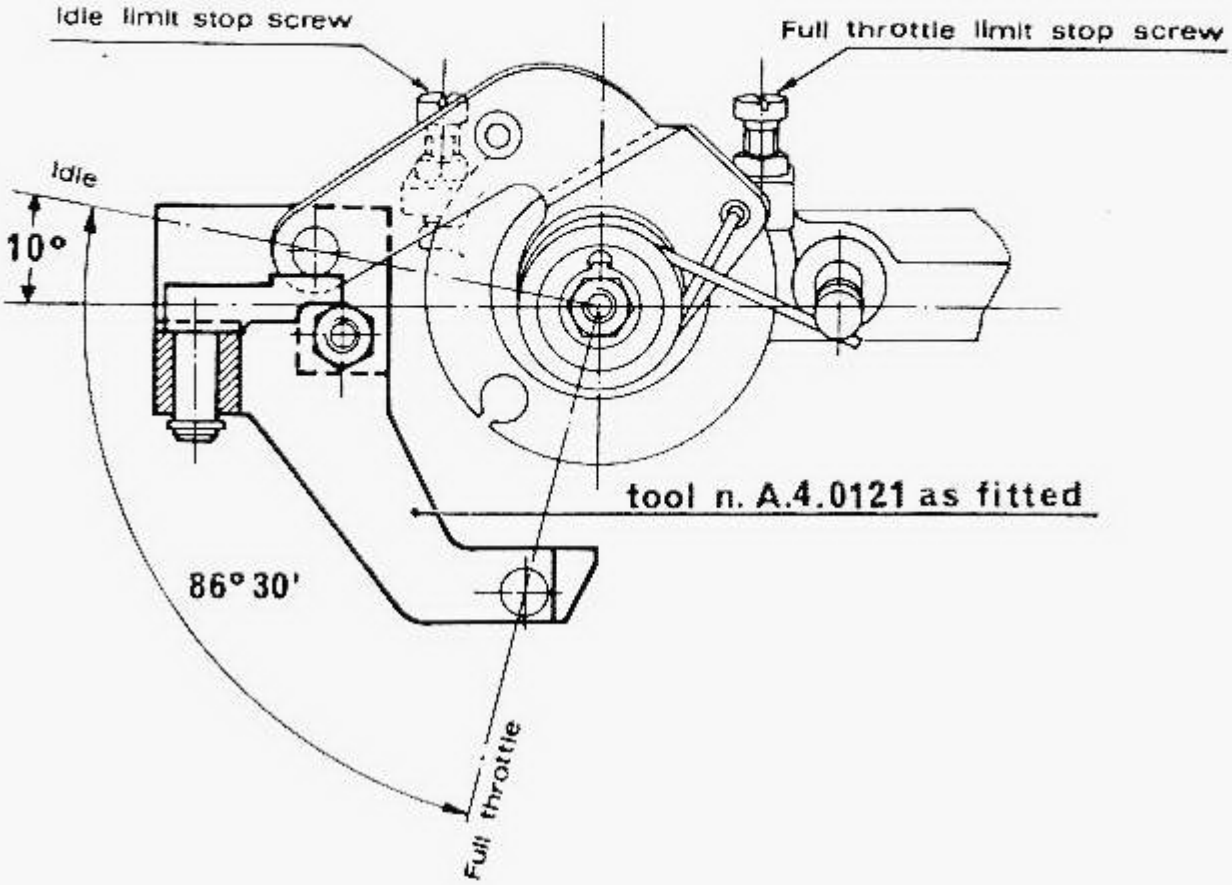
BASIC TUNE UP PROCEDURES FOR ALFA ROMEO MODEL YEARS 1978 and 1979

The procedures outlined in this booklet represent a consolidation and simplification of existing tune-up practices.

Following these procedures will help to develop efficient service techniques and yeild repetitive, possitive results.

Idle and Full Throttle Stops



Remove the air cleaner assembly, and plug the vacuum hose which leads to the intake manifold.

Remove the short and long control rods.

Remove the accelerator cable from the relay crank and remove the cable clamp halves from the intake manifold.

In place of the cable clamp, install tool No. A 40121, being certain to use the tapered nut provided with the tool.

