

AFG B20 (20% Biodiesel) Retrofit Kit

Beckett
CORPORATION

Product Sheet

Description

The B20KITAF1 will upgrade currently installed Beckett model AF and AFG burners for use with the higher blends of biodiesel in #1 and #2 heating oil.

Retrofitting installed burners with this kit will help address issues such as contact with yellow metals, pump reliability and cut-off concerns. This kit only addresses the burner, other fuel supply components may be affected and need to be addressed.

For more information, see the reverse side of this sheet.



B20KITAF1 Contents

- **Fuel Unit – Suntec A2VA-7116 B** – Rated to B20 (20% Biodiesel) by the manufacturer.
- **Stainless Steel Solenoid Valve** – Rated for all Biodiesel applications.
- **Stainless Steel Fuel Line** – Connects pump to valve, eliminating copper connector line.
- **Stainless Steel and Nickel Plated Fittings** – Further eliminates yellow metal exposure to the fuel.

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Technical Information

Fuels used for heating oil applications have been changing. As a leading burner manufacturer, RW Beckett wants our burners to be compatible with these fuels, meaning fewer problems and concerns for our valued customers.

In June 2008 the ASTM¹ specification D396, which contains the specification for No.1 and No.2 heating oils, was changed from requiring 100% mineral oil to allow up to 5% biodiesel blended into the fuel (95% mineral oil + 5% Biodiesel = B5). This is the fuel that UL (Underwriters Laboratories) approves for use as heating oil². The 5% level has not caused any problems or concerns that we are aware of to date.

Recently, fuel suppliers have been promoting use of biodiesel blends up to 20% (B20) and ASTM has added a new fuel grade to D396 for biodiesel blends of 6% to 20%. However, this grade has not been accepted nor approved by UL for use in fuel oil burners. Beckett, as well as other manufacturers are experiencing an increase in component issues, particularly in fuel handling components of oil heat systems. This kit addresses the burner's performance with this new fuel: Materials compatibility, fuel pump performance, and fuel cut-off. These and other concerns are discussed briefly below.

Storage

Storage time or 'shelf life' of any fuel must be taken into consideration. While pure mineral oil has a shelf life of 18 – 24 months, the addition of biodiesel blends can see this storage time dramatically decreased, to as little as 6 months³. Appropriate fuel stabilization additives may extend this time, although re-additizing fuel already in a consumers tank may be difficult.

Water

Water in fuel storage tanks is being identified as a more serious problem with newer fuels like ULSHO (Ultra Low Sulphur Heating Oil)⁴. Again, proper additives and re-additizing consumers storage tanks may be required if the fuel will be in storage more than six months.

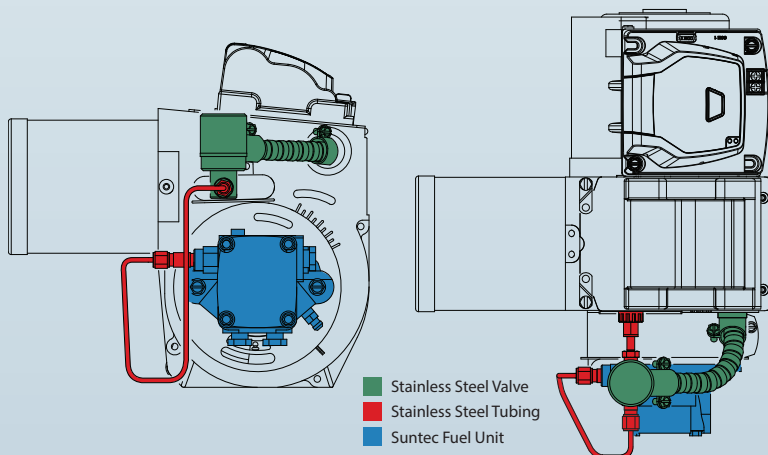
Pumps

Suntec Industries has developed pumps specifically for these fuels. This kit contains a pump that is rated by the manufacturer for fuel oil with up to 20% biodiesel blends (B20). This kit contains the Suntec A2VA-7116 B pump rated to B20.

Material Compatibility

Elastomers such as pump seals, gaskets, valve seats, etc. can be adversely affected by biodiesel blends. Materials testing are still being conducted, but traditional materials such as natural rubber, some Viton materials, 4 types of Nitrile compounds, cork and others have shown compatibility issues with biodiesel. More complete reports on these and other materials can be found at resources such as NREL – the National Renewable Energy Lab and NBB – the National Biodiesel Board.

Yellow metals have shown compatibility issues with biodiesel and blends of biodiesel and home heating oils. This kit removes yellow metals - copper, brass, bronze and zinc - that are 'wetted' (in constant contact with the fuel) and replaces them with components made from materials that will not interact with these fuels.



¹ASTM – American Society for Testing and Materials. ³U.S. Dept of Energy - Biodiesel Handling and Use Guide (Fifth Edition).
²Underwriters Laboratories UL296 listed. ⁴Nora Study - 2016.

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