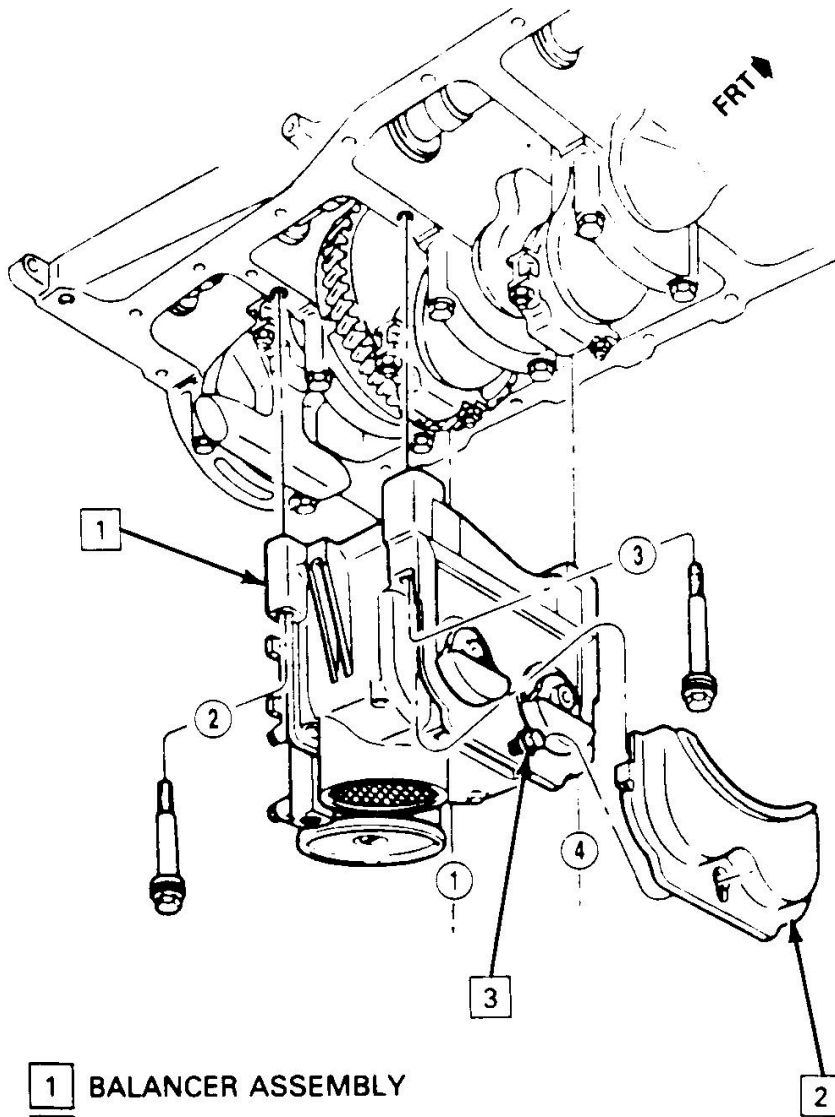


1990 Chevrolet Celebrity

2.5L 4-CYL - VINS [R & U] 1990 ENGINE General Motors 2.5L 4-Cylinder



1 BALANCER ASSEMBLY

2 BAFFLE

3 10 N·m (90 LB. IN.)

* CIRCLED NUMBERS SHOW BOLT POSITION
(SEE TEXT FOR TIGHTENING SEQUENCE)

50G00022

Fig. 5: Crankshaft Force Balancer Assembly
Courtesy of GENERAL MOTORS CORP.

Installation

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1. Rotate engine to bring number 1 or 4 cylinders to TDC (crank counterweights at BDC).

CAUTION: Ensure end of balancer assembly housing without dowel pins remains in contact with cylinder block surface during installation to provide correct gear contact. Crankshaft or balancer assembly gear damage will result if housing fails to remain in contact with cylinder block.

2. Install balancer onto block w/balance weights at exactly BDC (plus or minus one half gear tooth.)
3. Install balancer bolts. Tighten bolts to 107 INCH lbs. (12 N.m). in the sequence 3-1-2-4. See **Fig. 5** . Using the same sequence, tighten the short bolts to 11 ft. lbs. (15 N.m) plus an additional 75 degrees (1 flat) and the long bolts to 11 ft. lbs. (15 N.m) plus an additional 90 degrees (1 - 1/2 flats).
4. Rotate the crankshaft at least four complete turns while observing for adequate clearance between the 4th crankshaft counterweight and the balancer weights.
5. Install oil pan. See OIL PAN below.

