

FIELD SERVICE BULLETIN**FS-2018-05: Service Bulletin For EMP WP29 & WP32 Pumps**

Date: October 8, 2018
Model: All BAE Hybrid Buses and Buses With Isolated
Coolant Loops With EMP Pumps
Model Years: 2004 - 2018

Please Read The Attached Service Bulletin From EMP For Inspecting and Diagnosing BAE Coolant Pumps

EMP has released a Service Bulletin to be used for Inspecting and Diagnosing their WP29 and WP32 coolant pumps.

They find that many of the pumps returned to them under warranty for leaks are actually performing as designed.

Gillig recommends properties follow the guidelines for inspections and diagnostics.

Approved: 
Robert L. Birdwell, Executive Director
Quality Control & Field Service



Service Bulletin

WP29 or WP32 Electric Water Pump Inspection and Diagnostic Procedures



This service bulletin is effective for inspection and diagnostic procedures for the WP29 or WP32 Electric Water Pump part numbers:

Base Part Number
1030085xxx
1030002xxx

Rev	Rev By	Date	Description of Change	Approved By
A	SRS	08/02/17	New Release	ECN4801



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BULLETIN OVERVIEW

This service bulletin identifies inspections and diagnostic procedures for the WP29 or WP32 Electric Water Pumps.

The information contained in this manual is updated periodically. While great care is taken in compiling the information contained in this manual, Engineered Machined Products, Inc. cannot assume liability for losses of any nature arising from any errors and/or omissions.

The information and specifications contained throughout this manual are up to date at the time of publication. Engineered Machined Products, Inc. reserves the right to change the content of this manual at any time without notice.



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Introduction

Purpose

The purpose of the Service Bulletin is to identify inspection and diagnostics procedures for the WP29 or WP32 Electric Water Pumps.

Service Technician Responsibilities

The Service Technician is responsible to review the installation/service manuals and observe proper cautions prior to maintenance on any of the system components. In addition, the technician must also refer to vehicle documentation regarding the integration of the system into the vehicle and follow all Safety instructions before doing service and test procedures in this manual for the system or vehicle. Familiarization will allow for accurate troubleshooting, diagnosis and repairs.

Liability Disclaimer

EMP cannot anticipate every possible circumstance that might involve a potential hazard. The safety messages in this document, in related manuals, and on the product are therefore not all inclusive. If a tool, procedure, work method, or operating technique that is not specifically recommended by EMP is used, you must satisfy yourself that it is safe for you and for others. You should ensure that the product will not be damaged or be made unsafe by the operation, maintenance, or repair procedures that you choose.

Definition of Terms

There are no special terms used in this document.



Safety

Warnings, Cautions & Notes

Three types of headings are used in this manual to stress your safety and safe operation of the system. They appear in the text as follows:

WARNING: This symbol is used to make you aware of an unsafe condition, hazard, or practice that can result in personal injury or death.

CAUTION: This symbol is used to alert you to a condition or practice that can cause damage to the system or the vehicle, or both.

NOTE: Is used to provide additional information that requires special attention by the technician.

Product Safety Warnings

WARNING: EMP cannot anticipate every possible circumstance that might involve a potential hazard. The safety messages in this document, in related manuals, and on the product are therefore not all inclusive. If a tool, procedure, work method, or operating technique that is not specifically recommended by EMP is used, you must satisfy yourself that it is safe for you and for others. You should ensure that the product will not be damaged or be made unsafe by the operation, maintenance, or repair procedures that you choose.

WARNING: Ensure that all safety messages and information messages are read and understood before installation, maintenance, or any repairs are performed. The person servicing may be unfamiliar with many of the systems on the vehicle. It is important to use caution when service work is performed. Knowledge of the vehicle system and operation are important before the removal or disassembly of any component.

WARNING: Make sure the equipment cannot move while being serviced. If on vehicle, ensure the vehicle is in neutral, the parking brake is set, and the wheels are blocked before doing any work or diagnostic procedures on the EMP component, system, or vehicle.

WARNING: Disconnect the power supply, main negative battery cable, and/or switch off the battery disconnect switch before installation or servicing. When working on or near the electric fans, ensure battery power is off or lock out vehicle ignition, so the system cannot activate unexpectedly.

