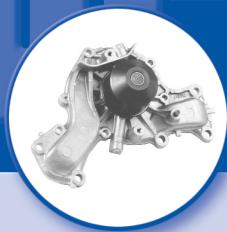


# CARDONE ProTech

Supporting Today's Professional Technician



## Why Did the Water Pump Shaft Break?

### Application:

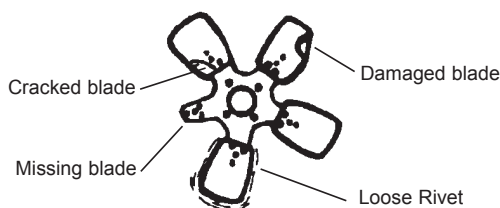
Broken water pump housing or shaft fracture.

### Problem:

Excessive vibration and unbalanced load due to:

- Improperly torqued mounting bolts
- Bent or distorted pulley(s)
- Defective fan clutch (if applicable)
- Improperly tightened belts

Always replace damaged fans,  
never try to straighten



Blue Discoloration



**Heat stress shaft fracture** indicates excessive high temperatures generated by centrifugal forces due to unbalance



**Clean instantaneous fracture** indicates engine accelerated rapidly with an unbalanced load

### Solution:

- Torque mounting bolts and fan assembly bolts evenly to proper manufacturer's specifications.
- Check fan clutch for binding, looseness or leakage - replace if necessary.
- DO NOT strike shaft.
- Check fan for damage.
- Make sure pump turns freely by hand.
- Tighten fan belts to factory recommended tension - replace if worn or frayed.
- Check motor mounts - loose or broken mounts will allow fan to hit radiator shroud.

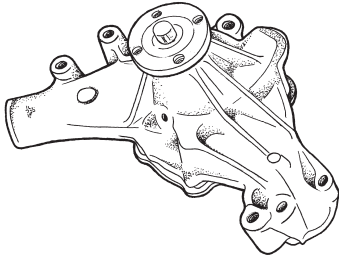
### Note:

Always flush entire cooling system. Failure to do so will lead to premature pump failure and **VOID THE WARRANTY.**

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# Water Pumps

## Remanufactured Best by CARDONE<sup>®</sup>



- Smog Air Pumps
- Vacuum Pumps
- Water Pumps

**Bearings** - Because CARDONE insists on high quality and reliability in every part, our use of bearings is dependent upon the type of application.

Ball/Ball bearings are used mainly on passenger cars and light duty truck applications. Ball/Roller bearings are used mainly on high torque applications, because they are more durable. This is because the roller takes up more surface area on the shaft.

CARDONE recognizes that high torque applications require Ball/Roller bearings. Therefore, when required, CARDONE will replace Ball/Roller bearings with Ball/Roller and **not substitute** a Ball/Ball bearing like some competitors. In various instances, a water pump with an OEM supplied Ball/Ball bearing is **upgraded** to a Ball/Roller bearing in order to better meet the application requirements.



Ball/Roller

Ball/Ball

- 36 month or 36,000 mile warranty
- Contact your local auto parts store or visit our web site, [www.cardone.com](http://www.cardone.com), for more information on this and other CARDONE products today!

