



Dedicated to improving vehicle fun, safety & performance



Installation Instructions

Adjustable Cam Gear

1976-1992 engines

ipd #2A4628

not for 1993-97 models as they use a different tooth design.



SUGGESTED TOOLS

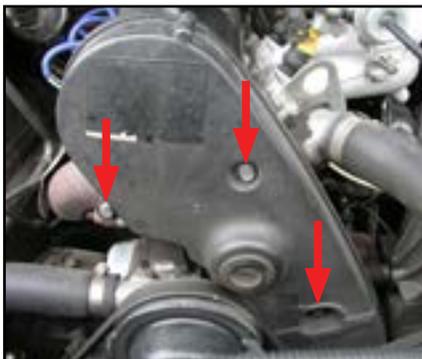
- End Wrenches
- Screw driver
- Socket/Ratchet
- Torque Wrench

SAFETY WARNINGS

IPD's cam gear provides the edge in performance for your B21, B23, B230 engines from 1976-1992. Adjustable in 2.5 degree increments up to 10 degrees either advanced or retarded and weighs only 0.65lbs. By advancing the gear you will gain low end power at the expense of upper range power and by retarding the gear you will gain upper range power with a like reduction in low end power. IPD's gear provides the widest range of adjustment from high RPM turning race engines to the big bore non-turbo motors with lots of low end grunt! Our new gear is hard anodized for longer life and tested for durability. A perfect match to our VX and Turbo camshafts or use it with your stock cam.

REMOVAL AND INSTALLATION

- 1 To install your IpD adjustable cam gear start by removing the upper timing cover. There are a different number of fasteners holding the timing cover in place depending on engine and year. See photos below for fastener locations.



10 & 12mm bolts - Later style



Phillips head screw



10 & 12mm bolts - Early style

On some models the accessory belt(s) can obstruct upper timing cover removal, for these models simply loosen the accessory belt(s) to provide the necessary clearance for the upper timing cover.

INSTALLATION

Once you have removed the upper timing cover, installation of the gear is as follows:

- 2 Rotate the engine to TDC so that the timing mark on the cam gear and the back timing cover line up.
- 3 Loosen the cam gear bolt (17mm head) holding the cam gear to the cam shaft. (Do not remove bolt at this time)
- 4 Loosen the 17mm tensioner nut and release tension from the timing belt. Pry the tensioner to remove pressure from the timing belt and tighten the hold down nut to keep it in the slackened position. See photo #1 for adjustment tensioner location.
- 5 Take the timing belt off the cam gear being careful not to disturb the belt alignment between the crankshaft gear to layshaft gear.
- 6 Finally, remove the cam bolt from the cam gear and remove the gear from the engine.
- 7 Install your new IpD adjustable cam gear onto the cam shaft lining up the cam dowel pin with the desired amount of advance or retard for your application and screw in the cam bolt.

Note for B21 & B23 engines: These engines may have a shim installed behind the cam gear from the factory. If this shim is missing, it may cause the timing belt to run right at the front edge of the gear. In this case you will need to purchase a new replacement shim IPD# 104930 (Volvo# 1357572.) This shim is not needed on any B230 engines.

- 8 Be sure that the dowel in the camshaft lines up with the desired adjustment AND that the outer timing mark (dimple) for your selected adjustment lines up with the timing mark in the back cover as shown in photo #2.
- 9 Be sure that the timing belt doesn't slip on the layshaft gear or crankshaft gear during the installation or you may have your ignition timing off (only applies to front mounted distributors). If misalignment occurs the engine may not start or may run poorly. This type of alignment will not cause internal engine damage from piston/valve interference.
- 10 Route the timing belt back over the cam gear and loosen the 17mm nut on the tensioner to re-tension the timing belt. Tighten the 17mm tensioner nut to 35-40 ft. lbs. and tighten the cam bolt holding the cam gear to the camshaft. At this point you should turn the engine over at least one revolution and then loosen and retighten the tensioner nut for proper belt tension.

- 11 Reinstall the upper timing cover and adjust accessory belt tension if necessary.

NOTE: Running without your timing belt cover may cause accelerated wear to your IPD cam gear due to the abrasive dirt particles thrown up by wind and other vehicles.

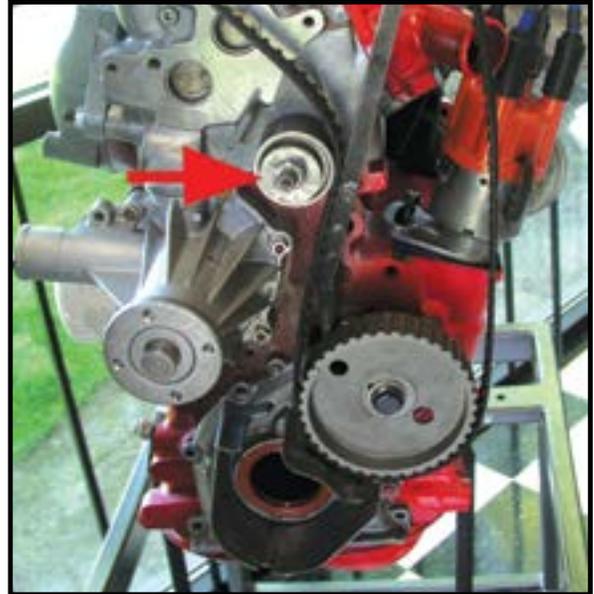


photo #1- Adjustment tensioner location



photo #2 - Outer timing mark lines up with timing mark on back cover. Please note that on early models this mark is cast into the cam cover.

WARRANTY

One Year Limited Warranty

ipd warrants to the original purchaser that the parts manufactured and/or sold by ipd (the Product) is free from defects in material and workmanship under normal use. ipd warrants that the Product will perform substantially in accordance with the specifications set forth in the documentation provided with it. The above express warranties are made for a period of the lesser of 12,000 miles or 12 months from the date the Product is installed in your vehicle.

Any improper use, operation beyond capacity, substitution of parts not approved by ipd in writing, any alteration or repair by others, or any removal, defacing or altering of the identification shall void this warranty. There is no warranty on high-performance or race related parts due to the nature of usage.

The purchaser shall notify ipd at 1-800-444-6473 of any defect within the warranty period no later than thirty (30) days after purchaser discovers the defect. Should any failure to conform to this warranty appear within the warranty period, ipd shall, on notification, correct the nonconformity at its option, either by repairing any defective part, or by making available, FOB ipd's plant, a repaired or replacement part. The purchaser must insure any defective item being returned because ipd does not assume risk of loss or damage while in transit. No payment or reimbursement shall be made for installation, removal, transportation or other charges. The remedies set forth in this instrument are exclusive, and the liability of ipd with respect to any sale shall not exceed the price of the product on which the liability is based.

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This warranty is governed by the laws of the State of Oregon.

