BALMAR®
WWW.BALMAR.NET
DC CHARGING SOLUTIONS

SERVICE BULLETIN

AT-Series Alternator Cooling on Late-Model Yanmar Engines

February 2018

Introduction

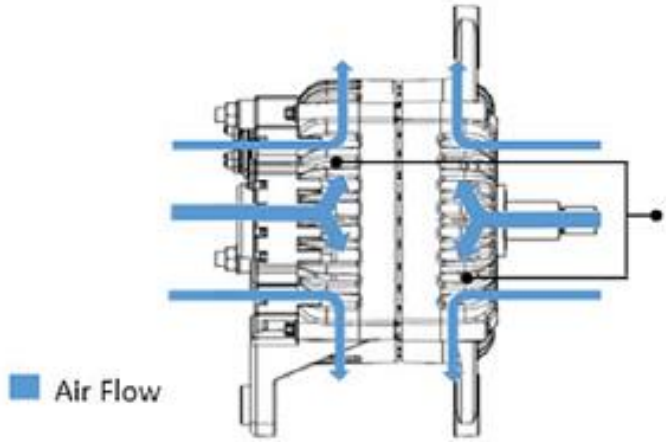
Balmar's AT-Series alternators produce a very high amperage at low engine RPMs. However the AT-Series design tends to run a little hot, especially on some Yanmar engines where the alternator is mounted near the heat exchanger. In addition, many late model Yanmar engines employ a protective shroud over the belt and pulley mechanisms to protect users against potential pinch points. The shroud tends to limit air flow to the alternator which is critical for proper cooling. The pictures below illustrates this problem.

Model 4JH57

Model 3JH5E

Background Information

Balmar AT-Series and 6-Series alternators are equipped with dual internal fans that draw cool air from both ends and force it out the vent holes in the middle of the case.



Dual Internal Fan: In this design of alternator each fan pulls cool air into the alternator; one from the rear and one from the front exhausting warm air out of the sides.

AT-Series Alternator Cooling on Late-Model Yanmar Engines

February 2018

In the case of Yanmar engines, the air from the back of the alternator is already extremely hot given its proximity to the heat exchanger. In addition, the protective shroud in the front tends to limit the intake of cooling air.

Remedy

1. Balmar suggests setting the Balmar Regulator Belt Load Manager to "**b-2**" in order to reduce the output of the alternator by 10%.

2. If possible, extend or pivot the alternator away from the engine block as far as possible. This remedy will require the purchase of a longer belt.

3. Balmar also suggests drilling several holes in the plastic fan belt shroud around the alternator location to allow for improved flow of cooling air in front of the alternator.
   NOTE: BALMAR DOES NOT RECOMMEND REMOVAL OF THE SHROUD, AS THE SHROUD IS A CRITICAL ENGINE SAFETY FEATURE.

The Balmar temperature sensor (part number MC-TS-A) should always be employed in conjunction with a Balmar External Regulator (Models ARS-5, MC-614, MC-624 or MC-612-DUAL) to properly protect the alternator from overheating problems. When an over temperature condition is detected, the Balmar Regulator will reduce the field current in the alternator, thereby reducing its output and allowing the unit to cool down gradually without an unreasonable loss of charging power. Once the alternator returns to its specified operating temperature range, the Balmar Regulator increases the field current to the required level.