RV F.G. Walton Smith
Engine Replacement Project
2022
July 6\textsuperscript{th}
July 15th

Cummins QSK-19 M engines (2)
July 19$^{th}$
Engine exhaust blankets installed
Sept. 20th
Engines started for first time at the dock.
650 RPMs at idle – very stable
New engine controls installed
Slight delay last week in Sept. due to Hurricane Ian

Had plan to have ship towed up Miami River to our emergency Hurricane dockage location, if needed.
Sept. 30th
First time RV F.G. moved off the dock under new power
Oct. 5th Official Sea Trial
Cummins Application Engineer was on board to certify the engines. Engines passed and were certified!

Post-vibration analysis was also done during sea trial. All passed!
A very happy Bridge Crew
We have working new engines!!!
Oct. 8th
First oceanographic research trip
7 day NOAA trip – SFER; South Florida Ecosystem Restoration Research
New Life for the R/V F. G. WALTON SMITH

The research vessel F.G. WALTON SMITH, operated by University of Miami, has had new life breathed into it with a full re-power. The 22 year old engines were replaced in kind with two Cummins QSK-19 M (IMO Tier II, EPA Tier 3 compliant), each producing 760 horsepower. The 56-foot vessel also replaced engine controls, winch controls, the entire exhaust system, and upgraded the POS-MV. The decision was made to conduct the work alongside at their facility versus going into a shipyard.

It was a huge success overall, but as with all maintenance periods, it did not go without challenges. Due to the onset of hurricane season in the Southeast, the delivery of the engines was scheduled for April, which would have given U of Miami ample time to complete the re-power. However, the two engines did not arrive until mid-July (over a month into hurricane season). This meant a "Plan B" had to be devised which included tugging the R/V SMITH upriver in the case of a storm. Fortunately, luck was on their side and they were able to stick with their original plan.

Additional challenges arose between loading the engines aboard, like lowering the engines into place, however the crew were able to find creative solutions which allowed them to stay on track. The engines were officially certified by Cummins on October 5th, which was just in time for R/V SMITH's first cruise post-repower with NOAA on October 8th. A huge Bravo Zulu to the crew and shore-side team of the R/V F.G. WALTON SMITH for their exemplary teamwork and ability to overcome challenges.
## RV Walton Smith Engine Replacement

### Major Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Responsibility</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1</td>
<td>Replace Valve Assembly</td>
<td>RV Walton Smith</td>
<td>6/7/2022</td>
<td>6/10/2022</td>
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<tr>
<td>Task 2</td>
<td>Replace Camshaft</td>
<td>RV Walton Smith</td>
<td>6/11/2022</td>
<td>6/13/2022</td>
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<tr>
<td>Task 3</td>
<td>Replace Piston Rings</td>
<td>RV Walton Smith</td>
<td>6/14/2022</td>
<td>6/16/2022</td>
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<tr>
<td>Task 4</td>
<td>Replace Engine Block</td>
<td>RV Walton Smith</td>
<td>6/17/2022</td>
<td>6/20/2022</td>
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</table>

### Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>6/3/2022</td>
<td>Task 1</td>
<td>4 days</td>
</tr>
<tr>
<td>6/4/2022</td>
<td>Task 2</td>
<td>3 days</td>
</tr>
<tr>
<td>6/5/2022</td>
<td>Task 3</td>
<td>2 days</td>
</tr>
<tr>
<td>6/6/2022</td>
<td>Task 4</td>
<td>3 days</td>
</tr>
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### Project Management

- **Manager:** John Smith
- **Team Members:** RV Walton Smith, John Doe, Jane Smith
- **Location:** Walton Smith RV Shop

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**Notes:**

- Budget: $10,000
- Estimated Completion Date: 6/20/2022