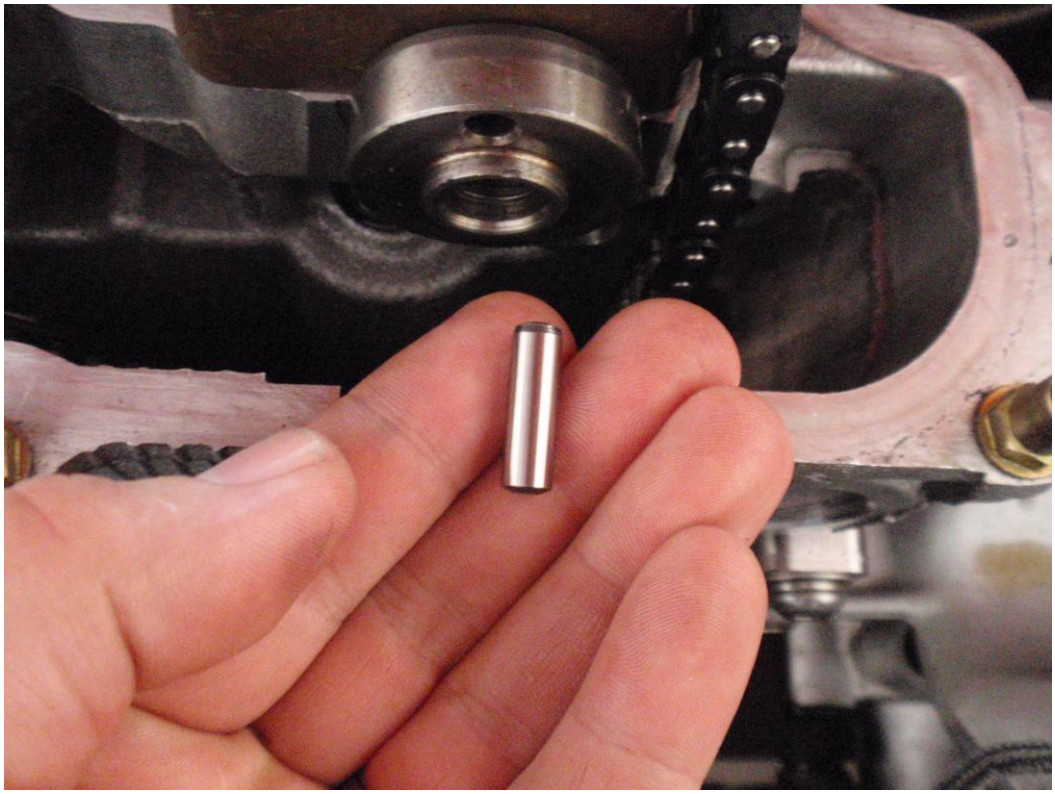
Remove the dowel pin from the exhaust camshaft.



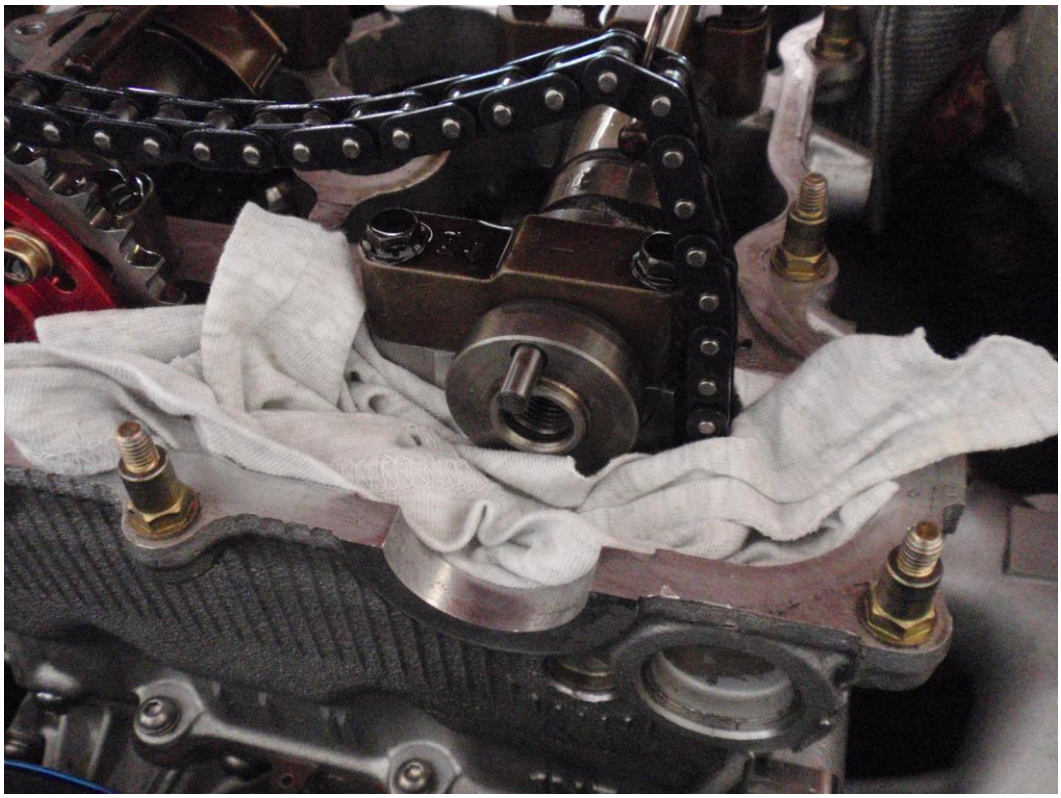
Place rags under the camshaft in case you drop the dowel.



