

INSTALLATION MANUAL FOR:
**JWT VQ35DE ADJUSTABLE
INTAKE CAM PHASER LOCK KIT AVQ35-IPLOC**
INCLUDING, OPTIONAL:
VG30DE(TT) CAS ADAPTOR KIT AVQ35-VGCAS



For use in VQ35DE engines that require Intake cam timing to be locked in a specific position. Larger cam profiles combined with high dome pistons and or larger valve diameters can cause interference damage during normal phaser operation if not physically locked to a position that does not cause interference. Combined with JWTs VQ35 Adjustable Exhaust Cam Sprockets AVQ35-EGEAR, any cam timing setup can be achieved. This kit may also be needed when a VQ35DE is used with an ECU / control system that does not control cam phasing, requiring the intake cam timing to be locked. In the later case the JWT VG CAS Adaptor AVQ35-IPLOC can be added to eliminate the need for the original VQ flywheel and cam sensors simplifying an engine swap when using any control system that can accept a Nissan VG30DE Position and Reference signal for crank and cam positions.



1. Remove and discard the intake cam sprocket covers and clean off the old sealant.



2. Remove the 4 bolts holding the phaser sprocket covers and discard the phaser sprocket covers. Be careful not to let the Home lock pin & spring fall as you remove the covers.



3. Remove the home lock pin, spring and plastic cap and discard them.



4. Measure the diameter of the home lock pin and choose the supplied Drive Pin Bushing that is the same diameter. Install the correct size Drive Pin Bushings and Drive Pins on both sides.



5. Install the supplied Phase Lock Plates, engaging them to the Drive Pins and loosely install the original bolts. NOTE: If you are using the optional VG30DE CAS Adaptor, see the addendum instructions at this point.



6. Adjust the Phase lock plates to set the intake cams to the degrees that you want them positioned. NOTE: Typically, this will be determined by dyno testing for the optimum results for the type of performance activity the engine is intended. The position may also be determined based on a cam, piston valve relief, valve diameter combination that would interfere at some intake cam position during normal phaser operation and must be locked in a position to avoid this. If the later is NOT the case, typically starting in the middle of the phaser travel (20degrees) is a good starting position. Torque the 4 lock plate bolt to 10 ft-lbs. using Loctite.



7. Remove the phaser control valves and metal gaskets. Place the supplied control valve block off plates between the valves and the gaskets (above the gasket). Silicone sealant is not normally used, but a very thin coat on the gasket is OK. Torque bolts to 8 ft-lbs. The open oil ports on the front cover are now blocked and do not need to be plugged.



8. Install the supplied sprocket cover plates using silicone sealant. If you are using the optional VG30DE CAS Adaptor, only install the bank 1 cover, as the Adaptor will be installed on the bank 2 side.