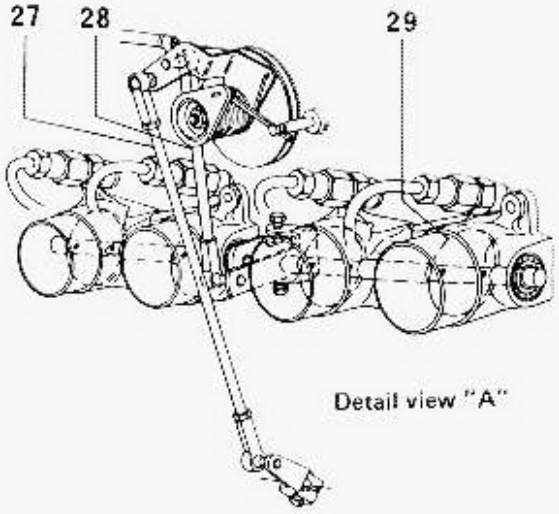
With the relay crank in the idle position, adjust the idle stop until the ball of the relay crank contacts the reference plane (Pivoting extension).

Release the relay crank return springs. Adjust the full throttle stop with the crank contacting the tool and the stop simultaneously.

Reinstall accelerator cable. Engage the relay crank springs. Check that the accelerator cable has some play with the relay crank in the idle position and rotates fully to the stop with the accelerator pedal fully depressed.

Short Control Rod Initial Adjustment

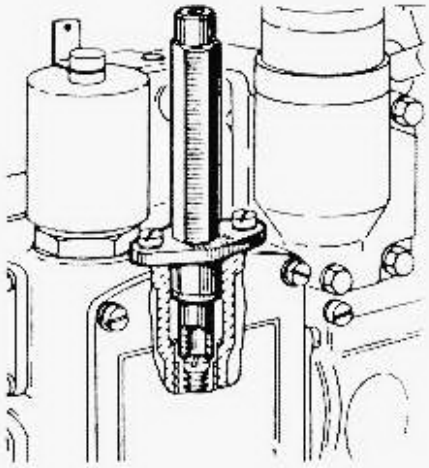
(27) long control rod
(28) short control rod



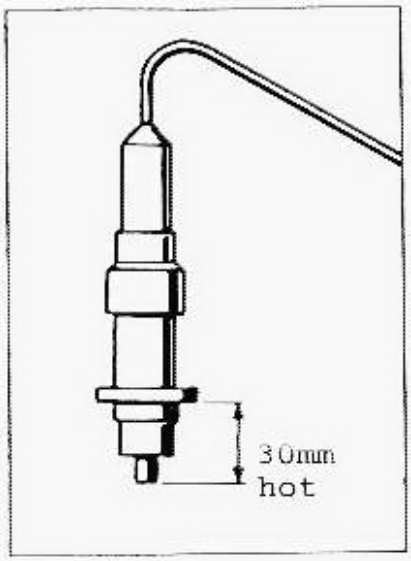
Pull up on the lever arm of the front throttle pair, closing the throttle valves completely.

Adjust the short rod (28) to fix exactly on to the relay crank.

Checking Thermostatic Actuator



29mm dummy actuator



Install the appropriate length dummy actuator. (See table bel

Start the engine and warm to operating temperature (Min. 175°F - 80°C).

The protrusion from the lower surface of the flange to the plunger tip should be 30mm.

If the protrusion is more than 30mm, add shims between actuato flange and case. The maximum correction permitted with shims is 2mm.

If beyond the tolerance limit, the actuator should be replaced.

Re-install the thermostatic actuator.

Dummy Actuator	Application
27 mm	up to and incl. 1974
27.8mm	1975, 1976, 49 States
29 mm	1976 Calif.; 1977, 1978 ALL