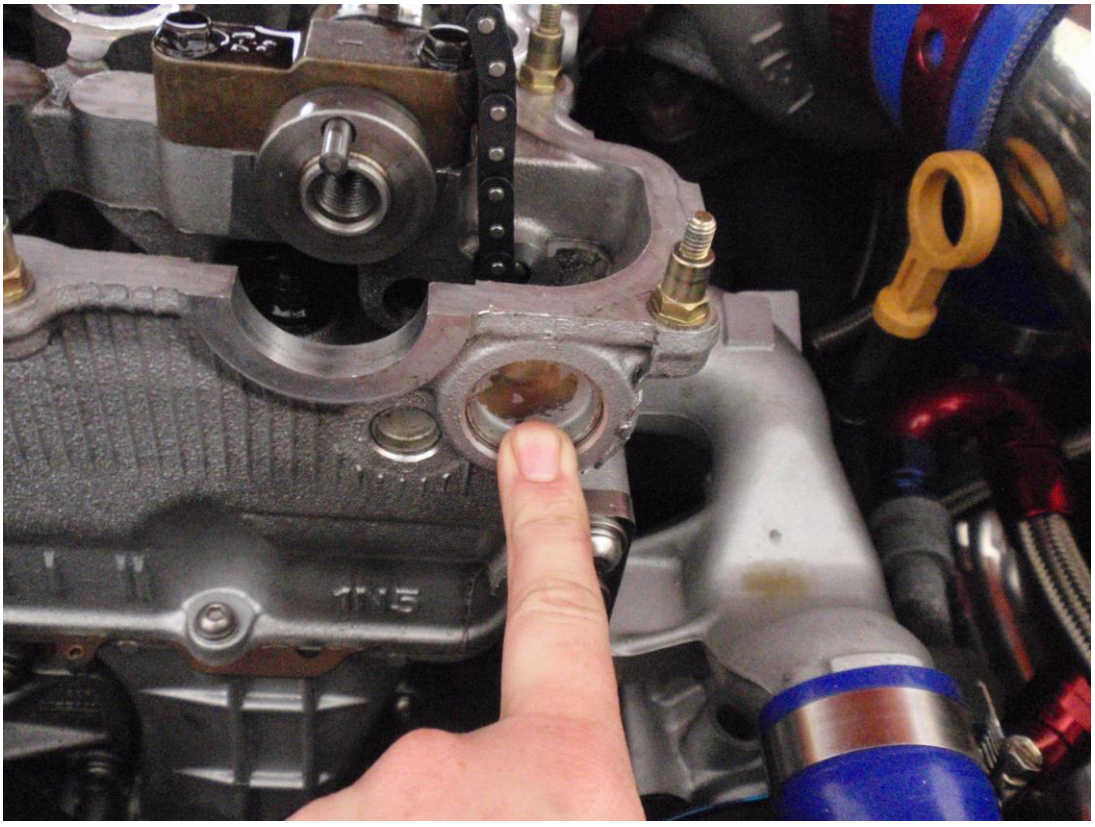
Install the supplied dowel pin into the exhaust camshaft. Note that the tapered end goes in first, as pictured.



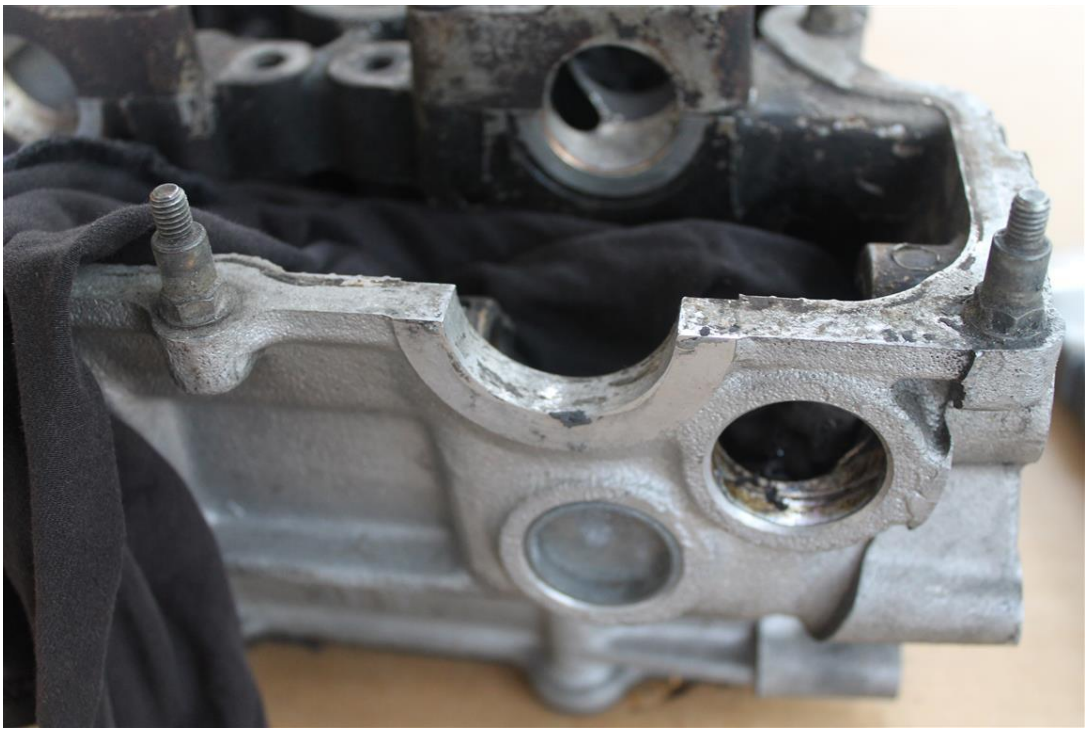
Installed.



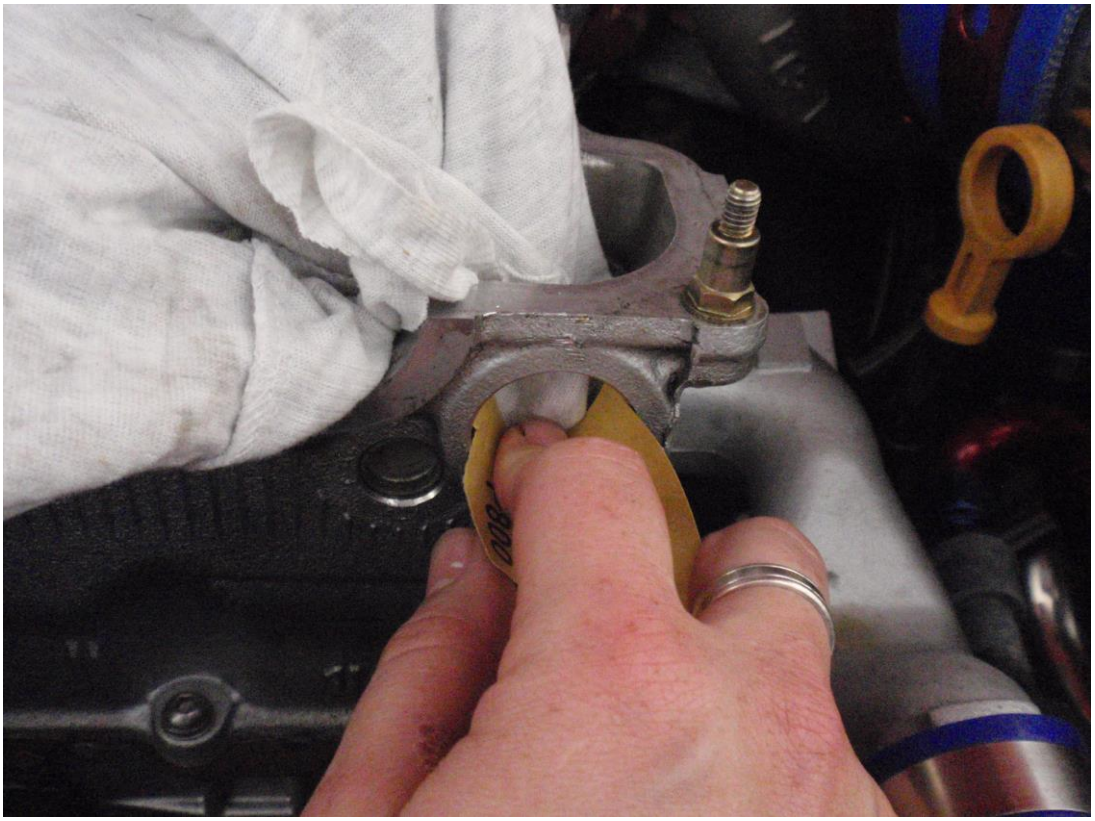
Remove the 30mm welsh plug from the front of the head. The plug needs to be pushed from the rear. This can be done very gently with large screwdriver (or similar) and a rubber mallet.



