

August 2020

1.6L EcoBoost SBD/Titan Dry Sump System Fitting Instructions



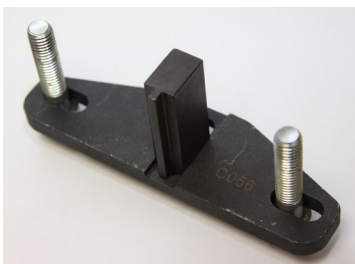
Ford Tools required



Locking Tool, Variable Camshaft
Timing Oil Control Unit 303-1097



Alignment Tool, Crankshaft
Vibration Damper 303-1550

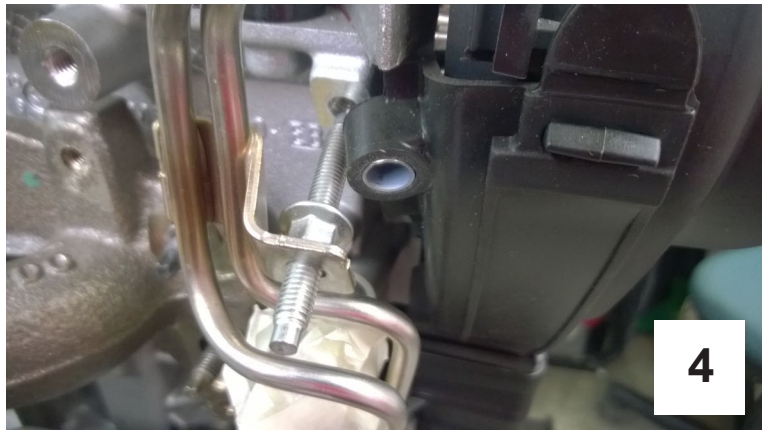
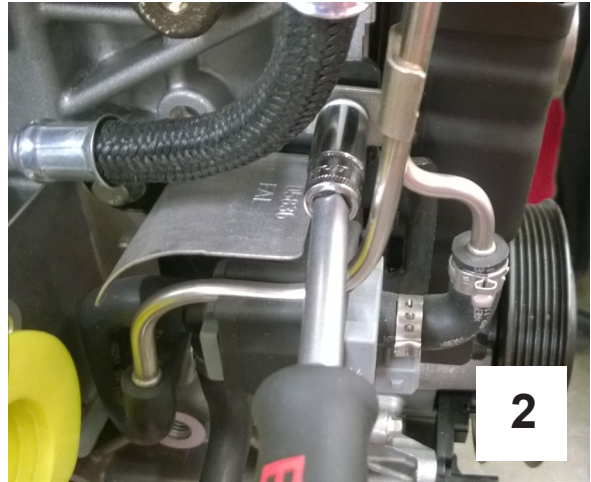
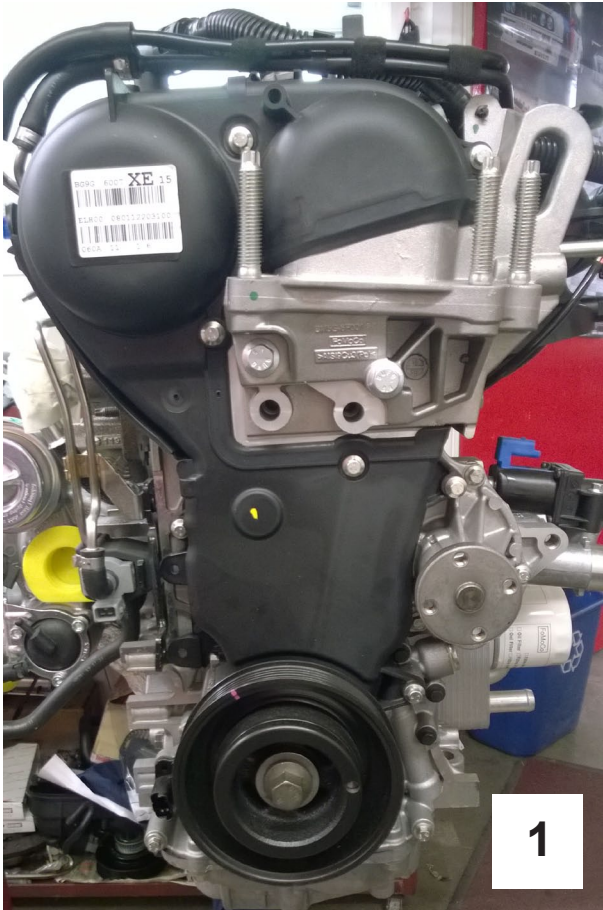