CAMSHAFT

Removal

1. Remove engine from vehicle. See ENGINE. With engine removed, remove rocker arms and push rods. See ROCKER ARMS & PUSH RODS. Remove hydraulic valve lifters. See HYDRAULIC VALVE LIFTERS.
2. Remove front timing case cover. See FRONT TIMING CASE COVER. Align timing marks. See **Fig. 6** . On VIN "U" engines, remove timing chain and sprockets. Remove 2 camshaft thrust plate retaining bolts. Remove camshaft and bearings (if required).

CAUTION: All camshaft journals are the same diameter. Carefully remove camshaft to avoid damaging cam bearings.

3. On VIN "R" engines, remove thrust plate retaining screws through access holes in cam gear. Remove camshaft, gear and thrust plate as a unit. Press gear off camshaft (if required). Remove cam bearings (if required).

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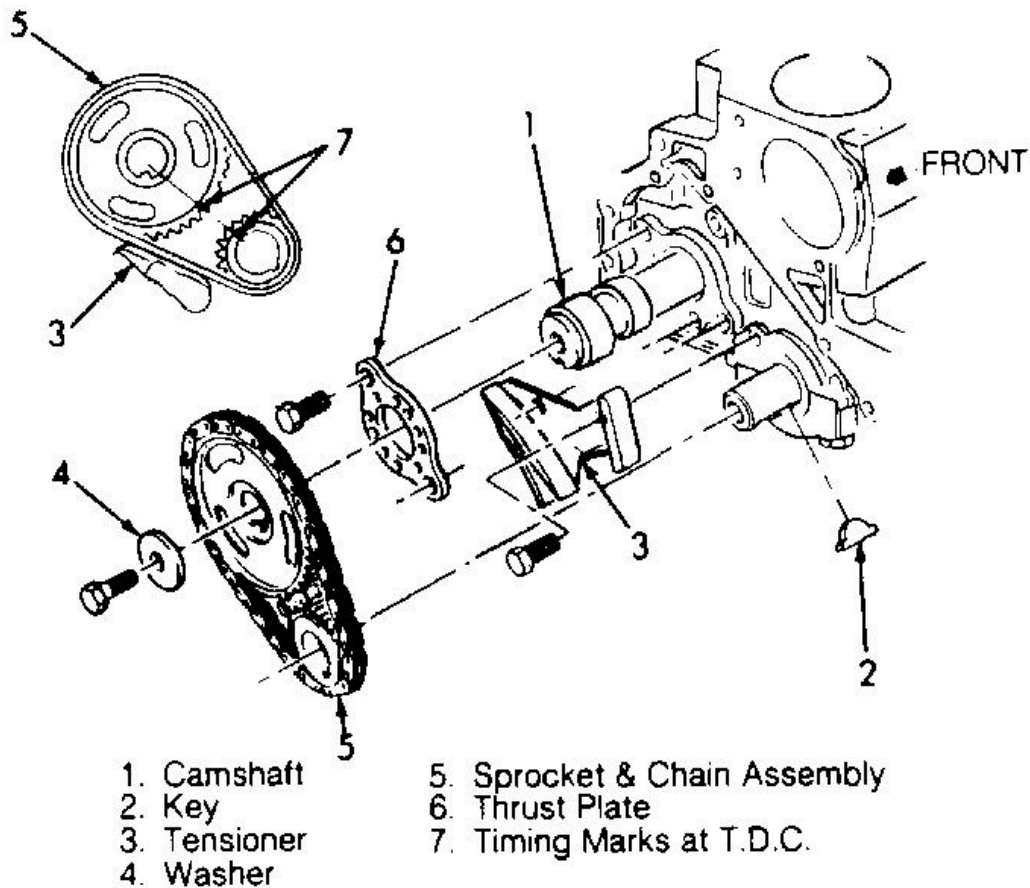


Fig. 6: Camshaft & Timing Chain Assembly (VIN U)
Courtesy of GENERAL MOTORS CORP.

Inspection

Inspect camshaft journal diameter, lobe lift and oil clearance. See the **ENGINE SPECIFICATIONS** tables. Replace components if not within specification.

Installation

1. Install camshaft bearings (if removed). Ensure oil holes are aligned. Coat camshaft journals and bearings with Engine Oil Supplement (1052367) prior to installation.
2. On VIN "U" engines, install camshaft and camshaft thrust plate. Install timing chain and sprockets. Align timing marks with engine at TDC. See **Fig. 6**. Install cam sprocket bolt and tighten to 43 ft. lbs. (58 N.m). To install remaining components, reverse removal procedure.
3. On VIN "R" engines, press gear, spacer and thrust plate on camshaft (if removed). Allow .0015-.005 in.