Removed.

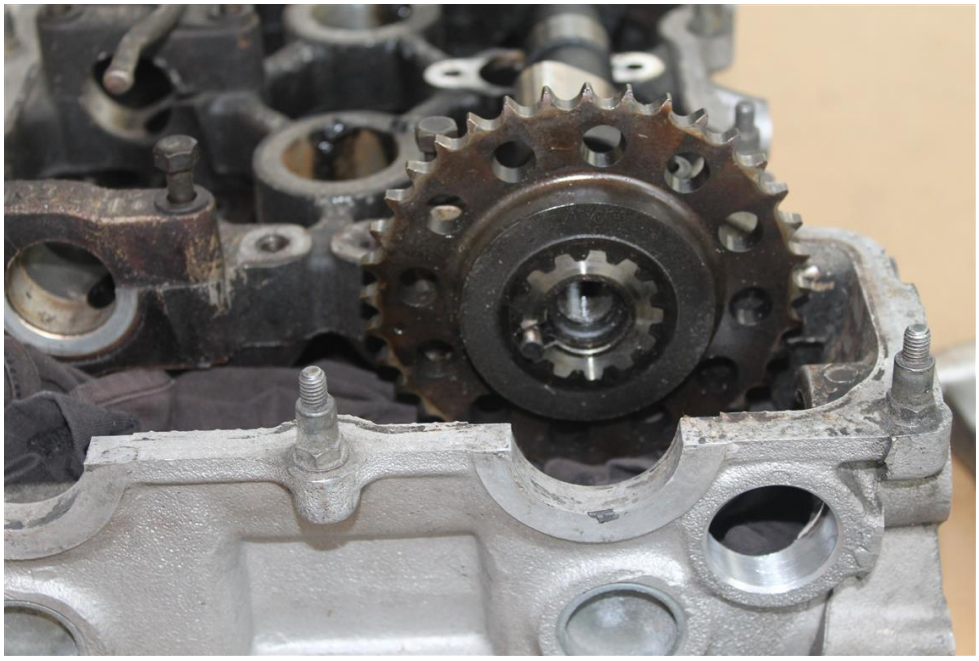


Once the plug has been removed use some 1000 or 1200 grit sand paper to clean any residue out of the hole. Place a rag at the back to stop any dust or debris from falling into the motor.



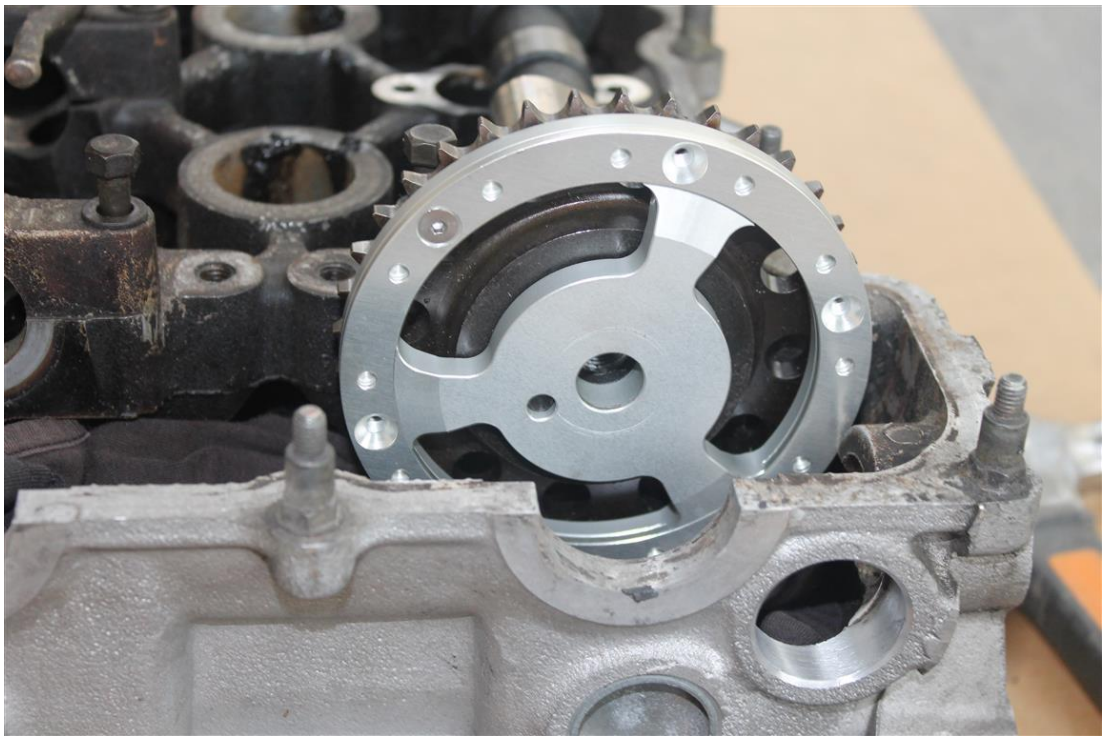
Clean.

Install the cam gear & timing chain. Remember to line the timing marks up.



The newly designed hall wheels now have 6 dowel pin locations. This is so you can change when TDC offset of the home signal occurs. Some ECU's require the home/sync signal to occur in a particular window in the engine cycle. If you plan to use the provided ECU settings at the end of this guide you will need to use the dowel hole circled below. Make sure the home magnet (circled) is as pictured in the photo.

Install the supplied hall wheel. Gently tap the hall wheel onto the dowel.

