

10. On cars built up to 3/95: Slide control unit off front of cylinder head, hand turning the exhaust sprocket clockwise (as viewed from front) as the unit is removed.
11. On cars built 3/95 and later: Use a spanner tool to rotate exhaust sprocket until stop on intake sprocket is contacted. See Fig. 39. Then slide control unit off front of cylinder head.

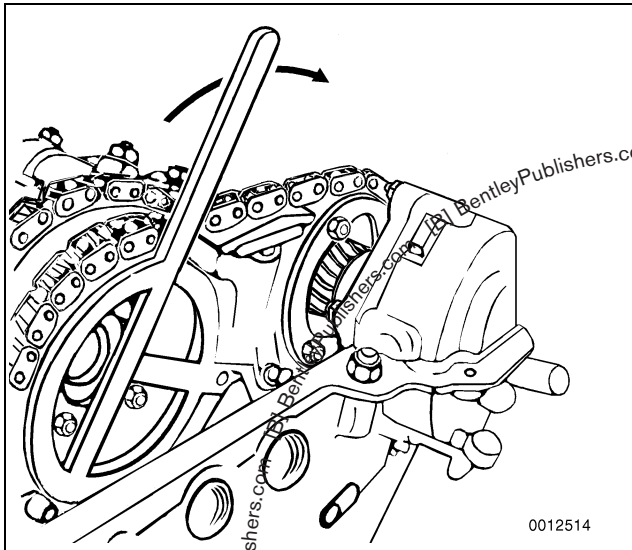


Fig. 39. On VANOS control unit with spring plate (cars built 3/95 and later), rotate exhaust camshaft sprocket clockwise until intake camshaft contact stop. BMW special tool 11 5 490 shown.

VANOS control unit, installing

CAUTION —

Incorrect installation of the VANOS control may result in damage to the engine valvetrain.

1. Lock camshafts and crankshaft in TDC position with BMW special tools as described above in removal procedure.

CAUTION —

The camshafts and crankshaft must be locked in the TDC position using BMW special tools no. 11 2 300 and 11 3 240. If the camshafts and crankshaft are not at TDC, the valves can contact the pistons when the engine is turned over.

NOTE —

Be sure the secondary timing chain tensioner is locked down and the exhaust camshaft mounting bolts are loose before proceeding.

2. Remove primary timing chain tensioner from side of cylinder head. See Fig. 40.



Fig. 40. Primary timing chain tensioner bar (arrow). Remove tensioner slowly to relieve spring tension beneath end plug.

3. Install BMW special tool no. 11 3 390 into primary timing chain tensioner sleeve. Thread tool in finger tight to remove chain slack.

NOTE —

BMW special tool no. 11 3 390 is a dummy chain tensioner and simulates the function of the tensioner.

4. Hand turn secondary sprockets clockwise (as viewed from front of engine) until sprockets contact stops.
5. Apply a small amount of liquid gasket sealer (3-Bond 1209® or equivalent) to VANOS housing alignment dowels on front of cylinder head. Install a new gasket.
6. Push VANOS piston gear cup into VANOS housing until it bottoms out in housing. Position VANOS control unit into place, but do not engage splines on gear cup.
7. On cars built up to 3/95:
 - Hand turn exhaust sprocket counterclockwise (as viewed from front of engine) **only enough** to mesh