

# UNITY SEIZED

previous day. It had failed in less than 50 miles. As luck would have it, the latter case was a VOR. The vehicle had been towed back to the customer's premises, where the mechanic, and the vehicle owner, were still on the scene.

## FIRST IMPRESSION

Presented with an opportunity to see an example of the problem first hand, both the motor factor and the Gates inspector were able to provide the mobile mechanic with an unexpected level of technical support less than 30 minutes later. As vehicle owner, mechanic and motor factor looked on, the inspection was carried out immediately.

The timing belt in the Ford Escort had worn so badly that only debris from the teeth and fibreglass cords remained. The condition of the tensioner was almost identical to the



one that had been reported on the Mondeo. When this drive system was examined, however, it soon became clear that the water pump had completely seized. It was solid! There was little doubt that the heat generated had the potential to cause the premature failure of the timing belt as well as the subsequent melting of the pulley on the tensioner.

## FINAL ANALYSIS

By the time he had returned to the motor factor's depot, the water pump was now the Gates inspector's principle suspect in the original investigation. Fresh evidence was sought from the technician at the scene. Enquiries revealed that the condition of the water pump on the Ford Mondeo had not been checked at the time of the original overhaul. However, a new water pump had since been installed. The most likely cause of the overheating was therefore seizure of the original pump.

The water pump on the Endura engine is driven from the flat side of the belt rather than being driven by the teeth. Any seizure of the water pump would cause the belt to rub against the pulley, causing friction and generating heat. The modern belt is designed to withstand extreme engine temperature. The friction, however, caused an abnormal amount of heat to be absorbed by the belt. That heat was then transferred to the surface of the tensioner, causing the pulley to melt. The sequence of events would take place very quickly after the initial seizure.

## CONCLUSIONS

These results prove that whenever a timing belt is in need of replacement, an examination of the associated drive components is always



worthwhile. In these cases, it was impossible to determine whether the water pumps could complete a second duty cycle. The conclusion is that they should be replaced. That's what is meant by a complete drive system overhaul!

The ability to provide a satisfactory explanation to a technical issue is a key element in the motor factor's relationship with a customer. The ability to examine a drive system with the damaged belt *in situ* is invaluable. It is vital that the motor mechanic learns the necessary diagnostic skills that can provide the answers. Manufacturers such as Gates provide this kind of training through the local motor factor network as part of the technical support package. Why not contact your local motor factor?

## need to know more?

- For more information on Gates timing belts and tensioning equipment circle readerlink 531