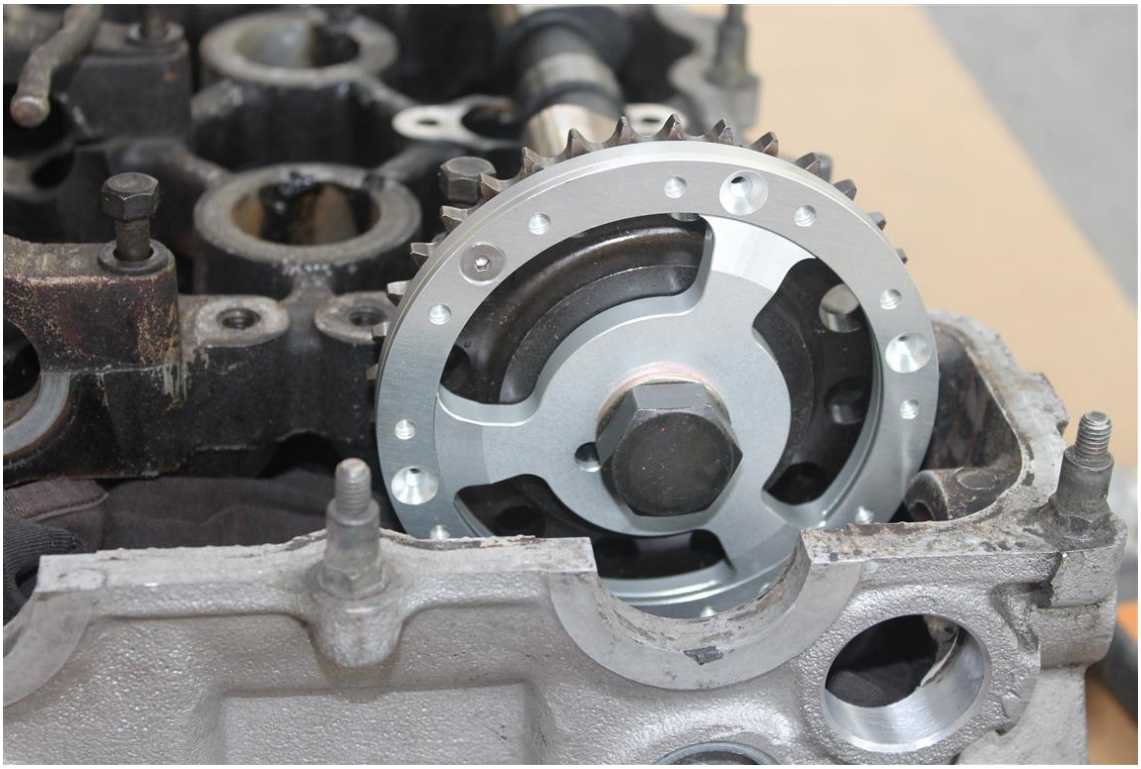


Using a thin cutting disc on a grinder slice the thick washer on the standard cam bolt as pictured below, be careful not to go too deep and into the bolt.

Flip the washer over and cut the same on the opposite side.

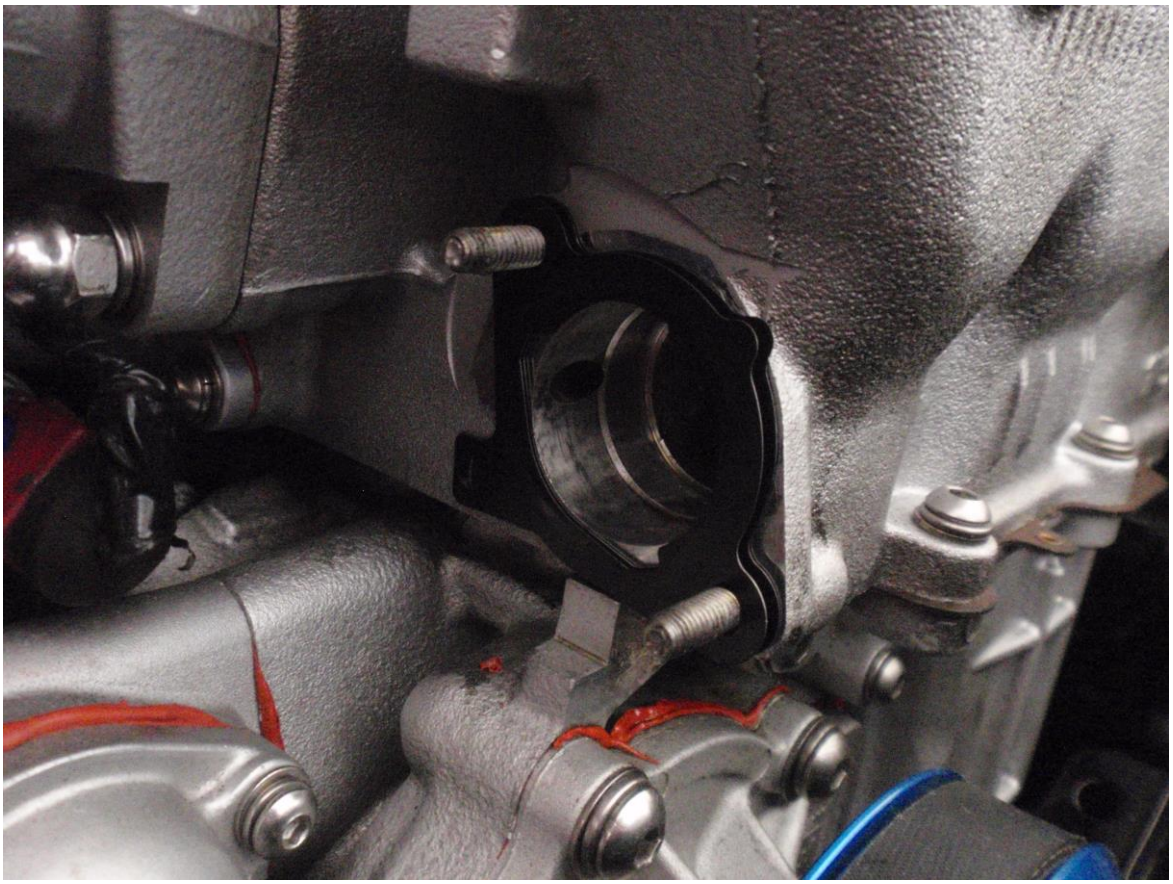
Use a cold chisel or flat blade screw diver and break the washer off. Once removed you will be left with just the bolt.

Using the supplied cam washer gently tighten the bolt to pull the hall wheel up against the cam gear.



Push the tensioner piton in and re-clip.

Install a new tensioner gasket.