Locking Tool, Flywheel
303-393A

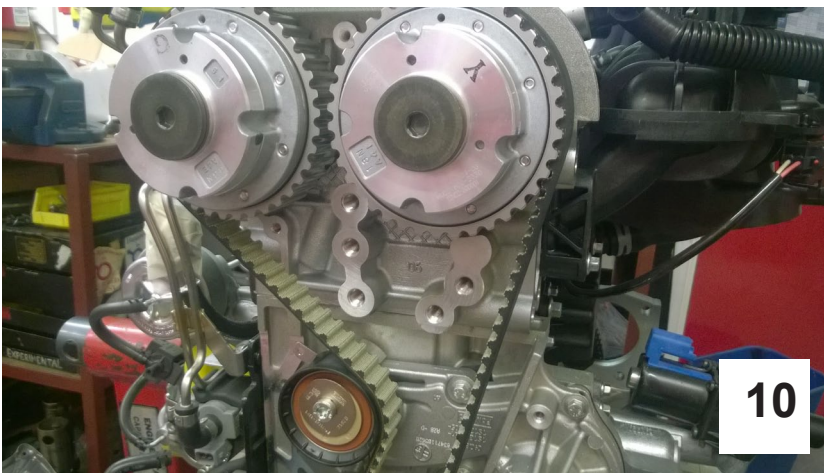
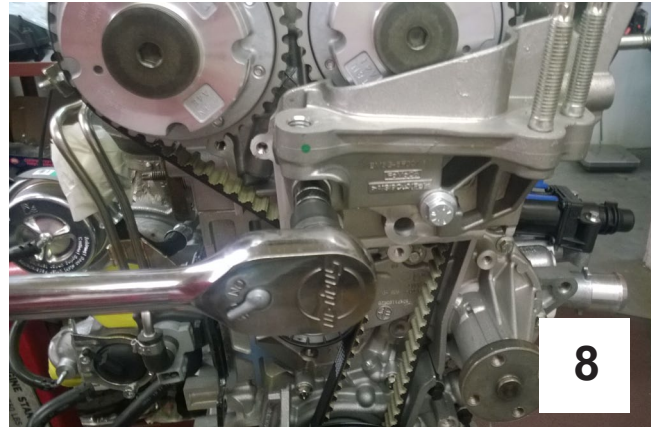
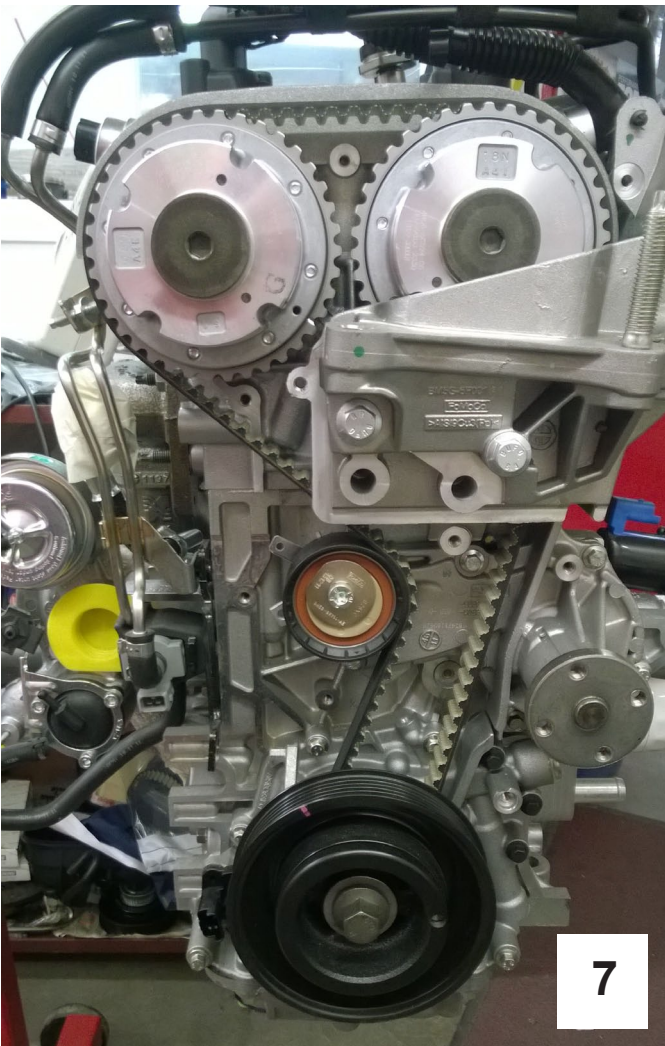


Locking Tool, Crankshaft
303-748

Remove plastic cam belt cover



Remove engine mount.



