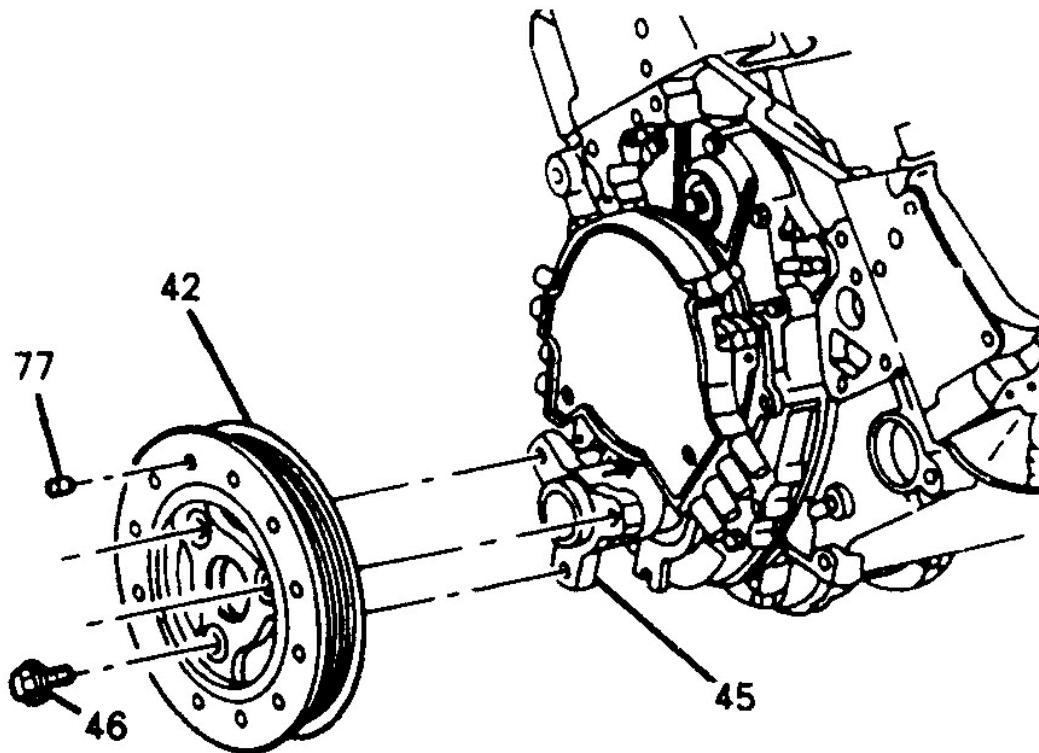


- 25 BOLT/SCREW, RADIATOR FAN SHROUD,  
6 N•m (53 LB. IN.)
- 26 BOLT/SCREW, RADIATOR FAN UPPER SHROUD,  
6 N•m (53 LB. IN.)
- 27 SHROUD ASSEMBLY, RADIATOR FAN UPPER
- 28 SHROUD ASSEMBLY, RADIATOR FAN LOWER
- 54 RADIATOR ASSEMBLY