Adjustment of the Long Control Rod

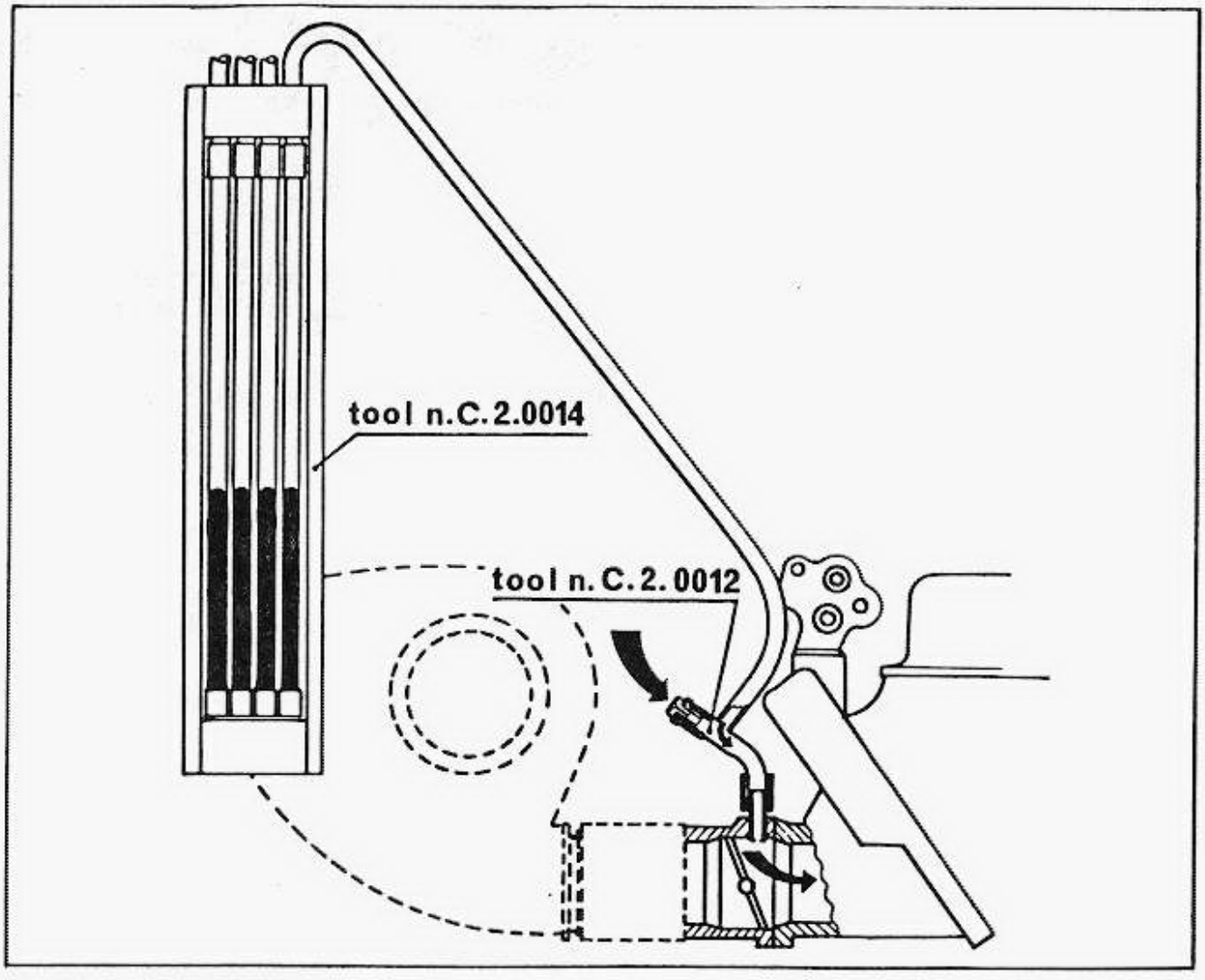
With the engine at operating temperature, the fuel injection pump control lever should be against the stop.

Adjust the long rod to fit exactly to the relay crank.

Now rotate the rod end 1/2 turn counter-clock-wise (lengthening the rod).

Lock and install.

Balancing Front and Rear Throttle Pairs



Detatch the idle air equalizer hoses at one end and connect manometer, Tool No. C.20014.