This will be refitted in reverse order once the dry sump system has been fitted.



Drain standard sump pan.

Remove sump pan, it is sealed on with a silicone sealant so you will need to use a pry bar to break the seal.



Remove pick up pipe.

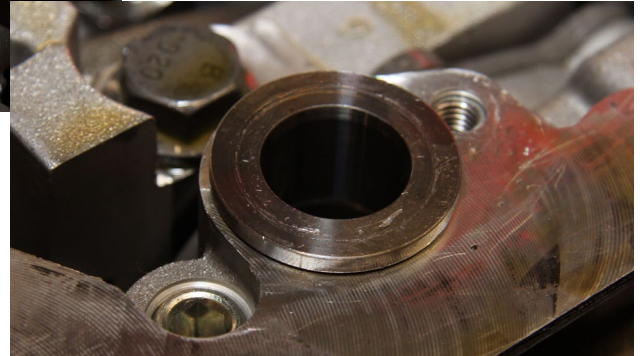


Remove baffle.





Fit o-ring to steel oil pump insert for pressure pump, lubricate seal with engine oil & insert it in the oil supply pick up hole.

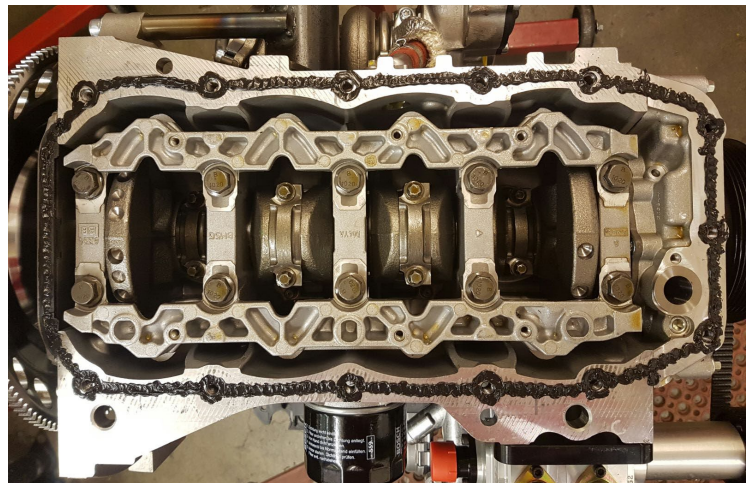


Apply silicone grease to o-ring, then insert o-ring into sump pan. The grease helps retain the o-ring in position while fitting the sump.

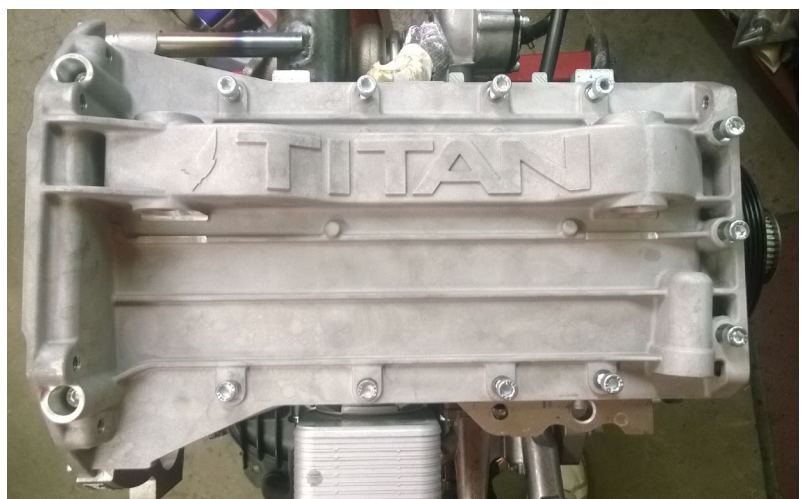
Ensure all faces are clean.