50A14662

**Fig. 4: Exploded View of Fan Shroud (For Mechanical Fan Only)**  
Courtesy of GENERAL MOTORS CORP.



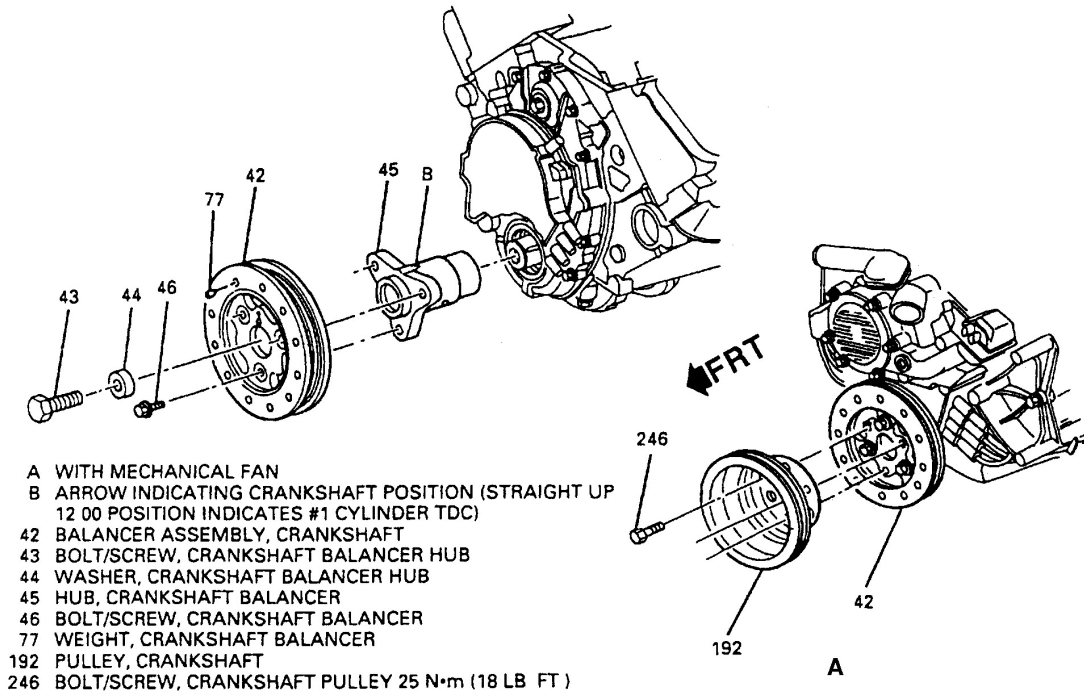
- 42 BALANCER ASSEMBLY, CRANKSHAFT
- 45 HUB, CRANKSHAFT BALANCER
- 46 BOLT/SCREW, CRANKSHAFT BALANCER
- 77 WEIGHT, CRANKSHAFT BALANCER

