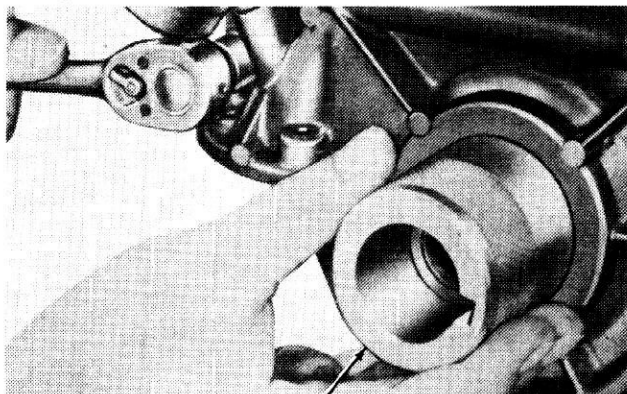


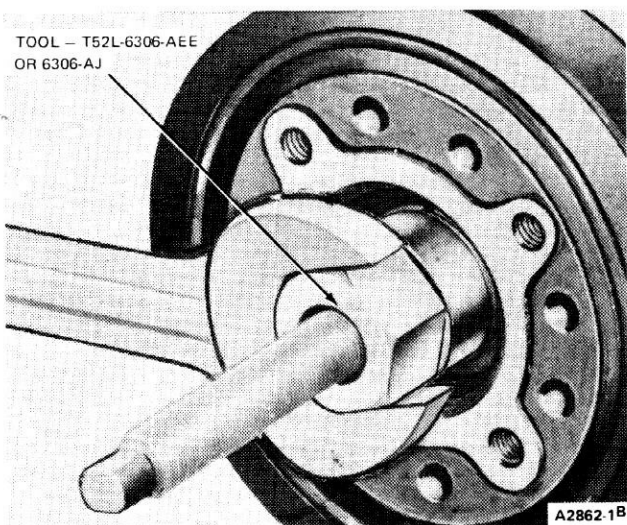
can be facilitated by using a suitable tool at the front cover attaching hole locations.

10. Coat the threads of the attaching screws with oil resistant sealer and install the screws. While pushing in on the alignment tool, tighten the oil pan to cover attaching screws to specifications (Fig. 28). Tighten the cover to block attaching screws to specifications. Remove the pilot.



**FIG. 28 Aligning Cylinder Front Cover**

11. Apply Lubriplate or equivalent to the oil seal rubbing surface of the vibration damper inner hub to prevent damage to the seal. Apply a coating of Lubriplate or equivalent to the front of the crankshaft for damper installation.
12. Line up the crankshaft vibration damper keyway with the key on the crankshaft. Install the vibration damper on the crankshaft (Fig. 29). Install the cap screw and washer. Tighten the screw to specifications. Install the crankshaft pulley.



**FIG. 29 Installing Crankshaft Vibration Damper**

13. Install the fuel pump using a new gasket. Connect the fuel pump outlet line.
14. Install the oil level dipstick (except Fairmont/Zephyr).
15. Refer to Water Pump Installation. Perform all the required steps except installation of the pump.

16. Fill the crankcase with the proper grade and quantity of engine oil.
17. Fill and bleed the cooling system.
18. Operate the engine at fast idle and check for coolant and oil leaks. Check and adjust the ignition timing and engine idle speed.

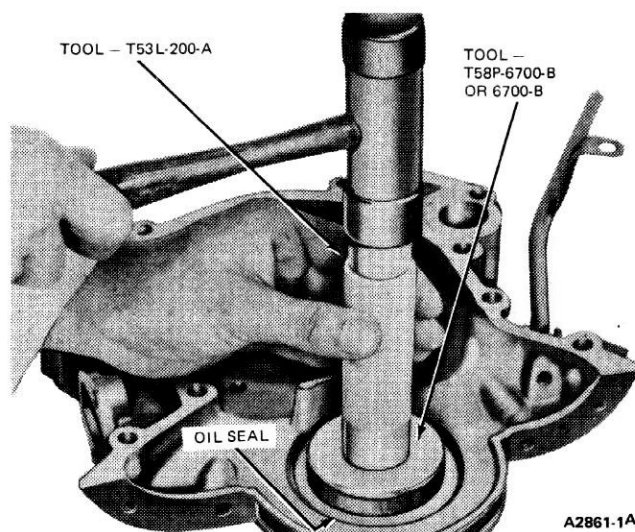
## FRONT OIL SEAL

### Removal

1. Remove the cylinder front cover following the procedure under Cylinder Front Cover and Timing Chain Removal.
2. Drive out the old seal with the pin punch. Clean out the recess in the cover.