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Mon.-Fri. 8pm to 5pm PST

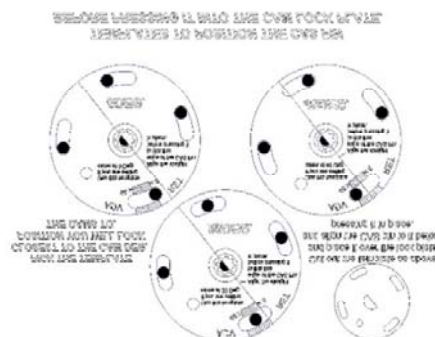


Addendum for: JWT VG30DE(TT) CAS ADAPTER KIT AVQ35-VGCAS

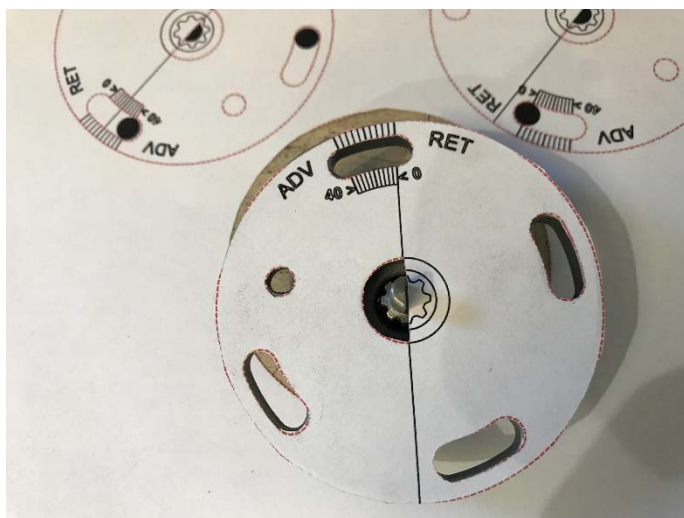


NOTE: The VG30DE control system triggers the leading edge of the largest of 6 optical encoder windows in the CAS at 110degrees before #1 cylinder is at TDC compression stroke (ignition). Other control systems may use another positioning strategy and may need the CAS pin position altered for that system. If you find that the ignition timing cannot be set within the CAS slots range, remove the 3 CAS adjustment bolts and rotate the CAS until the ignition timing is the same as your ECU is commanding and mark the middle of the CAS slot on the CAS Base Housing. You will need to reposition the CAS pin in the Locking Plate in the opposite direction by the same distance as the mark is from the CAS adjusting bolt hole. The VG30DE CAS adaptor signal will only work with an OEM VG30DE(TT) ECU (reprogrammed) or a control system known to be able to accept the VG30DE(TT) Position and Reference signals for Cam and Crank position information.

- A. Before installing the bank 2 Cam Lock Plate (right side looking from the front of engine), you need to press the supplied CAS Drive Pin into the Cam Lock Plate in the position that will be best for the cam position you are setting the intake cams at. This will help to position the CAS in the center of its adjustment slot travel assuming that you are using a VG30DE compatible ECU or control system. Use the positioning template (see last page) closest to the cam degrees setting you will be locking the Cam Lock Plates at. The supplied template examples are for 0 cam deg (home pos.), 20 cam deg (middle pos.) & 40 cam deg. (fully advanced pos.).



- B. Cut out the selected Template and place it over the Cam Lock Plate as shown. Place the CAS Drive Pin in its hole from the back side. Align the flat side of the tab on the CAS Drive Pin with the flat edge of the template crossing the center of the template.



- C. Press the CAS Drive Pin into the Cam Lock Plate from the rear until it is flush but never below flush.



- D. Install the Cam Lock Plate in the intended position the same as bank #1. (see #6 main instructions)



- E. Install the supplied aluminum CAS Base Housing. NOTE: Due to variance between engines (head or block surface machining etc.) it cannot be assumed that the guide dowels for the intake cam sprocket cover plates are concentric to the camshafts, for this reason the holes on the CAS Base Housing are larger than the dowels to allow alignment with the cams before tightening the CAS Base Housing to the front cover. Apply a coat of silicone sealant to the CAS Base Housing and loosely install it using the original 4 bolts you removed. You will need to temporarily install your CAS Sensor into the CAS Base Housing and engage it to the CAS Drive Pin. To insure the best concentricity to the camshaft, rotate the CAS while lightly tapping the side of the CAS Base Housing until you have found the position that the CAS rotates the easiest and is not binding. Slowly tighten the 4 bolts while checking that the CAS is still not binding. Once the bolts are tight and you have found the best position of concentricity, remove the CAS.



- F. The shaft on your CAS will need to be polished smooth and the old O-ring discarded so the CAS Base Oil Seal will seal properly on it. This can be accomplished with Scotch-brite or fine sand paper as shown.



- G. Install the CAS oil seal flat side out using an appropriate diameter tool. Press in until the it is flush with the CAS Base Housing surface. Apply a small amount of grease to the lip of the seal and the female splines that will engage the CAS Drive Pin and install the CAS and it's 3 locking bolts and washers.