G00249533

**Fig. 5: Identifying Crankshaft Balancer Assembly & Hub**  
Courtesy of GENERAL MOTORS CORP.

# 1996 Buick Roadmaster Estate Wagon

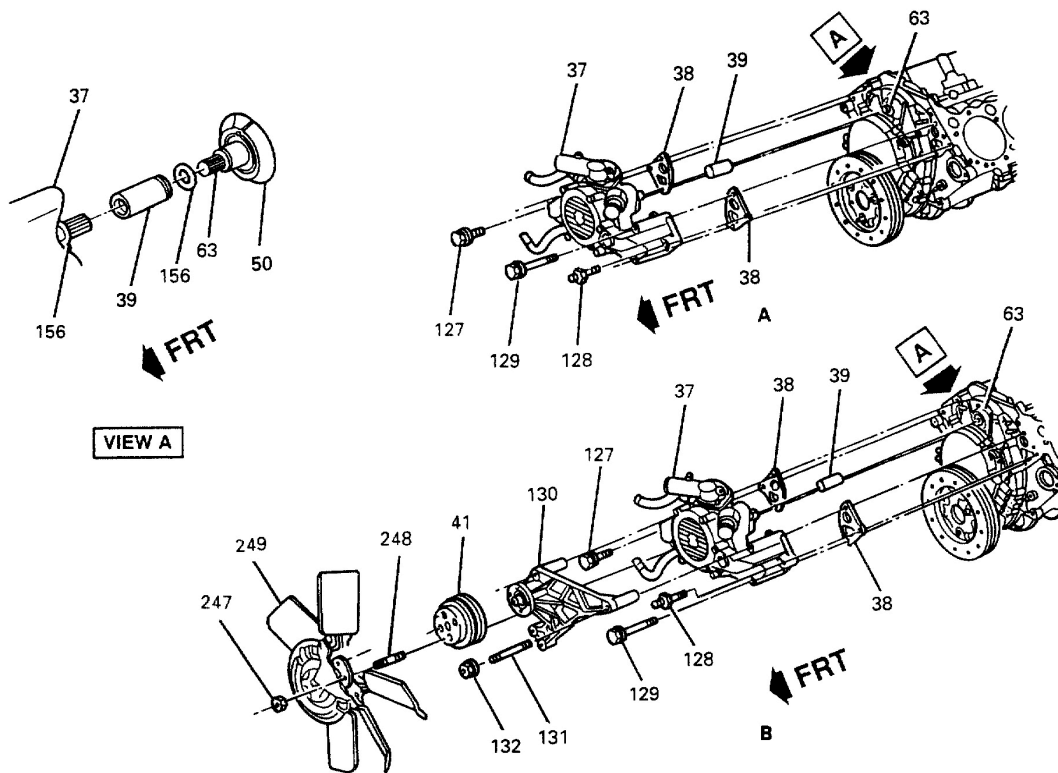
1996-97 ENGINES 5.7L V8 - VINS P & 5



**Fig. 6: Identifying Crankshaft Balancer Assembly & Hub (With Fan Belt Pulley)**  
Courtesy of GENERAL MOTORS CORP.

# 1996 Buick Roadmaster Estate Wagon

1996-97 ENGINES 5.7L V8 - VINS P & 5



- A WITHOUT MECHANICAL FAN
- B WITH MECHANICAL FAN
- 37 PUMP ASSEMBLY, WATER
- 38 GASKET, WATER PUMP
- 39 COUPLING, WATER PUMP DRIVESHAFT
- 41 PULLEY, FAN
- 50 COVER ASSEMBLY, ENGINE FRONT
- 63 DRIVESHAFT ASSEMBLY, WATER PUMP
- 127 BOLT/SCREW, WATER PUMP

- 128 STUD, WATER PUMP
- 129 BOLT/SCREW, WATER PUMP
- 130 BRACKET, COOLANT FAN PULLEY
- 131 STUD, COOLANT FAN PULLEY BRACKET
- 132 NUT, COOLANT FAN PULLEY BRACKET
- 156 SEAL, WATER PUMP DRIVESHAFT
- 247 NUT, FAN BLADE CLUTCH
- 248 STUD, FAN BLADE CLUTCH
- 249 BLADE ASSEMBLY, FAN

50C14664

**Fig. 7: Exploded View of Water Pump Assembly**  
 Courtesy of GENERAL MOTORS CORP.

Installation (All Except Corvette)

**NOTE:** If balancer assembly is replaced, new balance weights of the same size must be installed on the new balancer assembly in the same hole locations as the old balancer assembly.

The crankshaft hub (45) can be installed by a different procedure if the engine should accidentally be cranked over after match marking the hub and engine front cover assembly.:

## 1996 Buick Roadmaster Estate Wagon

1996-97 ENGINES 5.7L V8 - VINS P & 5

- Set number 1 piston assembly to top dead center.
- Install crankshaft hub (45) with cast arrow on hub in the 12 o'clock position.

Install crankshaft hub (45) using Installer (J 39046). Install crankshaft hub washer and bolt/screw. Install crankshaft balancer assembly (42) and bolts/screws (46). Install fan belt pulley. See **Fig. 5**. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS**.

### Removal (Corvette)

**NOTE: For component identification in removal and installation procedures. Refer to illustration. See Fig. 8.**

### Removal

1. Remove air intake duct, remove serpentine drive belt.
2. Raise and suitably support vehicle. Remove motor mount nuts.
3. Disconnect power steering fluid cooler (may need to be removed for clearance).
4. Raise engine enough for tool access to balancer assembly. Crankshaft Hub Remover/Installer (J-39046)