### Installation

1. Coat a new seal with grease, then install the seal in the cover. Drive the seal in until it is fully seated in the recess (Fig. 30). Check the seal after installation to be sure the spring is properly positioned in the seal.



**FIG. 30 Installing Crankshaft Front Oil Seal**

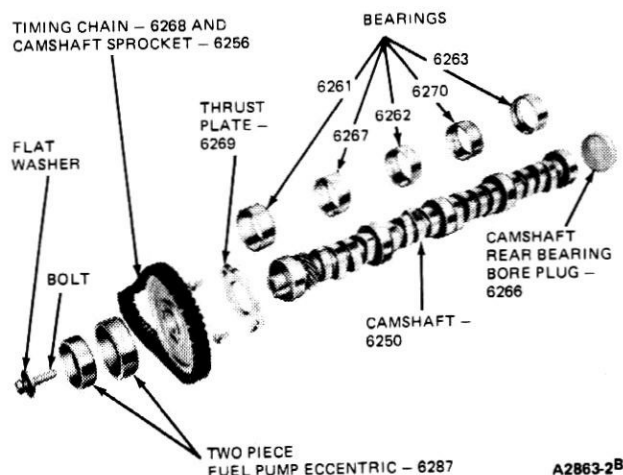
2. Replace the cylinder front cover following the procedure under Cylinder Front Cover and Timing Chain Installation.

## CAMSHAFT

The camshaft and related parts are shown in Fig. 31.

**NOTE:** When removing the camshaft with the Versailles 5.0L (302 CID) engine installed in the vehicle, the following components must be removed or repositioned in order to allow clearance (refer to appropriate Shop Manual Part for illustrations):

1. Remove the hood latch assembly, disconnect the A/C ambient temperature sensor wiring and remove the hood latch support bracket.
2. Remove the bolts and nuts that attach the condenser to the radiator support. Remove the fender-to-radiator support braces at each side of the engine compartment.



**FIG. 31 Camshaft and Related Parts**

3. Remove the air dam and rubber gasket that is positioned between the radiator support and the grille opening panel.
4. Carefully lift the condenser assembly upward until enough clearance is obtained to remove the camshaft (about 1/2 the height of the condenser). Proceed with camshaft removal.

After the camshaft is replaced, reverse the procedure to reinstall or reposition components.

#### Removal

1. Remove or reposition radiator, A/C condenser and grille components as necessary to provide clearance to remove camshaft. Remove the cylinder front cover and the timing chain following the procedure under Cylinder Front Cover and Timing Chain Removal.
2. Remove the intake manifold and related parts by following procedures under Intake Manifold Removal.
3. Remove the crankcase ventilation valve and tubes from the valve rocker arm covers. Remove EGR cooler, if equipped. Remove the valve rocker arm covers. Loosen the valve rocker arm stud nuts and rotate the rocker arms to the side.
4. Remove the valve push rods and identify them so that they can be installed in their original positions.
5. Remove the tappets following the procedure under Tappet Removal, and place them in a rack so that they can be installed in their original bores.
6. Remove the camshaft thrust plate. Carefully remove the camshaft by pulling toward the front of the

engine. **Use caution to avoid damaging the camshaft bearings.**

#### Installation

1. Oil the camshaft journals with heavy engine oil SE and apply Lubriplate or equivalent to the lobes. Carefully slide the camshaft through the bearings. Install the camshaft thrust plate with groove towards the cylinder block. Check camshaft end play as shown in Part 21-01. If not within specification, replace camshaft thrust plate.
2. Lubricate the tappets and bores with heavy engine oil SE. Install the tappet in the bores from which they were removed.
3. Apply Lubriplate or equivalent to each end of the push rods and install the push rods in their original positions. Apply Lubriplate or equivalent to the valve stem tips. Lubricate the rocker arms and fulcrum seats with heavy engine oil SE. Position the rocker arms over the push rods.
4. Install the intake manifold and related parts by following procedures under Intake Manifold Installation.
5. Connect the coolant temperature sending unit and the engine ground strap.
6. Connect the accelerator linkage and retracting spring.
7. Connect the heater hose at the intake manifold. Position and connect the fuel line.
8. Replace the crankshaft front oil seal following procedures under Front Oil Seal Removal and Installation. Install the timing chain, cylinder front

cover and related parts following procedures under Cylinder Front Cover and Timing Chain Installation.

9. On vehicles equipped with air conditioning, install the air conditioning condenser.

Position the fan shroud, if so equipped, over the fan. Install the radiator and connect the upper and lower radiator hoses.