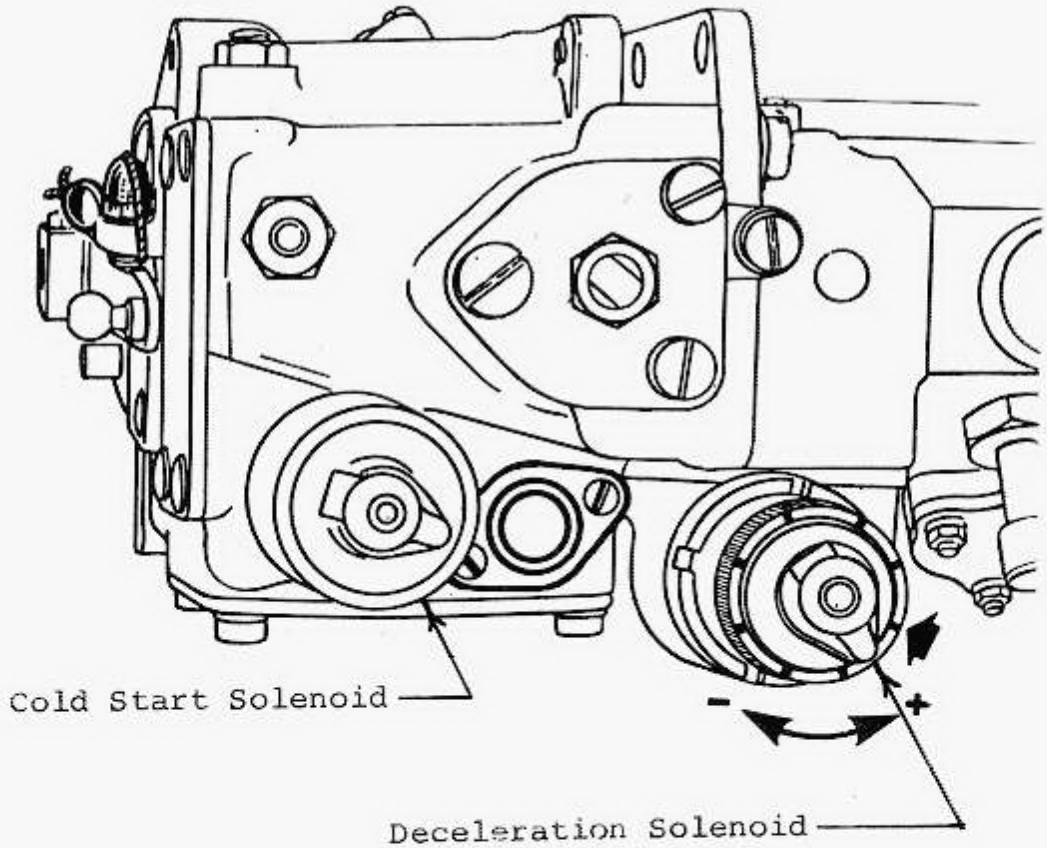
Disconnect the short control rod.

Clean throttle bores.

Start the engine and rotate the screw linking front and rear throttle pairs until the manometer indicates equal flow to all cylinders. This adjustment should be performed at idle only.

Re-adjust short rod, if necessary.

Adjustment of Cold Start Solenoid



Remove the electrical connector from the cold start solenoid.

CAUTION: THE ORIGINAL ELECTRICAL CONNECTOR MUST BE REMOVED OR THE STARTER WILL BE ENGAGED WHILE THE ENGINE IS RUNNING, POSSIBLY RESULTING IN EXTENSIVE DAMAGE.

With the engine at idle, energize the solenoid from a convenient 12 volt source. Engine speed should drop approximately 50 to ~~70~~ 100 R.P.M.

If the engine slows more than ~~70~~ 100 R.P.M., loosen the solenod with wrench, Part No. A.50202, and rotate the solenoid clockwise to lessen the amount of enrichment.

Reconnect solenoid lead.

Checking Deceleration Solenoid and Microswitch Operation

Connect a test light between chasis ground and the deceleration solenoid.

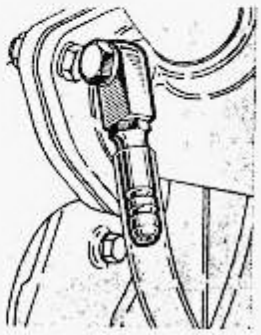
Raise the engine speed to approximately 3,000 R.P.M. and release. During deceleration, the light should be on until the engine speed approaches 1,300 R.P.M.

If the light does not come on, check the power lead and fuse to the microswitch.

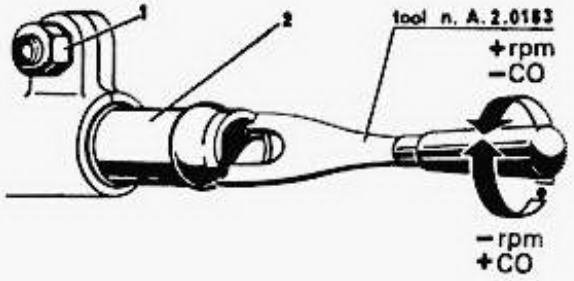
Idle Speed and Mixture

Be certain ignition dewll and timing are correct.

CO and HC exhaust emissions should be measured at the tap provided upstream of the catalytic converter with the aid of tool No. C.2.0051.