**NOTE: Remove only the balancer pulley.**

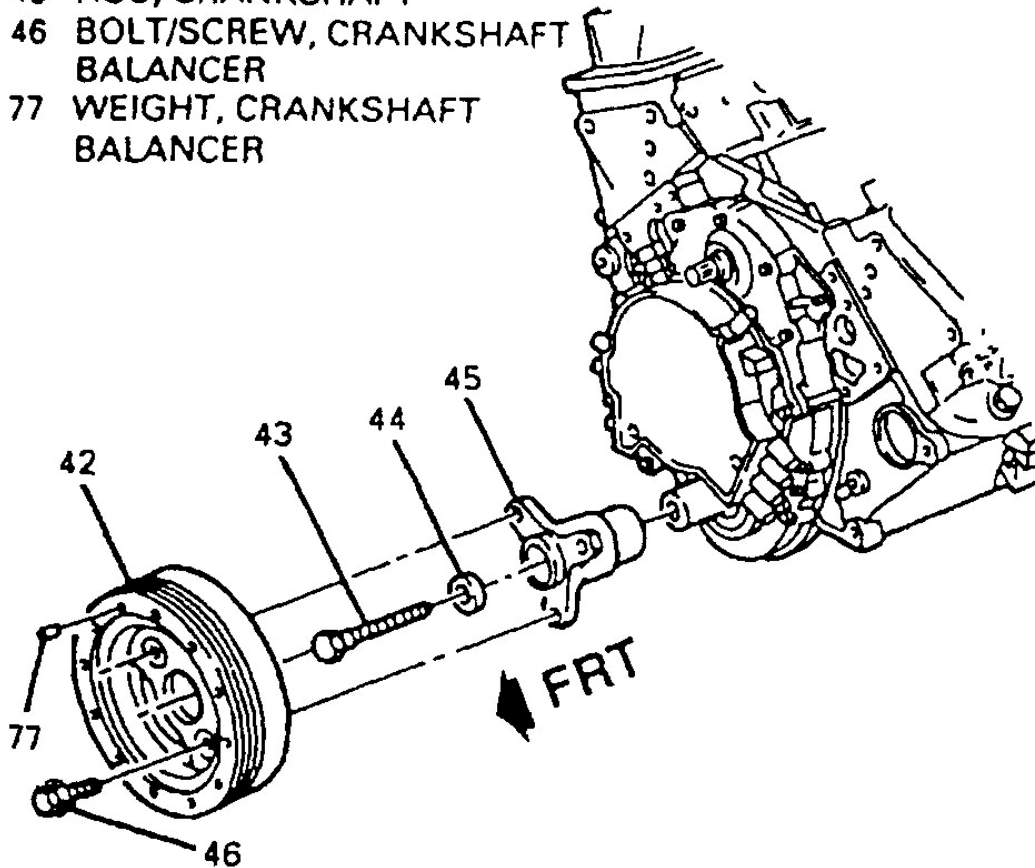
5. Mark crankshaft pulley to the hub. Remove crankshaft pulley balancer bolts/screws (46) and remove the balancer assembly (42). See **Fig. 8**. Remove power steering line from steering gear.
6. Mark crankshaft hub (45) to engine front cover assembly. DO NOT crank engine over after match-marking crankshaft hub and engine front cover assembly. Rotating crankshaft assembly will misalign installation of balancer assembly to crankshaft assembly possibly resulting in engine imbalance.

**NOTE: DO NOT remove hub, if clearance is sufficient to remove opti-spark distributor.**

7. Remove crankshaft hub bolt/screw and washer. Pull crankshaft hub (45) using

Crankshaft Hub Remover/Installer (J-39046).

- 42 BALANCER ASSEMBLY, CRANKSHAFT
- 43 BOLT/SCREW, CRANKSHAFT HUB
- 44 WASHER, CRANKSHAFT HUB
- 45 HUB, CRANKSHAFT
- 46 BOLT/SCREW, CRANKSHAFT BALANCER
- 77 WEIGHT, CRANKSHAFT BALANCER



G00271308

**Fig. 8: Identifying Crankshaft Balancer Assembly & Hub**  
Courtesy of GENERAL MOTORS CORP.

**Installation**

**NOTE:** If balancer assembly is replaced, new balance weights of the same size must be installed on the new balancer assembly in the same hole locations as the old balancer

## **assembly.**

The crankshaft hub (45) can be installed by a different procedure if the engine should accidentally be cranked over after match marking the hub and engine front cover assembly:

- Set number 1 piston assembly to top dead center.
  - Install crankshaft hub (45) with cast arrow on hub in the 12 o'clock position.
1. Install crankshaft hub (45) using Installer (J-39046).
  2. Install crankshaft hub washer (44) and bolt/screw (43). Tighten to 75 ft.lbs. (102 Nm).
  3. Raise engine install crankshaft balancer assembly (42) and bolts/screws (46). Tighten to 60 ft.lbs. (80 Nm).
  4. Connect power steering line to steering gear. Slowly lower engine.
  5. Install/connect power steering fluid cooler.
  6. Install motor mount nuts. Tighten motor mount nuts to 40 ft. lbs. (54 Nm).
  7. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS**.
  8. Install serpentine drive belt, install air intake duct. Check fluid levels, check for leaks.

## **FRONT COVER & OIL SEAL**

### **Removal**

1. Disconnect negative battery cable. On Camaro, Corvette and Firebird, remove air inlet duct. On all models, remove serpentine drive belt. Remove water pump. See **WATER PUMP**. Remove crankshaft pulley and hub.
2. Remove distributor. Remove crankshaft position sensor. Remove oil pan. See **OIL PAN**. Remove front cover and gasket. Carefully pry seal from timing cover using a large screwdriver.