WARNING: Use extreme caution when working on systems under pressure (i.e. coolant, hydraulic fluids, air, fire suppression, etc...)

WARNING: Make sure the work area is ventilated and well lit.

WARNING: Make sure charged fire extinguishers are in the work area.

WARNING: Reinstall all safety guards, shields, and covers after servicing the equipment or vehicle.

WARNING: Make sure all tools, parts, and service equipment are removed from the equipment, engine compartment, and/or vehicle after all work is done.

WARNING: Ensure that all system power and ground connection points are properly secured. Improper attachments at any point of the equipment or vehicle system power and ground can result in loose connections which can damage electronic components on EMP components and systems and will void EMP warranty.

Water Pump Mechanical Seal

⚠ CAUTION: Do not run the pump without fluid present. If run dry even for a short period the seal will be damaged.

⚠ CAUTION: Pump may start running upon connection of power, ground and ignition. Do not make electrical connections until pump and system are filled with coolant.

⚠ CAUTION: Systems that are not properly filled or vented may leave air in the pump or system, creating a condition that may damage the seal due to low lubrication.

⚠ CAUTION: When air becomes trapped in the pump, the pump will not circulate fluid with the potential to cause damage to components in the system.

⚠ CAUTION: EMP warranty does not cover seal damage due to low lubrication.

- A – Primary Ring
- B – Mating Ring
- C – Retainer
- D – Sleeve
- E – Bellows
- F – Spring

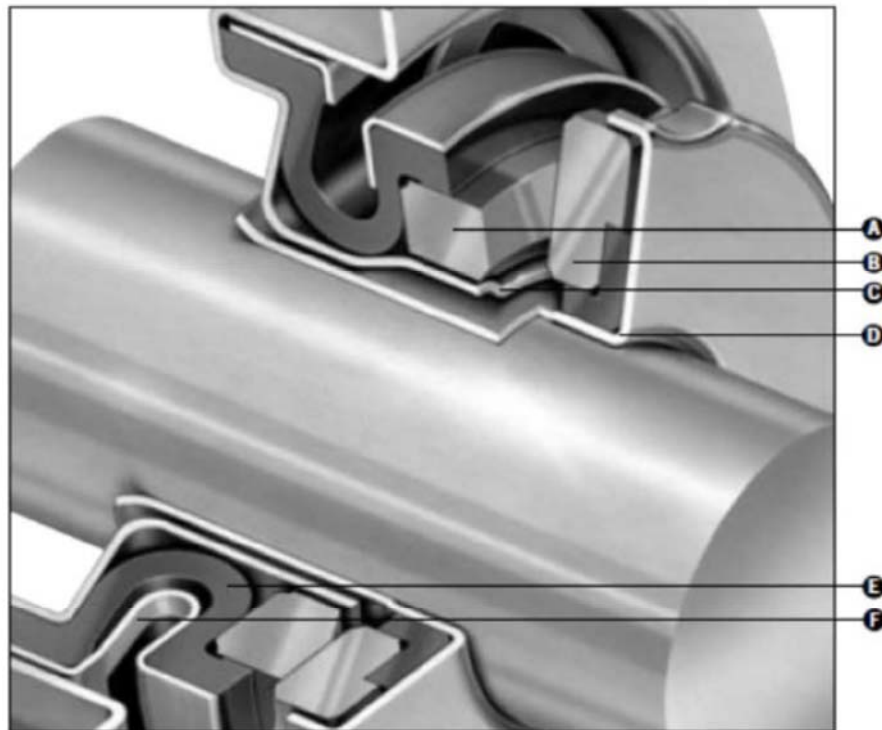


Figure 1 – Water Seal Construction

Water Pump Mechanical Seal

The fluid being pumped provides the lubricating film between the seal faces. This means that there will be some quantity of fluid that passes through the faces and enters the weep collection area. The maximum allowable operating leak rate of the current mechanical seal is 0.1mL per hour.