C.2.0051



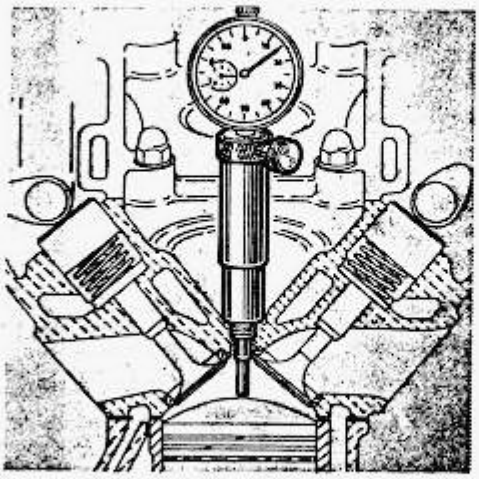
idle air adjustment

This adjustment can be made with the idle air equalizer (to vary engine speed) and deceleration solenoid (to vary mixture) which is locked with tool No. A.50215.

Adjust CO to a value of 0.2 - 0.4 % at 800± 50 RPM. The speed and mixture adjustments are made simultaneously. (For previous model years, consult maintenance manuals.)

Re-install air cleaner assembly. Road test vehicle. If exhause temperature light flashes under normal load conditions, the mixture may be set leaner (rotate solenoid clockwise).

Dwell and Timing



C.6.0122

Using tool C-60122, and a dial indicator, locate exact T. D. C. for cylinder No. 1.

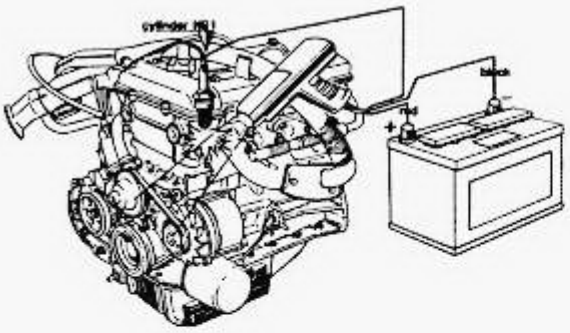
Check that the timing pointer is on the P mark (T.D.C.). If necessary adjust its' location.

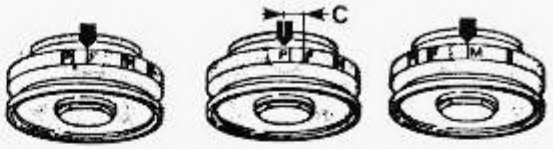
REMOVE TOOL C-60122

Set the dwell angle of contact points to 60^{o}.

Warm the engine to operating temperature ($175^{o}F$ - $80^{o}C$)

Attach a timing light and check the initial timing. This should be on the F mark (5^{o} BTDC). Rotate the distributor if necessary and tighten the distributor clamp.





A

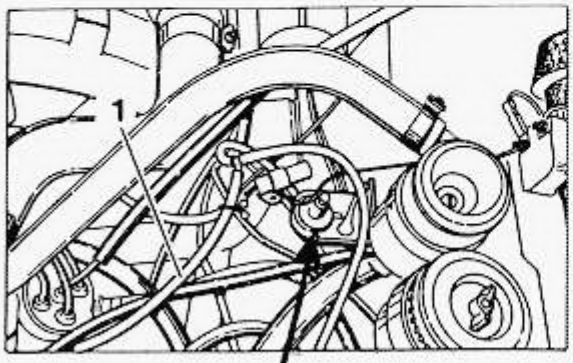
Ignition timing at idle 5° ± 1° (TDC)

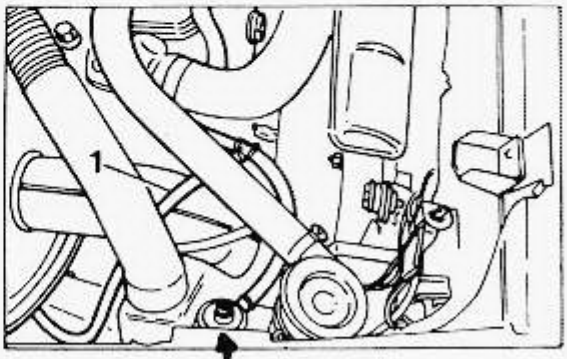
B

Pointer indication with vacuum hose pinched

D

Ignition timing at high speed 33° ± 3° BTDC at 5000 rpm





Sport Sedan and Sprint Veloce
Ignition retard Vac. Switch

Spider Veloce

Remove the vacuum hose from the ignition retard switch and plug.