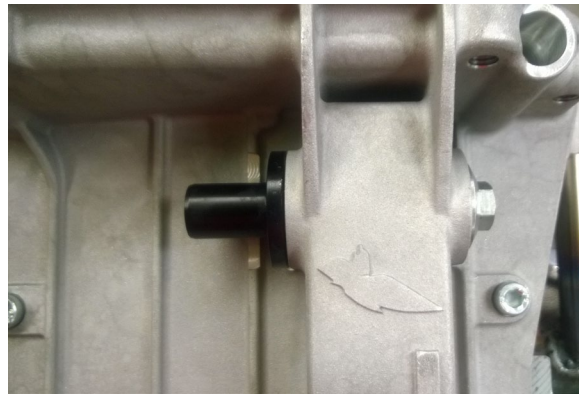
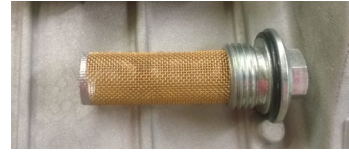
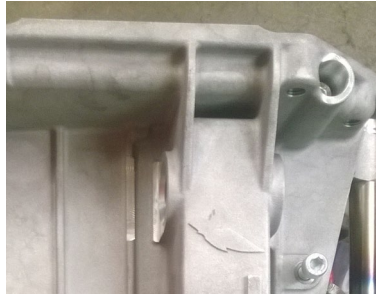
Put Loctite 5980 Silicone Sealant all round where the sump pan connects to the engine block as shown in photograph.



Bolt sump to engine.
Torque setting: 17lbft (23NM).



Lubricate o-ring with a small amount of engine oil or silicone grease, insert scavenge pipe outlets into sump, then fit filter into opposite side and gently tighten.



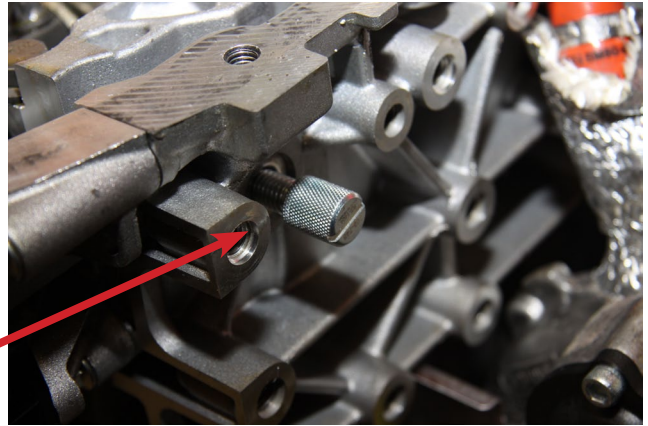
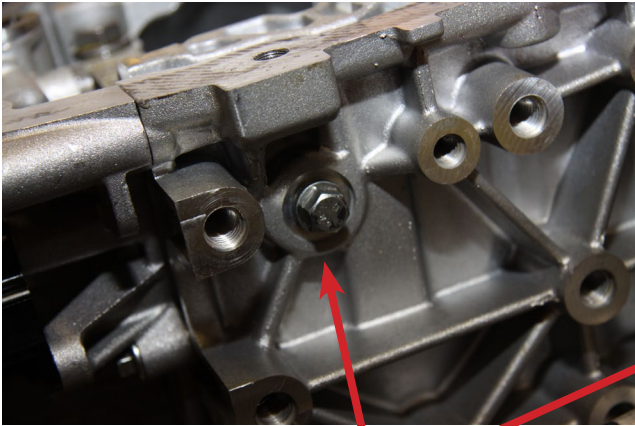
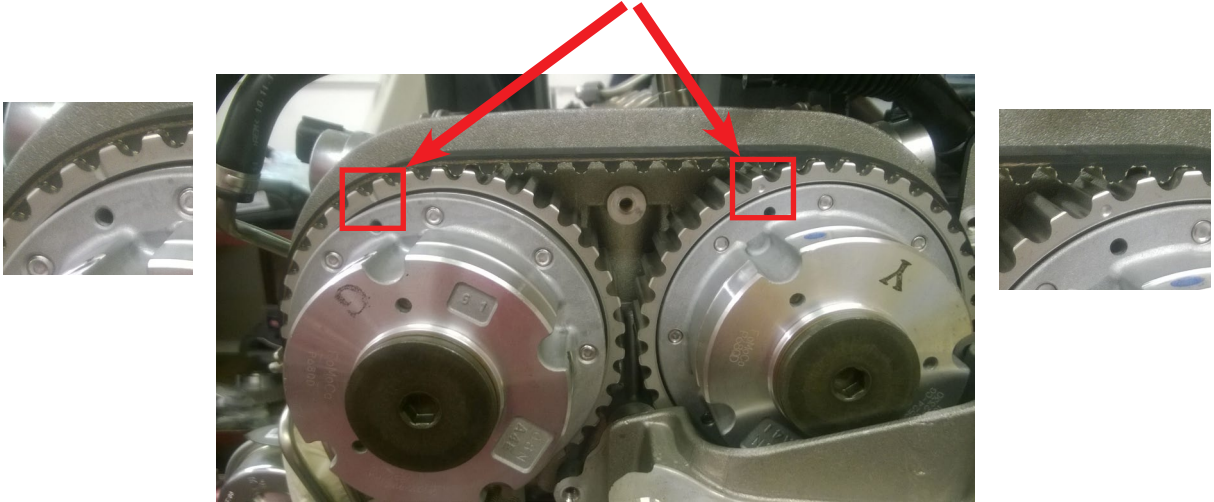
Lubricate o-ring with a small amount of engine oil or silicone grease, insert -12 oil supply coupling into sump pan and gently tighten.