On a vehicle equipped with an automatic transmission, connect the transmission oil cooler lines.

Install the fan shroud and carburetor air inlet tube attaching screws if so equipped.

10. With No. 1 piston on TDC at the end of the compression stroke, position the distributor in the block with the rotor at the No. 1 firing position and one tooth of the sintered iron rotor centered on the stator (pickup coil). See Part 23-01. Install the hold down clamp.
11. If any valve train components have been replaced, perform a Valve Clearance Adjustment as outlined under Hydraulic Tappets in Part 21-01.
12. Clean the valve rocker arm covers and the cylinder head gasket surface. Position the valve rocker cover gasket in each cover, making sure that the tabs engage the notches in the cover.
13. Position the covers on the cylinder heads. Make sure the gasket seats evenly all around the head. Install the bolts. The cover is tightened in two steps. Torque the bolts to specifications. Two minutes later, torque the bolts to the same specifications.
14. Clean and install the crankcase ventilation system.
15. Install the distributor cap and spacer. Position the spark plug wires in the harness brackets on the rocker arm cover attaching stud and connect the wires to the plugs. See Part 23-01 for special installation instructions. Connect the high tension lead at the coil. Connect the coil primary wiring connector.
16. Fill and bleed the cooling system. Fill the crankcase with the proper grade and quantity of engine oil. Connect choke heat tubes and vacuum lines except distribution line.
17. Start the engine and check and adjust the ignition timing. Connect the distributor vacuum line at the carburetor.
18. Operate the engine at fast idle and check all hose connections and gaskets for leaks. When the engine temperature has stabilized adjust the engine idle speed and idle fuel mixture. Retorque intake manifold bolts and nuts.
19. Install the air cleaner and intake duct assembly and crankcase vent hose.

## FLYWHEEL

### Removal

1. On a vehicle with a manual-shift transmission, remove the transmission, clutch pressure plate and disc following the procedures in Group 16.

On a vehicle with automatic transmission, remove the transmission and converter housing following the procedure in Group 17.

2. To check flywheel face runout or replace flywheel ring gear for manual-shift transmissions, refer to Part 21-01.
3. Remove the flywheel attaching bolts and remove the flywheel.

### Installation

1. Coat the threads of the flywheel attaching bolts with oil-resistant sealer. Position the flywheel on the crankshaft flange. Install and torque the bolts in sequence across from each other to specifications.
2. On a vehicle with a manual-shift transmission, check the flywheel runout, following the procedure in Part 21-01 and install the clutch pressure plate, disc and the transmission following the procedures in Group 16.

On a vehicle with an automatic transmission, check the flywheel runout, following the procedure in Part 21 and install the transmission and converter housing following the procedure in Group 17.

## CLUTCH PILOT BEARING

### Removal

1. Remove the transmission, clutch pressure plate and disc, following the procedures in Group 16. The pilot bearing may be replaced with the flywheel installed or removed.
2. Remove the pilot bearing and adapter as shown in Fig. 33.

### Installation

1. Install the service pilot bearing as shown in Fig. 33; using tool, install new bearing and adapter so the adapter is not cocked.
2. Install the clutch pressure plate, disc and the transmission, following the procedures in Group 16.

## CAMSHAFT REAR BEARING BORE PLUG

### Removal

1. On a vehicle with a manual transmission, remove the transmission, clutch pressure plate and disc following the procedures in Group 16.

On a vehicle with an automatic transmission, remove the transmission and converter housing following the procedure in Group 17.

2. Remove the flywheel attaching bolts and remove the flywheel. Remove the engine rear cover plate.

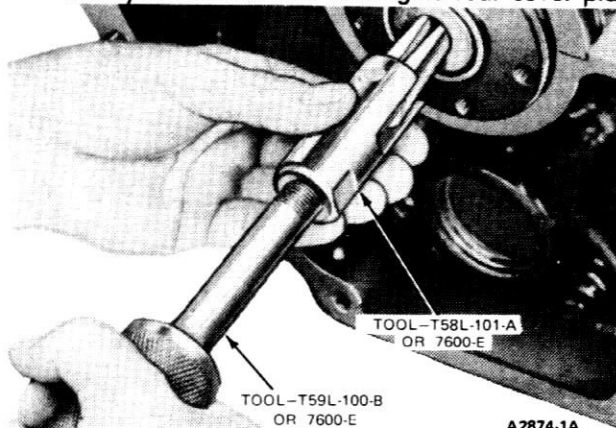


FIG. 32 Removing Clutch Pilot Bearing