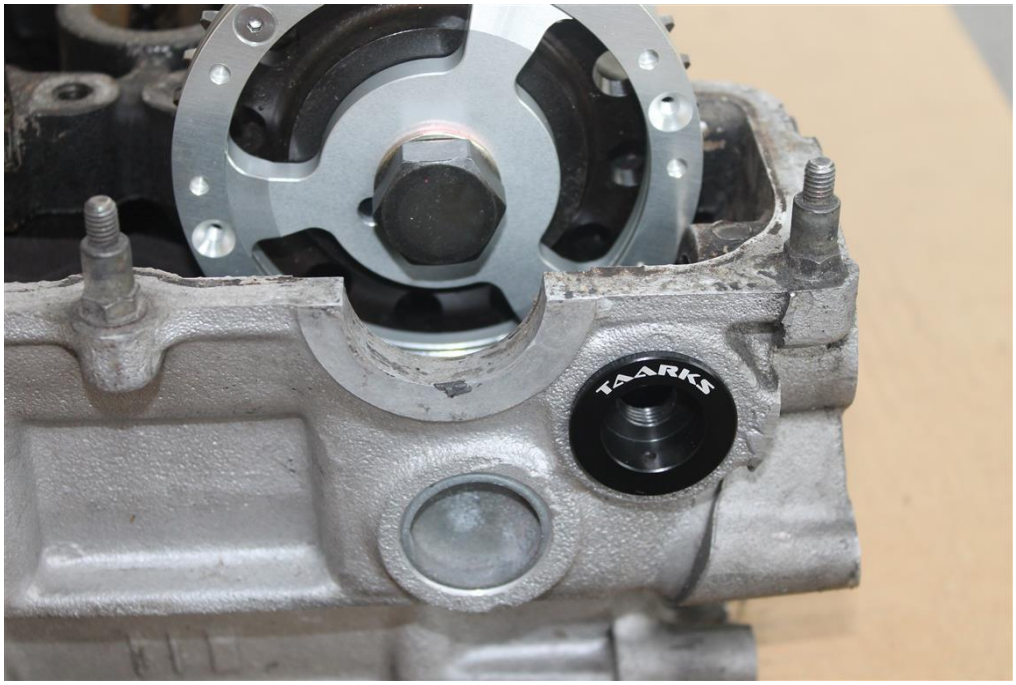
Install the tensioner.

Wind the motor backwards from the crank bolt until the tensioner catch drops.

Wind the motor forwards until the tensioner is extended.

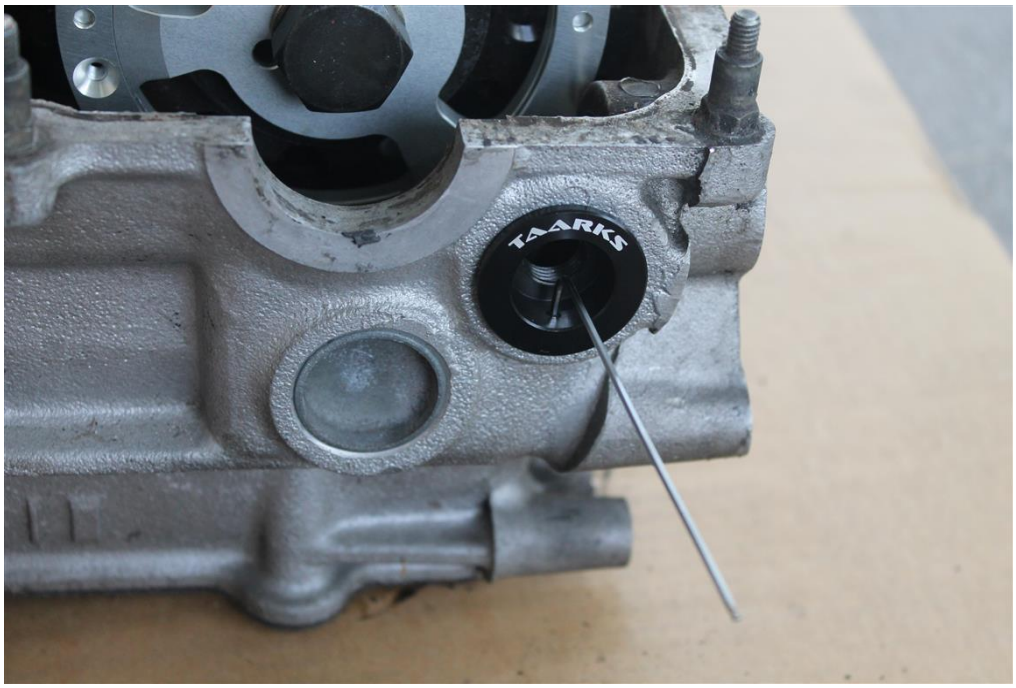
Apply 3-4 turns of thread tape around the sensor starting 10mm in from the end.

Apply a small amount of oil to the o-ring on the hall sensor holder and slide into the head with the logo facing up.