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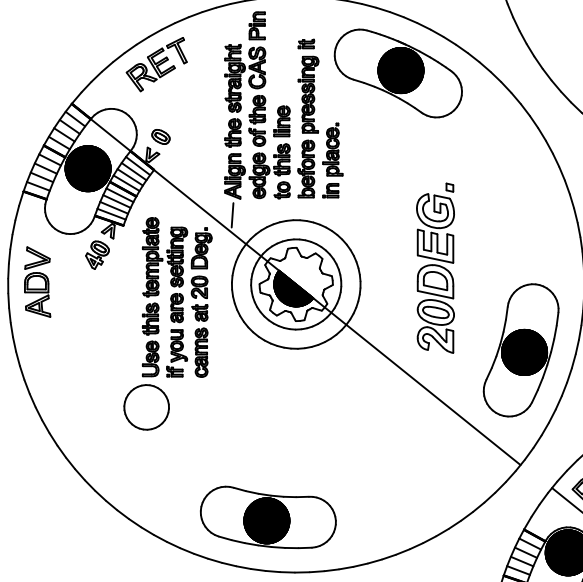
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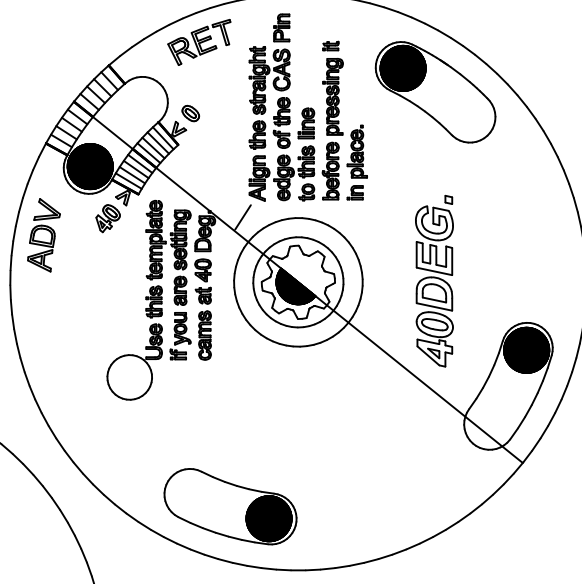
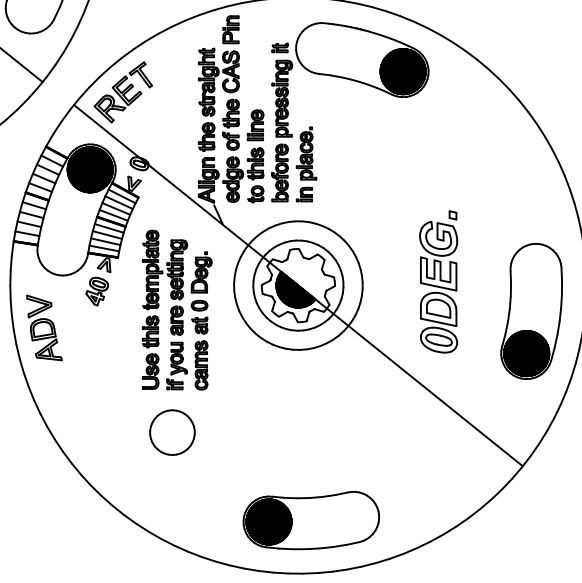
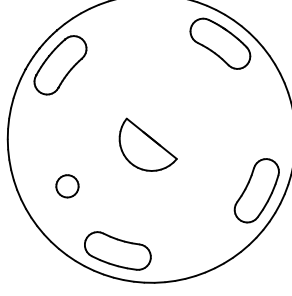
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PICK THE TEMPLATE
CLOSEST TO THE CAM DEG.
POSITION YOU WILL LOCK
THE CAMS TO.



Cut out the template as above
and place it over the lock plate
and align the CAS pin to it before
pressing it in place.



TEMPLATES TO POSITION THE CAS PIN
BEFORE PRESSING IT INTO THE CAM LOCK PLATE.