

# 1970 Corvette: Service Bulletin: Water Pump Bearing and/or Shaft Failures

**Subject:** Water Pump Bearing and/or Shaft Failures

**Model and Year:** V-8 Engines with Fan Clutch

**Source:** Chevrolet Dealer Service Technical Bulletin

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**TO: ALL CHEVROLET DEALERS**

Investigation has shown that water pump bearing and/or shaft failures may occur if excessive run-out exists at the fan clutch.

Interim 1970, two (2) modifications were made in an effort to maintain total run-out within .006 inch.

Modifications include:

1. Elimination of the water pump pulley center reinforcement.  
(Excessive run-out may be induced, as reinforcement may not "rest" flat).
2. Matching of high and low points of water pump hub and fan clutch hub to produce lowest amount of total run-out. This is accomplished by placing a dab of paint on hub assemblies and aligning paint marks during assembly.

For service, since excessive run-out could be induced when the water pump, pulley and/or fan clutch is replaced and randomly assembled, the following

procedure has been developed. Use of this procedure will indicate run-out and provide a method of correction if it is excessive.

Chevrolet Motor Division  
General Motors Corporation

## SERVICE PROCEDURE

### Passenger Car

During replacement of the water pump or related parts, the water pump pulley should be inspected to determine if the pulley has a reinforcement on the surface which contacts the water pump hub. Pulleys with a welded reinforcement should be replaced with a 1971 pulley (refer to chart). All mating surfaces (Water pump hub and fan clutch hub) should be inspected for smooth mating surfaces and reworked as necessary. Except for the fan belt, components should then be assembled to the engine as specified in Section 6K of the Chassis Service Manual. Check radial run-out according to the listed procedure below.

### Trucks

During replacement of the water pump on trucks, the pulley should be inspected for a loose reinforcement (cracked weld) and replace if necessary. Inspect for smooth mating surfaces (water pump hub and fan clutch hub) and rework as necessary. Except for the fan belt, components should then be assembled to the engine as specified in Section 6K of the Chassis Service Manual. Check radial run-out according to the listed procedure below.

### Procedure for Indicating Radial Run-Out

- A. Secure the fan blade to prevent rotation. (See Figure 1).
- B. Mount a dial indicator (.001 graduations) to the engine and place the indicator pointer on the fan blade spider. Preferably on the longest

band or space on the spider. (See Figure 2).

- C. Rotate the water pump pulley in one direction and note the total amount of indicator needle movement. This represents the total radial run-out. Mark the point on the pulley at which the highest reading is obtained.
- D. If the total indicator reading is less than .006 inch, the assembly is within specification. Install fan belt and adjust. If the total indicator run-out exceeds .006 inch, proceed to Step "E".
- E. Divide the total indicator reading in half and obtain this thickness from shim stock (1/2 x 3/4) and rework per Figure 3. Place this shim pack between the water pump pulley and fan clutch hub at the bolt closest to the point marked on the pulley in Step "C". If the mark on the pulley is between two bolts so that it is difficult to determine which bolt is closest, place two shim packs; one under each bolt on either side of the mark. (See Figure 4).

#### Bolt Torque Sequence

- a. When one shim pack is used, first, torque the bolt over which the shim pack has been placed; second, the bolt opposite the first; and finally, the other two. Recommended torque is 25 lbs. ft.
- b. When two shim packs are used, each bolt must be torqued partially; then to full torque alternating between opposite bolts; then the other two bolts in the same manner. Recommended torque is 25 lbs. ft.

NOTE : Excessive run-out may result if the above sequence and recommended torque is not used.

F. Recheck total indicator run-out to verify that run-out is within .006 inch. Install fan belt and adjust.

WATER PUMP PULLEY - WITHOUT REINFORCEMENT

ENGINE	MODEL	PART NUMBER
V-8 & Mark IV (With A/C) (Exc. Z-28 & 454-425 H.P.)	Chevelle, Chevrolet, Camaro, Nova	3995631
V-8 & Mark IV (W/O A/C) (With Taxi, Police, 63 AMP Delcotron)	Chevelle, Chevrolet, Camaro, Nova	3995631
V-8 & Mark IV (W/O A/C) (Exc. Taxi, Police 63 AMP Delcotron, Z-28, 454-425 H.P.)	Chevelle, Chevrolet, Camaro, Nova, Monte Carlo	3989305
Z-28	Camaro	3995647
350 W/O Air Cond.	Corvette	3991423
350 W/Air Cond.	Corvette	3991424
Mark IV Engine - All	Corvette	3992071
454 - All	Monte Carlo, Chevelle, Camaro	3995647
350 Manual W/O Air Cond.	C-10,20,30 - K-10,20	3927797
350 Auto. W/O Air Cond.	C-10,20,30 - K-10,20	3995646
All V-8 W/Air Cond.	C-10,20,30 - K-10,20	3995646
307 V-8 W/O Air Cond.	C-10,20,30 - K-10,20	3927797
Mark IV W/Air Cond.	C-10,20,30	3995648 *
Mark IV W/O Air Cond.	C-10,20,30	3927797 *
350 Auto W/O Air Cond.	G-20,30	3995631
350 Manual W/O Air Cond.	G-30,30	3989305
All V-8	P-20,30	3927796
307 V-8 W/O Air Cond.	G-10	3989305