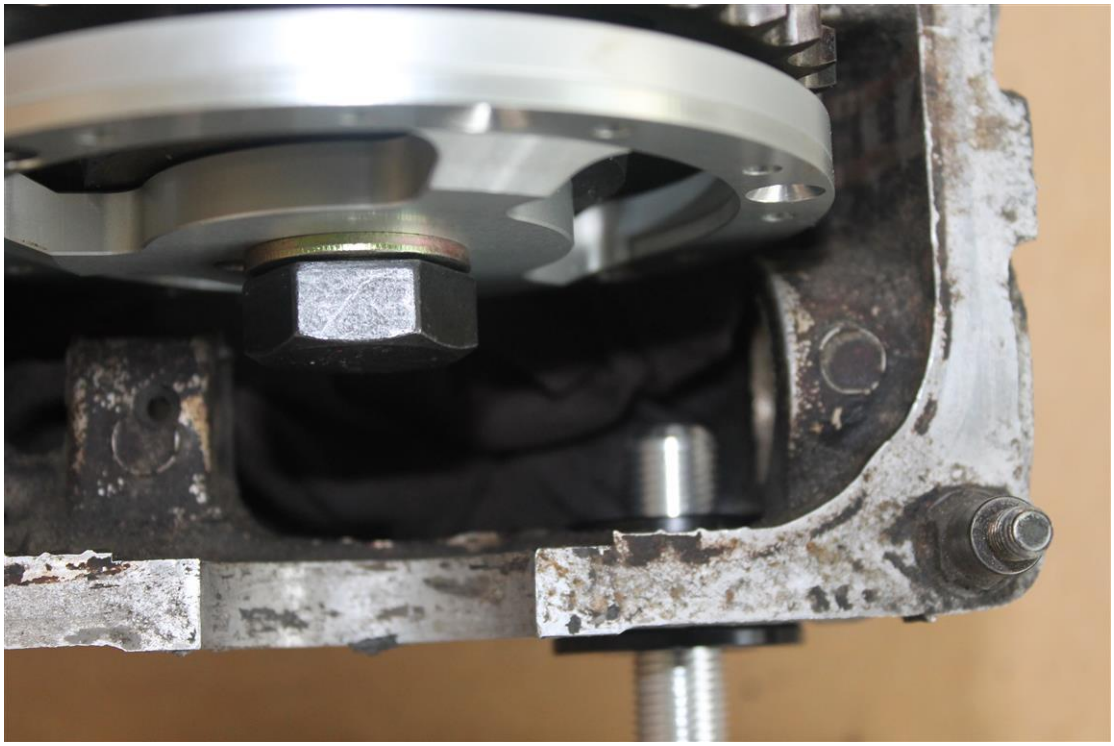


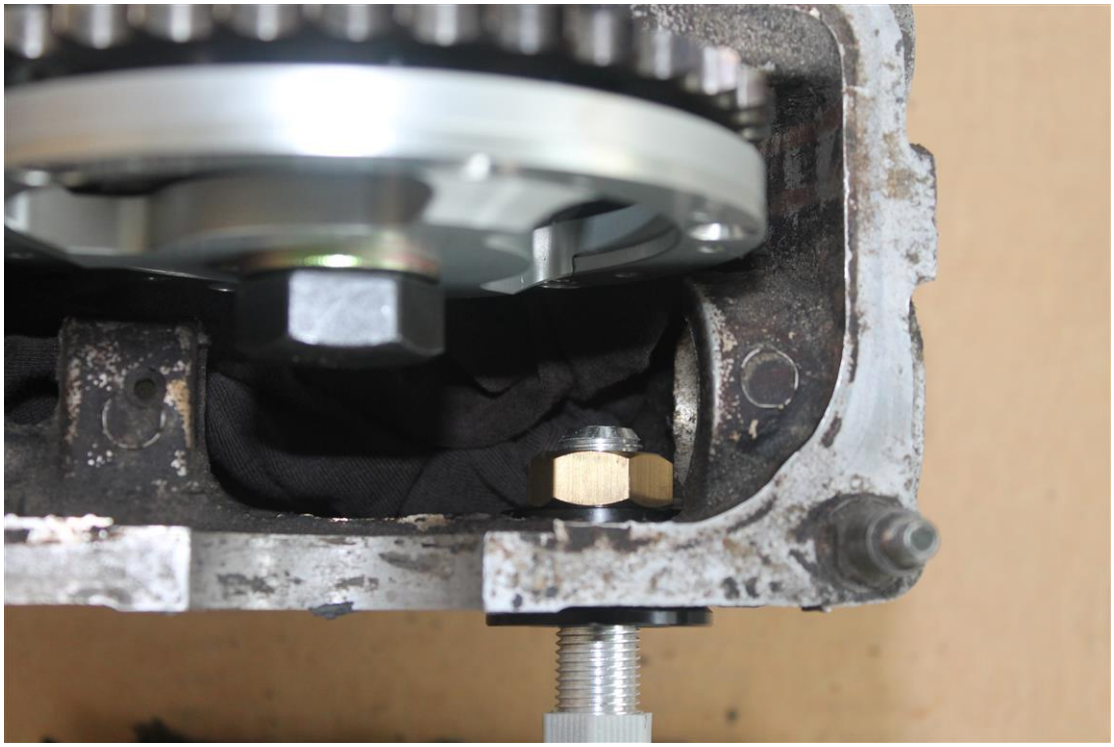

Make sure the holder is pushed in as far as it will go into the head.

Use a 1.5mm allen key and tighten the small grub screw.

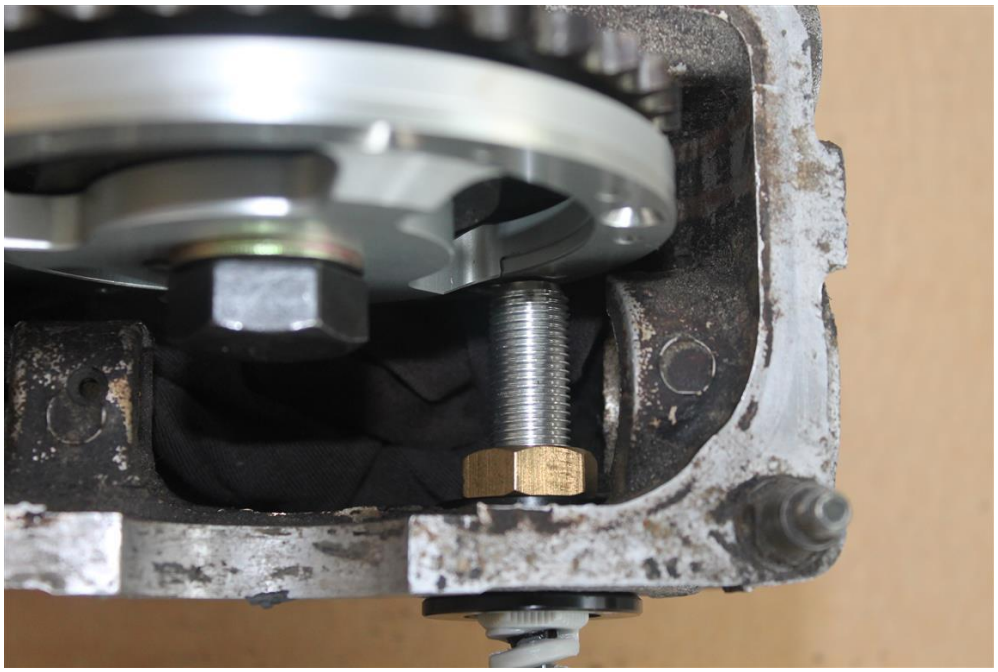


Wind the hall sensor into the holder so the tip of the sensor protrudes around 3mm, wind the supplied nut onto the sensor.

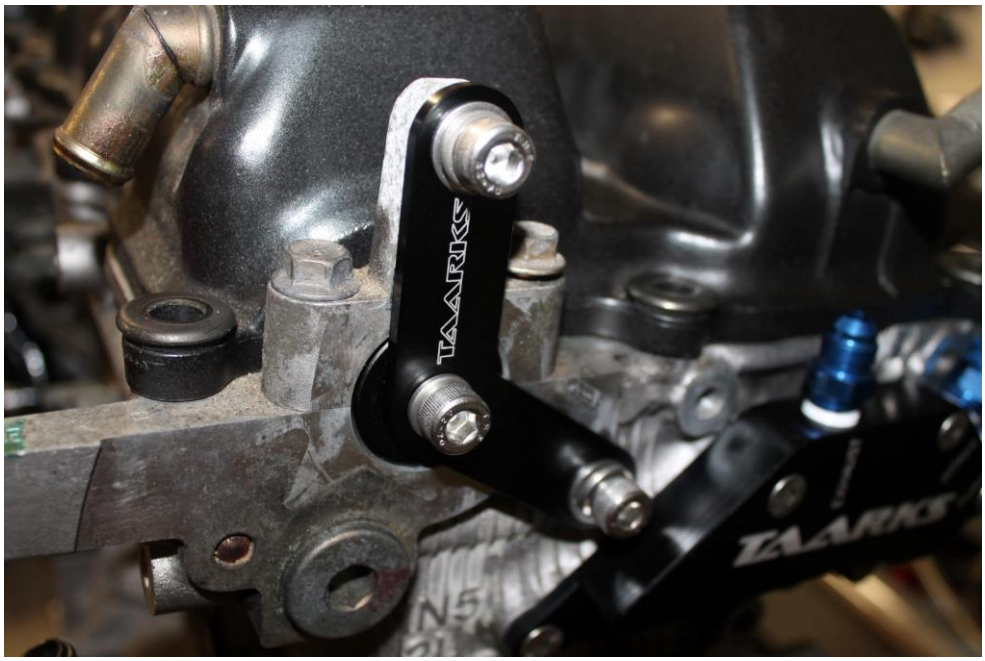




Wind the sensor in until the end of the sensor is 1mm away from the hall wheel. Use a feeler gauge to check the distance, rotate the engine and check the distance at several points around the hall wheel. (This distance may need to be adjusted once the motor is up and running, a gap no smaller than 0.5mm may be used). Once the sensor is in position apply some Loctite to the thread of the sensor just after the holder and wind the nut hard up against the holder and tighten.