Fitting the dry sump pulley

Rotate the crankshaft until the marking on the VVT units are at the 11 o'clock position.

NOTE: ONLY ROTATE THE CRANKSHAFT CLOCKWISE

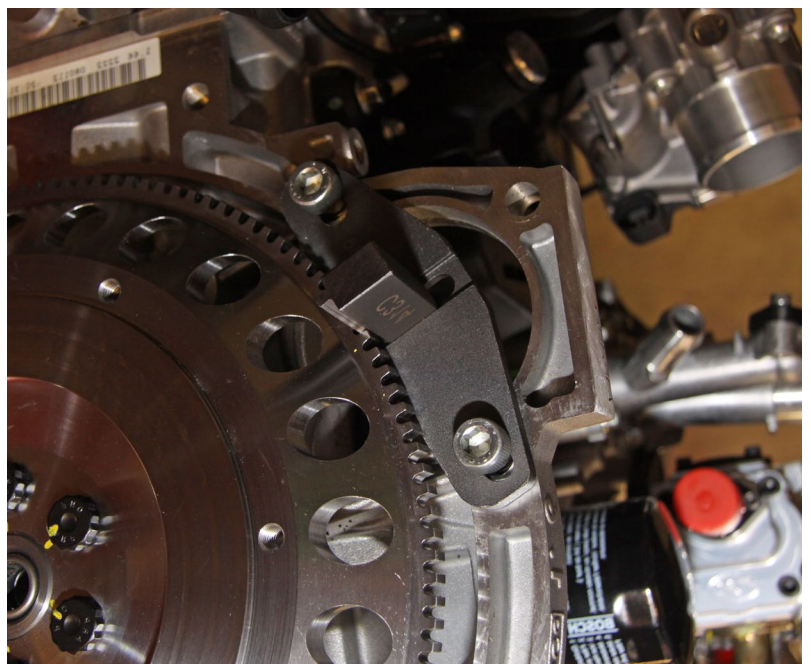


Insert Crankshaft locking tool.

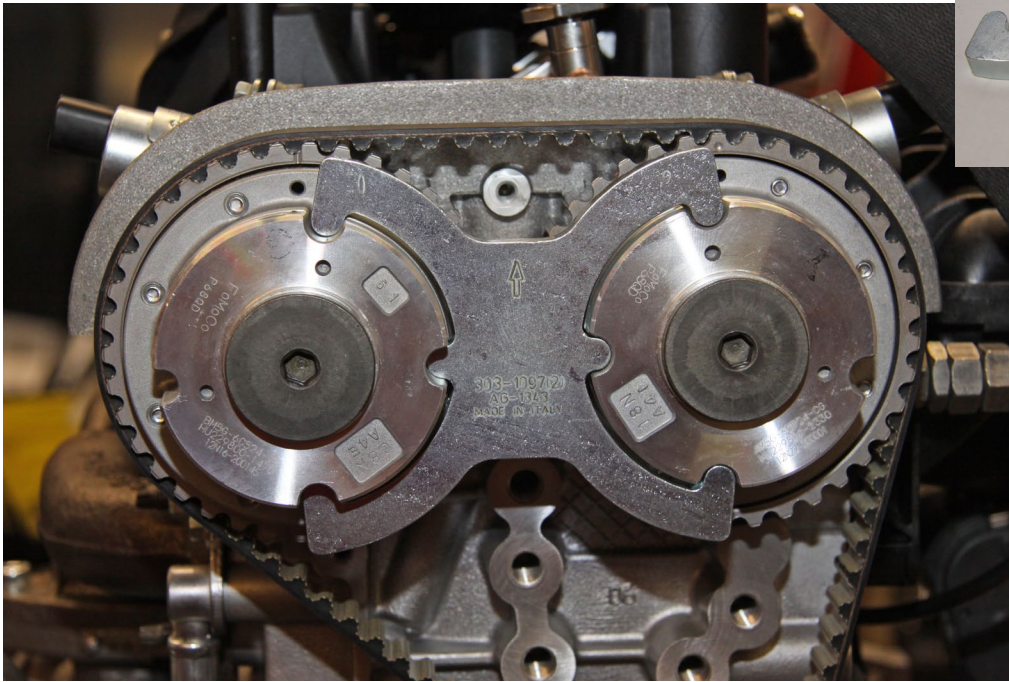
NOTE: ONLY ROTATE THE CRANKSHAFT CLOCKWISE
Rotate the crankshaft slowly until the crankshaft stops.