\* Not Used on C-K 105 Blazer

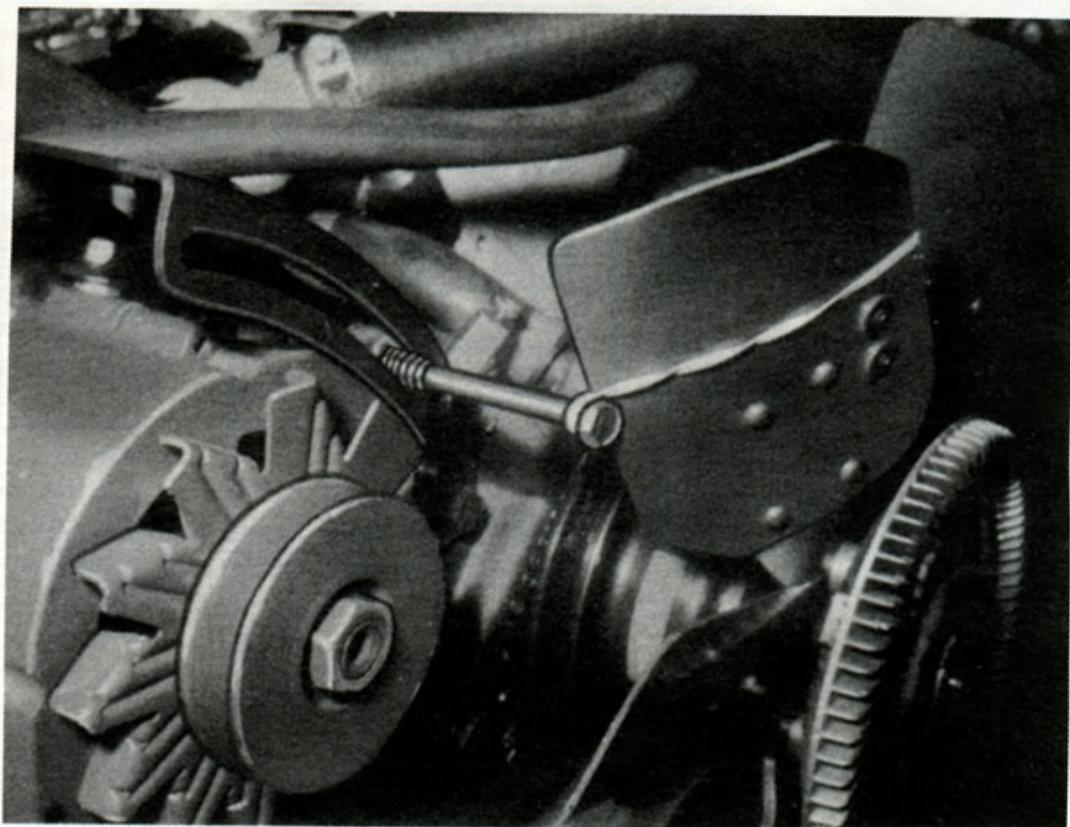


FIGURE-1

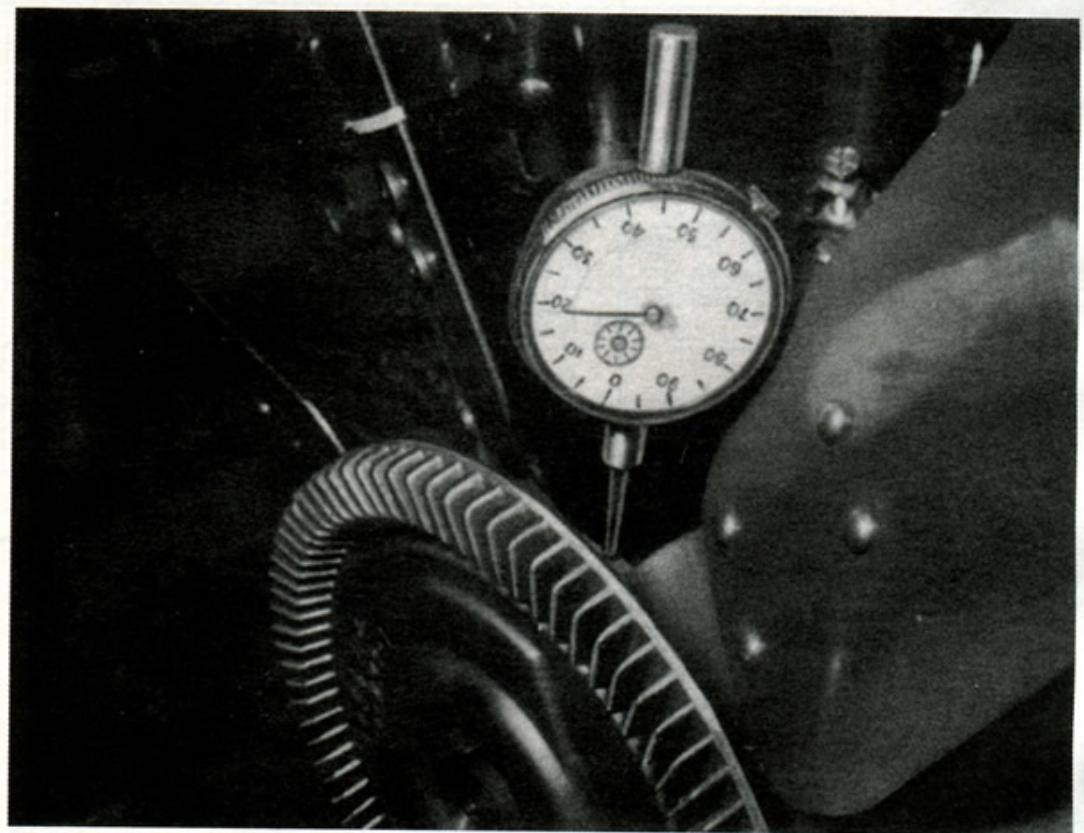


FIGURE-2

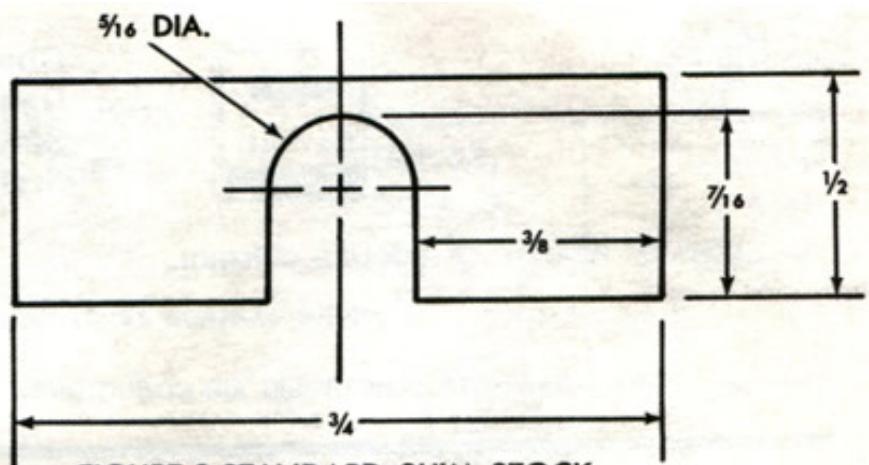
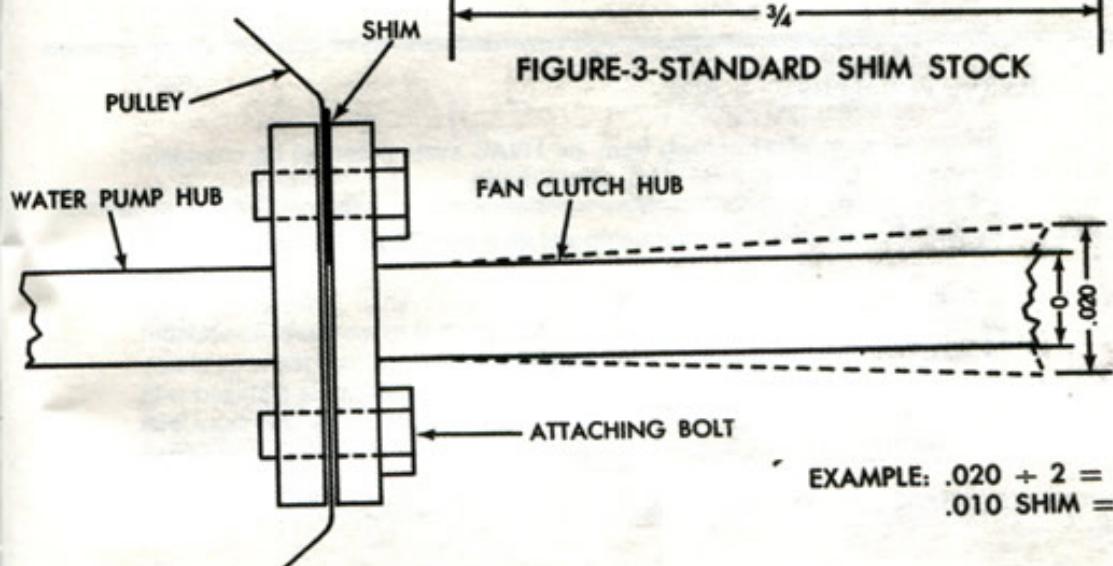


FIGURE-3-STANDARD SHIM STOCK



EXAMPLE:  $.020 \div 2 = .010$   
 $.010$  SHIM =  $-0$ —RUN OUT

TOTAL RUN-OUT  $\div 2$  = SHIM THICKNESS  
 TO OBTAIN ZERO ( $-0$ ) RUN-OUT

FIGURE-4

Online URL:

<https://www.corvetteactioncenter.com/tech/knowledgebase/article/1970-corvette-service-bulletin-water-pump-bearing-and-or-shaft-failures-1020.html>