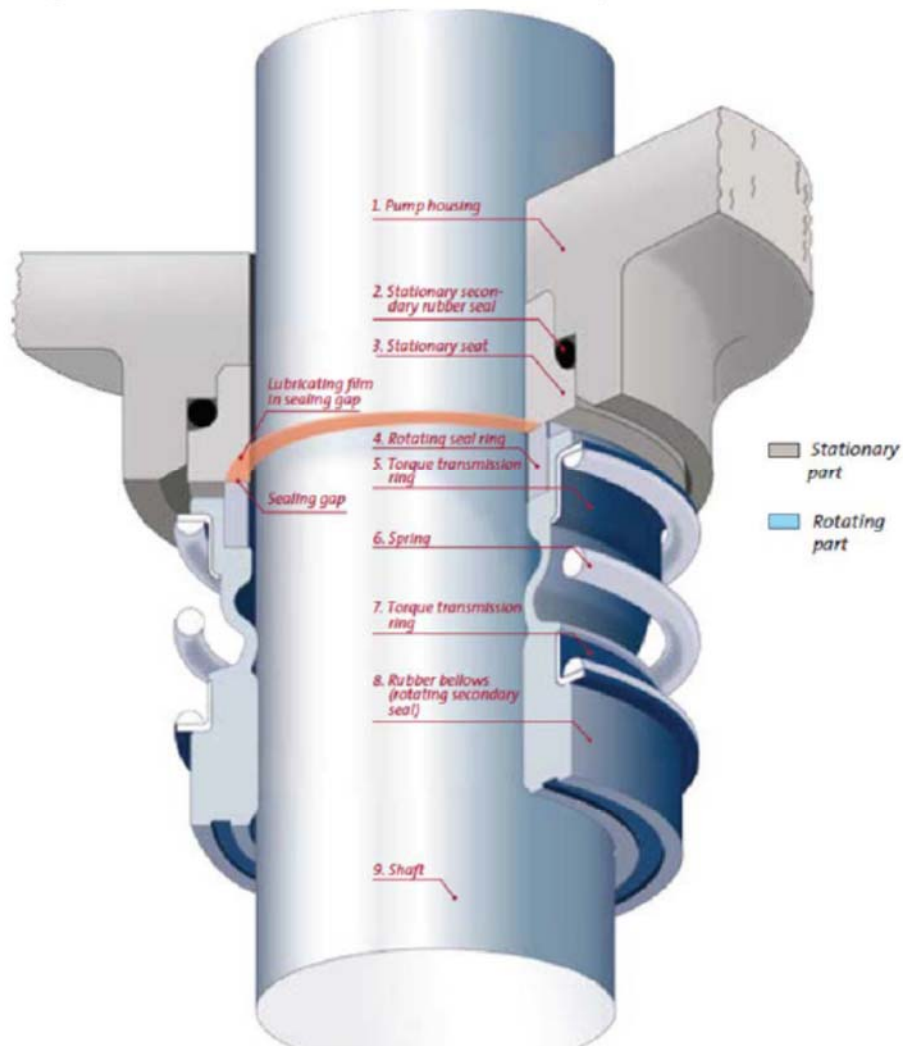


Figure 2 - Typical Water Seal

NOTE: The primary and mating rings are lubricated using surrounding coolant; a small amount of coolant leakage is normal.

Temporary Leaks

If debris becomes trapped between the mating and primary ring a small gap is formed. The gap between the surfaces allows coolant to pass and flow into the weep collection area. This condition is temporary and will no longer be present once the debris works its way out of the seal. Water pump replacement is not necessary.

Fluid Temperature Effect on Evaporation Rate

Weep pockets are designed to collect fluid that passes between the seal faces during normal operation and allow it to evaporate inside the collection pocket. When the application has a low temperature cooling circuit, the evaporation rate is lower and allows fluid to accumulate in the weep pocket under normal operation. Over time stains may be present on the outside of the pump. Water pump replacement is not necessary.