Lock flywheel in position, using Flywheel locking tool.



Insert Variable Camshaft Timing Oil Control Unit Locking Tool.



Remove standard crank bolt, install the dry sump pulley in front of the crank pulley.



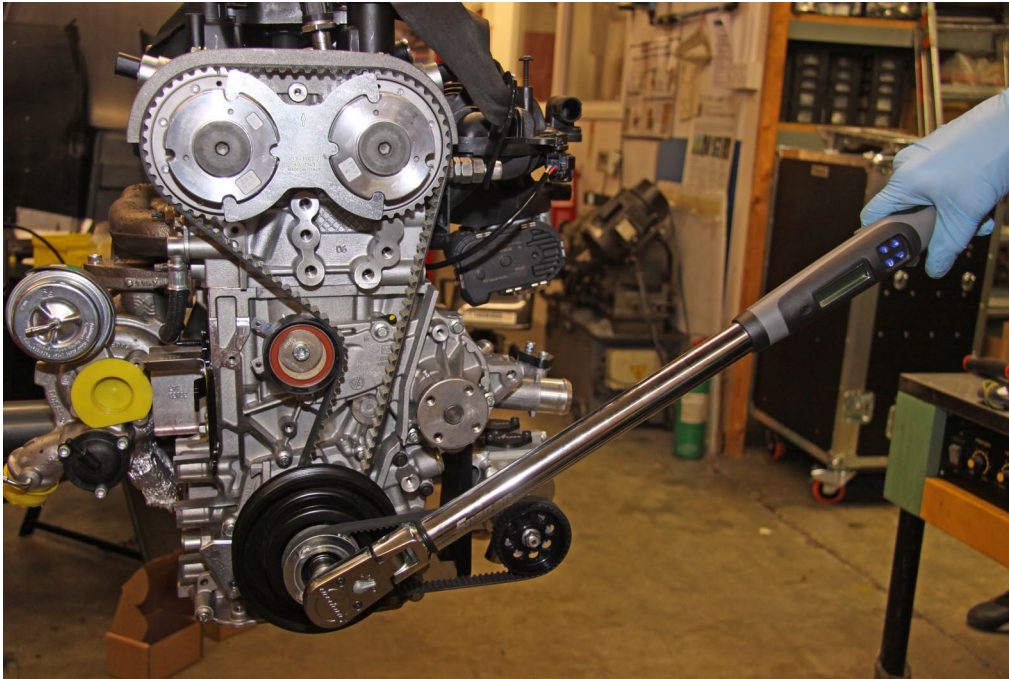
Install the crank bolt with either a new standard crank bolt from Ford and cut off washer or with a modified crank bolt which can be purchased from SBD part number: BLT-CRK-ECO-02.

DO NOT RE-USE ORIGINAL BOLT



Remove crank sensor and insert the Crankshaft Vibration Damper Alignment Tool. Check the alignment is correct, nip the crank bolt (25lbs), then remove the tool before fully torquing the crank bolt.





Tighten the crank bolt and torque as follows;

Stage 1: 74lbft (100NM)

Stage 2: 90-deg

Stage 3: Wait 10s, 15-deg

NOTE: There is a potential for the bottom pulley to move whilst the crank bolt is being tightened, so please re-insert the crankshaft vibration damper alignment tool to check the alignment is still correct. If it is not, remove crank bolt and repeat the alignment procedure.

Remove tools preventing crankshaft from moving.