Install the CAS block off plug using the suppled stainless bolts. A small amount of oil on the o-rings will help it slide in.



On the rocker cover a small part of the internal fins need to be ground down to clear the hall wheel.

Once the fins have been ground down your rocker cover should look like this:

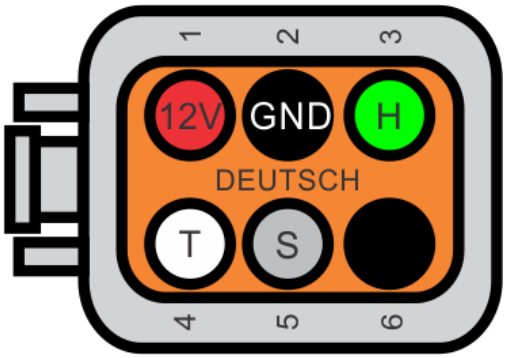
Ensure any metal filings are removed before re-fitting the rocker cover.

Wiring diagram and Hatech settings can be found below.

And that's it… You're all done. Enjoy & and thank you for supporting TAARKS.

# Wiring Diagram

Looking into the back of the engine loom side Hall Sensor connector:



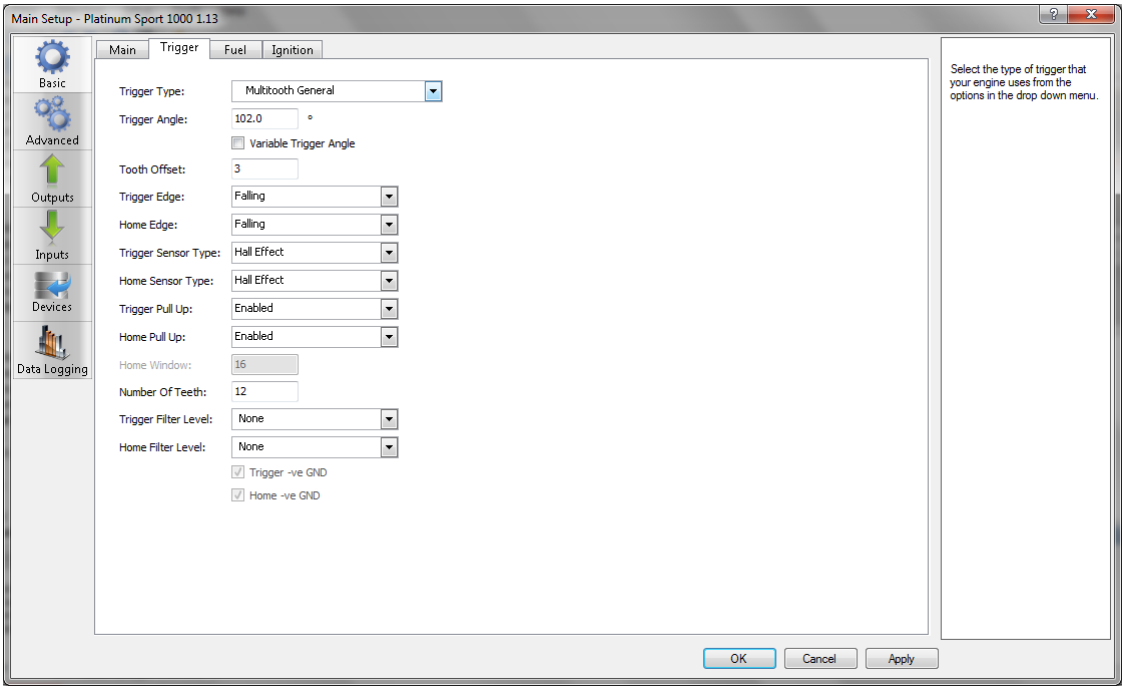

Pin 1/Red = 12v+ (Filtered from ECU)
Pin 2/Black = Sensor GND (from ECU)
Pin 3/Green = Home/Sync
Pin 4/White = Trigger
Pin 5/Raw = Shield
Pin 6 = Not Used

**Using an un-filtered power source and ground can damage the sensor.

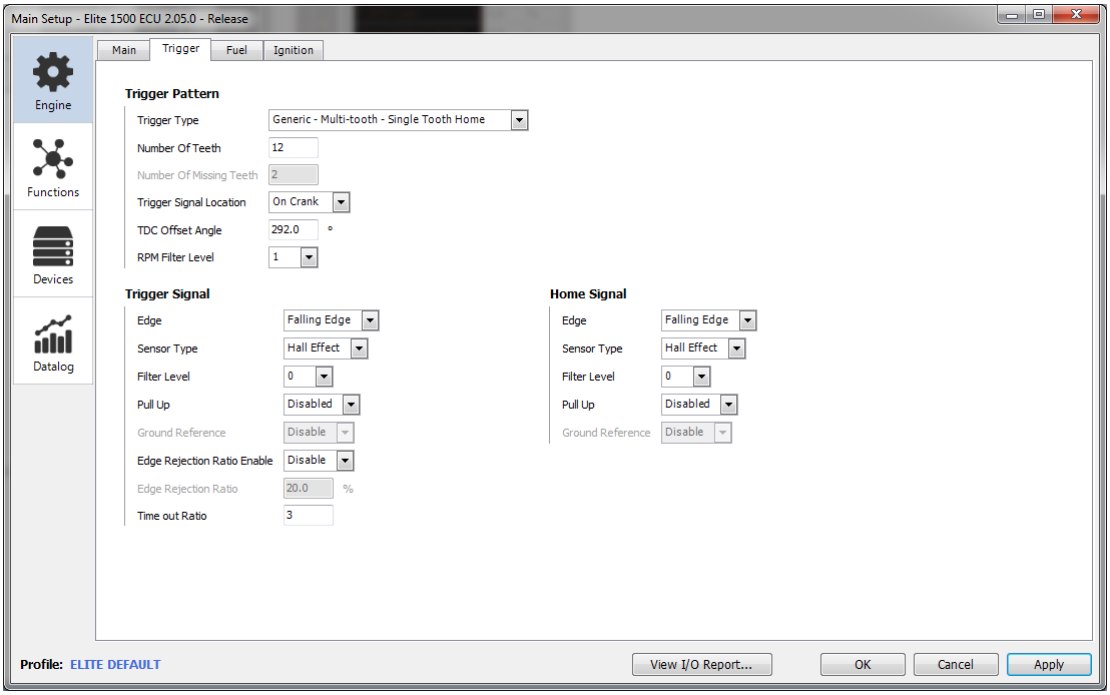
# ECU Setup Guide

These settings are provided as a guide only.