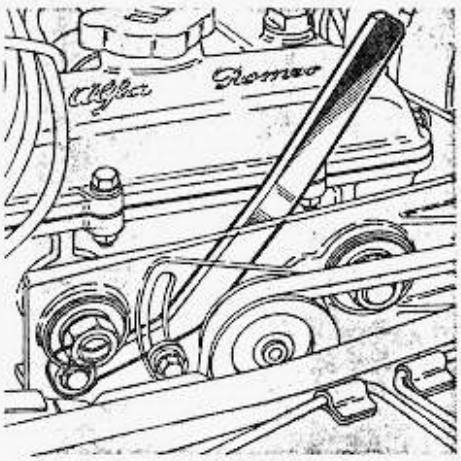
The ignition timing should retard to the P mark (T.D.C.) or slightly beyond (up to 6.5 mm from F Mark).

If secondary timing is not correct, vary the dwell angle of the secondary contacts (green wire) to achieve the proper timing retard.

Note: A change of the dwell angle by one degree will change the ignition timing one crankshaft degree.

The specifications for the secondary contacts is $60^{o} \pm 5^{o}$.

CHECKING CAMSHAFT TIMING



A.5.0189

Remove cam cover and check cam chain tension.

If adjustment is needed, loosen the tensioner with tool no. A. 50189.

Manually rotate the engine. (This can be done by engaging 5th gear and moving the vehicle forward) and lock the tensioner.

Set the engine on T.D.C. of cylinder No. 1 (P mark) and check camshaft alignment marks.

If camshaft timing is incorrect, remove the alignment pins and again set the engine to T.D.C. cylinder No. 1. Hold each camshaft with tool no. A. 50103 and loosen the sprocket retaining nut. Rotate each camshaft to correct alignment.

Re-install the alignment pins.

Tighten camshaft retaining nuts, and bend over locking tabs.

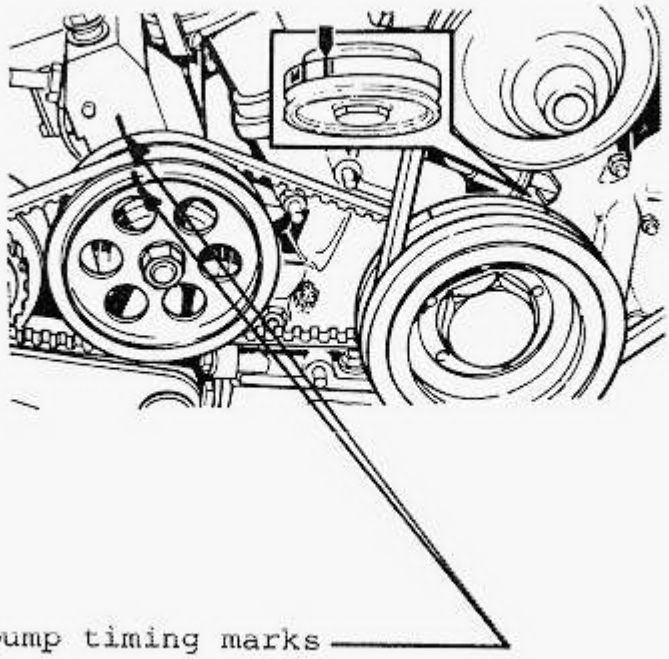
Note: It is advisable to install new locking plates whenever camshaft timing is adjusted.

Rotate the engine and check camshaft timing once again.

cam shaft alignment marks

sprocket retaining nut

CHECKING FUEL INJECTION PUMP TIMING



Injection pump timing marks

Remove distributor cap and No. 1 spark plug.

Rotate the engine to T.D.C. Cylinder No. 4. The ignition timing pointer should be on the P mark, and the distributor rotor pointing to the No. 4 spark plug wire.

Rotate the engine backward to the I mark on the crankshaft pulley. At this point the distributor rotor should be pointing between the cylinder 3 and cylinder 4 positions and the No. 1 exhaust valve open (observable through the spark plug hole).

With the engine set as described above, the alignment marks on the injection pump body and pulley should coincide.

If incorrect, the injection pump belt must be removed and the timing corrected.