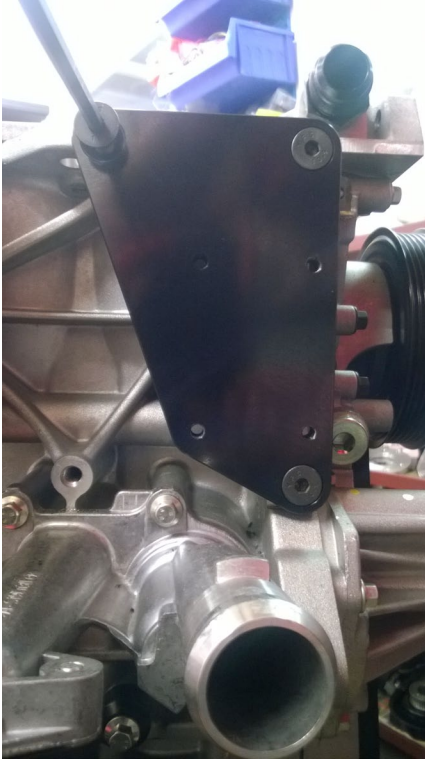
Re-install crank sensor.



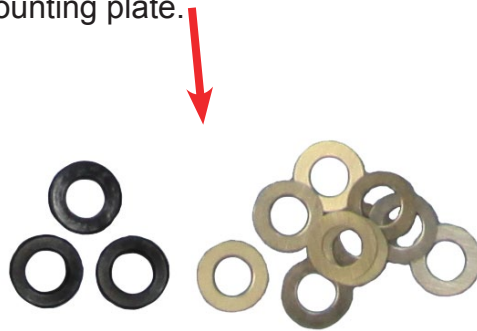
Fit dry sump pump & belt.

Trial fit the dry sump pump to ensure the belt has the correct tension. We suggest the tension is sufficient that when the pump is in place and the belt is fitted that it can be slid off the front of the pump without excess force and slid back on again in the same way.

The belt tension does not need to be tight as the drive design does not require high tension, also being an aluminium block engine, the engine will grow slightly when hot and the belt should never become excessive tight when the engine is hot.



The pump mounting plate can be adjusted with the use of washers behind the black spacers which fit into the recesses on the back of the mounting plate.

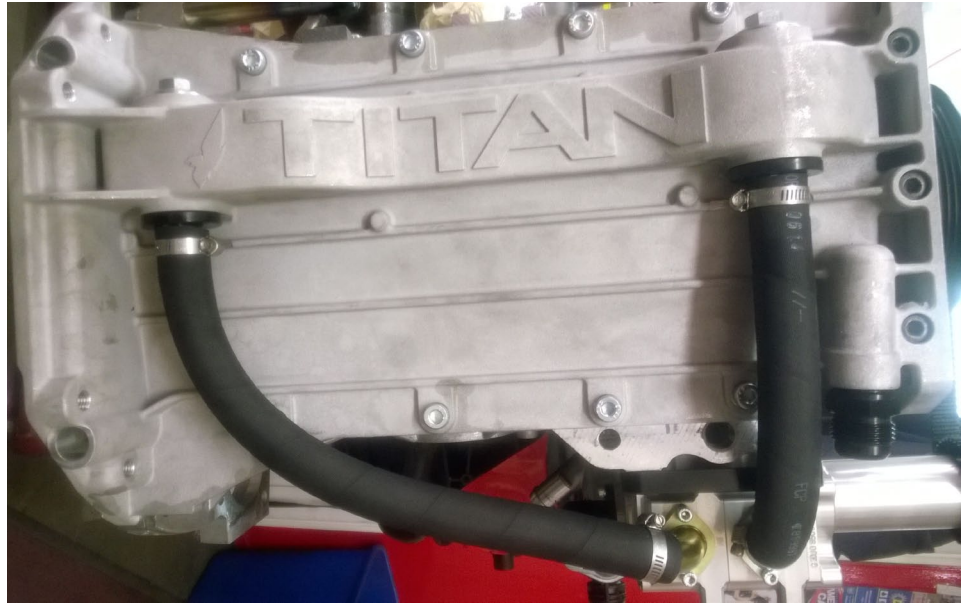


Once you have obtained the correct position for the pump, fit the pump and bracket using Loctite 243 on the bolts for the final assembly.