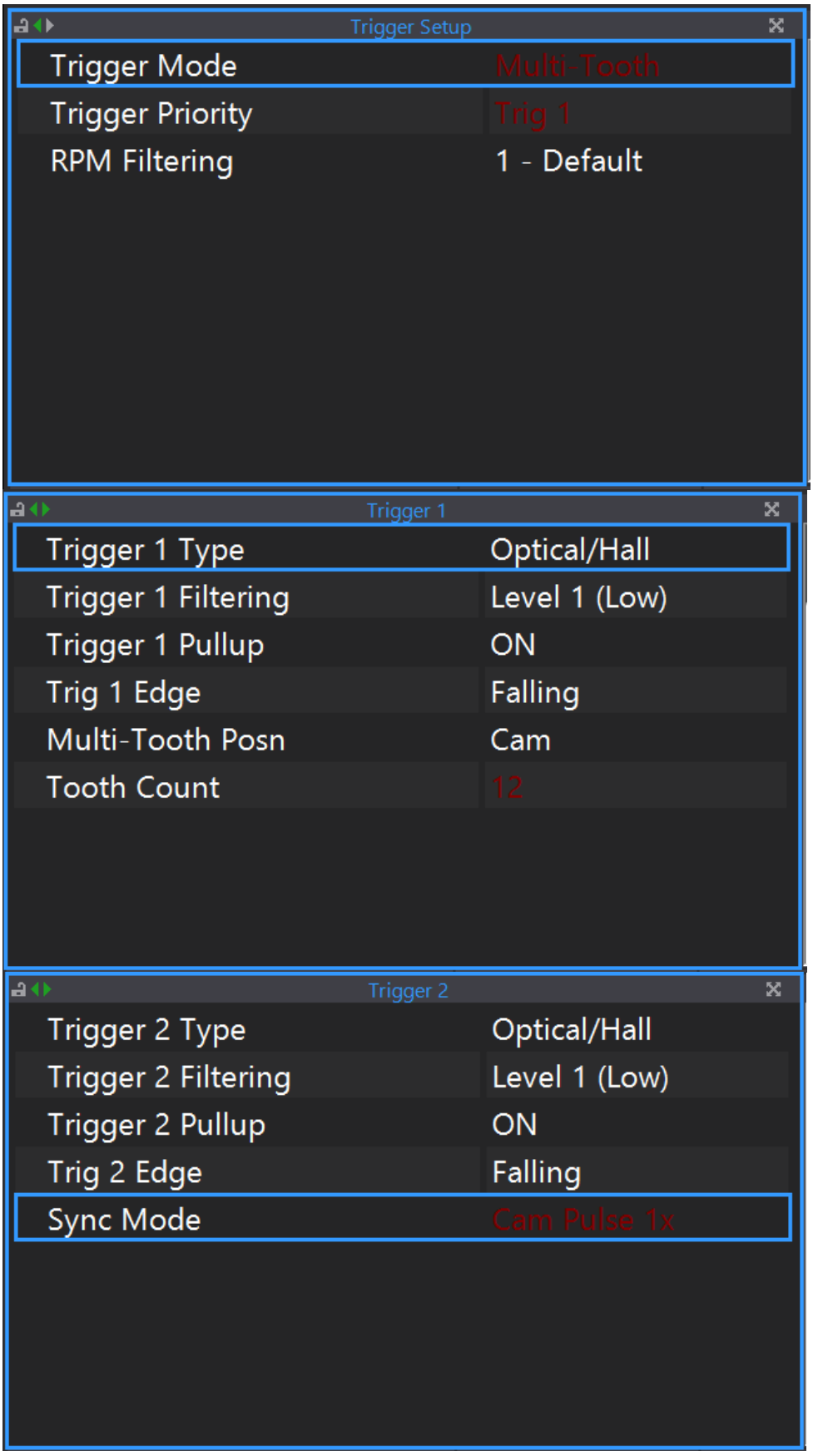
## Haltech Platinum Sport




## Haltech Elite



Link G4+


Trigger Setup
Trigger Mode
Multi-Tooth
Trigger Priority
Trig 1
RPM Filtering
1 - Default
Trigger 1
Trigger 1 Type
Optical/Hall
Trigger 1 Filtering
Level 1 (Low)
Trigger 1 Pullup
ON
Trig 1 Edge
Falling
Multi-Tooth Posn
Cam
Tooth Count
12
Trigger 2
Trigger 2 Type
Optical/Hall
Trigger 2 Filtering
Level 1 (Low)
Trigger 2 Pullup
ON
Trig 2 Edge
Falling
Sync Mode
Cam Pulse 1x

Fuel Tech

## RPM signal

**RPM sensor**

**RPM sensor type**

- (●) Hall/VR with pull-up
- ( ) VR internal reference
- ( ) VR differential

**RPM sensor edge**

Falling

**Crank trigger pattern**

**Crank trigger wheel**

6 (at crank) or 12 (at cam)

**Crank index position**

180.0 | 3 teeth 0.0°

**Crank trigger type**

No missing tooth

**Crank trigger number of teeth**

6

**Number of missing teeth**

0

**Additional tooth angle**

0.0

**Gap duration time**

0.00

**Custom crank trigger settings**

| GAP | Number of missing teeth | Teeth to next GAP | GAP threshold |
|---|---|---|---|
| 0 | 0 | 0 | 0.000 |
| 1 | 0 | 0 | 0.000 |
| 2 | 0 | 0 | 0.000 |
| 3 | 0 | 0 | 0.000 |
| 4 | 0 | 0 | 0.000 |
| 5 | 0 | 0 | 0.000 |
| 6 | 0 | 0 | 0.000 |
| 7 | 0 | 0 | 0.000 |

**Cam sync sensor**

**Sensor type**

- ( ) Not used
- (●) Hall / VR with pull-up
- ( ) VR (Variable Reluctance)
- ( ) VR differential (FT600)
- ( ) Random Hall - Diagnostic
- ( ) Random VR - Diagnostic
- ( ) Random VR differential - Diagnostic (FT600)

**Cam sync edge**

Falling

**Cam sync sensor for synchronization only**

[ ] Enabled

Cam sync sensor will be used only after engine starts for 10 revolutions of the engine and then disconsidered for engine synchronization, but will continue to be record in datalogger.

**Cam Sync Position**

**Cam Sync position angle**

328.5 °BTDC

Engine position angle (BTDC) when the cam sync sensor is over the cam sync teeth. This information is used to improve noise rejection and prevent cam sync errors and doesnt require precise number since it doesnt affect timing preciosion.

**Cam sync window filter detection angle**

**Window filter detection angle**

360 °

The cam sync detection window restricts the reading of signals around the angle of the cam sync position, discarding any signals outside this window. This option makes possible to use multi-teeth cam sync triggers.

Emtron

“Coming Soon”