### **Installation**

1. Using Seal Aligner/Installer (J-30987), install NEW oil seal in timing cover. Using Seal Aligner/Installer (J-39937), install NEW distributor driveshaft seal



## 1996 Buick Roadmaster Estate Wagon

1996-97 ENGINES 5.7L V8 - VINS P & 5

in timing cover. Coat timing cover gasket with sealant, and position onto timing cover.

2. Install timing cover. Alternately tighten bolts to specification. See **TORQUE SPECIFICATIONS**. Apply sealant to oil pan, cylinder block and timing cover joint. To complete installation, reverse removal procedure.

### TIMING CHAIN

**NOTE: LT4 engine uses a roller timing chain.**

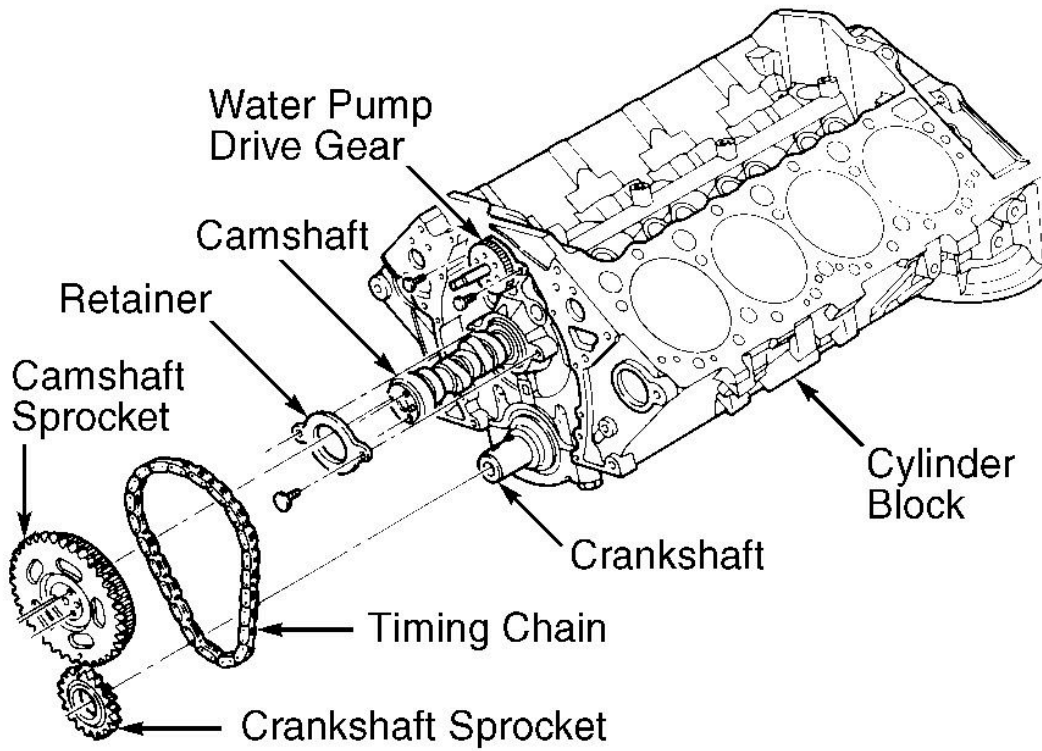
#### Removal

1. Disconnect negative battery cable. Remove front cover. See **FRONT COVER & OIL SEAL**. Rotate crankshaft until camshaft sprocket and crankshaft sprocket timing marks line up with shaft centers. See **Fig. 10**.
2. Remove camshaft sprocket and chain as an assembly. See **Fig. 9**. If replacing crankshaft sprocket, use Sprocket Remover (J-5825- A) to pull sprocket off crankshaft. If replacing water pump drive gear, use Gear Remover (J-39243) to remove gear.

#### Installation

Drive crankshaft sprocket onto crankshaft, with timing mark facing out. Ensure timing marks on crankshaft sprocket and camshaft sprocket are as close together as possible and lined up with shaft centers. See **Fig. 10**. Install camshaft sprocket and chain as an assembly. To complete installation, reverse removal procedure.





G95E13239

**Fig. 9: View Of Timing Chain & Components**  
**Courtesy of GENERAL MOTORS CORP.**