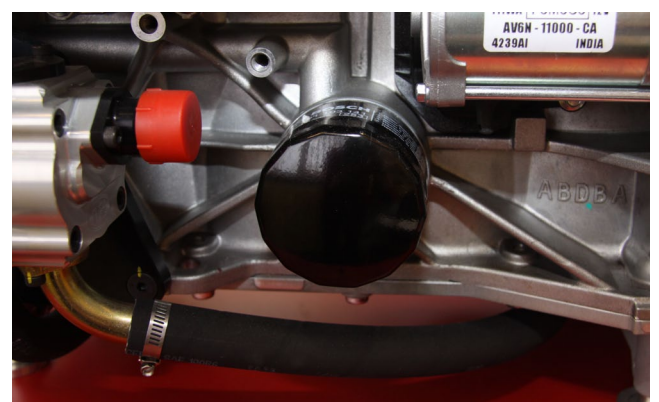
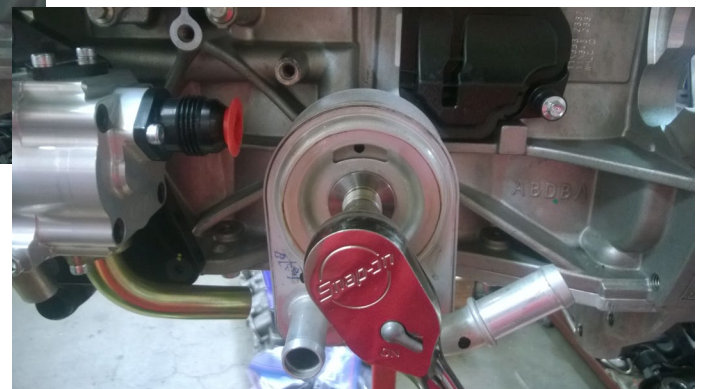
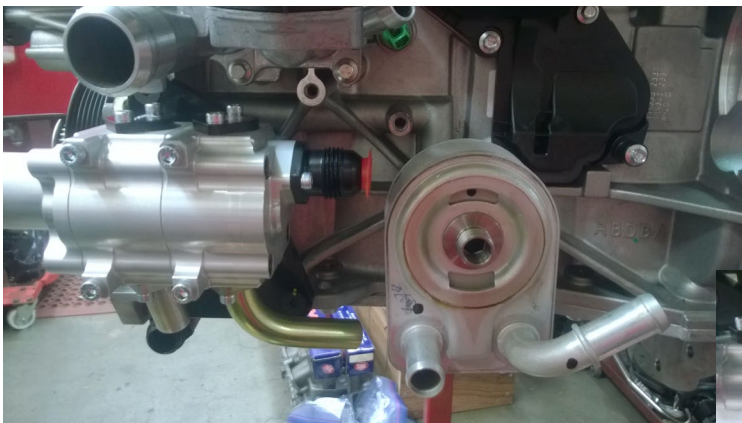


Trial fit the hoses and cut to the required length. Quite often they are supplied at the correct length but if you have issues with chassis components, you may need to trim or alter the hoses to suit.

Fit the hoses in and use the jubilee clips to secure the hoses in position. They do not need to be excessively tight as the pipes are under vacuum and after a short period of use they will normally seal themselves tighter on to the fittings.



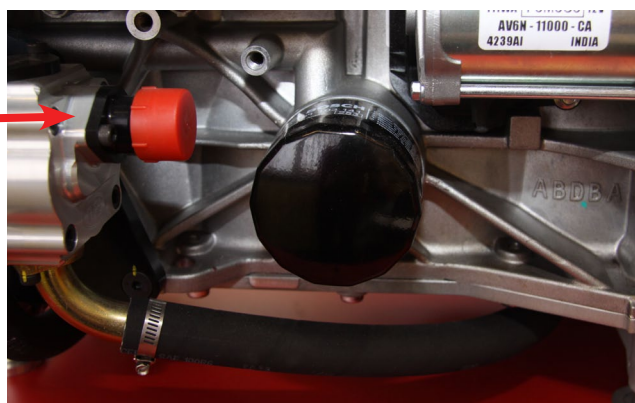
Remove existing oil cooler, fit male/male adapter supplied in kit using 270 Loctite, re-fit with our short filter OS-FTR-3. Oil cooling should only be done on the scavenge side either an air type oil cooler or laminova type. This should be fitted between the scavenge pump outlet and the oil tank.





-12 supply from bottom of dry sump tank.

-12 Scavenge return via oil cooler to top of dry sump tank.



Important Notes

With our dry sump system, all breathers on the engine should be blanked, the dry sump system produces a vacuum so no breathers are required.

NO BREATHERS FROM THE ENGINE SHOULD BE CONNECTED BACK INTO THE INDUCTION SYSTEM FOR MOTORSPORT USE.

We recommend that the oil cooler, if required for your installation, is fitted into the -12 return line to your oil tank (size and type depend on installation and use).

Please see separate information sheet 'Dry Sump System Level Information re SBD Dry Sump Tanks' for details about filling your system with oil and the recommended oil levels.

Please be aware that Technical Support involving our Technicians is chargeable

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