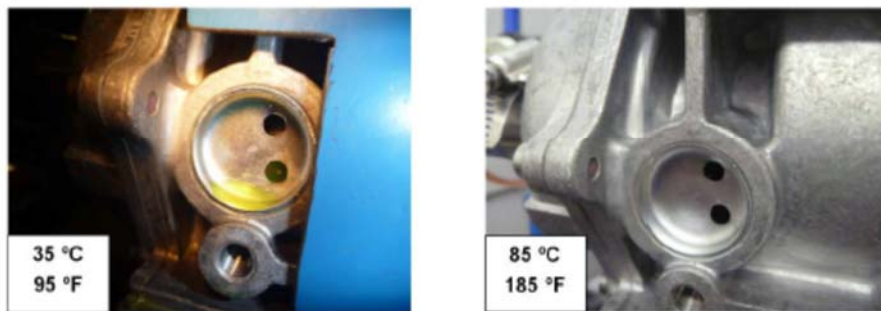


Figure 3

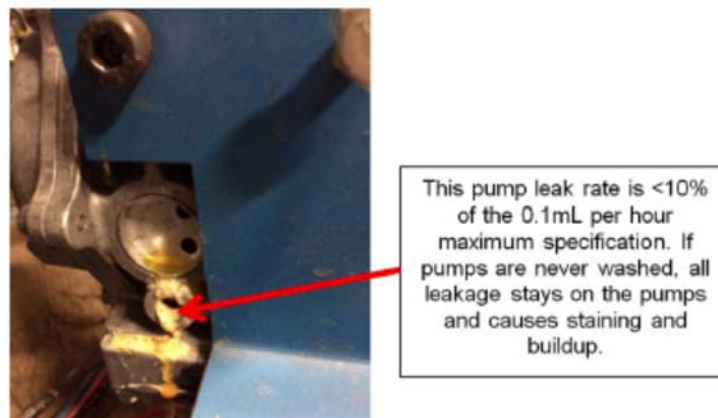


Figure 4

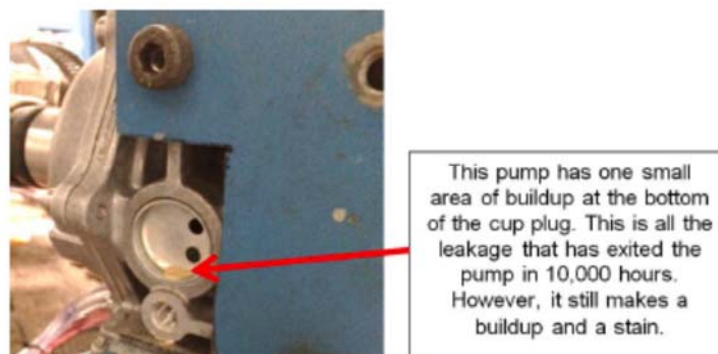


Figure 5

**Water Pump Inspection and Diagnostic Procedures**

 **CAUTION:** Do not run the pump without fluid present. If run dry even for a short period the seal will be damaged.

 **CAUTION:** Pump may start running upon connection of power, ground and ignition. Do not make electrical connections until pump and system are filled with coolant.

 **CAUTION:** Systems that are not properly filled or vented may leave air in the pump or system, creating a condition that may damage the seal due to low lubrication.

 **CAUTION:** When air becomes trapped in the pump, the pump will not circulate fluid with the potential to cause damage to components in the system.

 **CAUTION:** EMP warranty does not cover seal damage due to low lubrication.

1. Inspect the area around the pump for evidence of coolant coming from a location away from the pump such as a hose connection. Wipe the pump dry and observe the pump under running conditions.
2. Operate pump at default speed for 10 minutes and observe how many drips over the 10 minute period. OEM can provide assistance on how to turn the pump on for the particular application.

NOTE: There shall not be any more than 3 drips within the 10 minute observation period.

Interpreting results

1. If you see 'active dripping' from the weep hole, i.e. a drip every few minutes, provide the documented results and return as leaking pump. Be sure the pump is tagged with the information in step 3 below.
2. If there is no active dripping and the results at step 1 above are dry or less than 3 drips of fluid, the pump is operating within specifications. Verify fluid level and repeat step 2 above during the next scheduled service.
3. For all pumps returned, please tag pump with this information:
 - a. Pump application (ECP,MCP,HVAC)
 - b. Test Time
 - c. Coolant Amount
 - d. Customer Site
 - e. Bus Number
 - f. Vehicle hours
 - g. Warranty Claim number

NOTE: If a video is collected during the evaluation, please send the file to service@emp-corp.com with the pump serial number and bus number.

NOTE: A pump exceeding the stated leak limits and still within warranty coverage period will need to be returned for root cause analysis to determine warranty eligibility.



TECHNICAL HELP

Contact EMP Customer Service for technical help at +1 (906) 789-7497 or service@emp-corp.com.

Additional information about EMP products is located under the support tab of the EMP official website: www.emp-corp.com